

Rexroth HydraulicDrive

HDS-16, HDx-17 to HDx-20
Parameters

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Purpose of Documentation	This documentation contains the descriptions of the parameters implemented in the following firmware types of the HydraulicDrive family: • FWA-HYDRV*-HDS-16VRS • FWA-HYDRV*-HDx-17VRS • FWA-HYDRV*-HDx-18VRS • FWA-HYDRV*-HDx-19VRS • FWA-HYDRV*-HDx-20VRS It supports parameterization of the drive controllers.
Liability	The specified data only serve to describe the product. No statement concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgement and verification. It must be remembered that our products are subject to a natural process of wear and aging.
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Sample Configuration	The title page shows a sample configuration. The product supplied may therefore differ from the figure.
Original Operating Instructions	The original operating instructions were prepared in German.

Table of Contents

	Page
1 General information.....	1
1.1 About this documentation.....	1
1.2 Reference documentations.....	1
1.3 Document structure.....	2
1.3.1 Explanations of terms.....	2
1.4 Description of derivatives.....	7
2 Important Directions for Use	9
2.1 Appropriate Use	9
2.1.1 Introduction.....	9
2.1.2 Areas of Use and Application.....	9
2.2 Inappropriate Use.....	10
3 Safety Instructions for Electric and Hydraulic Drives and Controls.....	11
3.1 Definitions of Terms.....	11
3.2 General Information.....	12
3.2.1 Using the Safety Instructions and Passing Them on to Others.....	12
3.2.2 Requirements for Safe Use.....	12
3.2.3 Hazards by Improper Use.....	14
3.3 Instructions with Regard to Specific Hazards.....	15
3.3.1 Protection Against Contact With Electrical Parts and Housings.....	15
3.3.2 Protective Extra-Low Voltage as Protection Against Electric Shock	16
3.3.3 Protection Against Dangerous Movements.....	17
3.3.4 Protection Against Magnetic and Electromagnetic Fields During Operation and Mounting.....	18
3.3.5 Protection Against Contact With Hot Parts.....	19
3.3.6 Protection During Handling and Mounting.....	19
3.3.7 Battery Safety.....	19
3.3.8 Protection Against Pressurized Lines.....	20
3.4 Explanation of signal words and the Safety alert symbol.....	20
4 Standard parameters.....	23
4.1 S-0-0000 - S-0-0100.....	23
4.1.1 S-0-0000, Dummy parameter.....	23
4.1.2 S-0-0001, NC cycle time (TNcyc).....	23
4.1.3 S-0-0002, Sercos cycle time (TScyc).....	23
4.1.4 S-0-0005, Minimum feedback acquisition time (T4min).....	24
4.1.5 S-0-0007, Feedback acquisition starting time (T4).....	24
4.1.6 S-0-0011, Class 1 diagnostics.....	25
4.1.7 S-0-0012, Class 2 diagnostics.....	26
4.1.8 S-0-0013, Class 3 diagnostics.....	27
4.1.9 S-0-0014, Interface status.....	29
4.1.10 S-0-0015, Telegram type parameter.....	30
4.1.11 S-0-0016, Configuration list of AT.....	31

	Page
4.1.12 S-0-0017, IDN-list of all operation data.....	31
4.1.13 S-0-0018, IDN-list of operation data for CP2.....	32
4.1.14 S-0-0019, IDN-list of operation data for CP3.....	32
4.1.15 S-0-0021, IDN-list of invalid operation data for CP2.....	32
4.1.16 S-0-0022, IDN-list of invalid operation data for CP3.....	33
4.1.17 S-0-0024, Configuration list of MDT.....	33
4.1.18 S-0-0025, IDN-list of all procedure commands.....	34
4.1.19 S-0-0026, Configuration list for signal status word.....	34
4.1.20 S-0-0027, Configuration list for signal control word.....	34
4.1.21 S-0-0029, MDT error counter.....	35
4.1.22 S-0-0030, Manufacturer version.....	35
4.1.23 S-0-0032, Primary operation mode.....	36
4.1.24 S-0-0033, Secondary operation mode 1.....	37
4.1.25 S-0-0034, Secondary operation mode 2.....	38
4.1.26 S-0-0035, Secondary operation mode 3.....	39
4.1.27 S-0-0036, Velocity command value.....	40
4.1.28 S-0-0037, Additive velocity command value.....	40
4.1.29 S-0-0038, Positive velocity limit value.....	41
4.1.30 S-0-0039, Negative velocity limit value.....	41
4.1.31 S-0-0040, Velocity feedback value of encoder 1.....	42
4.1.32 S-0-0041, Homing velocity.....	42
4.1.33 S-0-0042, Homing acceleration.....	42
4.1.34 S-0-0043, Velocity polarity parameter.....	43
4.1.35 S-0-0044, Velocity data scaling type.....	43
4.1.36 S-0-0045, Velocity data scaling factor.....	44
4.1.37 S-0-0046, Velocity data scaling exponent.....	45
4.1.38 S-0-0047, Position command value.....	45
4.1.39 S-0-0049, Positive position limit value.....	46
4.1.40 S-0-0050, Negative position limit value.....	47
4.1.41 S-0-0051, Position feedback value of encoder 1.....	47
4.1.42 S-0-0052, Reference distance of encoder 1.....	48
4.1.43 S-0-0053, Position feedback value of encoder 2.....	49
4.1.44 S-0-0054, Reference distance of encoder 2.....	49
4.1.45 S-0-0055, Position polarities.....	50
4.1.46 S-0-0057, Position window.....	51
4.1.47 S-0-0058, Reversal clearance.....	52
4.1.48 S-0-0059, Position switch flag parameter.....	53
4.1.49 S-0-0060, Position switch point 1 "On".....	53
4.1.50 S-0-0076, Position data scaling type.....	54
4.1.51 S-0-0077, Linear position data scaling factor.....	55
4.1.52 S-0-0078, Linear position data scaling exponent.....	55
4.1.53 S-0-0079, Rotational position resolution.....	56
4.1.54 S-0-0080, Torque/force command value (2 bytes).....	56
4.1.55 S-0-0081, Additive torque/force command value (2 bytes).....	57
4.1.56 S-0-0082, Torque/force limit value positive.....	58
4.1.57 S-0-0083, Torque/force limit value negative.....	58

	Page
4.1.58 S-0-0084, Torque/force feedback value (2 bytes).....	59
4.1.59 S-0-0085, Torque/force polarity parameter.....	59
4.1.60 S-0-0086, Torque/force data scaling type.....	60
4.1.61 S-0-0089, MDT Transmit starting time (T2).....	61
4.1.62 S-0-0091, Bipolar velocity limit value.....	62
4.1.63 S-0-0092, Bipolar torque/force limit value (2 bytes).....	62
4.1.64 S-0-0093, Torque/force data scaling factor.....	63
4.1.65 S-0-0094, Torque/force data scaling exponent.....	63
4.1.66 S-0-0095, Diagnostic message.....	64
4.1.67 S-0-0097, Mask class 2 diagnostics.....	64
4.1.68 S-0-0098, Mask class 3 diagnostics.....	65
4.1.69 S-0-0099, C0500 Reset class 1 diagnostics.....	65
4.2 S-0-0101 - S-0-0200.....	66
4.2.1 S-0-0103, Modulo value.....	66
4.2.2 S-0-0104, Position loop Kv-factor.....	66
4.2.3 S-0-0108, Feedrate override.....	67
4.2.4 S-0-0113, Maximum velocity of the drive.....	68
4.2.5 S-0-0115, Encoder 2, type of position encoder.....	68
4.2.6 S-0-0116, Resolution of feedback 1.....	69
4.2.7 S-0-0121, Input revolutions of load gear.....	70
4.2.8 S-0-0122, Output revolutions of load gear.....	71
4.2.9 S-0-0123, Feed constant.....	71
4.2.10 S-0-0124, Standstill window.....	72
4.2.11 S-0-0125, Velocity threshold vx.....	73
4.2.12 S-0-0126, Torque threshold Tx.....	73
4.2.13 S-0-0127, C0100 Communication phase 3 transition check.....	73
4.2.14 S-0-0128, C5200 Communication phase 4 transition check.....	74
4.2.15 S-0-0134, Master control word.....	74
4.2.16 S-0-0135, Drive status word.....	76
4.2.17 S-0-0138, Bipolar acceleration limit value.....	78
4.2.18 S-0-0139, C1600 Parking axis procedure command.....	79
4.2.19 S-0-0142, Application type.....	80
4.2.20 S-0-0144, Signal status word.....	80
4.2.21 S-0-0145, Signal control word.....	81
4.2.22 S-0-0146, C4300 NC-controlled homing procedure command.....	82
4.2.23 S-0-0147, Homing parameter.....	82
4.2.24 S-0-0148, C0600 Drive-controlled homing procedure command.....	84
4.2.25 S-0-0149, C1300 Positive stop drive procedure command.....	85
4.2.26 S-0-0150, Reference offset of encoder 1.....	86
4.2.27 S-0-0151, Reference offset of encoder 2.....	86
4.2.28 S-0-0152, C0900 Position spindle procedure command.....	87
4.2.29 S-0-0153, Spindle angle position.....	88
4.2.30 S-0-0154, Spindle positioning parameter.....	88
4.2.31 S-0-0157, Velocity window.....	89
4.2.32 S-0-0159, Monitoring window of following distance.....	90
4.2.33 S-0-0160, Acceleration data scaling type.....	91

	Page
4.2.34 S-0-0161, Acceleration data scaling factor.....	92
4.2.35 S-0-0162, Acceleration data scaling exponent.....	92
4.2.36 S-0-0164, Acceleration feedback value encoder 1.....	93
4.2.37 S-0-0171, C4400 Calculate displacement procedure command.....	93
4.2.38 S-0-0172, C4500 Displacement to referenced system procedure command.....	94
4.2.39 S-0-0175, Offset of position feedback value of encoder 1.....	95
4.2.40 S-0-0176, Offset of position feedback value of encoder 2.....	95
4.2.41 S-0-0177, Absolute offset encoder 1.....	95
4.2.42 S-0-0178, Absolute offset encoder 2.....	96
4.2.43 S-0-0180, Spindle relative offset.....	96
4.2.44 S-0-0185, Length of the configurable data record in the AT.....	97
4.2.45 S-0-0186, Length of the configurable data record in the MDT.....	97
4.2.46 S-0-0187, List of configurable data in the AT.....	98
4.2.47 S-0-0188, List of configurable data in the MDT.....	98
4.2.48 S-0-0189, Following distance.....	98
4.2.49 S-0-0190, C4200 Drive-controlled oscillation procedure command.....	99
4.2.50 S-0-0191, C1500 Cancel reference point procedure command.....	99
4.2.51 S-0-0192, IDN-list of all backup operation data.....	100
4.2.52 S-0-0193, Positioning jerk.....	100
4.2.53 S-0-0197, C3300 Set coordinate system procedure command.....	101
4.2.54 S-0-0198, Initial coordinate value.....	101
4.2.55 S-0-0199, C3400 Shift coordinate system procedure command.....	101
4.3 S-0-0201 - S-0-0400.....	102
4.3.1 S-0-0206, Drive on delay time.....	102
4.3.2 S-0-0207, Drive off delay time.....	102
4.3.3 S-0-0208, Temperature data scaling type.....	103
4.3.4 S-0-0213, Oscillation speed.....	103
4.3.5 S-0-0214, Oscillation offset speed.....	103
4.3.6 S-0-0215, Oscillation cycle time.....	103
4.3.7 S-0-0216, C4100 Switch parameter set command.....	104
4.3.8 S-0-0217, Preselect parameter set command.....	104
4.3.9 S-0-0219, IDN-list of parameter set.....	105
4.3.10 S-0-0222, Spindle positioning speed.....	105
4.3.11 S-0-0254, Current parameter set.....	105
4.3.12 S-0-0256, Multiplication 1.....	106
4.3.13 S-0-0258, Target position.....	106
4.3.14 S-0-0259, Positioning velocity.....	107
4.3.15 S-0-0260, Positioning acceleration.....	107
4.3.16 S-0-0261, Coarse position window.....	108
4.3.17 S-0-0262, C07_x Load defaults procedure command.....	108
4.3.18 S-0-0263, C2300 Load working memory procedure command.....	109
4.3.19 S-0-0264, C2200 Backup working memory procedure command.....	109
4.3.20 S-0-0265, Language selection.....	110
4.3.21 S-0-0267, Password.....	110
4.3.22 S-0-0269, Storage mode.....	112
4.3.23 S-0-0270, IDN-list of selected backup operation data.....	112

	Page
4.3.24 S-0-0272, Velocity window as percentage.....	113
4.3.25 S-0-0273, Maximum drive off delay time.....	113
4.3.26 S-0-0275, Coordinate offset value.....	113
4.3.27 S-0-0277, Encoder 1, type of position encoder.....	114
4.3.28 S-0-0278, Maximum travel range.....	115
4.3.29 S-0-0279, IDN-list of password-protected operation data.....	116
4.3.30 S-0-0282, Positioning command value.....	116
4.3.31 S-0-0283, Current coordinate offset.....	117
4.3.32 S-0-0284, Secondary operation mode 4.....	117
4.3.33 S-0-0285, Secondary operation mode 5.....	118
4.3.34 S-0-0286, Secondary operation mode 6.....	119
4.3.35 S-0-0287, Secondary operation mode 7.....	120
4.3.36 S-0-0292, List of supported operation modes.....	121
4.3.37 S-0-0293, C2400 Selectively backup working memory procedure command.....	122
4.3.38 S-0-0298, Reference cam shift.....	123
4.3.39 S-0-0299, Home switch offset.....	124
4.3.40 S-0-0301, Allocation of real-time control bit 1.....	124
4.3.41 S-0-0303, Allocation of real-time control bit 2.....	125
4.3.42 S-0-0305, Allocation of real-time status bit 1.....	126
4.3.43 S-0-0307, Allocation of real-time status bit 2.....	126
4.3.44 S-0-0315, Positioning velocity > nLimit.....	127
4.3.45 S-0-0316, Inverse feed constant.....	127
4.3.46 S-0-0323, Target position outside of travel range.....	128
4.3.47 S-0-0326, Parameter checksum.....	128
4.3.48 S-0-0327, IDN list of checksum parameter.....	129
4.3.49 S-0-0328, Assign list signal status word.....	129
4.3.50 S-0-0329, Assign list signal control word.....	129
4.3.51 S-0-0330, Status "v_feedback = v_command".....	130
4.3.52 S-0-0331, Status "v_feedback = 0".....	131
4.3.53 S-0-0332, Status "v_feedback < vx".....	131
4.3.54 S-0-0333, Status "T >= Tx".....	131
4.3.55 S-0-0334, Status "T >= Tlimit".....	132
4.3.56 S-0-0335, Status "v_command > v_limit".....	132
4.3.57 S-0-0336, Status "In position".....	133
4.3.58 S-0-0338, Status "In target position".....	133
4.3.59 S-0-0341, Status "In coarse position".....	134
4.3.60 S-0-0342, Status "Target position attained".....	134
4.3.61 S-0-0343, Status "Interpolator halted".....	134
4.3.62 S-0-0346, Positioning control word.....	135
4.3.63 S-0-0347, Velocity error.....	137
4.3.64 S-0-0348, Acceleration feedforward gain.....	137
4.3.65 S-0-0349, Bipolar jerk limit.....	138
4.3.66 S-0-0359, Positioning deceleration.....	138
4.3.67 S-0-0360, Data container A: Command value 1.....	139
4.3.68 S-0-0362, Data container A: List index command values.....	139
4.3.69 S-0-0364, Data container A: Feedback value 1.....	140

	Page
4.3.70 S-0-0366, Data container A: List index feedback values.....	140
4.3.71 S-0-0368, Data container A: Addressing.....	141
4.3.72 S-0-0370, Data container A: Configuration list command value-1.....	141
4.3.73 S-0-0371, Data container A: Configuration list feedback value-1.....	142
4.3.74 S-0-0372, Drive Halt acceleration bipolar.....	142
4.3.75 S-0-0375, Diagnostic numbers list.....	143
4.3.76 S-0-0378, Absolute encoder range, encoder 1.....	143
4.3.77 S-0-0386, Active position feedback value.....	144
4.3.78 S-0-0390, Diagnostic message number.....	144
4.3.79 S-0-0390.0.136, Detailed diagnostic message.....	145
4.3.80 S-0-0393, Command value mode.....	145
4.3.81 S-0-0398, IDN-list of configurable data in signal status word.....	147
4.3.82 S-0-0399, IDN-list of configurable data in signal control word.....	147
4.3.83 S-0-0400, Home switch.....	148
4.4 S-0-0401 - S-0-4095.....	149
4.4.1 S-0-0403, Position feedback value status.....	149
4.4.2 S-0-0404, Position command value status.....	149
4.4.3 S-0-0407, Homing enable.....	150
4.4.4 S-0-0408, Reference marker pulse registered.....	150
4.4.5 S-0-0413, Bit number allocation of real-time control bit 1.....	151
4.4.6 S-0-0414, Bit number allocation of real-time control bit 2.....	151
4.4.7 S-0-0415, Bit number allocation of real-time status bit 1.....	152
4.4.8 S-0-0416, Bit number allocation of real-time status bit 2.....	152
4.4.9 S-0-0417, Positioning velocity threshold in modulo mode.....	153
4.4.10 S-0-0418, Target position window in modulo mode.....	154
4.4.11 S-0-0419, Positioning command acknowledge.....	154
4.4.12 S-0-0420, C0400 Activate parameterization level procedure command.....	155
4.4.13 S-0-0422, C0200 Exit parameterization level procedure command.....	155
4.4.14 S-0-0423, IDN-list of invalid data for parameterization levels.....	155
4.4.15 S-0-0424, Status parameterization level.....	156
4.4.16 S-0-0425, Sub-device state machine control.....	156
4.4.17 S-0-0429, Emergency halt deceleration.....	157
4.4.18 S-0-0430, Effective target position.....	157
4.4.19 S-0-0437, Positioning status.....	158
4.4.20 S-0-0440, Marker position feedback 1.....	159
4.4.21 S-0-0442, Counter marker position feedback 1.....	160
4.4.22 S-0-0446, Ramp reference velocity for acceleration data.....	160
4.4.23 S-0-0447, C0300 Set absolute position procedure command.....	160
4.4.24 S-0-0448, Set absolute position control.....	161
4.4.25 S-0-0450, Data container A: Command value 2.....	162
4.4.26 S-0-0451, Data container A: Command value 3.....	162
4.4.27 S-0-0452, Data container A: Command value 4.....	163
4.4.28 S-0-0453, Data container A: Command value 5.....	163
4.4.29 S-0-0454, Data container A: Command value 6.....	163
4.4.30 S-0-0455, Data container A: Command value 7.....	164
4.4.31 S-0-0456, Data container A: Command value 8.....	164

	Page
4.4.32 S-0-0460, Position switch point 1 "Off".....	165
4.4.33 S-0-0478, Position/travel range limit status.....	165
4.4.34 S-0-0480, Data container A: Feedback value 2.....	166
4.4.35 S-0-0481, Data container A: Feedback value 3.....	166
4.4.36 S-0-0482, Data container A: Feedback value 4.....	166
4.4.37 S-0-0483, Data container A: Feedback value 5.....	167
4.4.38 S-0-0484, Data container A: Feedback value 6.....	167
4.4.39 S-0-0485, Data container A: Feedback value 7.....	167
4.4.40 S-0-0486, Data container A: Feedback value 8.....	168
4.4.41 S-0-0490, Data container A: Configuration list command value 2.....	168
4.4.42 S-0-0491, Data container A: Configuration list command value 3.....	169
4.4.43 S-0-0492, Data container A: Configuration list command value 4.....	169
4.4.44 S-0-0493, Data container A: Configuration list command value 5.....	170
4.4.45 S-0-0494, Data container A: Configuration list command value 6.....	170
4.4.46 S-0-0495, Data container A: Configuration list command value 7.....	171
4.4.47 S-0-0496, Data container A: Configuration list command value 8.....	171
4.4.48 S-0-0500, Data container A: Configuration list feedback value 2.....	171
4.4.49 S-0-0501, Data container A: Configuration list feedback value 3.....	172
4.4.50 S-0-0502, Data container A: Configuration list feedback value 4.....	172
4.4.51 S-0-0503, Data container A: Configuration list feedback value 5.....	173
4.4.52 S-0-0504, Data container A: Configuration list feedback value 6.....	173
4.4.53 S-0-0505, Data container A: Configuration list feedback value 7.....	174
4.4.54 S-0-0506, Data container A: Configuration list feedback value 8.....	174
4.4.55 S-0-0520, Axis control word.....	175
4.4.56 S-0-0521, Axis status word.....	176
4.4.57 S-0-0530, Clamping torque.....	177
4.4.58 S-0-0531, Checksum of backup operation data.....	178
4.4.59 S-0-0532, Travel range limit parameter.....	178
4.4.60 S-0-0534, Maximum torque/force.....	179
4.4.61 S-0-0535, Active velocity feedback value.....	180
4.4.62 S-0-0536, Active acceleration feedback value.....	180
4.4.63 S-0-0550, Torque/force command value, positive.....	180
4.4.64 S-0-0551, Torque/force command value, negative.....	181
4.4.65 S-0-0552, Torque/force feedback value.....	181
4.4.66 S-0-0553, Torque/force command value ramp.....	181
4.4.67 S-0-0600.x.1, Encoder status.....	182
4.4.68 S-0-0600.x.2, Position.....	183
4.4.69 S-0-0600.x.10, Marker position.....	184
4.4.70 S-0-0600.x.136, Extended diagnostic message.....	185
4.4.71 S-0-0601.x.1, Encoder data out configuration.....	186
4.4.72 S-0-0601.x.2, Resolution of position.....	186
4.4.73 S-0-0601.x.6, Absolute position range.....	187
4.4.74 S-0-0601.x.7, Velocity limit.....	188
4.4.75 S-0-0601.x.10, Overflow threshold position.....	188
4.4.76 S-0-0601.x.11, Encoder available data out.....	189
4.4.77 S-0-0601.x.12, Encoder refresh time data out.....	190

	Page
4.4.78 S-0-0602.x.1, Phys. encoder type.....	191
4.4.79 S-0-0602.x.2, Phys. encoder properties.....	192
4.4.80 S-0-0602.x.4, Phys. encoder resolution.....	193
4.4.81 S-0-0602.x.5, Phys. distance-coded reference offset A.....	193
4.4.82 S-0-0602.x.6, Phys. distance-coded reference offset B.....	194
4.4.83 S-0-0602.x.7, Phys. encoder protocol configuration.....	195
4.4.84 S-0-0602.x.8, Phys. max. initialization speed.....	197
4.4.85 S-0-0602.x.9, Phys. absolute position range.....	198
4.4.86 S-0-0602.x.136, Phys. encoder evaluation configuration.....	198
4.4.87 S-0-0603.x.3, Phys. encoder input signal A.....	199
4.4.88 S-0-0603.x.4, Phys. encoder input signal B.....	200
4.4.89 S-0-0610.x.1, Encoder status (input).....	200
4.4.90 S-0-0610.x.2, Position unscaled (input).....	201
4.4.91 S-0-0610.x.10, Marker position not scaled (input).....	202
4.4.92 S-0-0611.x.1, Encoder data out configuration (input).....	202
4.4.93 S-0-0611.x.2, Resolution position (input).....	203
4.4.94 S-0-0611.x.6, Absolute position range (input).....	203
4.4.95 S-0-0611.x.10, Overflow threshold position (input).....	204
4.4.96 S-0-0611.x.11, Encoder available data out (input).....	204
4.4.97 S-0-0611.x.12, Encoder refresh time data out (input).....	205
4.4.98 S-0-0800, Pressure command value.....	206
4.4.99 S-0-0801, Pressure command value additive.....	206
4.4.100 S-0-0802, Bipolar pressure limit value.....	206
4.4.101 S-0-0803, Pressure feedback value A.....	207
4.4.102 S-0-0804, Pressure feedback value B.....	207
4.4.103 S-0-0805, Pressure polarity parameter.....	207
4.4.104 S-0-0806, Pressure data scaling type.....	208
4.4.105 S-0-0807, Pressure data scaling factor.....	209
4.4.106 S-0-0808, Pressure data scaling exponent.....	210
4.4.107 S-0-0809, Pressure feedback value.....	210
4.4.108 S-0-0810, Pressure ramp time.....	210
4.4.109 S-0-0811, Pressure ramp reference.....	211
4.4.110 S-0-0813, System pressure.....	211
4.4.111 S-0-0814, Tank pressure.....	211
4.4.112 S-0-0815, Pilot Pressure.....	212
4.4.113 S-0-0819, Cylinder stroke.....	212
4.4.114 S-0-0820, Piston area A.....	212
4.4.115 S-0-0821, Piston area B.....	213
4.4.116 S-0-0822, Torque/force ramp (2 bytes).....	213
4.4.117 S-0-0823, Torque/force ramp time.....	214
4.4.118 S-0-0824, Status "Torque/force command value attained".....	215
4.4.119 S-0-0826, Torque/force window.....	216
4.4.120 S-0-0827, Pressure control deviation.....	217
4.4.121 S-0-0828, Positive pressure limit value.....	217
4.4.122 S-0-0829, Negative pressure limit value.....	217
4.4.123 S-0-0830, Pressure status word.....	218

	Page
4.4.124 S-0-0831, Depressurized window.....	219
4.4.125 S-0-0832, Pressure Window.....	219
4.4.126 S-0-0840, Flow command value.....	219
4.4.127 S-0-0841, Flow command value additive.....	220
4.4.128 S-0-0842, Flow feedback value.....	220
4.4.129 S-0-0843, Flow control deviation.....	220
4.4.130 S-0-0844, Flow zero window.....	221
4.4.131 S-0-0845, Flow data scaling type.....	221
4.4.132 S-0-0846, Flow data scaling factor.....	222
4.4.133 S-0-0847, Flow data scaling exponent.....	222
4.4.134 S-0-0848, Flow polarities.....	223
4.4.135 S-0-0849, Flow status word.....	224
4.4.136 S-0-0850, Bipolar flow limit value.....	224
4.4.137 S-0-0851, Positive flow limit value.....	225
4.4.138 S-0-0852, Negative flow limit value.....	225
4.4.139 S-0-0853, Flow window absolute.....	225
4.4.140 S-0-0854, Flow window percentage.....	226
4.4.141 S-0-0855, Flow ramp reference.....	226
4.4.142 S-0-0856, Flow ramp time.....	226
4.4.143 S-0-0857, Flow threshold.....	227
4.4.144 S-0-0860, Spool command value.....	227
4.4.145 S-0-0861, Spool command value additive.....	227
4.4.146 S-0-0862, Spool feedback value.....	228
4.4.147 S-0-0863, Spool control deviation.....	228
4.4.148 S-0-0864, Bipolar spool limit value.....	228
4.4.149 S-0-0865, Positive spool limit value.....	228
4.4.150 S-0-0866, Negative spool limit value.....	229
4.4.151 S-0-0867, Spool status word.....	229
4.4.152 S-0-0868, Spool window.....	230
4.4.153 S-0-0869, Spool ramp time.....	230
4.4.154 S-0-0880, Swivel angle command value.....	231
4.4.155 S-0-0881, Swivel angle command value, additive.....	231
4.4.156 S-0-0882, Swivel angle actual value.....	231
4.4.157 S-0-0883, Swivel angle controller control deviation.....	232
4.4.158 S-0-0884, Swivel angle limit value, bipolar.....	232
4.4.159 S-0-0885, Swivel angle limit value, positive.....	232
4.4.160 S-0-0886, Swivel angle limit value, negative.....	233
4.4.161 S-0-0887, Swivel angle status word.....	233
4.4.162 S-0-0888, Swivel angle ramp time.....	233
4.4.163 S-0-0889, Swivel angle window.....	234
4.4.164 S-0-1000, Sercos: SCP Type & Version.....	234
4.4.165 S-0-1002, Sercos: Communication Cycle time (tScyc).....	235
4.4.166 S-0-1003, Sercos: Allowed MST losses.....	236
4.4.167 S-0-1005, Sercos: Minimum feedback processing time (t5).....	236
4.4.168 S-0-1006, Sercos: AT0 transmission starting time (t1).....	236
4.4.169 S-0-1007, Sercos: Feedback acquisition capture point (t4).....	237

Table of Contents

	Page
4.4.170 S-0-1008, Sercos: Command value valid time (t3).....	237
4.4.171 S-0-1009, Sercos: Device Control (C-Dev) offset in MDT.....	237
4.4.172 S-0-1010, Sercos: Lengths of MDTs.....	238
4.4.173 S-0-1011, Sercos: Device Status (S-Dev) offset in AT.....	239
4.4.174 S-0-1012, Sercos: Length of ATs.....	239
4.4.175 S-0-1013, Sercos: SVC offset in MDT.....	240
4.4.176 S-0-1014, Sercos: SVC offset in AT.....	240
4.4.177 S-0-1015, Sercos: Ring delay.....	241
4.4.178 S-0-1016, Sercos: Slave delay (P/S).....	241
4.4.179 S-0-1017, Sercos: NRT transmission time.....	241
4.4.180 S-0-1019, Master comm. engineering over IP: MAC address.....	242
4.4.181 S-0-1020, Master comm. engineering over IP: IP address.....	243
4.4.182 S-0-1021, Master comm. engineering over IP: Network mask.....	244
4.4.183 S-0-1022, Master comm. engineering over IP: Gateway address.....	245
4.4.184 S-0-1023, Sercos: SYNC jitter.....	246
4.4.185 S-0-1024, C5300 Sercos: SYNC delay measuring procedure command.....	246
4.4.186 S-0-1026, Sercos: Version of communication hardware.....	247
4.4.187 S-0-1028, Sercos: Error counter MST-P/S.....	247
4.4.188 S-0-1031, Sercos: Signal assignment TSx.....	248
4.4.189 S-0-1032, Sercos: Communication control.....	248
4.4.190 S-0-1034, Sercos: PHY error counter Port1 and Port2.....	249
4.4.191 S-0-1035, Sercos: Error counter Port1 & Port2.....	249
4.4.192 S-0-1035.0.1, Sercos: Error counter P&S.....	250
4.4.193 S-0-1036, Sercos: Inter Frame Gap.....	250
4.4.194 S-0-1037, Sercos: Slave Jitter.....	250
4.4.195 S-0-1039, Hostname.....	251
4.4.196 S-0-1040, Drive address of master communication.....	251
4.4.197 S-0-1041, Sercos: AT Command value valid time (t9).....	251
4.4.198 S-0-1042, Sercos: Topology index.....	252
4.4.199 S-0-1044, Sercos: Device Control (C-Dev).....	252
4.4.200 S-0-1045, Sercos: Device Status (S-Dev).....	253
4.4.201 S-0-1046, Sercos: Slave addresses of the device.....	255
4.4.202 S-0-1047, Sercos: Maximum Consumer Activation Time.....	256
4.4.203 S-0-1048, C6100 Command Activate IP settings.....	256
4.4.204 S-0-1050.x.1, Sercos Connection: Connection setup.....	256
4.4.205 S-0-1050.x.2, Sercos Connection: Connection number.....	257
4.4.206 S-0-1050.x.3, Sercos Connection: Telegram assignment.....	258
4.4.207 S-0-1050.x.4, Sercos Connection: Max. length of connection.....	258
4.4.208 S-0-1050.x.5, Sercos Connection: Current length of connection.....	259
4.4.209 S-0-1050.x.6, Sercos Connection: Configuration list.....	259
4.4.210 S-0-1050.x.7, Sercos Connection: Connection class.....	259
4.4.211 S-0-1050.x.8, Sercos Connection: Connection control (C-Con).....	260
4.4.212 S-0-1050.x.9, Sercos Connection: State.....	261
4.4.213 S-0-1050.x.10, Sercos Connection: Producer cycle time.....	262
4.4.214 S-0-1050.x.11, Sercos Connection: Allowed data losses.....	263
4.4.215 S-0-1050.x.12, Sercos Connection: Error counter data losses.....	263

	Page
4.4.216 S-0-1050.x.20, Sercos Connection: IDN allocation of real-time bit.....	263
4.4.217 S-0-1050.x.21, Sercos Connection: Bit allocation of real-time bit.....	264
4.4.218 S-0-1051, Sercos Connection: Image of connection setups.....	264
4.4.219 S-0-1060.x.1, Sercos Connectiontype: Default configuration.....	264
4.4.220 S-0-1060.x.2, Sercos Connectiontype: Configuration mask.....	265
4.4.221 S-0-1060.x.3, Sercos Connectiontype: Max. quantity of conn. Capability.....	265
4.4.222 S-0-1060.x.4, Sercos Connectiontype: Max. Length of Connection.....	265
4.4.223 S-0-1060.x.6, Sercos Connectiontype: Configurable IDNs.....	266
4.4.224 S-0-1060.x.7, Sercos Connectiontype: Min. processing time.....	266
4.4.225 S-0-1060.x.10, Sercos Connectiontype: Minimum producer cycle time.....	266
4.4.226 S-0-1061, Sercos: Maximum ScycCnt.....	267
4.4.227 S-0-1099.0.1, Sercos: Test-IDN for Conformity purpose - configuration.....	267
4.4.228 S-0-1099.0.2, Sercos: Test-IDN for Conformity purpose.....	267
4.4.229 S-0-1300.0.1, Component Name.....	268
4.4.230 S-0-1300.0.3, Vendor Code.....	268
4.4.231 S-0-1300.0.4, Device Name.....	268
4.4.232 S-0-1300.0.5, Vendor Device ID.....	269
4.4.233 S-0-1300.0.8, Hardware version.....	269
4.4.234 S-0-1300.0.9, Software version.....	270
4.4.235 S-0-1300.0.11, Order Number.....	270
4.4.236 S-0-1300.0.12, Serial Number.....	270
4.4.237 S-0-1300.0.130, Type plate, compact.....	271
4.4.238 S-0-1301, List of GDP classes.....	271
4.4.239 S-0-1302.0.1, FSP Type.....	271
4.4.240 S-0-1302.0.3, Application type.....	271
4.4.241 S-0-1303.0.1, Diagnostic trace configuration.....	272
4.4.242 S-0-1303.0.2, Diagnostic trace control.....	272
4.4.243 S-0-1303.0.3, Diagnostic trace state.....	273
4.4.244 S-0-1303.0.10, Diagnostic trace main diagnostics.....	274
4.4.245 S-0-1303.0.11, Diagnostic trace system time.....	274
4.4.246 S-0-1303.0.12, Diagnostic trace detailed diagnostics.....	274
4.4.247 S-0-1303.0.13, Diagnostic trace system time fine.....	275
4.4.248 S-0-1303.0.14, Diagnostic trace system time coarse.....	275
4.4.249 S-0-1305.0.1, System time.....	275
4.4.250 S-0-1305.0.2, System fine time.....	276
4.4.251 S-0-1305.0.3, System coarse time.....	276
4.4.252 S-0-1350, C6400 Reboot command.....	277
4.4.253 S-0-1601, List of FSP Drive classes.....	277
5 Product-specific parameters.....	279
5.1 P-0-0000 - P-0-0100.....	279
5.1.1 P-0-0003, Status of parameter buffering.....	279
5.1.2 P-0-0006, Diagnostic message configuration.....	280
5.1.3 P-0-0007, Display text of diagnostic message.....	280
5.1.4 P-0-0008, Activation E-Stop function.....	280
5.1.5 P-0-0009, Error number.....	281

	Page
5.1.6	P-0-0010, Excessive position command value..... 282
5.1.7	P-0-0011, Last valid position command value..... 282
5.1.8	P-0-0013, List of all IDNs not corresponding to default value..... 282
5.1.9	P-0-0014, C1400 Command Get marker position..... 283
5.1.10	P-0-0019, Initial position value..... 283
5.1.11	P-0-0020, Oscilloscope: Operation mode..... 284
5.1.12	P-0-0021, Oscilloscope: List of measured values 1..... 285
5.1.13	P-0-0022, Oscilloscope: List of measured values 2..... 285
5.1.14	P-0-0023, Oscilloscope: Signal selection 1..... 285
5.1.15	P-0-0024, Oscilloscope: Signal selection 2..... 286
5.1.16	P-0-0025, Oscilloscope: Trigger mask..... 286
5.1.17	P-0-0026, Oscilloscope: Trigger signal selection..... 287
5.1.18	P-0-0027, Oscilloscope: Trigger level..... 287
5.1.19	P-0-0028, Oscilloscope: Control word..... 288
5.1.20	P-0-0029, Oscilloscope: Status word..... 288
5.1.21	P-0-0030, Oscilloscope: Trigger edge..... 289
5.1.22	P-0-0031, Oscilloscope: Time resolution..... 290
5.1.23	P-0-0032, Oscilloscope: Size of memory..... 291
5.1.24	P-0-0033, Oscilloscope: Number of measured values after trigger event..... 291
5.1.25	P-0-0035, Oscilloscope: Trigger control offset..... 292
5.1.26	P-0-0035.0.1, Oscilloscope: Trigger time..... 292
5.1.27	P-0-0036, Oscilloscope: External trigger signal..... 292
5.1.28	P-0-0037, Oscilloscope: Internal trigger signal..... 293
5.1.29	P-0-0040, Velocity feedforward..... 293
5.1.30	P-0-0041, Position command average value filter time constant..... 294
5.1.31	P-0-0042, Current position command average value filter order..... 295
5.1.32	P-0-0047, Position command value of control..... 296
5.1.33	P-0-0048, Velocity command value of controller..... 296
5.1.34	P-0-0049, Torque/force command value of controller (2 Byte)..... 297
5.1.35	P-0-0055, Return distance..... 297
5.1.36	P-0-0056, Return velocity..... 298
5.1.37	P-0-0057, Return acceleration..... 298
5.1.38	P-0-0058, Return jerk..... 299
5.1.39	P-0-0059, Additive position command value, controller..... 299
5.1.40	P-0-0069, Torque/force command value of controller..... 300
5.1.41	P-0-0070, Effective additive torque/force command value..... 300
5.1.42	P-0-0074, Encoder type 1..... 301
5.1.43	P-0-0075, Encoder type 2 (optional encoder)..... 301
5.1.44	P-0-0077, Assignment of encoder 1->interface..... 302
5.1.45	P-0-0090, Travel range limit parameter..... 303
5.1.46	P-0-0098, Max. deviation..... 303
5.1.47	P-0-0099, Position command smoothing time constant..... 304
5.1.48	P-0-0100, Position command value extension..... 304
5.2	P-0-0101 - P-0-0200..... 305
5.2.1	P-0-0105, Time stamp for list of diagnostic message numbers..... 305
5.2.2	P-0-0115, Device control: Status word..... 305

	Page
5.2.3 P-0-0116, Device control: Control word.....	307
5.2.4 P-0-0117, Activation of control unit reaction on error.....	308
5.2.5 P-0-0119, Best possible deceleration.....	309
5.2.6 P-0-0120, Control word easy startup.....	310
5.2.7 P-0-0121, Encoder 1 gearbox revolutions, mechanical side.....	312
5.2.8 P-0-0122, Encoder 1 gearbox revolutions, encoder side.....	313
5.2.9 P-0-0139, Analog output 1.....	313
5.2.10 P-0-0140, Analog output 2.....	313
5.2.11 P-0-0142, Synchronization acceleration.....	314
5.2.12 P-0-0143, Synchronization velocity.....	314
5.2.13 P-0-0145, Oscilloscope: List of measured values 3.....	315
5.2.14 P-0-0146, Oscilloscope: List of measured values 4.....	315
5.2.15 P-0-0147, Oscilloscope: Signal selection 3.....	315
5.2.16 P-0-0148, Oscilloscope: Signal selection 4.....	316
5.2.17 P-0-0149, Oscilloscope: Signal selection list.....	316
5.2.18 P-0-0150, Oscilloscope: Number of valid measured values.....	317
5.2.19 P-0-0151, Synchronization window for modulo format.....	317
5.2.20 P-0-0152, Synchronization completed.....	317
5.2.21 P-0-0153, Optimum distance home switch-reference mark.....	318
5.2.22 P-0-0154, Synchronization direction.....	319
5.2.23 P-0-0162, C1800 Axis optimization procedure command.....	319
5.2.24 P-0-0165, Axis optimization, control word.....	320
5.2.25 P-0-0166, Optimization of axis, end position negative.....	321
5.2.26 P-0-0167, Optimization of axis, end position positive.....	321
5.2.27 P-0-0170, Drive optimization, acceleration.....	322
5.2.28 P-0-0171, Optimization of axis, maximum velocity.....	322
5.2.29 P-0-0177, Encoder 1, absolute encoder buffer.....	322
5.2.30 P-0-0178, Encoder 2, absolute encoder buffer.....	323
5.2.31 P-0-0180, Acceleration feedforward smoothing time constant.....	323
5.2.32 P-0-0187, Position command processing mode.....	323
5.2.33 P-0-0187.0.1, Maximum allowed command value failures.....	326
5.2.34 P-0-0188, Encoder 1 control word.....	326
5.2.35 P-0-0190, Operating hours control section.....	326
5.2.36 P-0-0192, Error memory of diagnostic numbers.....	327
5.2.37 P-0-0193, Error memory operating hours of control section.....	328
5.2.38 P-0-0195, IDN list of retain data (replacement of devices).....	328
5.2.39 P-0-0196, Additional information of control section firmware.....	329
5.2.40 P-0-0197, System time.....	329
5.2.41 P-0-0198, System time error memory.....	330
5.2.42 P-0-0199, System time error code.....	331
5.3 P-0-0201 - P-0-0500.....	331
5.3.1 P-0-0208, Analog input 5.....	331
5.3.2 P-0-0209, Analog input 6.....	331
5.3.3 P-0-0210, Analog input 1.....	332
5.3.4 P-0-0211, Analog input 2.....	332
5.3.5 P-0-0212, Analog input, list of assignable parameters.....	333

	Page
5.3.6 P-0-0221, Analog input 7.....	333
5.3.7 P-0-0222, Travel range limit switch inputs.....	334
5.3.8 P-0-0223, E-Stop input.....	334
5.3.9 P-0-0228, Analog input 3.....	335
5.3.10 P-0-0229, Analog input 4.....	335
5.3.11 P-0-0250, System identification.....	336
5.3.12 P-0-0250.0.1, System data.....	336
5.3.13 P-0-0250.0.10, IndraWorks view manager.....	336
5.3.14 P-0-0256, Analog input 8.....	337
5.3.15 P-0-0260, C99 Service function command.....	337
5.3.16 P-0-0269, Oscilloscope: Channel number setting.....	337
5.3.17 P-0-0270, Oscilloscope: Signal selection 5.....	338
5.3.18 P-0-0271, Oscilloscope: Signal selection 6.....	338
5.3.19 P-0-0272, Oscilloscope: Signal selection 7.....	338
5.3.20 P-0-0273, Oscilloscope: Signal selection 8.....	339
5.3.21 P-0-0274, Oscilloscope: List of measured values 5.....	339
5.3.22 P-0-0275, Oscilloscope: List of measured values 6.....	340
5.3.23 P-0-0276, Oscilloscope: List of measured values 7.....	340
5.3.24 P-0-0277, Oscilloscope: List of measured values 8.....	341
5.3.25 P-0-0279, Oscilloscope: Trend mode, time resolution.....	341
5.3.26 P-0-0280, Oscilloscope: Trend mode, list of measured values.....	341
5.3.27 P-0-0300, Digital inputs, assignment list.....	342
5.3.28 P-0-0301, Digital inputs, bit numbers.....	343
5.3.29 P-0-0303, Digital inputs, input image of device.....	343
5.3.30 P-0-0304, Digital outputs, output image of device.....	344
5.3.31 P-0-0310, Digital outputs, assignment list.....	344
5.3.32 P-0-0311, Digital outputs, bit numbers.....	345
5.3.33 P-0-0322, Task load.....	345
5.3.34 P-0-0322.0.1, Task load config.....	346
5.3.35 P-0-0322.0.2, Prewarning threshold - performance utilization.....	346
5.3.36 P-0-0322.x.4, Task Trace.....	346
5.3.37 P-0-0391, Actual position value difference encoder1 - encoder2.....	347
5.3.38 P-0-0393, IDN groups: Control word.....	347
5.3.39 P-0-0394, IDN groups: List.....	348
5.3.40 P-0-0395, Average value filter for display: Signal selection.....	348
5.3.41 P-0-0396, Average value filter for display: Signal selection list.....	349
5.3.42 P-0-0397, Average value filter for display: Time constant.....	350
5.3.43 P-0-0400, Axis correction external correction value.....	351
5.3.44 P-0-0401, Axis correction active correction value.....	352
5.3.45 P-0-0408, Axis correction start position.....	352
5.3.46 P-0-0409, Axis correction end position.....	352
5.3.47 P-0-0410, Axis correction support point distance.....	353
5.3.48 P-0-0411, Axis correction, correction table positive.....	353
5.3.49 P-0-0412, Axis correction, correction table negative.....	354
5.3.50 P-0-0413, Axis correction control word.....	355
5.3.51 P-0-0414, Analog output 3.....	355

	Page
5.3.52 P-0-0415, Analog output 4.....	356
5.3.53 P-0-0418, Analog output, assignment A, signal value at 0V.....	356
5.3.54 P-0-0419, Analog output, assignment B, signal value at 0V.....	357
5.3.55 P-0-0420, Analog output, assignment A, signal selection.....	357
5.3.56 P-0-0422, Analog output, assignment A, scaling [1/V].....	357
5.3.57 P-0-0423, Analog output, assignment B, signal selection.....	358
5.3.58 P-0-0425, Analog output, assignment B, scaling [1/V].....	358
5.3.59 P-0-0426, Analog output IDN list of assignable parameters.....	358
5.3.60 P-0-0427, Control parameter of analog output.....	359
5.3.61 P-0-0432, Correction value: position controller quadrant correction.....	359
5.3.62 P-0-0434, Position command value of controller.....	360
5.3.63 P-0-0435, Control word of position controller.....	360
5.3.64 P-0-0436, Reference radius for quadrant error correction.....	361
5.3.65 P-0-0437, Velocity time range for quadrant error correction.....	361
5.3.66 P-0-0438, Table of path velocities for quadrant error correction.....	361
5.3.67 P-0-0439, Table of velocity pulse for quadrant error correction.....	362
5.3.68 P-0-0454, Velocity feedforward actual value.....	362
5.3.69 P-0-0456, Position command value delay.....	362
5.3.70 P-0-0457, Position command value generator.....	363
5.3.71 P-0-0458, Delay of add. command values.....	363
5.3.72 P-0-0470, Block patch: Block selection.....	364
5.3.73 P-0-0471, Block patch: Block data.....	364
5.3.74 P-0-0478, Logbook event.....	364
5.3.75 P-0-0479, Logbook time stamp.....	365
5.3.76 P-0-0480, Patch function 1, source pointer.....	365
5.3.77 P-0-0481, Patch function 1, attribute.....	366
5.3.78 P-0-0482, Patch function 1, bit mask.....	367
5.3.79 P-0-0483, Patch function 1, exponent.....	367
5.3.80 P-0-0485, Patch function 1, display.....	367
5.3.81 P-0-0486, Patch function 2, source pointer.....	368
5.3.82 P-0-0487, Patch function 2, attribute.....	368
5.3.83 P-0-0488, Patch function 2, bit mask.....	369
5.3.84 P-0-0489, Patch function 2, exponent.....	370
5.3.85 P-0-0491, Patch function 2, display.....	370
5.3.86 P-0-0492, Symbol-based patch function 1, data source.....	371
5.3.87 P-0-0493, Symbol-based patch function 1, display.....	372
5.3.88 P-0-0494, Symbol-based patch function 2, data source.....	372
5.3.89 P-0-0495, Symbol-based patch function 2, display.....	373
5.3.90 P-0-0496, Symbol-based patch function 3, data source.....	373
5.3.91 P-0-0497, Symbol-based patch function 3, display.....	374
5.3.92 P-0-0498, Symbol-based patch function 4, data source.....	374
5.3.93 P-0-0499, Symbol-based patch function 4, display.....	376
5.4 P-0-0501 - P-0-0689.....	376
5.4.1 P-0-0501, Dynamic alias mapping, mapping EIDN.....	376
5.4.2 P-0-0502, Dynamic alias mapping, mapping EIDN content.....	376
5.4.3 P-0-0503, EIDN-list of invalid data for parameterization levels.....	376

	Page
5.4.4	P-0-0555, Axis controller messages..... 377
5.4.5	P-0-0556, Config word of axis controller..... 377
5.4.6	P-0-0560, Configuration of actuator..... 379
5.4.7	P-0-0641, Interpolation cmd value average value filter time constant..... 380
5.4.8	P-0-0660, C6300 Generate type plate command..... 381
5.4.9	P-0-0660.x.1, Configurable factory default values..... 381
5.4.10	P-0-0660.0.2, Generate type plate, IDN list of type plates..... 381
5.4.11	P-0-0660.0.3, Generate type plate, configuration list..... 382
5.4.12	P-0-0660.0.129, Instance parameter diagnostics..... 382
5.4.13	P-0-0664, C6800 Control command device data archiving..... 383
5.4.14	P-0-0665, C6500 Command Archive device data..... 383
5.4.15	P-0-0666, C6600 Command Restore device data..... 384
5.4.16	P-0-0667, C6700 Command update of device data..... 385
5.4.17	P-0-0668, Device data archiving, configuration..... 386
5.4.18	P-0-0669, Device data archiving, status..... 387
5.4.19	P-0-0669.0.1, Device data update files date..... 388
5.5	P-0-0690 - P-0-0899..... 388
5.5.1	P-0-0792, Symbol-based patch function 5, data source..... 388
5.5.2	P-0-0793, Symbol-based patch function 5, display..... 389
5.5.3	P-0-0794, Symbol-based patch function 6, data source..... 390
5.5.4	P-0-0795, Symbol-based patch function 6, display..... 391
5.5.5	P-0-0796, Symbol-based patch function 7, data source..... 391
5.5.6	P-0-0797, Symbol-based patch function 7, display..... 392
5.5.7	P-0-0798, Symbol-based patch function 8, data source..... 392
5.5.8	P-0-0799, Symbol-based patch function 8, display..... 393
5.5.9	P-0-0861, Power supply status word..... 393
5.6	P-0-0900 - P-0-0999..... 394
5.6.1	P-0-0910, SSI control parameter..... 394
5.7	P-0-1000 - P-0-1099..... 395
5.7.1	P-0-1044, Master comm. engineering over IP: Status IP communication..... 395
5.8	P-0-1100 - P-0-1269..... 397
5.8.1	P-0-1150, Command value generator output..... 397
5.8.2	P-0-1151, Command value generator, list of possible target parameters..... 397
5.8.3	P-0-1152, Command value generator, target parameter assignment..... 398
5.8.4	P-0-1153, Command value generator, control word..... 398
5.8.5	P-0-1154, Command value generator, offset..... 400
5.8.6	P-0-1155, Command value generator, amplitude..... 400
5.8.7	P-0-1156, Command value generator, duration 1..... 401
5.8.8	P-0-1157, Command value generator, duration 2..... 401
5.8.9	P-0-1158, Command value generator, periodic time..... 401
5.8.10	P-0-1159, Command value generator, sine sweep start frequency..... 402
5.8.11	P-0-1160, Command value generator, sine sweep end frequency..... 402
5.8.12	P-0-1200, Control word 1 velocity control..... 402
5.8.13	P-0-1201, Ramp 1 pitch..... 404
5.8.14	P-0-1202, Final speed ramp 1..... 404
5.8.15	P-0-1203, Ramp 2 pitch..... 404

	Page
5.8.16 P-0-1206, Memory of velocity command values.....	405
5.8.17 P-0-1210, Status word of velocity control mode.....	406
5.8.18 P-0-1211, Deceleration ramp 1.....	407
5.8.19 P-0-1213, Deceleration ramp 2.....	407
5.8.20 P-0-1214, Control word 2 velocity control.....	407
5.8.21 P-0-1222, Velocity command filter.....	408
5.9 P-0-1270 - P-0-1499.....	409
5.9.1 P-0-1270, PLC Global Register A0.....	409
5.9.2 P-0-1271, PLC Global Register A1.....	410
5.9.3 P-0-1272, PLC Global Register A2.....	410
5.9.4 P-0-1273, PLC Global Register A3.....	410
5.9.5 P-0-1274, PLC Global Register A4.....	410
5.9.6 P-0-1275, PLC Global Register A5.....	411
5.9.7 P-0-1276, PLC Global Register A6.....	411
5.9.8 P-0-1277, PLC Global Register A7.....	411
5.9.9 P-0-1278, PLC Global Register A8.....	411
5.9.10 P-0-1279, PLC Global Register A9.....	412
5.9.11 P-0-1280, PLC Global Register A10.....	412
5.9.12 P-0-1281, PLC Global Register A11.....	412
5.9.13 P-0-1282, PLC Global Register A12.....	413
5.9.14 P-0-1283, PLC Global Register A13.....	413
5.9.15 P-0-1284, PLC Global Register A14.....	413
5.9.16 P-0-1285, PLC Global Register A15.....	413
5.9.17 P-0-1286, PLC Global Register A16.....	414
5.9.18 P-0-1287, PLC Global Register A17.....	414
5.9.19 P-0-1288, PLC Global Register A18.....	414
5.9.20 P-0-1289, PLC Global Register A19.....	415
5.9.21 P-0-1290, PLC Global Register A20.....	415
5.9.22 P-0-1291, PLC Global Register A21.....	415
5.9.23 P-0-1292, PLC Global Register A22.....	415
5.9.24 P-0-1293, PLC Global Register A23.....	416
5.9.25 P-0-1294, PLC Global Register A24.....	416
5.9.26 P-0-1295, PLC Global Register A25.....	416
5.9.27 P-0-1296, PLC Global Register A26.....	417
5.9.28 P-0-1297, PLC Global Register A27.....	417
5.9.29 P-0-1298, PLC Global Register A28.....	417
5.9.30 P-0-1299, PLC Global Register A29.....	417
5.9.31 P-0-1300, PLC Global Register A30.....	418
5.9.32 P-0-1301, PLC Global Register A31.....	418
5.9.33 P-0-1311, PLC Global Register GL1.....	418
5.9.34 P-0-1312, PLC Global Register GL2.....	419
5.9.35 P-0-1316, PLC Global Register G16.....	419
5.9.36 P-0-1317, PLC Global Register G17.....	419
5.9.37 P-0-1318, PLC Global Register G18.....	420
5.9.38 P-0-1319, PLC Global Register G19.....	420
5.9.39 P-0-1320, PLC Global Register G20.....	420

	Page
5.9.40 P-0-1321, PLC Global Register G21.....	421
5.9.41 P-0-1322, PLC Global Register G22.....	421
5.9.42 P-0-1323, PLC Global Register G23.....	421
5.9.43 P-0-1324, PLC Global Register G24.....	421
5.9.44 P-0-1325, PLC Global Register G25.....	422
5.9.45 P-0-1326, PLC Global Register G26.....	422
5.9.46 P-0-1327, PLC Global Register G27.....	422
5.9.47 P-0-1328, PLC Global Register G28.....	422
5.9.48 P-0-1329, PLC Global Register G29.....	423
5.9.49 P-0-1330, PLC Global Register G30.....	423
5.9.50 P-0-1331, PLC Global Register G31.....	423
5.9.51 P-0-1349.0.1, PLC user program.....	424
5.9.52 P-0-1349.x.2, PLC user program.....	424
5.9.53 P-0-1350, PLC control word.....	425
5.9.54 P-0-1351, PLC status word.....	425
5.9.55 P-0-1352, PLC user program administration data.....	426
5.9.56 P-0-1359, PLC retain data.....	427
5.9.57 P-0-1360, PLC program identifier.....	427
5.9.58 P-0-1361, PLC program name.....	428
5.9.59 P-0-1363, PLC project info.....	428
5.9.60 P-0-1364, PLC idle time.....	429
5.9.61 P-0-1365, PLC error message.....	429
5.9.62 P-0-1367, PLC configuration.....	433
5.9.63 P-0-1368, PLC Global Register AL0.....	434
5.9.64 P-0-1370, PLC Global Register G0.....	435
5.9.65 P-0-1371, PLC Global Register G1.....	435
5.9.66 P-0-1372, PLC Global Register G2.....	436
5.9.67 P-0-1373, PLC Global Register G3.....	436
5.9.68 P-0-1374, PLC Global Register G4.....	436
5.9.69 P-0-1375, PLC Global Register G5.....	437
5.9.70 P-0-1376, PLC Global Register G6.....	437
5.9.71 P-0-1377, PLC Global Register G7.....	437
5.9.72 P-0-1378, PLC Global Register G8.....	438
5.9.73 P-0-1379, PLC Global Register G9.....	438
5.9.74 P-0-1380, PLC Global Register G10.....	438
5.9.75 P-0-1381, PLC Global Register G11.....	438
5.9.76 P-0-1382, PLC Global Register G12.....	439
5.9.77 P-0-1383, PLC Global Register G13.....	439
5.9.78 P-0-1384, PLC Global Register G14.....	439
5.9.79 P-0-1385, PLC Global Register G15.....	440
5.9.80 P-0-1386, PLC display format Global Register.....	440
5.9.81 P-0-1387, PLC Global Register AT0.....	441
5.9.82 P-0-1388, PLC Global Register AT1.....	441
5.9.83 P-0-1389, PLC Global Register GL0.....	442
5.9.84 P-0-1390, PLC input WORD0 AT %IB0.....	442
5.9.85 P-0-1391, PLC input WORD1 AT %IB2.....	444

	Page
5.9.86 P-0-1392, PLC input WORD2 AT %IB4.....	444
5.9.87 P-0-1393, PLC input WORD3 AT %IB6.....	444
5.9.88 P-0-1394, PLC input WORD4 AT %IB8.....	444
5.9.89 P-0-1395, PLC input WORD5 AT %IB10.....	445
5.9.90 P-0-1396, PLC input WORD6 AT %IB12.....	445
5.9.91 P-0-1397, PLC input WORD7 AT %IB14.....	445
5.9.92 P-0-1398, PLC input WORD8 AT %IB16.....	446
5.9.93 P-0-1399, PLC input WORD9 AT %IB18.....	446
5.9.94 P-0-1400, PLC input WORD10 AT %IB20.....	446
5.9.95 P-0-1401, PLC input WORD11 AT %IB22.....	447
5.9.96 P-0-1402, PLC input WORD12 AT %IB24.....	447
5.9.97 P-0-1403, PLC input WORD13 AT %IB26.....	447
5.9.98 P-0-1404, PLC input WORD14 AT %IB28.....	448
5.9.99 P-0-1405, PLC input WORD15 AT %IB30.....	448
5.9.100 P-0-1406, PLC input WORD16 AT %IB32.....	448
5.9.101 P-0-1407, PLC input WORD17 AT %IB34.....	449
5.9.102 P-0-1408, PLC input WORD18 AT %IB36.....	449
5.9.103 P-0-1409, PLC input WORD19 AT %IB38.....	449
5.9.104 P-0-1410, PLC output WORD0 AT %QB0.....	450
5.9.105 P-0-1411, PLC output WORD1 AT %QB2.....	451
5.9.106 P-0-1412, PLC output WORD2 AT %QB4.....	451
5.9.107 P-0-1413, PLC output WORD3 AT %QB6.....	451
5.9.108 P-0-1414, PLC output WORD4 AT %QB8.....	452
5.9.109 P-0-1415, PLC output WORD5 AT %QB10.....	452
5.9.110 P-0-1416, PLC output WORD6 AT %QB12.....	452
5.9.111 P-0-1417, PLC output WORD7 AT %QB14.....	453
5.9.112 P-0-1418, PLC output WORD8 AT %QB16.....	453
5.9.113 P-0-1419, PLC output WORD9 AT %QB18.....	453
5.9.114 P-0-1420, PLC output WORD10 AT %QB20.....	453
5.9.115 P-0-1421, PLC output WORD11 AT %QB22.....	454
5.9.116 P-0-1422, PLC output WORD12 AT %QB24.....	454
5.9.117 P-0-1423, PLC output WORD13 AT %QB26.....	455
5.9.118 P-0-1424, PLC output WORD14 AT %QB28.....	455
5.9.119 P-0-1425, PLC output WORD15 AT %QB30.....	455
5.9.120 P-0-1426, PLC output WORD16 AT %QB32.....	456
5.9.121 P-0-1427, PLC output WORD17 AT %QB34.....	456
5.9.122 P-0-1428, PLC output WORD18 AT %QB36.....	456
5.9.123 P-0-1429, PLC output WORD19 AT %QB38.....	457
5.9.124 P-0-1440, PLC input DWORD25 AT %IB100.....	457
5.9.125 P-0-1441, PLC input DWORD26 AT %IB104.....	458
5.9.126 P-0-1442, PLC input DWORD27 AT %IB108.....	459
5.9.127 P-0-1443, PLC input DWORD28 AT %IB112.....	459
5.9.128 P-0-1444, PLC input DWORD29 AT %IB116.....	459
5.9.129 P-0-1445, PLC input DWORD30 AT %IB120.....	460
5.9.130 P-0-1446, PLC input DWORD31 AT %IB124.....	460
5.9.131 P-0-1447, PLC input DWORD32 AT %IB128.....	460

	Page
5.9.132 P-0-1449, C4900 PLC command.....	461
5.9.133 P-0-1450, PLC/setting-up mode Positioning command value.....	461
5.9.134 P-0-1451, PLC/setting-up mode, positioning velocity.....	461
5.9.135 P-0-1452, PLC/setting-up mode, positioning acceleration.....	462
5.9.136 P-0-1453, PLC/setting-up mode, positioning deceleration.....	462
5.9.137 P-0-1454, PLC/setting-up mode, positioning command value acceptance.....	463
5.9.138 P-0-1455, PLC/setting-up mode, positioning command value acknowledge.....	463
5.9.139 P-0-1460, PLC/setting-up mode, velocity command value.....	464
5.9.140 P-0-1461, PLC/setting-up mode Ramp pitch.....	464
5.9.141 P-0-1463, PLC/setting-up mode Deceleration ramp.....	464
5.9.142 P-0-1465, PLC/setting-up mode Torque/force command value.....	465
5.9.143 P-0-1466, PLC Torque/force ramp.....	465
5.9.144 P-0-1467, PLC/setting-up mode, torque/force ramp time.....	466
5.9.145 P-0-1468, PLC/setting-up mode, valve command value.....	466
5.9.146 P-0-1469, PLC/setting-up mode, valve ramp time.....	466
5.10 P-0-1500 - P-0-1599.....	467
5.10.1 P-0-1520, Control section type.....	467
5.10.2 P-0-1534, C6100 Command Activate IP settings.....	467
5.10.3 P-0-1535, Setting of IP communication.....	468
5.11 P-0-1600 - P-0-1999.....	469
5.11.1 P-0-1804.x.130, Assignment signal status/control word, compact.....	469
5.11.2 P-0-1805.x.130, Configuration master/slave command/actual values, compact.....	470
5.11.3 P-0-1901.0.1, CiA402: Controlword.....	470
5.11.4 P-0-1901.0.2, CiA402: Statusword.....	471
5.11.5 P-0-1901.0.3, CiA402: Abort connection option code.....	472
5.11.6 P-0-1901.0.4, CiA402: Quick stop option code.....	472
5.11.7 P-0-1901.0.5, CiA402: Shutdown option code.....	472
5.11.8 P-0-1901.0.6, CiA402: Disable operation option code.....	473
5.11.9 P-0-1901.0.7, CiA402: Halt option code.....	473
5.11.10 P-0-1901.0.8, CiA402: Fault reaction option code.....	474
5.11.11 P-0-1901.0.9, CiA402: Modes of operation.....	474
5.11.12 P-0-1901.0.10, CiA402: Modes of operation display.....	475
5.11.13 P-0-1901.0.11, CiA402: Supported drive modes.....	475
5.11.14 P-0-1901.0.12, CiA402: Error Code.....	475
5.11.15 P-0-1901.0.21, CiA402: Position encoder resolution.....	476
5.11.16 P-0-1901.0.22, CiA402: Position encoder resolution, Encoder increments.....	476
5.11.17 P-0-1901.0.23, CiA402: Position encoder resolution, Motor revolutions.....	476
5.11.18 P-0-1901.0.24, CiA402: Gear ratio.....	477
5.11.19 P-0-1901.0.25, CiA402: Feed constant.....	477
5.11.20 P-0-1901.0.26, CiA402: Feed constant, feed.....	477
5.11.21 P-0-1901.0.27, CiA402: Feed constant, shaft revolutions.....	478
5.11.22 P-0-1901.0.28, CiA402: Velocity factor.....	478
5.11.23 P-0-1901.0.29, CiA402: Velocity factor, numerator.....	479
5.11.24 P-0-1901.0.30, CiA402: Velocity factor, divisor.....	479
5.11.25 P-0-1901.0.31, CiA402: Acceleration factor.....	479
5.11.26 P-0-1901.0.32, CiA402: Acceleration factor, numerator.....	480

	Page
5.11.27 P-0-1901.0.33, CiA402: Acceleration factor, divisor.....	480
5.11.28 P-0-1901.0.34, CiA402: Polarity.....	480
5.11.29 P-0-1901.0.35, CiA402: SI unit position.....	481
5.11.30 P-0-1901.0.36, CiA402: SI unit velocity.....	481
5.11.31 P-0-1901.0.37, CiA402:SI unit acceleration.....	482
5.11.32 P-0-1901.0.41, CiA402: Target Position.....	483
5.11.33 P-0-1901.0.42, CiA402: Interpolation time period.....	483
5.11.34 P-0-1901.0.43, CiA402: Interpolation time period value.....	483
5.11.35 P-0-1901.0.44, CiA402: Interpolation time index.....	484
5.11.36 P-0-1901.0.45, CiA402: Position Range Limit.....	484
5.11.37 P-0-1901.0.46, CiA402: Min position range limit.....	485
5.11.38 P-0-1901.0.47, CiA402: Max position range limit.....	485
5.11.39 P-0-1901.0.48, CiA402: Software Position Limit.....	485
5.11.40 P-0-1901.0.49, CiA402: Min position limit.....	486
5.11.41 P-0-1901.0.50, CiA402: Max position limit.....	486
5.11.42 P-0-1901.0.51, CiA402:Position actual internal value.....	487
5.11.43 P-0-1901.0.52, CiA402:Position demand internal value.....	487
5.11.44 P-0-1901.0.53, CiA402:Homing method.....	487
5.11.45 P-0-1901.0.54, CiA402: Homing speeds.....	488
5.12 P-0-2000 - P-0-2799.....	489
5.12.1 P-0-2002, Oper. hours of contr. sect. at change of functional packages.....	489
5.12.2 P-0-2003, Selection of functional packages.....	489
5.12.3 P-0-2004, Active functional packages.....	490
5.12.4 P-0-2216, Parameter set switching, configuration.....	491
5.12.5 P-0-2217, Parameter set switching, preselection range.....	492
5.12.6 P-0-2300, List of 32-bit IDNs.....	492
5.12.7 P-0-2301, List of 16-bit alias IDNs.....	493
5.12.8 P-0-2303, Device address.....	493
5.12.9 P-0-2304, Active device address.....	493
5.12.10 P-0-2310, Master communication: Protocol.....	494
5.12.11 P-0-2311, Master communication: Device name.....	494
5.12.12 P-0-2315, Master communication: IP address.....	494
5.12.13 P-0-2316, Master communication: Network mask.....	494
5.12.14 P-0-2317, Master communication: Gateway address.....	495
5.12.15 P-0-2318, Master communication: Configuration.....	495
5.12.16 P-0-2320, System data.....	495
5.12.17 P-0-2339, Parameter channel: Configuration.....	495
5.12.18 P-0-2406, Assignment signal status/control word, compact.....	496
5.12.19 P-0-2407, Assignment signal status/control word, compact.....	496
5.12.20 P-0-2412, Instance parameter diagnostics.....	496
5.12.21 P-0-2560, Configuration master/slave command/actual values, compact.....	497
5.12.22 P-0-2561, Configuration master/slave command/actual values, compact.....	497
5.12.23 P-0-2578, Type plate, compact.....	497
5.12.24 P-0-2584, Serial Number.....	497
5.12.25 P-0-2588, Diagnostic trace configuration.....	498
5.12.26 P-0-2589, Diagnostic trace control.....	498

	Page
5.12.27 P-0-2590, Diagnostic trace state.....	498
5.12.28 P-0-2591, Diagnostic trace main diagnostics.....	498
5.12.29 P-0-2593, Diagnostic trace detailed diagnostics.....	499
5.12.30 P-0-2594, Diagnostic trace system time fine.....	499
5.12.31 P-0-2595, Diagnostic trace system time coarse.....	499
5.12.32 P-0-2660, Configurable factory default values.....	499
5.12.33 P-0-2729, Detailed diagnostic message.....	500
5.12.34 P-0-2730, Generate type plate, IDN list of type plates.....	500
5.12.35 P-0-2738, Generate type plate, configuration list.....	500
5.12.36 P-0-2755, System fine time.....	501
5.12.37 P-0-2756, System coarse time.....	501
5.12.38 P-0-2757, ECAT: SII Configured Station Alias.....	501
5.12.39 P-0-2759, IndraWorks view manager.....	501
5.12.40 P-0-2768, Encoder status.....	502
5.12.41 P-0-2769, Marker position.....	502
5.12.42 P-0-2770, Position.....	502
5.12.43 P-0-2771, Encoder status.....	502
5.12.44 P-0-2772, Marker position.....	503
5.12.45 P-0-2773, Position.....	503
5.12.46 P-0-2786, Encoder status (input).....	503
5.12.47 P-0-2787, Marker position not scaled (input).....	504
5.12.48 P-0-2788, Position unscaled (input).....	504
5.12.49 P-0-2790, Prewarning threshold - performance utilization.....	504
5.13 P-0-2800 - P-0-2899.....	504
5.13.1 P-0-2800, p/Q controller control word.....	504
5.13.2 P-0-2801, p/Q controller status word.....	505
5.13.3 P-0-2802, Flow command value internal.....	506
5.13.4 P-0-2803, Pressure command value of controller.....	506
5.13.5 P-0-2804, Pressure controller P-gain.....	507
5.13.6 P-0-2805, Output of pressure controller.....	507
5.13.7 P-0-2806.0.2, Output pressure controller P-gain.....	507
5.13.8 P-0-2806.0.3, Pressure controller integrator enable lowpass filter.....	508
5.13.9 P-0-2806.0.4, Pressure controller integration time constant.....	508
5.13.10 P-0-2806.0.5, Pressure controller integrator pressure change threshold.....	508
5.13.11 P-0-2806.0.6, Pressure controller integrator accuracy window.....	509
5.13.12 P-0-2806.0.7, Pressure controller integrator limit.....	509
5.13.13 P-0-2806.0.9, Output pressure controller I-part.....	509
5.13.14 P-0-2806.0.10, Correction value: pressure controller D-component.....	510
5.13.15 P-0-2806.0.11, Pressure controller feedback to integrator.....	510
5.13.16 P-0-2806.0.12, Output pump pressure controller I-part.....	510
5.13.17 P-0-2806.0.13, Pressure controller calculation p->Q value side A.....	511
5.13.18 P-0-2806.0.14, Pressure controller calculation p->Q value side B.....	511
5.13.19 P-0-2806.0.15, Pressure controller preload integrator, threshold 1.....	511
5.13.20 P-0-2806.0.16, Pressure controller preload integrator, threshold 2.....	512
5.13.21 P-0-2806.0.17, Pressure controller preload, pressure change filter time.....	514
5.13.22 P-0-2806.0.18, Pressure controller adaptation, P-term.....	514

	Page
5.13.23 P-0-2806.0.19, Pressure controller adaptation, D-term.....	515
5.13.24 P-0-2806.0.20, Pressure controller disturbance feedforward.....	515
5.13.25 P-0-2806.0.21, Filter time of pressure feedback value.....	515
5.13.26 P-0-2806.0.22, Derivative action time, actual pressure value DT1.....	516
5.13.27 P-0-2806.0.23, Filter time of pressure feedback value DT1.....	516
5.13.28 P-0-2806.0.24, Pressure feedback value, filtered.....	516
5.13.29 P-0-2806.0.25, Pressure control deviation, filtered.....	517
5.13.30 P-0-2806.0.26, Output pressure controller in PD branch.....	517
5.13.31 P-0-2806.0.27, Lower speed limit of P-term adaptation.....	517
5.13.32 P-0-2806.0.28, Upper speed limit of P-term adaptation.....	517
5.13.33 P-0-2806.0.29, P-term gain factor for lower speed limit.....	518
5.13.34 P-0-2806.0.30, Lower speed limit of D-term adaptation.....	518
5.13.35 P-0-2806.0.31, Upper speed limit of D-term adaptation.....	518
5.13.36 P-0-2806.0.32, D-term gain factor for lower speed limit.....	519
5.13.37 P-0-2807, Pressure controller pilot flow control command value.....	519
5.13.38 P-0-2809, Pressure controller P-gain, cascade structure.....	519
5.13.39 P-0-2810, List of easy-startup operating modes.....	520
5.13.40 P-0-2811, Setting of base clock cycle.....	520
5.13.41 P-0-2812, Feedback of actual pressure value derivative to integrator.....	520
5.13.42 P-0-2813, Pressure controller dead volume.....	520
5.13.43 P-0-2814, Output of pump pressure controller, cascade structure.....	521
5.13.44 P-0-2815, Pressure controller output signal, negative limit, cascade.....	521
5.13.45 P-0-2816, Pressure controller positive factor for D-component, cascade.....	521
5.13.46 P-0-2817, Pressure controller negative factor for D-component, cascade.....	522
5.13.47 P-0-2818, Pressure controller upper integrator limit, cascade.....	522
5.13.48 P-0-2819, Error suppression control word.....	522
5.13.49 P-0-2820, Control word of position controller.....	524
5.13.50 P-0-2821, Position controller status word.....	525
5.13.51 P-0-2822, Velocity controller control word.....	525
5.13.52 P-0-2823, Velocity controller status word.....	526
5.13.53 P-0-2824, Active damping: Control word.....	526
5.13.54 P-0-2826, Output of velocity controller.....	527
5.13.55 P-0-2827, Pump changeover logic control word.....	527
5.13.56 P-0-2828, Pressure feedback value A (applicative).....	528
5.13.57 P-0-2829, Pressure feedback value B (applicative).....	529
5.13.58 P-0-2830.0.1, Position controller Kv-factor change ramp.....	529
5.13.59 P-0-2830.0.2, Position loop time constant D-component.....	529
5.13.60 P-0-2830.0.3, Position controller filter time D-component.....	530
5.13.61 P-0-2830.0.4, Position controller integration time constant.....	530
5.13.62 P-0-2830.0.5, Position controller integrator velocity threshold.....	530
5.13.63 P-0-2830.0.6, Position controller integrator position window.....	531
5.13.64 P-0-2830.0.7, Position controller integrator limit.....	531
5.13.65 P-0-2830.0.8, Position controller integrator washout ramp.....	531
5.13.66 P-0-2830.0.9, Position command filter time.....	532
5.13.67 P-0-2830.0.10, Position command dead time.....	532
5.13.68 P-0-2830.0.11, Velocity feedforward change ramp.....	533

	Page
5.13.69 P-0-2830.0.12, Filter time of position feedback value.....	533
5.13.70 P-0-2831.0.1, Output position controller Kv-part.....	533
5.13.71 P-0-2831.0.2, Output position controller D-part.....	534
5.13.72 P-0-2831.0.3, Output position controller I-part.....	534
5.13.73 P-0-2831.0.4, Output of position controller.....	534
5.13.74 P-0-2831.0.5, Correction value: velocity feedforward control.....	535
5.13.75 P-0-2831.0.6, Position command value of controller, delayed.....	535
5.13.76 P-0-2831.0.7, Actual position value model.....	535
5.13.77 P-0-2831.0.8, Following distance for monitoring.....	536
5.13.78 P-0-2831.0.9, Position feedback value, filtered.....	536
5.13.79 P-0-2831.0.130, Outputs of position controller, compact.....	536
5.13.80 P-0-2832.0.1, Velocity controller P-gain.....	537
5.13.81 P-0-2832.0.2, Velocity controller integration time constant.....	537
5.13.82 P-0-2832.0.3, Velocity controller integrator acceleration threshold.....	537
5.13.83 P-0-2832.0.4, Velocity controller integrator velocity window.....	538
5.13.84 P-0-2832.0.5, Velocity controller integrator limit.....	538
5.13.85 P-0-2832.0.7, Active damping: Force/time constant.....	538
5.13.86 P-0-2832.0.8, Active damping: Acceleration gain.....	539
5.13.87 P-0-2832.0.9, Active damping: Velocity gain.....	539
5.13.88 P-0-2832.0.10, Moved mass.....	540
5.13.89 P-0-2832.0.11, Velocity controller integrator feedback threshold.....	540
5.13.90 P-0-2832.0.12, Velocity controller integrator feedback time constant.....	540
5.13.91 P-0-2832.0.13, Velocity command filter time.....	541
5.13.92 P-0-2832.0.14, Velocity command dead time.....	541
5.13.93 P-0-2832.0.15, Active damping: Acceleration gain ramp time.....	541
5.13.94 P-0-2832.0.16, Active damping: Velocity gain ramp time.....	542
5.13.95 P-0-2832.0.17, Additive velocity command value.....	542
5.13.96 P-0-2833.0.1, Output velocity controller.....	542
5.13.97 P-0-2833.0.2, Portion of active damping: Velocity.....	542
5.13.98 P-0-2833.0.3, Portion of active damping: Acceleration/force.....	543
5.13.99 P-0-2833.0.5, Velocity command value of controller, delayed.....	543
5.13.100 P-0-2833.0.6, Output velocity controller P-part.....	543
5.13.101 P-0-2833.0.7, Output velocity controller I-part.....	544
5.13.102 P-0-2833.0.8, Correction value: Velocity controller feedforward control.....	544
5.13.103 P-0-2835, Pump pressure controller status word.....	544
5.13.104 P-0-2836, Pump changeover logic swivel angle, cascade.....	545
5.13.105 P-0-2837, Pump changeover logic output pressure controller, cascade.....	545
5.13.106 P-0-2838, Pressure controller lower integrator limit, cascade.....	545
5.13.107 P-0-2840, Force controller control word.....	546
5.13.108 P-0-2841, Force controller status word.....	547
5.13.109 P-0-2842, Force control deviation.....	547
5.13.110 P-0-2843, Output of force controller.....	547
5.13.111 P-0-2844, Force controller velocity feedforward control.....	548
5.13.112 P-0-2845.0.1, Force controller P-gain.....	548
5.13.113 P-0-2845.0.2, Scaling force to velocity.....	549
5.13.114 P-0-2845.0.3, Force controller integration time.....	549

	Page
5.13.115 P-0-2845.0.4, Force controller integrator force change threshold.....	550
5.13.116 P-0-2845.0.5, Force controller integrator force window.....	550
5.13.117 P-0-2845.0.6, Force controller limitation integrator.....	550
5.13.118 P-0-2845.0.8, Force controller scaling of velocity feedforward control.....	551
5.13.119 P-0-2845.0.9, Force feedback filter time.....	551
5.13.120 P-0-2845.0.10, Derivative action time, actual force value DT1.....	551
5.13.121 P-0-2845.0.11, Filter time of force feedback value DT1.....	552
5.13.122 P-0-2846.0.1, Output force controller P-part.....	552
5.13.123 P-0-2846.0.2, Output force controller I-part.....	552
5.13.124 P-0-2846.0.3, Output force controller velocity feedforward part.....	553
5.13.125 P-0-2846.0.5, Torque/force feedback value, filtered.....	553
5.13.126 P-0-2846.0.6, Force control deviation, unfiltered.....	553
5.13.127 P-0-2846.0.7, Output of force controller in flow.....	554
5.13.128 P-0-2850, p/Q changeover logic control word.....	554
5.13.129 P-0-2851, p/Q changeover logic status word.....	555
5.13.130 P-0-2852.0.3, Pressure controller switch-on threshold, relative.....	556
5.13.131 P-0-2852.0.4, Pressure controller switch-on threshold, absolute.....	556
5.13.132 P-0-2852.0.5, Pressure controller active switch-on threshold.....	557
5.13.133 P-0-2852.0.6, Pressure controller switch-off threshold, relative.....	557
5.13.134 P-0-2852.0.7, Pressure controller switch-off threshold, absolute.....	557
5.13.135 P-0-2852.0.8, Pressure controller active switch-off threshold.....	558
5.13.136 P-0-2852.0.9, Pressure controller ramp time switching logic.....	558
5.13.137 P-0-2852.0.10, Correction value: pressure controller changeover logic ramp.....	558
5.13.138 P-0-2852.0.11, Correction value: Changeover logic p/Q pressure controller.....	559
5.13.139 P-0-2852.0.12, Pressure change at changeover time.....	559
5.13.140 P-0-2852.0.13, Output of pump changeover logic, cascade structure.....	559
5.13.141 P-0-2852.0.14, Output ramp of pump changeover logic, cascade structure.....	559
5.13.142 P-0-2852.0.15, Pump changeover logic ramp time, cascade.....	560
5.13.143 P-0-2853, Alternating control, control word 1.....	560
5.13.144 P-0-2854, Alternating control, control word 2.....	561
5.13.145 P-0-2855, Alternating control, status word.....	562
5.13.146 P-0-2856.0.1, Alternating control, changeover threshold.....	563
5.13.147 P-0-2856.0.2, Alternating control, relative changeover window.....	563
5.13.148 P-0-2856.0.3, Alternating control, active changeover threshold.....	564
5.13.149 P-0-2856.0.4, Alternating control, switch-on delay.....	564
5.13.150 P-0-2856.0.5, Alternating control, ramp time.....	565
5.13.151 P-0-2856.0.6, Alternating control, ramp value.....	565
5.13.152 P-0-2857, Output of changeover logic p/Q.....	565
5.13.153 P-0-2858, Output of alternating control.....	566
5.13.154 P-0-2860.0.1, Synchronization control word.....	566
5.13.155 P-0-2860.0.2, Synchronization status word.....	567
5.13.156 P-0-2860.0.3, Synchronization list slave axes.....	567
5.13.157 P-0-2860.0.4, Synchronization mode.....	568
5.13.158 P-0-2860.0.5, Synchronization integrator accuracy window.....	568
5.13.159 P-0-2860.0.6, Synchronization down ramp integrator position.....	569
5.13.160 P-0-2860.0.7, Synchronization down ramp integrator velocity.....	569

	Page
5.13.161 P-0-2860.0.8, Synchronization down ramp integrator force.....	569
5.13.162 P-0-2860.0.9, Synchronization monitoring window.....	569
5.13.163 P-0-2860.0.10, Synchronization current fault absolute.....	570
5.13.164 P-0-2860.0.11, Synchronization deviation actual reference value.....	570
5.13.165 P-0-2860.0.12, Synchronization actual reference position.....	570
5.13.166 P-0-2860.0.13, Synchronization break distance.....	571
5.13.167 P-0-2860.0.14, Synchronization model loop gain.....	571
5.13.168 P-0-2860.0.15, Synchronization model scaling velocity feedforward control.....	571
5.13.169 P-0-2860.0.16, Synchronization threshold command value follow-up.....	572
5.13.170 P-0-2860.0.20, Synchronization slave axis status word.....	572
5.13.171 P-0-2860.0.21, Synchronization model deviation.....	573
5.13.172 P-0-2860.0.22, Synchronization maximum model deviation.....	573
5.13.173 P-0-2860.0.23, Synchronization break delay ramp.....	573
5.13.174 P-0-2861.x.1, Synchronization slave axes control word.....	574
5.13.175 P-0-2861.x.2, Synchronization slave axes status word.....	574
5.13.176 P-0-2861.x.3, Synchronization deviation actual reference value.....	575
5.13.177 P-0-2861.x.4, Synchronization factor relative synchronism.....	575
5.13.178 P-0-2861.x.5, Synchronization command value, additive.....	576
5.13.179 P-0-2861.x.6, Synchronization slave axis feedback value.....	576
5.13.180 P-0-2862.x.1, Synchronization position P-gain.....	576
5.13.181 P-0-2862.x.2, Synchronization position integral time.....	577
5.13.182 P-0-2862.x.3, Synchronization position limitation integrator.....	577
5.13.183 P-0-2862.x.10, Correction value: synchronization position P-gain.....	577
5.13.184 P-0-2862.x.11, Correction value: synchronization position integrator.....	578
5.13.185 P-0-2862.x.12, Output of synchronization position.....	578
5.13.186 P-0-2863.x.1, Synchronization force P-gain.....	579
5.13.187 P-0-2863.x.2, Synchronization force integration time.....	579
5.13.188 P-0-2863.x.3, Synchronization force limitation integrator.....	579
5.13.189 P-0-2863.x.4, Synchronization force factor conversion position force.....	580
5.13.190 P-0-2863.x.5, Synchronization force minimum force value.....	580
5.13.191 P-0-2863.x.6, Synchronization force base value.....	581
5.13.192 P-0-2863.x.10, Correction value: synchronization force P-gain.....	581
5.13.193 P-0-2863.x.11, Correction value: synchronization force integrator.....	581
5.13.194 P-0-2863.x.12, Output of synchronization force.....	582
5.13.195 P-0-2864.x.1, Synchronization velocity P-gain.....	582
5.13.196 P-0-2864.x.2, Synchronization velocity integration time.....	582
5.13.197 P-0-2864.x.3, Synchronization velocity limitation integrator.....	583
5.13.198 P-0-2864.x.4, Synchronization velocity factor conversion position velocity.....	583
5.13.199 P-0-2864.x.10, Correction value: synchronization velocity P-gain.....	584
5.13.200 P-0-2864.x.11, Correction value: synchronization velocity integrator.....	584
5.13.201 P-0-2864.x.12, Output of synchronization velocity.....	584
5.13.202 P-0-2865.0.1, Synchronization target integrator accuracy window.....	585
5.13.203 P-0-2865.0.2, Synchronization target integrator integral time.....	585
5.13.204 P-0-2865.0.3, Synchronization target integrator limitation.....	585
5.13.205 P-0-2865.0.4, Synchronization target integrator enable speed.....	586
5.13.206 P-0-2865.0.5, Synchronization target integrator down ramp.....	586

	Page
5.13.207 P-0-2865.0.10, Correction value: synchronization target integrator.....	586
5.13.208 P-0-2870, Control variable adjustment control word.....	586
5.13.209 P-0-2871, Control variable adjustment status word.....	587
5.13.210 P-0-2872, Output of valve characteristic curve.....	588
5.13.211 P-0-2873.0.1, Valve standard velocity.....	588
5.13.212 P-0-2873.0.2, Direction-dependent gain.....	588
5.13.213 P-0-2873.0.3, Control variable inversion.....	589
5.13.214 P-0-2873.0.4, Valve overlap type.....	589
5.13.215 P-0-2873.0.5, Valve overlap A-side.....	590
5.13.216 P-0-2873.0.6, Valve overlap B-side.....	590
5.13.217 P-0-2873.0.7, Valve overlap threshold.....	590
5.13.218 P-0-2873.0.8, Characteristic of type.....	591
5.13.219 P-0-2873.0.9, Characteristic of flow.....	591
5.13.220 P-0-2873.0.10, Characteristic of control variable.....	592
5.13.221 P-0-2873.0.11, Valve standard velocity (negativ).....	592
5.13.222 P-0-2873.0.12, Input of output adjustment.....	593
5.13.223 P-0-2873.0.13, Valve control variable offset.....	593
5.13.224 P-0-2873.0.14, Control disabled offset.....	593
5.13.225 P-0-2873.0.15, Filter time of valve control output.....	594
5.13.226 P-0-2873.0.16, Output adjustment command value.....	594
5.13.227 P-0-2873.0.17, Control variable adjustment of command value, maintenance.....	594
5.13.228 P-0-2873.0.18, Valve standard velocity ramp.....	595
5.13.229 P-0-2873.0.20, Control variable adjustment control word.....	595
5.13.230 P-0-2873.0.23, Selection of controller output.....	596
5.13.231 P-0-2873.0.24, Limitation of valve control variable, A-side.....	597
5.13.232 P-0-2873.0.25, Limitation of valve control variable, B-side.....	597
5.13.233 P-0-2874.0.1, Q calculation delta p limitation.....	597
5.13.234 P-0-2874.0.2, Q calculation time constant 1.....	598
5.13.235 P-0-2874.0.4, Output of Q calculation.....	598
5.13.236 P-0-2874.0.5, Delta p of pressure feedback value.....	598
5.13.237 P-0-2874.0.6, Q calculation factor of characteristic curve, A-side.....	599
5.13.238 P-0-2874.0.7, Q calculation offset characteristic curve, A-side.....	599
5.13.239 P-0-2874.0.8, Q calculation factor of characteristic curve, B-side.....	599
5.13.240 P-0-2874.0.9, Q calculation offset characteristic curve, B-side.....	600
5.13.241 P-0-2875.0.1, Nominal flow.....	600
5.13.242 P-0-2875.0.2, Nominal pressure delta p.....	600
5.13.243 P-0-2875.0.3, Maximum flow.....	601
5.13.244 P-0-2875.0.4, Maximum pressure.....	601
5.13.245 P-0-2875.0.5, Nominal flow.....	601
5.13.246 P-0-2875.0.6, Nominal pressure delta p.....	602
5.13.247 P-0-2876, Output control variable adjustment.....	602
5.13.248 P-0-2877, Input of output adjustment p/Q.....	602
5.13.249 P-0-2880.0.1, Valve monitoring control word.....	603
5.13.250 P-0-2880.0.3, Valve monitoring filter time.....	603
5.13.251 P-0-2880.0.4, Valve monitoring threshold.....	604
5.13.252 P-0-2880.0.5, Valve monitoring maximum valve error.....	604

	Page
5.13.253 P-0-2880.0.6, Valve monitoring delay.....	604
5.13.254 P-0-2880.0.7, Pilot pressure monitoring, spring pressure.....	605
5.13.255 P-0-2880.0.8, Pilot pressure monitoring, area ratio.....	605
5.13.256 P-0-2880.0.9, Pilot pressure monitoring, minimum pilot pressure.....	605
5.13.257 P-0-2880.0.10, Pilot pressure monitoring, delay time.....	606
5.13.258 P-0-2885.0.1, Control section temperature.....	606
5.13.259 P-0-2885.0.2, Temperature monitoring of control section.....	606
5.13.260 P-0-2885.0.3, Supply voltage, actual value.....	607
5.13.261 P-0-2885.0.4, Sensor supply, actual value.....	608
5.13.262 P-0-2885.0.5, Sensor supply, analog, actual value.....	608
5.13.263 P-0-2885.0.6, Load current, actual value.....	608
5.13.264 P-0-2885.0.7, Sensor supply, extension card, actual value.....	608
5.13.265 P-0-2885.0.8, Sensor supply, analog, extension card, actual value.....	609
5.13.266 P-0-2885.0.9, Load current extension card, actual value.....	609
5.13.267 P-0-2885.0.10, Cycle time deviation.....	609
5.13.268 P-0-2885.0.11, Supply voltage, actual value.....	610
5.13.269 P-0-2885.0.12, Oil temperature.....	610
5.13.270 P-0-2887, C90xx Condition Monitoring command parameter.....	610
5.13.271 P-0-2888, Condition monitoring control word.....	611
5.13.272 P-0-2891, Condition monitoring status word.....	611
5.14 P-0-2900 - P-0-2999.....	612
5.14.1 P-0-2900.x.1, Analog input, assignment, control word.....	612
5.14.2 P-0-2900.x.2, Analog input, assignment, target parameter.....	614
5.14.3 P-0-2900.x.3, Analog input, assignment, nominal value.....	614
5.14.4 P-0-2900.x.4, Analog input, assignment, offset.....	615
5.14.5 P-0-2900.x.5, Analog input, assignment, filter time.....	616
5.14.6 P-0-2900.x.6, Analog input, assignment, status word.....	617
5.14.7 P-0-2900.x.7, Analog input, assignment, extended control word.....	618
5.14.8 P-0-2900.x.8, Analog input, assignment, signal range lower limit.....	619
5.14.9 P-0-2900.x.9, Analog input, assignment, signal range upper limit.....	620
5.14.10 P-0-2901.0.1, Analog input, adjustment control word.....	620
5.14.11 P-0-2901.0.2, Analog input, assignment, adjustment command C2700.....	621
5.14.12 P-0-2901.0.3, Analog input, assignment, maximum value for adjustment.....	621
5.14.13 P-0-2902, Line length A.....	622
5.14.14 P-0-2903, Line length B.....	622
5.14.15 P-0-2904, Line diameter A.....	623
5.14.16 P-0-2905, Line diameter B.....	623
5.14.17 P-0-2906, System pressure 2.....	623
5.14.18 P-0-2910.0.1, Analog encoder, control word.....	624
5.14.19 P-0-2910.0.2, Analog encoder, lower limit of signal range.....	624
5.14.20 P-0-2910.0.3, Analog encoder, upper limit of signal range.....	625
5.14.21 P-0-2910.0.4, Analog encoder, lower limit of position range.....	625
5.14.22 P-0-2910.0.5, Analog encoder, upper limit of position range.....	626
5.14.23 P-0-2910.0.6, Analog encoder, filter time.....	626
5.14.24 P-0-2911.x.1, Analog output, assignment, control word.....	626
5.14.25 P-0-2911.x.2, Analog output, assignment, status word.....	627

	Page
5.14.26 P-0-2911.x.3, Analog output, assignment, source parameter.....	628
5.14.27 P-0-2911.x.4, Analog output, assignment, offset.....	629
5.14.28 P-0-2911.x.5, Analog output, assignment, value range.....	629
5.14.29 P-0-2911.x.6, Analog output, assignment, signal range, lower limit.....	630
5.14.30 P-0-2911.x.7, Analog output, assignment, signal range, upper limit.....	631
5.14.31 P-0-2912.0.1, Valve and flow controller settings.....	631
5.14.32 P-0-2912.0.3, Advanced settings for valve controller.....	632
5.14.33 P-0-2914, Effective valve command value.....	632
5.14.34 P-0-2915.0.1, Actual pilot value.....	632
5.14.35 P-0-2915.0.3, Actual current value of solenoid A.....	632
5.14.36 P-0-2915.0.4, Actual current value of solenoid B.....	633
5.14.37 P-0-2915.0.5, Output of pilot controller.....	633
5.14.38 P-0-2915.0.6, Output of main stage controller.....	633
5.14.39 P-0-2917.0.1, Simulation of control word.....	633
5.14.40 P-0-2917.0.3, Natural frequency of axis.....	634
5.14.41 P-0-2917.0.4, Simulation of positive limit stop.....	634
5.14.42 P-0-2917.0.5, Simulation of negative limit stop.....	635
5.14.43 P-0-2917.0.6, Simulation of spring length.....	635
5.14.44 P-0-2917.0.7, Moved mass.....	636
5.14.45 P-0-2917.0.130, Simulation parameter, compact.....	636
5.14.46 P-0-2918.0.1, Hardware control word of analog inputs and outputs.....	636
5.14.47 P-0-2918.0.2, Hardware control word of analog inputs and outputs.....	637
5.14.48 P-0-2918.0.3, Sensor supply via digital outputs.....	639
5.14.49 P-0-2918.0.4, Hardware control word of analog inputs and outputs.....	639
5.14.50 P-0-2919, Inclination angle of axis.....	640
5.14.51 P-0-2921, Load pressure.....	640
5.14.52 P-0-2923, Configuration of system data.....	641
5.14.53 P-0-2923.0.1, Configuration of system data 2.....	642
5.14.54 P-0-2925, Natural frequency of valve.....	643
5.14.55 P-0-2928.0.1, Valve command value control word.....	643
5.14.56 P-0-2928.0.3, Output of valve command value generator.....	644
5.14.57 P-0-2928.0.4, Valve command value ramp time positive, acceleration.....	644
5.14.58 P-0-2928.0.5, Valve command value ramp time positive, deceleration.....	644
5.14.59 P-0-2928.0.6, Valve command value ramp time negative, acceleration.....	644
5.14.60 P-0-2928.0.7, Valve command value ramp time negative, deceleration.....	645
5.14.61 P-0-2928.0.8, Valve command value emergency ramp.....	645
5.14.62 P-0-2929.0.1, Flow control word.....	645
5.14.63 P-0-2929.0.2, Flow status word.....	646
5.14.64 P-0-2929.0.3, Flow ramp time positive, acceleration.....	646
5.14.65 P-0-2929.0.4, Flow ramp time positive, deceleration.....	647
5.14.66 P-0-2929.0.5, Flow ramp time negative, acceleration.....	647
5.14.67 P-0-2929.0.6, Flow ramp time negative, deceleration.....	647
5.14.68 P-0-2930.0.1, Feedforward control setpoint velocity.....	647
5.14.69 P-0-2930.0.2, Feedforward control setpoint acceleration.....	648
5.14.70 P-0-2930.0.3, Synchronization of velocity ramp.....	648
5.14.71 P-0-2935, Swivel angle command value for master/slave function.....	648

	Page
5.14.72 P-0-2936.0.1, Encoder control word extended.....	649
5.14.73 P-0-2936.0.2, Encoder status word extended.....	649
5.14.74 P-0-2936.0.6, Maximum number of cycles of encoder jump suppression.....	650
5.14.75 P-0-2936.0.7, Actual velocity filter time.....	651
5.14.76 P-0-2936.0.8, Velocity feedback value, not filtered.....	651
5.14.77 P-0-2936.0.9, Actual acceleration filter time.....	651
5.14.78 P-0-2936.0.10, Acceleration feedback value, not filtered.....	651
5.14.79 P-0-2937.0.1, Force acquisition control word.....	652
5.14.80 P-0-2937.0.3, Input of force feedback value.....	653
5.14.81 P-0-2938.0.1, Underclocking control word.....	653
5.14.82 P-0-2940, Pressure feedback value 1.....	654
5.14.83 P-0-2941, Pressure feedback value 2.....	654
5.14.84 P-0-2943, Pump displacement volume.....	654
5.14.85 P-0-2944, Motor nominal speed.....	654
5.14.86 P-0-2945, Configuration of analog mode.....	655
5.14.87 P-0-2946, Enable signal.....	656
5.14.88 P-0-2946.0.1, Valve type.....	657
5.14.89 P-0-2947.0.16, Reference pressure for pump controller calibration.....	659
5.14.90 P-0-2948, Selection of swivel angle sensor type.....	659
5.14.91 P-0-2949.0.1, Swivel angle sensor configuration.....	659
5.14.92 P-0-2949.0.2, Swivel angle sensor, lower working point.....	660
5.14.93 P-0-2949.0.3, Swivel angle sensor, upper working point.....	660
5.14.94 P-0-2949.0.4, Swivel angle sensor wire rupture, lower threshold.....	660
5.14.95 P-0-2949.0.5, Swivel angle sensor wire rupture, upper threshold.....	661
5.14.96 P-0-2949.0.6, Swivel angle sensor wire rupture, timeout.....	661
5.14.97 P-0-2949.0.7, Analog input of swivel angle feedback value.....	661
5.14.98 P-0-2949.0.8, Filter time of swivel angle feedback value.....	662
5.14.99 P-0-2950, Pump controller control word.....	662
5.14.100 P-0-2951, Pump controller status word.....	664
5.14.101 P-0-2952, Torque limitation of pump, relative.....	665
5.14.102 P-0-2953, Output of swivel angle controller.....	665
5.14.103 P-0-2954, Pump changeover logic output pressure controller, parallel.....	666
5.14.104 P-0-2955, Output of pump changeover logic, parallel structure.....	666
5.14.105 P-0-2956, Pump changeover logic swivel angle, parallel.....	666
5.14.106 P-0-2957.0.1, Pressure normalization.....	666
5.14.107 P-0-2957.0.2, Output pressure controller P-gain.....	667
5.14.108 P-0-2957.0.3, Correction value: pressure controller D-component.....	667
5.14.109 P-0-2957.0.4, Correction value: swivel angle feedback.....	667
5.14.110 P-0-2957.0.6, Derivation pressure feedback value.....	667
5.14.111 P-0-2957.0.7, Pressure feedback value, delayed.....	668
5.14.112 P-0-2957.0.8, Output of pump pressure controller, parallel structure.....	668
5.14.113 P-0-2958.0.1, Derivation swivel angle feedback value.....	668
5.14.114 P-0-2958.0.3, Correction value: torque limitation.....	668
5.14.115 P-0-2958.0.4, Swivel angle command value after leakage compensation.....	669
5.14.116 P-0-2958.0.5, Feedback of actual pressure value derivative.....	669
5.14.117 P-0-2958.0.6, Correction value: leakage compensation offset value.....	669

	Page
5.14.118 P-0-2958.0.7, Output of swivel angle command value processing.....	669
5.14.119 P-0-2958.0.8, Torque limitation, field weakening operation.....	670
5.14.120 P-0-2958.0.9, Effective torque limitation.....	670
5.14.121 P-0-2959.0.1, Correction value: output adjustment after feedforward.....	670
5.14.122 P-0-2959.0.2, Correction value: valve correction.....	670
5.14.123 P-0-2960, Gate time derivation actual pressure value 1 or A.....	671
5.14.124 P-0-2961, Filter time of swivel angle feedback value derivative.....	671
5.14.125 P-0-2963, Pressure controller P-gain 1 positive.....	672
5.14.126 P-0-2964, Pressure controller P-gain 1 negative.....	672
5.14.127 P-0-2965, Pressure controller P-gain 2 positive.....	672
5.14.128 P-0-2966, Pressure controller P-gain 2 negative.....	672
5.14.129 P-0-2967, Pressure controller control deviation threshold positive.....	673
5.14.130 P-0-2968, Pressure controller control deviation threshold negative.....	673
5.14.131 P-0-2969, Pressure controller pos. Factor for D-component, parallel.....	673
5.14.132 P-0-2970, Pressure controller neg. factor for D-component, parallel.....	674
5.14.133 P-0-2971, Pressure controller time constant swivel angle feedback.....	674
5.14.134 P-0-2972, Swivel angle command value of controller.....	674
5.14.135 P-0-2973, Filter time for feedback of actual pressure value derivative.....	674
5.14.136 P-0-2974, Time constant for feedback of act. pressure value derivative.....	675
5.14.137 P-0-2975, Pressure command value (without controller enable).....	675
5.14.138 P-0-2976, Swivel angle command value (without controller enable).....	675
5.14.139 P-0-2977, Swivel angle controller P-gain.....	676
5.14.140 P-0-2978, Swivel angle controller time constant D-component.....	676
5.14.141 P-0-2979, Gate time derivation actual pressure value 2 or B.....	676
5.14.142 P-0-2980, Leakage compensation calibration value.....	677
5.14.143 P-0-2981, Valve correction pressure stage.....	677
5.14.144 P-0-2982, Valve correction pressure offset.....	677
5.14.145 P-0-2983, Output adjustment, feedforward valve.....	678
5.14.146 P-0-2984, Control variable adjustment, scaling feedforward positive.....	678
5.14.147 P-0-2985, Control variable adjustment, scaling feedforward negative.....	678
5.14.148 P-0-2986, Output adjustment of pump command value.....	679
5.14.149 P-0-2987, Maximum drive speed.....	679
5.14.150 P-0-2988, Control variable adjustment, swivel angle minimum value.....	679
5.14.151 P-0-2989, Configuration of pump controller.....	679
5.14.152 P-0-2990, C79xx Calibration command parameter.....	680
5.14.153 P-0-2991, Calibration command control word.....	681
5.14.154 P-0-2992, Swivel angle command value, internal.....	681
5.14.155 P-0-2993, Current drive speed.....	682
5.14.156 P-0-2994, Established calibration swivel angle zero point.....	682
5.14.157 P-0-2995, Established calibration swivel angle factor.....	682
5.14.158 P-0-2996, Pressure command value for leakage calibration.....	683
5.14.159 P-0-2997.0.1, EnDat 2.2: Encoder data.....	683
5.14.160 P-0-2997.0.2, EnDat 2.2: clock frequency.....	684
5.14.161 P-0-2998.0.1, Maximum values of write counter, SPI flash memory.....	684
5.15 P-0-3000 - P-0-3199.....	684
5.16 P-0-3200 - P-0-3599.....	684

	Page
5.16.1 P-0-3400, Pressure controller integrator enable lowpass filter.....	684
5.16.2 P-0-3401, Pressure controller integration time constant.....	684
5.16.3 P-0-3402, Pressure controller integrator pressure change threshold.....	685
5.16.4 P-0-3403, Pressure controller integrator accuracy window.....	685
5.16.5 P-0-3404, Pressure controller integrator limit.....	685
5.16.6 P-0-3405, Output pressure controller I-part.....	686
5.16.7 P-0-3406, Pressure controller calculation p->Q value side A.....	686
5.16.8 P-0-3407, Pressure controller calculation p->Q value side B.....	686
5.16.9 P-0-3408, Position controller Kv-factor change ramp.....	686
5.16.10 P-0-3409, Position loop time constant D-component.....	687
5.16.11 P-0-3410, Position controller filter time D-component.....	687
5.16.12 P-0-3411, Position controller integration time constant.....	687
5.16.13 P-0-3412, Position controller integrator velocity threshold.....	688
5.16.14 P-0-3413, Position controller integrator position window.....	688
5.16.15 P-0-3414, Position controller integrator limit.....	688
5.16.16 P-0-3415, Position controller integrator washout ramp.....	688
5.16.17 P-0-3416, Position command filter time.....	689
5.16.18 P-0-3417, Position command dead time.....	689
5.16.19 P-0-3418, Velocity feedforward change ramp.....	689
5.16.20 P-0-3419, Velocity controller P-gain.....	690
5.16.21 P-0-3420, Velocity controller integration time constant.....	690
5.16.22 P-0-3421, Velocity controller integrator acceleration threshold.....	690
5.16.23 P-0-3422, Velocity controller integrator velocity window.....	690
5.16.24 P-0-3423, Velocity controller integrator limit.....	691
5.16.25 P-0-3424, Active damping: Force/time constant.....	691
5.16.26 P-0-3425, Active damping: Acceleration gain.....	691
5.16.27 P-0-3426, Active damping: Velocity gain.....	692
5.16.28 P-0-3427, Moved mass.....	692
5.16.29 P-0-3428, Velocity command filter time.....	692
5.16.30 P-0-3429, Velocity command dead time.....	692
5.16.31 P-0-3430, Force controller P-gain.....	693
5.16.32 P-0-3431, Scaling force to velocity.....	693
5.16.33 P-0-3432, Force controller integration time.....	693
5.16.34 P-0-3433, Force controller integrator force change threshold.....	694
5.16.35 P-0-3434, Force controller integrator force window.....	694
5.16.36 P-0-3435, Force controller limitation integrator.....	694
5.16.37 P-0-3436, Force controller scaling of velocity feedforward control.....	694
5.16.38 P-0-3437, Force feedback filter time.....	695
5.16.39 P-0-3438, Pressure controller preload integrator, threshold 1.....	695
5.16.40 P-0-3439, Pressure controller switch-on threshold, relative.....	695
5.16.41 P-0-3440, Pressure controller switch-on threshold, absolute.....	696
5.16.42 P-0-3441, Pressure controller switch-off threshold, relative.....	696
5.16.43 P-0-3442, Pressure controller switch-off threshold, absolute.....	696
5.16.44 P-0-3443, Pressure controller ramp time switching logic.....	696
5.16.45 P-0-3444, Alternating control, changeover threshold.....	697
5.16.46 P-0-3445, Alternating control, relative changeover window.....	697

	Page
5.16.47 P-0-3446, Alternating control, switch-on delay.....	697
5.16.48 P-0-3447, Alternating control, ramp time.....	697
5.16.49 P-0-3448, Valve standard velocity.....	698
5.16.50 P-0-3449, Direction-dependent gain.....	698
5.16.51 P-0-3450, Control variable inversion.....	698
5.16.52 P-0-3451, Valve overlap type.....	699
5.16.53 P-0-3452, Valve overlap A-side.....	699
5.16.54 P-0-3453, Valve overlap B-side.....	699
5.16.55 P-0-3454, Valve overlap threshold.....	700
5.16.56 P-0-3455, Characteristic of type.....	700
5.16.57 P-0-3456, Characteristic of flow.....	700
5.16.58 P-0-3457, Characteristic of control variable.....	701
5.16.59 P-0-3458, Valve control variable offset.....	701
5.16.60 P-0-3459, Control disabled offset.....	701
5.16.61 P-0-3460, Filter time of valve control output.....	702
5.16.62 P-0-3461, Output adjustment command value.....	702
5.16.63 P-0-3462, Q calculation delta p limitation.....	702
5.16.64 P-0-3463, Q calculation time constant 1.....	702
5.16.65 P-0-3465, Q calculation factor of characteristic curve, A-side.....	703
5.16.66 P-0-3466, Q calculation offset characteristic curve, A-side.....	703
5.16.67 P-0-3467, Q calculation factor of characteristic curve, B-side.....	703
5.16.68 P-0-3468, Q calculation offset characteristic curve, B-side.....	704
5.16.69 P-0-3471, Nominal flow.....	704
5.16.70 P-0-3472, Nominal pressure delta p.....	704
5.16.71 P-0-3473, Maximum flow.....	705
5.16.72 P-0-3474, Maximum pressure.....	705
5.16.73 P-0-3475, Valve monitoring control word.....	705
5.16.74 P-0-3477, Valve monitoring filter time.....	706
5.16.75 P-0-3478, Valve monitoring threshold.....	706
5.16.76 P-0-3479, Valve monitoring maximum valve error.....	706
5.16.77 P-0-3480, Analog input, assignment, control word.....	706
5.16.78 P-0-3481, Analog input, assignment, control word.....	707
5.16.79 P-0-3482, Analog input, assignment, control word.....	707
5.16.80 P-0-3483, Analog input, assignment, control word.....	707
5.16.81 P-0-3484, Analog input, assignment, control word.....	708
5.16.82 P-0-3485, Analog input, assignment, control word.....	708
5.16.83 P-0-3486, Analog input, assignment, control word.....	708
5.16.84 P-0-3487, Analog input, assignment, target parameter.....	708
5.16.85 P-0-3488, Analog input, assignment, target parameter.....	709
5.16.86 P-0-3489, Analog input, assignment, target parameter.....	709
5.16.87 P-0-3490, Analog input, assignment, target parameter.....	709
5.16.88 P-0-3491, Analog input, assignment, target parameter.....	710
5.16.89 P-0-3492, Analog input, assignment, target parameter.....	710
5.16.90 P-0-3493, Analog input, assignment, target parameter.....	710
5.16.91 P-0-3494, Analog input, assignment, nominal value.....	711
5.16.92 P-0-3495, Analog input, assignment, nominal value.....	711

	Page
5.16.93 P-0-3496, Analog input, assignment, nominal value.....	711
5.16.94 P-0-3497, Analog input, assignment, nominal value.....	711
5.16.95 P-0-3498, Analog input, assignment, nominal value.....	712
5.16.96 P-0-3499, Analog input, assignment, nominal value.....	712
5.16.97 P-0-3500, Analog input, assignment, scaling.....	712
5.16.98 P-0-3501, Analog input, assignment, offset.....	713
5.16.99 P-0-3502, Analog input, assignment, offset.....	713
5.16.100 P-0-3503, Analog input, assignment, offset.....	713
5.16.101 P-0-3504, Analog input, assignment, offset.....	714
5.16.102 P-0-3505, Analog input, assignment, offset.....	714
5.16.103 P-0-3506, Analog input, assignment, offset.....	714
5.16.104 P-0-3507, Analog input, assignment, signal value at zero.....	714
5.16.105 P-0-3508, Analog input, assignment, filter time.....	715
5.16.106 P-0-3509, Analog input, assignment, filter time.....	715
5.16.107 P-0-3510, Analog input, assignment, filter time.....	715
5.16.108 P-0-3511, Analog input, assignment, filter time.....	716
5.16.109 P-0-3512, Analog input, assignment, filter time.....	716
5.16.110 P-0-3513, Analog input, assignment, filter time.....	716
5.16.111 P-0-3514, Analog input, assignment, filter time.....	717
5.16.112 P-0-3515, Analog input, assignment, status word.....	717
5.16.113 P-0-3516, Analog input, assignment, status word.....	717
5.16.114 P-0-3517, Analog input, assignment, status word.....	717
5.16.115 P-0-3518, Analog input, assignment, status word.....	718
5.16.116 P-0-3519, Analog input, assignment, status word.....	718
5.16.117 P-0-3520, Analog input, assignment, status word.....	718
5.16.118 P-0-3521, Analog input, assignment, status word.....	719
5.16.119 P-0-3522, Hardware control word of analog inputs and outputs.....	719
5.16.120 P-0-3523, Valve command value emergency ramp.....	719
5.16.121 P-0-3524, Field bus: control word fluid power.....	720
5.16.122 P-0-3525, Field bus: status word fluid power.....	720
5.16.123 P-0-3526, Analog input, assignment, extended control word.....	720
5.16.124 P-0-3527, Analog input, assignment, extended control word.....	720
5.16.125 P-0-3528, Analog input, assignment, extended control word.....	721
5.16.126 P-0-3529, Analog input, assignment, extended control word.....	721
5.16.127 P-0-3530, Analog input, assignment, extended control word.....	722
5.16.128 P-0-3531, Pressure controller preload integrator, threshold 2.....	722
5.16.129 P-0-3532, Analog output, assignment, control word.....	722
5.16.130 P-0-3533, Analog output, assignment, status word.....	722
5.16.131 P-0-3534, Analog output, assignment, source parameter.....	723
5.16.132 P-0-3535, Analog output, assignment, offset.....	723
5.16.133 P-0-3536, Analog output, assignment, value range.....	723
5.16.134 P-0-3537, Analog output, assignment, signal range, lower limit.....	724
5.16.135 P-0-3538, Analog output, assignment, signal range, upper limit.....	724
5.16.136 P-0-3539, Analog output, assignment, control word.....	724
5.16.137 P-0-3540, Analog output, assignment, status word.....	724
5.16.138 P-0-3541, Analog output, assignment, source parameter.....	725

	Page
5.16.139 P-0-3542, Analog output, assignment, offset.....	725
5.16.140 P-0-3543, Analog output, assignment, value range.....	725
5.16.141 P-0-3544, Analog output, assignment, signal range, lower limit.....	725
5.16.142 P-0-3545, Analog output, assignment, signal range, upper limit.....	726
5.16.143 P-0-3546, Analog output, assignment, control word.....	726
5.16.144 P-0-3547, Analog output, assignment, status word.....	726
5.16.145 P-0-3548, Analog output, assignment, source parameter.....	727
5.16.146 P-0-3549, Analog output, assignment, offset.....	727
5.16.147 P-0-3550, Analog output, assignment, value range.....	727
5.16.148 P-0-3551, Analog output, assignment, signal range, lower limit.....	727
5.16.149 P-0-3552, Analog output, assignment, signal range, upper limit.....	728
5.16.150 P-0-3553, Analog output, assignment, control word.....	728
5.16.151 P-0-3554, Analog output, assignment, status word.....	728
5.16.152 P-0-3555, Analog output, assignment, source parameter.....	729
5.16.153 P-0-3556, Analog output, assignment, offset.....	729
5.16.154 P-0-3557, Analog output, assignment, value range.....	729
5.16.155 P-0-3558, Analog output, assignment, signal range, lower limit.....	729
5.16.156 P-0-3559, Analog output, assignment, signal range, upper limit.....	730
5.16.157 P-0-3560, Analog input, assignment, signal range lower limit.....	730
5.16.158 P-0-3561, Analog input, assignment, signal range lower limit.....	730
5.16.159 P-0-3562, Analog input, assignment, signal range lower limit.....	730
5.16.160 P-0-3563, Analog input, assignment, signal range lower limit.....	731
5.16.161 P-0-3564, Analog input, assignment, signal range lower limit.....	731
5.16.162 P-0-3565, Analog input, assignment, signal range upper limit.....	731
5.16.163 P-0-3566, Analog input, assignment, signal range upper limit.....	732
5.16.164 P-0-3567, Analog input, assignment, signal range upper limit.....	732
5.16.165 P-0-3568, Analog input, assignment, signal range upper limit.....	732
5.16.166 P-0-3569, Analog input, assignment, signal range upper limit.....	732
5.16.167 P-0-3570, Selection of controller output.....	733
5.16.168 P-0-3571, Control section temperature.....	733
5.16.169 P-0-3572, Supply voltage, actual value.....	733
5.16.170 P-0-3573, Actual current value of solenoid A.....	734
5.16.171 P-0-3574, Actual current value of solenoid B.....	734
5.16.172 P-0-3575, Natural frequency of axis.....	734
5.16.173 P-0-3576, Moved mass.....	734
5.16.174 P-0-3577, Simulation parameter, compact.....	735
5.16.175 P-0-3578, Valve standard velocity (negativ).....	735
5.16.176 P-0-3579, Valve standard velocity ramp.....	735
5.16.177 P-0-3581, List of available profile types.....	736
5.16.178 P-0-3591, Module/firmware history, compact.....	736
5.16.179 P-0-3599, Pressure normalization.....	736
5.17 P-0-3600 - P-0-4067.....	736
5.17.1 P-0-3600.0.1, CANopen: Device type.....	736
5.17.2 P-0-3601.0.1, CANopen: Error register.....	737
5.17.3 P-0-3603.0.1, CANopen: Communication cycle period.....	737
5.17.4 P-0-3604.0.1, CANopen: Manufacturer device name.....	738

	Page
5.17.5 P-0-3604.0.2, CANopen: Manufacturer hardware version.....	738
5.17.6 P-0-3604.0.3, CANopen: Manufacturer software version.....	738
5.17.7 P-0-3606.0.1, Identity Object: Highest sub-index supported.....	739
5.17.8 P-0-3606.0.2, CANopen: Vendor ID.....	739
5.17.9 P-0-3606.0.3, CANopen: Product Code.....	740
5.17.10 P-0-3606.0.4, CANopen: Revision Number.....	740
5.17.11 P-0-3606.0.5, CANopen: Serial Number.....	740
5.17.12 P-0-3616.0.1, ECAT: EtherCAT Address.....	741
5.17.13 P-0-3616.0.2, ECAT: Virtual MAC Address.....	741
5.17.14 P-0-3617.0.1, ECAT: IP Address Info.....	741
5.17.15 P-0-3617.0.2, ECAT: IP Address.....	742
5.17.16 P-0-3617.0.3, ECAT: Subnet Mask.....	742
5.17.17 P-0-3617.0.4, ECAT: Default Gateway.....	742
5.17.18 P-0-3618.0.1, ECAT: Receive PDO Mapping.....	743
5.17.19 P-0-3619.x.1, ECAT: RPDO: application object.....	743
5.17.20 P-0-3620.0.1, ECAT: Transmit PDO Mapping.....	744
5.17.21 P-0-3621.x.1, ECAT: TPDO: application object.....	745
5.17.22 P-0-3622.0.1, ECAT: Sync Manager Communication Type.....	746
5.17.23 P-0-3622.0.2, ECAT: Sync Manager 0.....	746
5.17.24 P-0-3622.0.3, ECAT: Sync Manager 1.....	746
5.17.25 P-0-3622.0.4, ECAT: Sync Manager 2.....	747
5.17.26 P-0-3622.0.5, ECAT: Sync Manager 3.....	747
5.17.27 P-0-3623.0.1, ECAT: PDO Assignment RX (Outputs).....	747
5.17.28 P-0-3623.0.2, ECAT: PDO Assign Outputs 1.....	748
5.17.29 P-0-3624.0.1, ECAT: PDO Assignment TX (Inputs).....	748
5.17.30 P-0-3624.0.2, ECAT: PDO Assign Inputs 1.....	749
5.17.31 P-0-3626.0.1, EPL: Verify Configuration.....	749
5.17.32 P-0-3626.0.2, EPL: ConfDate.....	749
5.17.33 P-0-3626.0.3, EPL: ConfTime.....	749
5.17.34 P-0-3627.0.1, EPL: Interface Group.....	750
5.17.35 P-0-3627.0.2, EPL: Interface Index.....	750
5.17.36 P-0-3627.0.3, EPL: Interface Description.....	750
5.17.37 P-0-3627.0.4, EPL: Interface Type.....	751
5.17.38 P-0-3627.0.5, EPL: Interface Mtu.....	751
5.17.39 P-0-3627.0.6, EPL: Interface Phys Address.....	751
5.17.40 P-0-3627.0.7, EPL: Interface Name.....	751
5.17.41 P-0-3627.0.8, EPL: Interface Oper Status.....	752
5.17.42 P-0-3627.0.9, EPL: Interface Admin State.....	752
5.17.43 P-0-3627.0.10, EPL: Valid.....	753
5.17.44 P-0-3628.0.1, EPL: Sequ Layer Timeout.....	753
5.17.45 P-0-3629.0.1, EPL: Cmd Layer Timeout.....	753
5.17.46 P-0-3630.0.1, EPL: Rx Comm Param.....	753
5.17.47 P-0-3630.0.2, EPL: Node ID.....	754
5.17.48 P-0-3630.0.3, EPL: Mapping Version.....	754
5.17.49 P-0-3631.0.1, EPL: Rx Mapp Param.....	754
5.17.50 P-0-3631.x.2, EPL: Rx Object Mapping.....	755

	Page
5.17.51 P-0-3632.0.1, EPL: Tx Comm Param.....	755
5.17.52 P-0-3632.0.2, EPL: Node ID.....	755
5.17.53 P-0-3632.0.3, EPL: Mapping Version.....	756
5.17.54 P-0-3633.0.1, EPL: Tx Mapp Param.....	756
5.17.55 P-0-3633.x.2, EPL: Tx Object Mapping.....	757
5.17.56 P-0-3634.0.1, EPL: CN Loss SoC.....	757
5.17.57 P-0-3634.0.2, EPL: Loss SoC: Cumulative Cnt.....	757
5.17.58 P-0-3634.0.3, EPL: Loss SoC: Threshold Cnt.....	758
5.17.59 P-0-3634.0.4, EPL: Loss SoC: Threshold.....	758
5.17.60 P-0-3635.0.1, EPL: CN CRC Error.....	758
5.17.61 P-0-3635.0.2, EPL: CRC Error: Cumulative Cnt.....	758
5.17.62 P-0-3635.0.3, EPL: CRC Error: Threshold Cnt.....	759
5.17.63 P-0-3635.0.4, EPL: CRC Error: Threshold.....	759
5.17.64 P-0-3636.0.1, EPL: CN Loss Of SoC Tolerance.....	759
5.17.65 P-0-3637.0.1, EPL: IP Addr Table.....	760
5.17.66 P-0-3637.0.2, EPL: If Index.....	760
5.17.67 P-0-3637.0.3, EPL: Addr IPAD.....	760
5.17.68 P-0-3637.0.4, EPL: Net Mask IPAD.....	760
5.17.69 P-0-3637.0.5, EPL: Reasm Max Size.....	761
5.17.70 P-0-3637.0.6, EPL: Default Gateway IPAD.....	761
5.17.71 P-0-3638.0.1, EPL: Ip Group.....	761
5.17.72 P-0-3638.0.2, EPL: Forwarding.....	761
5.17.73 P-0-3638.0.3, EPL: Default TTL.....	762
5.17.74 P-0-3638.0.4, EPL: Forward Datagrams.....	762
5.17.75 P-0-3639.0.1, EPL: Feature Flags.....	762
5.17.76 P-0-3640.0.1, EPL: EPL Version.....	764
5.17.77 P-0-3641.0.1, EPL: Curr NMT State.....	765
5.17.78 P-0-3642.0.1, EPL: EPL Node ID.....	765
5.17.79 P-0-3642.0.2, EPL: Node ID.....	765
5.17.80 P-0-3642.0.3, EPL: Node ID By HW.....	765
5.17.81 P-0-3642.0.4, EPL: SW Node ID.....	766
5.17.82 P-0-3643.0.1, EPL: Cycle Timing.....	766
5.17.83 P-0-3643.0.2, EPL: Isochr Tx Max Payload.....	766
5.17.84 P-0-3643.0.3, EPL: Isochr Rx Max Payload.....	766
5.17.85 P-0-3643.0.4, EPL: Pres Max Latency.....	767
5.17.86 P-0-3643.0.5, EPL: Preq Act Payload Limit.....	767
5.17.87 P-0-3643.0.6, EPL: Pres Act Payload Limit.....	767
5.17.88 P-0-3643.0.7, EPL: Asnd Max Latency.....	768
5.17.89 P-0-3643.0.8, EPL: Multiple Cycle Cnt.....	768
5.17.90 P-0-3643.0.9, EPL: Async MTU.....	768
5.17.91 P-0-3643.0.10, EPL: Prescaler.....	768
5.17.92 P-0-3644.0.1, EPL: CN Basic Ethernet Timeout.....	769
5.17.93 P-0-3645.0.1, EPL: Host Name.....	769
5.17.94 P-0-3646.0.1, EPL: Reset Cmd.....	769
5.17.95 P-0-3647.0.1, ECAT: Synchronization Type (Outputs) number of entries.....	770
5.17.96 P-0-3647.0.2, ECAT: Synchronization Type (Outputs).....	770

	Page
5.17.97 P-0-3647.0.5, ECAT: Synchronization Types Supported (Outputs).....	771
5.17.98 P-0-3647.0.7, ECAT: Calc and Copy Time (Outputs).....	771
5.17.99 P-0-3647.0.10, ECAT: Delay Time (Outputs).....	772
5.17.100 P-0-3648.0.1, ECAT: Synchronization Type (Inputs) number of entries.....	772
5.17.101 P-0-3648.0.2, ECAT: Synchronization Type (Inputs).....	773
5.17.102 P-0-3648.0.5, ECAT: Synchronization Types Supported (Inputs).....	773
5.17.103 P-0-3648.0.7, ECAT: Calc and Copy Time (Inputs).....	773
5.17.104 P-0-3648.0.10, ECAT: Delay Time (Inputs).....	774
5.17.105 P-0-3700, Analog input, assignment, extended control word.....	774
5.17.106 P-0-3701, Flow control word.....	775
5.17.107 P-0-3702, Flow status word.....	775
5.17.108 P-0-3703, Flow ramp time positive, acceleration.....	775
5.17.109 P-0-3704, Flow ramp time positive, deceleration.....	775
5.17.110 P-0-3705, Flow ramp time negative, acceleration.....	776
5.17.111 P-0-3706, Flow ramp time negative, deceleration.....	776
5.17.112 P-0-3707, Swivel angle sensor configuration.....	776
5.17.113 P-0-3708, Swivel angle sensor, lower working point.....	776
5.17.114 P-0-3709, Swivel angle sensor, upper working point.....	777
5.17.115 P-0-3710, Swivel angle sensor wire rupture, lower threshold.....	777
5.17.116 P-0-3711, Swivel angle sensor wire rupture, upper threshold.....	777
5.17.117 P-0-3712, Swivel angle sensor wire rupture, timeout.....	778
5.17.118 P-0-3713, Analog input of swivel angle feedback value.....	778
5.17.119 P-0-3714, Filter time of swivel angle feedback value.....	778
5.17.120 P-0-3715, Nominal flow.....	778
5.17.121 P-0-3716, Nominal pressure delta p.....	779
5.17.122 P-0-3717, Outputs of position controller, compact.....	779
5.17.123 P-0-3718, Extended diagnostic message.....	779
5.17.124 P-0-3719, Extended diagnostic message.....	779
5.17.125 P-0-3720, Default profile.....	780
5.17.126 P-0-3722, Pressure controller preload, pressure change filter time.....	780
5.17.127 P-0-3727, Actual pilot value.....	780
5.17.128 P-0-3728, Output of main stage controller.....	781
5.17.129 P-0-3729, Output pressure controller P-gain.....	781
5.17.130 P-0-3736, Pressure controller adaptation, P-term.....	781
5.17.131 P-0-3737, Pressure controller adaptation, D-term.....	781
5.17.132 P-0-3738, Pressure controller disturbance feedforward.....	782
5.17.133 P-0-3739, Input of output adjustment.....	782
5.17.134 P-0-3740, Hardware control word of analog inputs and outputs.....	782
5.17.135 P-0-3745, Hardware control word of analog inputs and outputs.....	782
5.17.136 P-0-3748, Password configuration.....	783
5.17.137 P-0-3749, Password token.....	783
5.17.138 P-0-3750, Sercos: Test-IDN for Conformity purpose - configuration.....	783
5.17.139 P-0-3751, Sercos: Test-IDN for Conformity purpose.....	783
5.17.140 P-0-3752, PLC user program.....	784
5.17.141 P-0-3753, PLC user program.....	784
5.17.142 P-0-3754, PLC user program.....	784

	Page
5.17.143 P-0-3755, PLC user program.....	785
5.17.144 P-0-3756, PLC user program.....	785
5.17.145 P-0-3757, PLC user program.....	785
5.17.146 P-0-3758, PLC user program.....	786
5.17.147 P-0-3759, PLC user program.....	786
5.17.148 P-0-3760, PLC user program.....	786
5.17.149 P-0-3761, PLC user program.....	787
5.17.150 P-0-3762, PLC user program.....	787
5.17.151 P-0-3763, PLC user program.....	787
5.17.152 P-0-3764, PLC user program.....	788
5.17.153 P-0-3765, PLC user program.....	788
5.17.154 P-0-3766, PLC user program.....	788
5.17.155 P-0-3767, PLC user program.....	789
5.17.156 P-0-3768, PLC user program.....	789
5.17.157 P-0-3769, PLC user program.....	789
5.17.158 P-0-3770, PLC user program.....	790
5.17.159 P-0-3771, PLC user program.....	790
5.17.160 P-0-3772, PLC user program.....	790
5.17.161 P-0-3773, PLC user program.....	791
5.17.162 P-0-3774, PLC user program.....	791
5.17.163 P-0-3775, PLC user program.....	791
5.17.164 P-0-3776, PLC user program.....	792
5.17.165 P-0-3777, PLC user program.....	792
5.17.166 P-0-3778, PLC user program.....	792
5.17.167 P-0-3779, PLC user program.....	793
5.17.168 P-0-3780, PLC user program.....	793
5.17.169 P-0-3781, PLC user program.....	793
5.17.170 P-0-3782, PLC user program.....	794
5.17.171 P-0-3783, PLC user program.....	794
5.17.172 P-0-3784, PLC user program.....	794
5.17.173 P-0-3785, Valve monitoring delay.....	795
5.17.174 P-0-3786, Control variable adjustment of command value, maintenance.....	795
5.17.175 P-0-3789, Velocity controller integrator feedback threshold.....	795
5.17.176 P-0-3790, Velocity controller integrator feedback time constant.....	796
5.17.177 P-0-3792, Active damping: Acceleration gain ramp time.....	796
5.17.178 P-0-3793, Active damping: Velocity gain ramp time.....	796
5.17.179 P-0-3818, Master communication: List of available protocols.....	796
5.17.180 P-0-3820, Filter time of pressure feedback value.....	797
5.17.181 P-0-3821, Derivative action time, actual pressure value DT1.....	797
5.17.182 P-0-3822, Filter time of pressure feedback value DT1.....	797
5.17.183 P-0-3844, Additive velocity command value.....	798
5.17.184 P-0-3845, Synchronization control word.....	798
5.17.185 P-0-3846, Synchronization status word.....	798
5.17.186 P-0-3847, Synchronization position P-gain.....	798
5.17.187 P-0-3848, Synchronization position integral time.....	799
5.17.188 P-0-3849, Synchronization position P-gain.....	799

	Page
5.17.189 P-0-3850, Synchronization position integral time.....	799
5.17.190 P-0-3851, Synchronization force P-gain.....	799
5.17.191 P-0-3852, Synchronization force integration time.....	800
5.17.192 P-0-3853, Synchronization force P-gain.....	800
5.17.193 P-0-3854, Synchronization force integration time.....	800
5.17.194 P-0-3855, Synchronization velocity P-gain.....	801
5.17.195 P-0-3856, Synchronization velocity integration time.....	801
5.17.196 P-0-3857, Synchronization velocity P-gain.....	801
5.17.197 P-0-3858, Synchronization velocity integration time.....	801
5.17.198 P-0-3859, Pressure feedback value, filtered.....	802
5.17.199 P-0-3862, Oil temperature.....	802
5.17.200 P-0-3915.0.1, Module/firmware history, time stamp.....	802
5.17.201 P-0-3915.0.2, Module/firmware history, component designation.....	802
5.17.202 P-0-3915.0.3, Module/firmware history, cause of error.....	803
5.17.203 P-0-3915.0.130, Module/firmware history, compact.....	803
5.17.204 P-0-4006, Positioning block target position.....	803
5.17.205 P-0-4007, Positioning block velocity.....	804
5.17.206 P-0-4008, Positioning block acceleration.....	804
5.17.207 P-0-4009, Positioning block jerk.....	805
5.17.208 P-0-4014, Type of construction of motor/cylinder.....	805
5.17.209 P-0-4018, Positioning block delay time.....	806
5.17.210 P-0-4019, Positioning block mode.....	806
5.17.211 P-0-4020, Multi-axis device: Active axes.....	807
5.17.212 P-0-4023, C0400 Communication phase 2 transition.....	807
5.17.213 P-0-4026, Positioning block selection.....	807
5.17.214 P-0-4028, Device control word.....	808
5.17.215 P-0-4029, Diagnostic report SCSB module.....	809
5.17.216 P-0-4030, Axis configuration for multi-axis device.....	809
5.17.217 P-0-4031, Overview of device addresses.....	810
5.17.218 P-0-4051, Positioning block acknowledgment.....	811
5.17.219 P-0-4052, Positioning block, last accepted.....	811
5.17.220 P-0-4053, Positioning block, last active.....	811
5.17.221 P-0-4057, Positioning block, input linked blocks.....	812
5.17.222 P-0-4060, Positioning block control word.....	812
5.17.223 P-0-4061, Positioning block status word.....	813
5.17.224 P-0-4063, Positioning block deceleration.....	813
5.17.225 P-0-4064, Password level.....	814
5.17.226 P-0-4064.0.1, Password configuration.....	815
5.17.227 P-0-4064.0.2, Password token.....	815
5.17.228 P-0-4065, Active non-volatile memory.....	816
5.17.229 P-0-4066, Card Identification Data.....	816
5.18 P-0-4068 - P-0-4095.....	816
5.18.1 P-0-4068, Field bus: Control word IO.....	816
5.18.2 P-0-4069, Field bus: Module diagnosis.....	819
5.18.3 P-0-4071, Field bus: Length of cyclic command value data channel.....	819
5.18.4 P-0-4073, Field bus: Diagnostic message.....	819

	Page
5.18.5 P-0-4074, Field bus: Data format.....	822
5.18.6 P-0-4075, Field bus: Watchdog.....	822
5.18.7 P-0-4076, Field bus: Process data - updating clock.....	823
5.18.8 P-0-4077, Field bus: Control word.....	823
5.18.9 P-0-4078, Field bus: Status word.....	825
5.18.10 P-0-4079, Field bus: Baud rate.....	827
5.18.11 P-0-4080, Field bus: Config. list of cyclic actual value data ch.....	828
5.18.12 P-0-4081, Field bus: Config. list of cyclic command value data ch.....	828
5.18.13 P-0-4082, Field bus: Length of cyclic actual value data channel.....	829
5.18.14 P-0-4083, Parameter channel: Length.....	829
5.18.15 P-0-4083.0.1, Parameter channel: Configuration.....	830
5.18.16 P-0-4083.0.2, Application: Allocation of object ID to Sercos EIDN.....	830
5.18.17 P-0-4083.0.3, Master communication: Allocation object ID to Sercos EIDN.....	831
5.18.18 P-0-4084, Application: Profile type.....	831
5.18.19 P-0-4084.0.1, List of available profile types.....	833
5.18.20 P-0-4084.0.2, Default profile.....	833
5.18.21 P-0-4085, C4700 Command Activate easy startup mode.....	833
5.18.22 P-0-4086, Master communication status.....	834
5.18.23 P-0-4088, Master communication: Drive configuration.....	835
5.18.24 P-0-4089.0.1, Master communication: Protocol.....	837
5.18.25 P-0-4089.0.2, Master communication: Device name.....	837
5.18.26 P-0-4089.0.3, Device address.....	838
5.18.27 P-0-4089.0.4, Active device address.....	838
5.18.28 P-0-4089.0.5, Master communication: Configuration.....	838
5.18.29 P-0-4089.0.7, ECAT: SII Configured Station Alias.....	839
5.18.30 P-0-4089.0.13, Master communication: IP address.....	840
5.18.31 P-0-4089.0.14, Master communication: Network mask.....	840
5.18.32 P-0-4089.0.15, Master communication: Gateway address.....	841
5.18.33 P-0-4089.0.17, Master communication: List of available protocols.....	842
5.18.34 P-0-4089.0.127, Master communication: Master debugging.....	842
5.18.35 P-0-4090, Configuration for loading default values.....	842
5.18.36 P-0-4094.0.1, Field bus: control word fluid power.....	844
5.18.37 P-0-4094.0.2, Field bus: status word fluid power.....	846
 6 Service and Support.....	 849
 Index.....	 851

1 General information

1.1 About this documentation

Editions of this documentation

Edition	Release date	Note
RE 30330-PA	01/11/2013	First edition
RE 30330-PA/02.14	02/26/2014	Second edition, updated for HDx-18
RE 30330-PA/07.14	07/03/2014	Third edition, updated for HDx-19
RE 30330-PA/09.15	09/18/2015	Fourth edition, updated for HDx-20
RE 30330-PA/06.16	06/21/2016	Fifth edition, updated for HDx-20V08
RE 30330-PA/03.17	03/17/2017	Sixth edition, updated for HDx-20V12
RE 30330-PA/04.18	04/15/2018	Seventh edition, updated for HDx-20V16
RE 30330-PA/02.19	01/09/2019	Eighth edition, updated for HDx-20V18
RE 30330-PA/02.20	02/10/2020	Ninth edition, updated for HDx-20V20

Tab. 1-1: Record of revisions

1.2 Reference documentations

Only deal with the product when you have the documentation identified with the book symbol  at hand and have observed it.

All the documents can be downloaded on the Internet at www.boschrexroth.com.

Hardware

	Title	Document number	Document type
	Directional control valve, pilot operated, with integrated digital axis controller (IAC Multi-Ethernet), type 4WRLD	RE 29289	Technical data sheet
	Directional control valve, direct operated, with integrated digital axis controller (IAC Multi-Ethernet), type 4WRPDH	RE 29391	Technical data sheet
	High-response/proportional valve with Multi-Ethernet interface, type 4WRPD(H), type 4WRPQ(H), type 4WRPF(H), type 4WRLD, type 4WRLF, type 4WRLQ, type 5WRPF10, type 5WRPQ10	RE 29391-B	Operating instructions
	Pressure and flow control system, type SYDFED series 2X, 3X, type SYHDFED series 1X	RE 30017-B	Operating instructions
	Pressure and flow control system, type SYDFE1-2X, type SYDFEE-2X, type SYDFEC-2X, type SYDFEn-2X, type SYDFED-2X	RE 30030	Technical data sheet
	Pressure and flow control system, type SYDFE1, type SYDFEE, type SYDFEC, type SYDFEn, type SYDFED, type SYDFEF	RE 30630	Technical data sheet
	Pressure and flow control system, type SYHDFEE-1X, type SYHDFEC-1X, type SYHDFEn-1X, SYHDFED-1X	RE 30035	Technical data sheet

	Digital control electronics for axial piston pumps, type VT-HPC	RE 30237	Technical data sheet Operating instructions
	Digital axis control, type VT-HMC	RE 30239	Technical data sheet Operating instructions
	Pressure and flow control system, type SYDFEF series 2X, 3X, type SYHDFEF series 1X	RE 30013	Operating instructions
	Directional high-response cartridge valve, pilot operated, with integrated electronics and analog or field bus interface, type 2WRCE and 2WRCE	RE 29406	Technical data sheet
	Directional control valve, direct operated, with integrated fieldbus (IFB Multi-Ethernet), type 4WRPFH	RE 29395	Technical data sheet
	Directional control valve, pilot operated, with integrated fieldbus (IFB Multi-Ethernet), type 4WRLF	RE 29293	Technical data sheet
	Control devices HM, HS, HS5 and EO	RE 92076	Technical data sheet
	Axial piston variable pump A4... with HS5E pilot control valve series 10, 11, and series 3x	RE 92076-01-B	Operating instructions

Tab. 1-2: Reference documentations

Software

	Title	Document number	Document type
	Rexroth HydraulicDrive HDS-16, HDx-17 to HDx-20	RE 30330-PA RE 30330-WA	Parameter description Description of diagnostic messages
	Rexroth HydraulicDrive HDx-18	RE 30331-FK	Functional description
	Rexroth HydraulicDrive HDx-19	RE 30337-FK	Functional description
	Rexroth Hydraulic Drive Rexroth IndraMotion MLD (2G) HDx-18	RE 30336-RE RE 30336-AP	Library description Application manual
	Rexroth HydraulicDrive HDS-20	RE 30335-FK	Functional description
	Rexroth HydraulicDrive HDx-20	RE 30338-FK	Functional description
	Rexroth HydraulicDrive HDx-20 pump control	RE 30237-Z	Supplementary information
	Rexroth HydraulicDrive HDx-20VRS Firmware for drive controllers	RE 30330-RN	Firmware Release Notes

Tab. 1-3: Reference documentations

1.3 Document structure

1.3.1 Explanations of terms

All standard and product-specific parameters are listed in this documentation in numerically ascending order. In addition to the data contained in the Functional Description, it represents a complete description of all parameters used in the drive firmware.

The description of the individual parameters is divided into **four** subsections.

- Parameter number, parameter name

	• Assignment • Function, structure, use • Attributes
Parameter number, parameter name	The description specifies the parameter number (P-0-1621.0.1), the parameter name and, optionally, the structure element index and the structure element. Structure index (SI) - is used to address the structure of the same type within a sub-unit. 255 units of the same structure are possible in one sub-unit. Structure element (SE) - the structure element is used for addressing elements. There may be up to 256 elements. Structure elements 1...127 are standardized (Sercos specification). The remaining structure elements 128...255 are manufacturer-specific.
Assignment	This overview shows, in which firmware version, in which functional package(s) and for which hardware the parameter is available. Contained in Representation, in which version and in which firmware derivative the parameter is available. Hardware Parameters are assigned to hardware functions and only accessible, if the corresponding hardware is present: • Analog-In - Available with hardware with any optional analog inputs • Analog-In 1 - Available with hardware with analog inputs, parameters for analog input 1 • Analog-In 2 - Available with hardware with analog inputs, parameters for analog input 2 • Analog-In 3 - Available with hardware with analog inputs, parameters for analog input 3 • Analog-In 4 - Available with hardware with analog inputs, parameters for analog input 4 • Analog-In 5 - Available with hardware with analog inputs, parameters for analog input 5 • Analog-In 6 - Available with hardware with analog inputs, parameters for analog input 6 • Analog-In 7 - Available with hardware with analog inputs, parameters for analog input 7 • Analog-In 8 - Available with hardware with analog inputs, parameters for analog input 8 • Analog OUT - Available with hardware with any optional analog outputs • Analog OUT 1 - Available with hardware with analog outputs, parameters for analog output 1 • Analog OUT 2 - Available with hardware with analog outputs, parameters for analog output 2 • Analog OUT 3 - Available with hardware with analog outputs, parameters for analog output 3 • Analog OUT 4 - Available with hardware with analog outputs, parameters for analog output 4 • CiA402 - Available when profile CiA402 is selected

- **CiA408:** Available for active master communication with Fluid Power device profile (acc. to CiA408).
- **CoC, CoE, CoV, POWERLINK** - Available with active master communication with CANopen communication profile
 CoC: CANopen over CAN
 CoE: CANopen over EtherCAT
 CoV: CANopen over VARAN
 POWERLINK: Ethernet POWERLINK
- **CoE** - Available with active master communication with CANopen communication profile
 CoE: CANopen over EtherCAT
- **Enable signal** - Available for devices with enable input (HydraulicDrive)
- **ENC profile** - available with Encoder Basic profile
- **ET, PB, CN** - available with the following field bus hardware
 ET: Ethernet
 PB: PROFIBUS
 CN: CAN
- **EtherNet/IP, PROFINET** - Available with active master communication with PROFINET or EtherNet/IP
- **Fluid Power device profile** - Available with active master communication with Fluid Power device profile (according to CiA408)
- **FSP-Drive** - Available when FSP Drive profile is selected
- **HMC:Extended** - Available for HMC with extension card
- **MLD** - Available with active PLC
- **Offline** - Available in offline mode
- **PROFIBUS** - Available with active PROFIBUS master communication
- **Real Engineering** - Available for hardware with engineering port
- **Rexroth profile** - Available with selected Rexroth profiles
- **See text** - The procedure for package enabling is documented in the parameter description
- **Sercos** - Available with active "Sercos" master communication (Sercos III)
- **ServoDrive** - Available when ServoDrive profile is selected
- **SoV, SoE** - Available with active master communication with ServoDrive communication profile
 SoE: EtherCAT
 SoV: VARAN
- **Virtual Engineering** - Available for field buses with engineering option

Functional package(s)

Parameters are assigned to functional packages and only accessible as long as the particular functional package is active:

- **open loop** - "Open loop" characteristic" without position encoder
- **closed loop** - "Closed loop" characteristic" with position encoder
- **valve** - Device function used to control a high-response or proportional valve

- **p/Q** - Device function for p/Q function of a high-response or proportional valve
- **pump** - Device function for hydraulic variable displacement pump
- **axis control** - Device function for open and/or closed-loop axis control
- **servo(compensation)** - Device function for axis control with servo extension package
- **synchronization (ELS)** - Device function for axis control with synchronization extension package
- **synchron control** - Device function for the synchronization control of several axes
- **motion logic** - Extension package with drive-integrated PLC
- **tech function** - Extension package with fixed functionality on the basis of the drive-integrated PLC

Device parameters

- **device-specific** - The parameter is device-specific. In the case of a multi-axis device, each axis accesses the same data.
- **axis-specific** - The parameter applies to a specific axis. In the case of a multi-axis device, separate data are defined for each axis.

Property name

For firmware derivative HDS only:

By means of the property name it is possible to access the parameters directly and in real time (reading or writing). The syntax for the hydraulic central controller is:

HydrControl[<Axis number>].Data<Property name>

Function, structure, use

The function and structure of the parameter as well as information on its parameterization (use) are contained in the general description.

Attributes

The following determinations and abbreviations are used:

Function

- **Par** - The parameter is used to display, set and configure values.
- **Cmd** - The parameter is used to execute commands

Editable

Editability of the operating datum

- **--** - Cannot be edited
- **++** - Can always be edited
- **P2** - Can only be edited in communication phase 2
- **PM** - Can only be edited in the parameter mode
- **OM** - Can only be edited in the operating mode

Data-L.

Data length

- **1 Byte** - The data length of the operating datum is 1 byte.
- **2 bytes** - The data length of the operating datum is 2 bytes.
- **4 bytes** - The data length of the operating datum is 4 bytes.
- **8 bytes** - The data length of the operating datum is 8 bytes.
- **1 byte var** - The operating datum is of variable length (string). The length of a data element is 1 byte.

- **2 bytes var** - this is an operating datum of variable length (list). The length of a data element is 2 bytes.
- **8 bytes var** - This is an operating datum of variable length (list). The length of a data element is 8 bytes.

Memory:

- -- - The operating datum is not buffered in the drive; the value after switching the drive controller on is not defined.
- **PARAM_SP/FIX_IDN_SP/ON_BOARD_SP** - The operating datum is stored in the active non-volatile memory.
- **RETAIN_GERÄT/RETAIN_KUNDE** - the operating datum is stored in the active non-volatile memory automatically every 30 s.

Validity ch.

Validity check

- -- - The operating datum is not checked for validity.
- **P2 ⇒ P3** - The operating datum is checked in command "Communication phase 3 transition check".
- **PM ⇒ OM** - The operating datum is checked in command "Exit parameterization level procedure command".

Format

Format of the operating datum

- **BIN** - Binary number
- **HEX** - Hexadecimal number
- **DEC_OV** - Unsigned decimal number
- **DEC_MV** - Signed decimal number
- **ASCII** - Text
- **IDN** - Identification number
- **FLOAT** - Floating-point number
- **TIME** - Time

Unit

If existing, the corresponding unit of the parameter is indicated.

Extr. val. ch.

Extreme value check

-- (**no**) - When a value is written to it, the operating datum is not checked for its extreme values.

+ (**yes**) - When data are written to it, the operating datum is checked for its extreme values.

Dec. pl

Decimal place

Indicates the number of decimal places with display formats DEC_OV and DEC_MV.

Example: 6 decimal places, transmitted value: 30 000 ⇒ display value 0.030000.

Cyclic

Cyclically transmittable

-- - The operating datum cannot be configured as cyclic datum, neither in the master data telegram nor in the drive telegram.

AT - The operating datum can be configured as a cyclic datum in the drive telegram.

MDT - The operating datum can be configured as cyclic datum in the master data telegram.

AT+MDT - The operating datum can be configured as cyclic datum in the master data telegram and in the drive telegram.

Comb. check

Combination check

-- - When a value is written to it, the operating datum is not checked for a valid combination (bit strings).

+ - When a value is written to it, the operating datum is checked for a valid combination (bit strings).

Set-depend.

Set-dependent

With parameter set switching available, these parameters are available 4 times as a maximum (parameter set 0 to parameter set 3).

-- - Available in all parameter sets, not assigned to any parameter group.

Grp. 1 - The parameter is parameter set switchable, when "group 1, application parameters" has been activated.

Grp. 2 - The parameter is parameter set switchable, when "group 2, control loop parameters" has been activated.

See also Functional Description "Parameter set switching"

min./max.

Minimum value/maximum value

The minimum value and maximum value of the parameter are specified depending on the derivative.

Default

Default value

A parameter is set to its default value, when "Command [S-0-0262](#), C07_x Load defaults procedure command" is executed. This is done by:

- pressing the <ESC> key, when the display shows the message "PL" or
- starting command "[S-0-0262](#)" by means of "[P-0-4090](#), C0750 Load default values" (factory settings) = 1.

The default value is relevant only for parameters with attribute PARAM_SP, SPS_IDN_SP, FIX_IDN_SP. Any deviating "configurable factory default values" may be activated.

1.4 Description of derivatives

HDB	Single-axis function for IAC devices (Integrated Axis Control) in IP67 design, which are mounted directly to the hydraulic actuator. Compatible devices: High-response valves of series WRxD..., WRxQ..., variable displacement pumps of type SY(H)DFED and A4V..HS5E systems
HDE	Devices with Multi-Ethernet interface without axis control for IFB devices (Integrated Field Bus), which are mounted directly to the hydraulic actuator.

	Compatible devices: High-response valves of series WRxF..., WRxQ... and variable displacement pumps of type SY(H)DFEF
HDP	Single-axis function for IAC devices (Integrated Axis Control) in IP67 protection class, which are mounted directly to the hydraulic actuator, with PLC function integrated in the drive (MLD).
	Compatible devices: High-response valves of series WRxD... and variable displacement pumps of type SY(H)DFEDn
HDC	Single-axis function for hydraulic controllers in IP20 design for control cabinet installation.
	Compatible devices: VT-HMC... and VT-HPC...
HDM	Double-axis function for hydraulic controllers in IP20 design for control cabinet installation.
	Compatible devices: VT-HMC...

2 Important Directions for Use

2.1 Appropriate Use

2.1.1 Introduction

Rexroth products reflect state of the art in their development and manufacture. They are tested prior to delivery to ensure operating safety and reliability.

WARNING

Personal injury and property damage caused by incorrect use of the products!

The products have been designed for use in industrial environments and may only be used in the appropriate way. If they are not used in the appropriate way, situations resulting in property damage and personal injury can occur.



Rexroth as manufacturer is not liable for any damage resulting from inappropriate use. In such cases, the guarantee and the right to payment of damages resulting from inappropriate use are forfeited. The user alone bears responsibility for the risks.

Before using Rexroth products, the following pre-requisites must be met to ensure appropriate use of the products:

- Personnel who use our products in any way or form must first read and understand the relevant safety instructions and be familiar with their appropriate use.
- If the products take the form of hardware, then they must remain in their original state, in other words, no structural changes are permitted. It is not permitted to decompile software products or alter source codes.
- Damaged or faulty products may not be installed or put into operation.
- Make sure that the products have been installed in the manner described in the relevant documentation.

2.1.2 Areas of Use and Application

Drive controllers made by Rexroth are designed to control hydraulic drives and monitor their operation.

Control and monitoring of the drive controllers may require the connection of additional sensors and actuators.



The drive controllers may only be used with the accessories and parts specified in this documentation. If a component has not been specifically named, then it may neither be mounted nor connected. The same applies to cables and lines.

Operation is only permitted in the specified configurations and combinations of components using the software and firmware as specified in the relevant Functional Description.

Drive controllers have to be programmed before commissioning to ensure that the drive executes the specific functions of an application.

Drive controllers of the HydraulicDrive line have been developed for use in single- and multiple-axis drive and control tasks.

To ensure the application-specific use of drive controllers, device types of different drive powers and different interfaces are available.

Typical applications include, for example:

- Plastics machines,
- Presses,
- Printing and paper processing machines and
- Machine tools.

Drive controllers may only be operated under the assembly and installation conditions described in this documentation, in the specified position of normal use and under the ambient conditions described (temperature, protection class, humidity, EMC, etc.).

2.2 Inappropriate Use

Using the drive controllers outside the operating conditions described in this documentation and outside the technical data and specifications given is defined as "inappropriate use".

Drive controllers may not be used, if...

- they are exposed to operating conditions that do not meet the prescribed ambient conditions. This includes, for example, operation under water, under extreme temperature fluctuations or extremely high maximum temperatures.
- Furthermore, drive controllers may not be used in applications which have not been expressly authorized by Rexroth. Please strictly observe the specifications outlined in the general Safety Instructions!

3 Safety Instructions for Electric and Hydraulic Drives and Controls

3.1 Definitions of Terms

Installation	An installation consists of several devices or systems interconnected for a defined purpose and on a defined site which, however, are not intended to be placed on the market as a single functional unit.
Electric Drive System	An electric drive system comprises all components from mains supply to motor shaft; this includes, for example, electric motor(s), motor encoder(s), supply units and drive controllers, as well as auxiliary and additional components, such as mains filter, mains choke and the associated lines and cables.
Hydraulic Drive System	A hydraulic drive system comprises all components, starting with the pressure supply through to the actual drive. This includes, for example, hydraulic cylinders, hydraulic motors, hydraulic valves, hydraulic pumps, transducers and associated lines and cables.
User	A user is a person installing, commissioning or using a product which has been placed on the market.
Application Documentation	Application documentation comprises the entire documentation used to inform the user of the product about the use and safety-relevant features for configuring, integrating, installing, mounting, commissioning, operating, maintaining, repairing and decommissioning the product. The following terms are also used for this kind of documentation: User Guide, Operation Manual, Commissioning Manual, Instruction Manual, Project Planning Manual, Application Manual, etc.
Electrical Equipment	Electrical equipment encompasses all devices used to generate, convert, transmit, distribute or apply electrical energy, such as electric motors, transformers, switching devices, cables, lines, power-consuming devices, circuit board assemblies, plug-in units, control cabinets, etc.
Device	A device is a finished product with a defined function, intended for users and placed on the market as an individual piece of merchandise.
Manufacturer	The manufacturer is a natural or legal person bearing responsibility for the design and manufacture of a product which is placed on the market in his or her name. The manufacturer can use finished products, finished parts or finished elements, or contract out work to subcontractors. However, the manufacturer must always have overall control and possess the required authority to take responsibility for the product.
Component	A component is a combination of elements with a specified function, which are part of a piece of equipment, device or system. Components of the electric or hydraulic drive and control system are, for example, supply units, controllers, valves, motors, cables, etc.
Machine	A machine is the entirety of interconnected parts or units at least one of which is movable. Thus, a machine consists of the appropriate machine drive elements, as well as control and power circuits, which have been assembled for a specific application. A machine is, for example, intended for processing, machining, treatment, movement or packaging of a material. The term "machine" also covers a combination of machines which are arranged and controlled in such a way that they function as a unified whole.
Product	Examples of a product: Device, component, part, system, software, firmware, among other things.
Project Planning Manual	A project planning manual is part of the application documentation used to support the sizing and planning of systems, machines or installations.

- Qualified Persons** The activities described in this documentation require knowledge of the electrical installation, the control technology, programming and hydraulics as well as knowledge of the associated technical terms. To ensure safe usage, these activities may therefore only be carried out by qualified personnel or under the direction and supervision of qualified personnel. Qualified personnel are those who can recognize possible hazards and institute the appropriate safety measures due to their professional training, knowledge and experience, as well as their understanding of the relevant regulations pertaining to the work to be done. Qualified personnel must observe the rules relevant to the subject area.
- Control System** A control system comprises several interconnected control components placed on the market as a single functional unit.

3.2 General Information

3.2.1 Using the Safety Instructions and Passing Them on to Others

Do not install or operate the product unless you have thoroughly read all enclosed documents. Read and understand these safety instructions and all user information prior to working with these components. If you do not have the user documentation for the components, contact your responsible Bosch Rexroth sales partner. Ask for these documents to be sent immediately to the person or persons responsible for the safe operation of the components.

If the component is resold, rented and/or passed on to others in any other form, these safety instructions must be delivered with the component in the official language of the user's country.

Improper use of these components, failure to observe the safety instructions in this document or tampering with the product, including disabling of safety devices, could result in property damage, injury, electric shock or even death in the worst case.

3.2.2 Requirements for Safe Use

Read the following instructions before initial commissioning of the product components in order to eliminate the risk of injury and/or property damage. You must comply with these safety instructions.

- Bosch Rexroth is not liable for damage resulting from failure to observe the safety instructions.
- Read the operating, maintenance and safety instructions before commissioning. If you find that you cannot completely understand the application documentation in the available language, please ask your supplier to clarify.
- Proper and correct transport, storage, mounting and installation, as well as care in operation and maintenance, are prerequisites for optimal and safe operation of the component.
- Only qualified personnel are authorized to work on the product components or in their vicinity.
- Only use accessories and spare parts approved by Bosch Rexroth.
- Observe the safety regulations and stipulations of the country in which the components of the electric drive and control system are operated.
- Only use the product according to the intended use. See chapter "Appropriate Use".

- The ambient and operating conditions given in the available application documentation must be adhered to.
- Applications for functional safety are only allowed if clearly and explicitly specified in the application documentation "Integrated Safety Technology". If this is not the case, they are excluded. Functional safety includes parts of the overall safety concept, in which measures of risk reduction for personal safety depend on electrical, electronic or programmable control systems.
- The information given in the application documentation with regard to the use of the delivered components contains only application examples and suggestions.

The machine and installation manufacturers must

- make sure that the delivered components are suited for their individual application and check the information given in this application documentation with regard to the use of the components,
- make sure that the individual application complies with the applicable safety regulations and standards and carry out the required measures, modifications and complements.
- Commissioning of the delivered components is only allowed once it is sure that the machine or installation in which the components are installed complies with the national regulations, safety specifications and standards of the application.
- Operation is only allowed if the national EMC regulations for the application at hand are complied with.
- The instructions for installation in accordance with EMC requirements can be found in the section on EMC in the relevant application documentation.

The machine or installation manufacturer is responsible for compliance with the limit values as prescribed in national regulations.

- The technical data, connection and installation conditions of the components are specified in the respective application documentations and must be strictly observed at all times.
- Observe safety-relevant information and information on risks in the operating instructions of the manufacturer of the connected hydraulic system before you commission a control in conjunction with a hydraulic system.

National regulations which the user must take into account

- European countries: In accordance with European EN standards
- United States of America (USA):
 - National Electrical Code (NEC)
 - National Electrical Manufacturers Association (NEMA), as well as local engineering regulations
 - Regulations of the National Fire Protection Association (NFPA)
- Canada: Canadian Standards Association (CSA)
- Other countries:
 - International Organization for Standardization (ISO)
 - International Electrotechnical Commission (IEC)

3.2.3 Hazards by Improper Use

- High electrical voltage and high operating current! Danger to life or serious injury by electric shock!
- High electrical voltage by incorrect connection! Danger to life or injury by electric shock!
- Dangerous movements! Danger to life, serious injury or damage to property due to unintended movements of the drive resulting from misuse or incorrect actuation!
- Health hazard for persons with cardiac pacemakers, metal implants and hearing aids in close proximity to electric drive systems!
- Risk of burns by hot housing surfaces!
- Risk of injury by improper handling! Injury by crushing, shearing, cutting, hitting!
- Risk of injury by improper handling of batteries!
- Risk of injury by improper handling of pressurized lines and components!

3.3 Instructions with Regard to Specific Hazards

3.3.1 Protection Against Contact With Electrical Parts and Housings



This section is related to components of the electric drive and control system with voltages of **more than 50 volt**.

Contact with parts conducting voltages above 50 volt can be dangerous and lead to electric shock. When operating components of the electric drive and control system, it is unavoidable that some parts of these components conduct dangerous voltage.

High electrical voltage! Danger to life, risk of injury by electric shock or serious injury!

- Only qualified personnel are allowed to operate, maintain and/or repair the components of the electric drive and control system.
- Observe the general installation and safety regulations when working on high-voltage units.
- Before switching the machine on, the equipment grounding conductor must have been permanently connected to all electric components in accordance with the connection diagram.
- Even for brief measurements or tests, operation is only allowed if the equipment grounding conductor has been permanently connected to the points of the components provided for this purpose.
- Before accessing electrical parts with voltage potentials higher than 50 V, you must disconnect electric components from the mains or from the power supply unit. Secure the electric component against reconnection.
- For electric components, observe the following:
Always wait **30 minutes** after switching off power to allow live capacitors to discharge before accessing an electric component. Measure the electrical voltage of live parts before beginning to work to make sure that the equipment is safe to touch.
- Install covers and guards provided for this purpose before switching on.
- Never touch electrical connection points of the components while power is turned on.
- Do not remove or plug in connectors when the component is connected to the power supply.
- Under certain conditions, electric drive systems can be operated at mains protected by residual-current-operated circuit-breakers sensitive to universal current (RCDs/RCMs).
- For built-in devices, ensure protection against the ingress of foreign bodies and water as well as against direct contact by providing an external housing, for example a control cabinet.

High housing voltage and high leakage current! Danger to life, risk of injury by electric shock!

- Before switching on and before commissioning, ground or connect the components of the electric drive and control system to the equipment grounding conductor at the grounding points.

- Connect the equipment grounding conductor of the components of the electric drive and control system permanently to the main power supply. The leakage current is greater than 3.5 mA.
- Establish an equipment grounding connection with a minimum cross-section according to the table below. With an outer conductor cross section smaller than 10 mm² (8 AWG), the alternative connection of two equipment grounding conductors is allowed, each having the same cross-section as the external conductors.

Cross-section of the external conductor	Minimum cross-section of grounding conductor Leakage current ≥ 3.5 mA	
	1 protective earth conductor	2 protective earth conductors
1.5 mm ² (AWG 16)	10 mm ² (AWG 8)	2 × 1.5 mm ² (AWG 16)
2.5 mm ² (AWG 14)		2 × 2.5 mm ² (AWG 14)
4 mm ² (AWG 12)		2 × 4 mm ² (AWG 12)
6 mm ² (AWG 10)		2 × 6 mm ² (AWG 10)
10 mm ² (AWG 8)		-
16 mm ² (AWG 6)	16 mm ² (AWG 6)	-
25 mm ² (AWG 4)		-
35 mm ² (AWG 2)		-
50 mm ² (AWG 1/0)	25 mm ² (AWG 4)	-
70 mm ² (AWG 2/0)	35 mm ² (AWG 2)	-
...	...	...

Tab. 3-1: Minimum Cross-Section of the Grounding Conductor Connection

3.3.2 Protective Extra-Low Voltage as Protection Against Electric Shock

Protective extra-low voltage is used to allow connecting devices with basic insulation to extra-low voltage circuits.

All connections and terminals with voltages between 5 and 50 volt at the components of the drive and control systems from Bosch Rexroth are PELV ("Protective Extra-Low Voltage") systems. It is allowed to connect devices equipped with basic insulation (such as programming devices, PCs, notebooks, display units) to these connections.

Danger to life, risk of injury by electric shock! High electrical voltage by incorrect connection!

If extra-low voltage circuits of devices containing voltages and circuits of more than 50 volt (e.g., the mains connection) are connected to products from Bosch Rexroth, the connected extra-low voltage circuits must comply with the requirements for PELV ("Protective Extra-Low Voltage").

3.3.3 Protection Against Dangerous Movements

Dangerous movements can be caused by incorrect actuation of connected drives. Some common examples are:

- Improper or wrong wiring or cable connection
- Operator errors
- Wrong input of parameters before commissioning
- Errors in transducers and signal generators
- Defective components
- Software or firmware errors

These errors can occur immediately after the equipment is switched on or even after an unspecified time of trouble-free operation.

The monitoring functions in the components of the electric drive and control system will normally be sufficient to avoid malfunction in the connected drives. With regard to personal safety, especially the risk of injury and/or property damage, it is critical to rely on these monitoring functions alone to ensure complete safety. Until the integrated monitoring functions become effective, it must be assumed in any case that incorrect drive movements will occur. The extent of incorrect drive movements depends on the type of control and the operating state.

Dangerous movements! Danger to life, risk of injury, serious injury or property damage!

A **risk assessment** must be prepared for the installation or machine, with its specific conditions, in which the components of the electric drive and control system are to be installed.

Based on the risk assessment, the user must provide for monitoring functions and higher-level measures on the installation side for personal safety. The safety regulations applicable to the installation or machine must be taken into consideration. Unintended machine movements or other malfunctions are possible if safety devices are disabled, bypassed or not activated.

In case of malfunction impairing safety, immediately shut down the product and inform responsible personnel about the malfunction.

To avoid accidents, injury and/or property damage:

- Controls alone do not include safety functions for personnel safety and are not safety-relevant components
- Keep away from the machine's range of motion and moving machine parts. Prevent personnel from accidentally entering the machine's range of motion by using, for example:
 - Safety fences
 - Safety guards
 - Protective covers
 - Light barriers
- Ensure a sufficient stability of safety fences and protective covers against the maximum possible kinetic energy.
- Mount emergency stop switches in the immediate reach of the operator. Before commissioning, verify that the emergency stop equipment works. Do not operate the machine if the emergency stop switch is not working.

- Prevent unintended start-up. Isolate the drive power connection by means of OFF switches/OFF buttons, depressurize the hydraulic system or use a safety interlock.
- Make sure that the drives are brought to safe standstill before accessing or entering the danger zone.
- Additionally, secure vertical axes against falling or lowering after switching off the motor by, for example,
 - mechanical locking of the vertical axes,
 - an external braking/arrester/clamping mechanism or
 - ensuring sufficient counterbalancing of the vertical axes.
- The **motor holding brake**, which is part of the standard electric drive system, or an external holding brake activated by the drive controller is **not sufficient to guarantee personal safety!**
- Disconnect all relevant system parts via the main switch from the power supply, depressurize hydraulic systems and protect them against re-starting in the case of:
 - Maintenance and repair work
 - Cleaning of equipment
 - Long service interruptions
- Avoid the operation of high-frequency, remote control and radio equipment in the direct vicinity of components of the electric drive and control system and their supply leads. If the use of these devices cannot be avoided, check the machine or installation at initial commissioning of the electric drive and control system for possible malfunctions when operating such high-frequency, remote control and radio equipment in its possible positions of normal use. A special EMC test might be required.

3.3.4 Protection Against Magnetic and Electromagnetic Fields During Operation and Mounting

Magnetic and electromagnetic fields generated by current-carrying conductors or permanent magnets of electric motors can represent a serious risk to persons with cardiac pacemakers, metal implants and hearing aids.

Health hazard for persons with cardiac pacemakers, metal implants and hearing aids in the direct proximity to electric components!

- Persons with cardiac pacemakers and metal implants are not allowed to enter the following areas:
 - Areas in which components of the electric drive and control systems are mounted, commissioned and operated.
 - Areas in which parts of motors with permanent magnets are stored, repaired or mounted.
- If it is necessary for somebody with a cardiac pacemaker to enter such an area, a doctor must be consulted prior to doing so. The noise immunity of implanted cardiac pacemakers varies so widely that no general rules can be given.
- Persons with metal implants or metal fragments in their body or who use hearing aids must consult a doctor before they enter the areas described above.

3.3.5 Protection Against Contact With Hot Parts

Hot surfaces of components of the electric or hydraulic drive and control system. Risk of burns!

- Avoid touching hot surfaces! Depending on the operating conditions, temperatures of the surfaces can be **higher than 60 °C (140 °F)** during or after operation.
- Before touching motors after having switched them off, let them cool down sufficiently. Cooling down can take **up to 140 minutes!**
- Before touching components after having switched them off, wait **15 minutes** to allow them to cool down.
- Wear safety gloves or do not work on hot surfaces.
- For certain applications, measures to prevent burns in the final application have to be taken by the machine or system manufacturer in accordance with the safety regulations. These measures can be, for example: Warnings on the machine or installation, guards (shielding or barriers) or safety instructions in the application documentation.

3.3.6 Protection During Handling and Mounting

Risk of injury by improper handling! Injury by crushing, shearing, cutting, hitting!

- Observe the relevant statutory regulations of accident prevention.
- Use suitable equipment for mounting and transport.
- Avoid jamming and crushing by taking appropriate measures.
- Always use suitable tools. Use special tools if mandatory.
- Use lifting gear and tools in the correct manner.
- Use suitable protective equipment (hard hat, safety goggles, safety shoes, safety gloves, for example).
- Do not stand under suspended loads.
- Immediately clean up any spilled liquids from the floor due to risk of slipping!

3.3.7 Battery Safety

Batteries consist of active chemicals in a solid housing. Therefore, improper handling can cause injury or property damage.

Risk of injury by improper handling!

- Do not attempt to reactivate low batteries by heating or other methods (risk of explosion and cauterization).
- Do not attempt to recharge the batteries as this may cause leakage or explosion.
- Do not throw batteries into open flames.
- Do not dismantle batteries.
- When replacing the battery/batteries, do not damage the electrical parts installed in the devices.
- Only use the battery types specified for the product.



Environmental protection and disposal! The batteries contained in the product are considered hazardous goods in case of overland, air, or marine transport (risk of explosion) in the sense of legal regulations. Dispose of used batteries separately from other waste. Observe the national regulations of your country.

3.3.8 Protection Against Pressurized Lines

According to the information given in the Project Planning Manuals, motors and components cooled with liquids and compressed air as well as hydraulic components can be supplied with externally provided pressurized media such as compressed air, hydraulic oil, cooling liquids and cooling lubricants. Improper handling of the connected supply systems, supply lines or connections can cause injuries or property damage.

Risk of injury by improper handling of pressurized lines!

- Do not attempt to disconnect, open or cut pressurized lines (risk of ejecting oil jet).
- Observe the relevant manufacturer's operating instructions.
- Before disconnecting lines, depressurize the relevant system section and let the medium drain.
- Use suitable protective equipment (safety goggles, safety shoes, safety gloves, for example).
- Immediately clean up any spilled liquids from the floor due to risk of slipping!



Environmental protection and disposal! The media used for the operation of the product might not be environmentally friendly. Dispose of environmentally harmful media separately from other waste. Observe the national regulations of your country.

3.4 Explanation of signal words and the Safety alert symbol

The Safety Instructions in the available application documentation contain specific signal words (DANGER, WARNING, CAUTION or NOTICE) and, where required, a safety alert symbol (in accordance with ANSI Z535.6-2011).

The signal word is meant to draw the reader's attention to the safety instruction and identifies the hazard severity.

The safety alert symbol (a triangle with an exclamation point), which precedes the signal words DANGER, WARNING and CAUTION, is used to alert the reader to personal injury hazards.

 **DANGER**

In case of non-compliance with this safety instruction, death or serious injury will occur.

⚠ WARNING

In case of non-compliance with this safety instruction, death or serious injury could occur.

⚠ CAUTION

In case of non-compliance with this safety instruction, minor or moderate injury could occur.

NOTICE

In case of non-compliance with this safety instruction, property damage could occur.

4 Standard parameters

4.1 S-0-0000 - S-0-0100

4.1.1 S-0-0000, Dummy parameter

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						device-specific
Function	This parameter serves as a wild card, it does not have any function. This parameter can be cyclically written and read.						
Possible applications:							
- Filling up "S-0-0370, Data container A: Configuration list command value-1" with wild cards - Measuring dead time for writing and reading data via the bus - etc.							
S-0-0000 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

4.1.2 S-0-0001, NC cycle time (TNcyc)

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	The NC cycle time specifies at which time intervals the numeric control makes new command values available.						
	See also Functional Description "SERCOS interface"						
Use	The TNcyc must be an integral multiple of "S-0-0002, SERCOS cycle time (TScyc)".						
$T_{Ncyc} = T_{Scyc} \cdot j$							
j 1, 2, 3 ...							
T _{Ncyc} : NC cycle time							
T _{Scyc} : SERCOS cycle time							
Fig. 4-1: Determining the NC cycle time							
S-0-0001 - Attributes	Function:	Par	Editable:	P2	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV	
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: 250 / 65000			Default value: 2000	

4.1.3 S-0-0002, Sercos cycle time (TScyc)

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»

Hardware	SoE, SoV
Device parameter:	device-specific

Function The content of "S-0-0002" defines the time intervals in which the cyclic real-time data (MDT and AT) is transmitted via EtherCAT and processed in the drive.

Minimum bus cycle time (TScyc): 1 ms

See also Functional Description "Performance Data"

See also Functional Description "EtherCAT"



EtherCAT master communication requires that the bus cycle time (TScyc) be transmitted from master to slave in communication phase 2 and be activated in both master and slave in communication phase 3 and above.

S-0-0002 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 500 / 65000	Default value: 2000

4.1.4 S-0-0005, Minimum feedback acquisition time (T4min)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	Ethernet POWERLINK, SoE, SoV					
Device parameter:	device-specific					

Function Minimum time required by the slave between actual value acquisition and the end of the master synchronization telegram (MST in the case of SERCOS). The drive generates this value in such a way that the current actual values can be transmitted to the numerical control in the next drive telegram.

See also Functional Description "SERCOS interface"

Use In the case of the SERCOS interface, the master reads this value in communication phase 2 in order to set the acquisition starting time of the actual values T4 S-0-0007, Feedback acquisition starting time (T4) accordingly for all drives.

S-0-0005 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.1.5 S-0-0007, Feedback acquisition starting time (T4)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	Ethernet POWERLINK, SoE, SoV					
Device parameter:	device-specific					

Function By the master specified measuring time of the feedback value after ending the synchronization telegram.

The master can therefore set the same measuring time of the feedback values for all drives that operate in a co-ordinate mode. Thereby, the synchronization of the feedback value measurement for all drives concerned is ensured. The cyclically transferred command value is also processed at time T4.

See also Functional Description: "SERCOS Interface"

Use For SERCOS interface, the measuring time of the feedback value of the master must be set smaller or equal with the difference of "S-0-0002, SERCOS cycle time (TScyc)" and the displayed "S-0-0005, Minimum feedback acquisition time (T4min)"

The following must apply: $T4 \leq TScyc - T4min$



The drive activates the measuring time of the feedback value from communication phase 3.

S-0-0007 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0 / 65000 **Default value:** 200

4.1.6 S-0-0011, Class 1 diagnostics

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function When a class 1 diagnostics error is detected in the drive, this causes the static error bit to be set in the corresponding status word of the "master communication":

- **sercos:** S-0-0135, Drive status word, bit 13
- **Servodrive application layer profile over EtherCAT:** S-0-0135, Drive status word, bit 13
- **Servodrive application layer profile over Varan:** S-0-0135, Drive status word, bit 13
- **Field buses (EtherNet/IP + Profinet):** P-0-4078, Field bus: Status word, bit 13
- **Easy Startup mode:** P-0-0115, Device control: status word, bit 13 for diagnostics error1

See also Functional Description "Status Classes, Status Displays, Control Parameters"

Structure

Bit	Designation/function	Comment
0	Reserved	
1	Reserved	
2	Reserved	
3	Reserved	
4	Control voltage error	
5	Encoder error	
6	Reserved	
7	Reserved	
8	Overvoltage error	
9	Undervoltage error in power section	

Bit	Designation/function	Comment
10	Reserved	
11	Excessive deviation	
12	Communication error	
13	Position limit value exceeded	
14	Reserved	
15	Manufacturer-specific error	

Tab. 4-1: S-0-0011, Class 1 Diagnostics

Use



Bits 0 to 14 have been defined in the sercos specification. All unspecified messages are displayed via bit 15.

The following setting generally applies:

- **Bit x = "0"**: No class 1 diagnostics error present
- **Bit x = "1"**: Class 1 diagnostics error present

The error bit will only be reset to "0" by the drive, when

- there are no more class 1 diagnostics errors and
- the command "S-0-0099" was started

Drive lock-out

Any class 1 diagnostics error situation detected by the drive will cause

- the drive to initiate an "error reaction" and
- the static error bit for class 1 diagnostics to be set.

S-0-0011 - Attributes

Function: Par	Editable: --	Data length: 2Byte
Memory: --	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: AT	Comb. check: --	Set-depend.: --
HDx:	min./max.: --- / ---	Default value: ---

4.1.7 S-0-0012, Class 2 diagnostics

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function When a class 2 diagnostics warning becomes active or inactive in the drive, this causes the change bit to be set in the corresponding status word:

- **sercos:** The change bit "S-0-0135, Drive status word", bit 12, for class 2 diagnostics is only cleared by the drive when parameter "S-0-0012" is read.
- **Field bus:** The change bit "P-0-4078, Field bus: status word", bit 12, for class 2 diagnostics is immediately cleared by the drive when the condition for the warning is no longer fulfilled.

See also functional description "Status classes, status displays, control parameters"

Structure	Bit	Designation/function	Comment
	4-0	Reserved	
	5	Positioning velocity > nlimit (See also P-0-0315, bit 0)	
	11-6	Reserved	
	12	Communication warning An E400x warning is present.	
	13	Target position outside position limit values (See also S-0-0323, bit 0)	
	13	Reserved	
	15	Manufacturer-specific warning (See also P-0-0115, bit 2)	

Tab. 4-2: S-0-0012, Class 2 diagnostics

Use As regards the bits, the following setting generally applies:

- **Bit x = "0"**: Condition for warning not fulfilled
- **Bit x = "1"**: Condition for warning fulfilled

As illustrated in the table above, the individual status bits are mapped also to other manufacturer-specific parameters (e.g. P-0-0861, P-0-0115,...).



For configuration in "S-0-0144, Signal status word", preferably use the manufacturer-specific bits in the P-parameters.

S-0-0012 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

4.1.8 S-0-0013, Class 3 diagnostics

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific
Function	When a class 3 diagnostics message becomes active or inactive in the drive, this causes the change bit to be set in the status word: Field bus: The change bit "P-0-4078, Field bus: status word", bit 11, for class 3 diagnostics is immediately cleared by the drive when the condition for the message is no longer fulfilled. See also Functional Description "Status classes, status displays, control parameters"
Structure	Defined operating status messages are assigned to the individual bits of this parameter. The structure of the parameter and the significance of the individual bits are explained below.

Bit	Designation/function	Comment
0	Feedback velocity = command velocity (S-0-0330, Status "n_feedback = n_command"): Absolute plus command-value-percentage-based tolerance window $ ((S-0-0040) - (S-0-0036) - (S-0-0037)) \leq ((S-0-0157) + S-0-0036 + (S-0-0037) + (P-0-0690)) * (S-0-0272)$	
1	Feedback velocity < standstill window (S-0-0331, Status "n_feedback = 0"): $ S-0-0040 < S-0-0124$	
2	Velocity feedback < velocity threshold (S-0-0332, Status "n_feedback < n _x): $ S-0-0040 < S-0-0125$	
3	Torque/force feedback value ≥ torque threshold (S-0-0333, Status "T ≥ Tx"): $ S-0-0084 \geq S-0-0126$	
4	Torque/force feedback value ≥ minimum torque limit value (S-0-0334, Status "T ≥ Tlimit"): Up to FW 19: $S-0-0084 \geq P-0-0082$, or $S-0-0084 \leq P-0-0083$ As of FW 20: S-0-0900 -> S-0-0550, S-0-0901 -> S-0-0551, S-0-0902 -> S-0-0552	
5	Command velocity > velocity limit value (S-0-0335, Status "n_command > n_limit"): $ ((S-0-0036) + (S-0-0037)) > S-0-0091$	
6	In position (S-0-0336, Status "In position"): following distance < positioning window $ S-0-0189 < S-0-0057$ Only with active "Position spindle procedure" command: $ S-0-0040 < S-0-0124$ (S-0-0331) and position feedback value - (S-0-0430) < S-0-0057 and $ S-0-0036 + S-0-0037 < S-0-0124$	
11	Following distance < coarse positioning window (S-0-0341, Status "In coarse position"): $ S-0-0189 < S-0-0261$	
12	Target position reached (S-0-0342, Status "Target position attained"): Internal position command value = effective target position $P-0-0434 = S-0-0430$	

Tab. 4-3: S-0-0013, Class 3 diagnostics

As regards the bits, the following setting generally applies:

- **Bit x = 0:** Condition for message not fulfilled
- **Bit x = 1:** Condition for message fulfilled

S-0-0013 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.1.9 S-0-0014, Interface status

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter contains important status bits with regard to master communication and communication phases.

See also Functional Description "Basic functions of master communication"

Structure

Bit	Designation/function	Comment
2-0	Communication phase	
3	2-fold MST failure	
4	2-fold MDT failure	
5	Invalid phase (phase: > 4)	
6	Error during phase progression (order)	
7	Error during phase regression (not to phase 0)	
8	Phase switching without ready signal	
9	Bus interruption	
10	PLC stop	
11	Bus stop	
12	Sercos: Incorrect sequence during phase switching; time-out during phase switching	
13	Sercos: Incorrect sequence during phase switching; phase selected without phase switching	
15/14	Reserved	

Tab. 4-4: Relevant bits of S-0-0014, Interface status



Bits 3, 5, 6, 7 and 8 are supported exclusively with Sercos interface! Bits 9, 10, and 11 are supported exclusively with field bus interface!

Use Current communication phase

The current communication phase can be read via the three lower bits (0, 1, 2) (in binary-coded form):

- 010 b: The drive is in phase 2 (parameter mode).
- 011 b: The drive is in phase 3 (parameter mode).
- 100 b: The drive is in phase 4 (operation mode).
- 111: The drive is in communication state "bootstrap".

Communication error bits after Sercos interface

If a master communication interface error occurs in conjunction with Sercos and field bus drives,

- one of the bits 3-15 in "S-0-0014, Interface status" is set (bit 4... 13 = 1 => error is present)
- and bit 12 in "S-0-0011, Class 1 diagnostics" is set.



Communication error bits are only cleared by the drive, if the relevant interface error is no longer present and command "S-0-0099, C0500 Reset class 1 diagnostics" was started.

S-0-0014 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.1.10 S-0-0015, Telegram type parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos, SoE, SoV					
Device parameter:	axis-specific					

Function In the telegram type parameter, it is possible to choose between standard and configured telegrams.

- When "configurable telegram" has been selected, it is possible to configure "S-0-0016, Configuration list of AT" and "S-0-0024, Configuration list of MDT" as desired.
- With standard telegrams, the content of "S-0-0016" and "S-0-0024" is automatically adjusted to the selected standard telegram.
- For sercos III, the parameter takes effect, when "10" is selected in the configuration type of "S-0-1050.0.1, SIII-Connection: Connection setup".



The telegram type selected is activated in the master and in the slave only from communication phase 3 on.

Structure

Bit	Designation/function	Comment
2-0	Selection of standard telegram or configured telegram	
3	0: Actual feedback value 1 (encoder 1) 1: Actual feedback value 2 (encoder 2)	Only if encoder 2 is present.
9/8	MDT service channel data width: 00: 2 bytes info (EtherCAT/VARAN) 01: 4 bytes info (sercos III) 10: 6 bytes info 11: 8 bytes info	
11/10	AT service channel data width: 00: 2 bytes info (EtherCAT/VARAN) 01: 4 bytes info (sercos III) 10: 6 bytes info 11: 8 bytes info	

Tab. 4-5: S-0-0015, Telegram Type Parameter

The following table describes the individual standard telegrams that can be selected via bit 2...0. Only the bit configuration 111 (configurable telegram) is specified for VARAN. The other combinations cannot be used there.

Bit 2...0		MDT (cyclic command values)	AT (cyclic actual values)
000	VZ 0	No cyclic data	No cyclic data
001	VZ 1	DF1: S-0-0080, Torque/force command value	No cyclic data
010	VZ 2	DF1: S-0-0036,, Velocity command value	DF1: S-0-0040, Velocity feedback value
011	VZ 3	DF1: S-0-0036,, Velocity command value	DF1: S-0-0051/S-0-0053 Position feedback value 1/2
100	VZ 4	DF1: S-0-0047, Position command value	DF1: S-0-0051/S-0-0053 Position feedback value
101	VZ 5	DF1: S-0-0047, Position command value DF2: S-0-0036,, Velocity command value	DF1: S-0-0051/S-0-0053 Position feedback value DF2: S-0-0040, Velocity feedback value
110	VZ 6	DF1: S-0-0036,, Velocity command value	No cyclic data
111	Config. telegram		Configurable telegram

Tab. 4-6: Supported Bits

With VZ: Standard telegram

DF1/2: Data field 1/2

S-0-0015 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

4.1.11 S-0-0016, Configuration list of AT

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	SoE, SoV	
Device parameter:	axis-specific	

Function This parameter specifies the parameters which are contained in the drive telegram (AT) when the configurable telegram has been defined by parameter "S-0-0015, Telegram type parameter".

Use The configurable parameters are contained in parameter "S-0-0187, List of configurable data in the AT" and are entered in this parameter as IDN list.

S-0-0016 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.1.12 S-0-0017, IDN-list of all operation data

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
Function	The IDNs of all operating data available in the drive are stored in this IDN list. See also Functional Description "Parameters, Basics"					
S-0-0017 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.1.13 S-0-0018, IDN-list of operation data for CP2

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	In this IDN list, the IDNs of all those parameters are stored which the drive checks in the transition check command for phase 3. Only if the data of the contained IDNs are correct can the transition check command be positively acknowledged and switching to communication phase 3 can be allowed. See also Functional Description "IDN Lists of Parameters"					
S-0-0018 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.1.14 S-0-0019, IDN-list of operation data for CP3

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	In this IDN list, the IDNs of all those parameters are stored which the drive checks in the transition check command for phase 4. Only if the data of the contained IDNs are correct can the transition check command be positively acknowledged and switching to communication phase 4 can be allowed. See also Functional Description "IDN Lists of Parameters"					
S-0-0019 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.1.15 S-0-0021, IDN-list of invalid operation data for CP2

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Hardware: Sercos, SoE, SoV					
	Device parameter: axis-specific					
Function	Before the drive switches from phase 2 to phase 3 in accordance with the command "S-0-0127, C0100 Communication phase 3 transition check", it checks whether all communication parameters are complete and correct. See also Functional Description "IDN Lists of Parameters"					

Use If the drive recognizes one or more invalid IDNs, it writes the operating data still required or invalid to this IDN list. The drive displays this by means of the fault diagnosis "C0101 Invalid parameters (-> [S-0-0021](#))". In the case of other fault diagnoses, the respective parameters are written to "[S-0-0021](#)", too.

S-0-0021 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: ---	

4.1.16 S-0-0022, IDN-list of invalid operation data for CP3

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	Sercos, SoE, SoV					
Device parameter:	axis-specific					

Function Before the drive switches from phase 3 to phase 4 in accordance with the command "[S-0-0128](#), C5200 Communication phase 4 transition check", it checks the parameters for the following aspects:

- Validity of the parameter
- Parameter within the possible input range
- "Compatibility" with other parameters

See also Functional Description "IDN-Lists of Parameters"

Use If the result of the parameter check is negative, the drive writes the respective operating data to this IDN list.

The drive then acknowledges the transition command with the messages:

- C0201 Invalid parameters (->[S-0-0423](#)) or
- C0202 Parameter limit error (->[S-0-0423](#)) or
- C0203 Parameter conversion error (->[S-0-0423](#)) or
- C0242 Multiple configuration of a parameter (->[S-0-0423](#)).

S-0-0022 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: ---	

4.1.17 S-0-0024, Configuration list of MDT

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	SoE, SoV					
Device parameter:	axis-specific					

Function This parameter specifies the parameters which are contained in the master data telegram (MDT) if the configurable telegram has been defined by parameter "[S-0-0015](#), Telegram type parameter".

Use The configurable parameters are contained in parameter "[S-0-0188](#), List of configurable data in the MDT" and are entered in this parameter as list.

S-0-0024 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.1.18 S-0-0025, IDN-list of all procedure commands

Allocation	Contained in 16VRS:							«HDS»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC» «HDS»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:							axis-specific
Function	The IDNs of all commands available in the drive are stored in the data of the IDN list.							
	See also Functional Description "Commands"							
S-0-0025 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.		
	Memory:	--	Validity ch.:	--	Format:	IDN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

4.1.19 S-0-0026, Configuration list for signal status word

Allocation	Contained in 16VRS: «-»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC» «-»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»						
	Device parameter: axis-specific						
Function	In this parameter it is possible to list (configure) a maximum of 16 parameter IDNs, one bit of each is to be mapped to "S-0-0144, Signal status word". The first line of the list corresponds with the LSB of S-0-0144. The following lines correspond with the respective more significant bits. See also Functional Description "Configurable Signal Status Word"						
Use	• The IDNs of the parameters that can be entered in S-0-0026 are contained in "S-0-0398, IDN-list of configurable data in signal status word". • The assignment with regard to which bit of the respective parameter is mapped to S-0-0144 is made in "S-0-0328, Assign list signal status word".						
							
• If the IDN S-0-0000 is entered, this position does not have any function, the respective bit in the signal status word (S-0-0144) displays the value "0". • If an IDN is entered that is not contained in S-0-0398, the parameter error "Data incorrect" (error code 7008h) is generated.							
S-0-0026 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: --- / ---			Default value: s. Text		

4.1.20 S-0-0027, Configuration list for signal control word

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					

Function In this parameter it is possible to list (configure) a maximum of 16 parameter IDNs, one bit of each is to be written via "S-0-0145, Signal control word". The first line of the list corresponds with the LSB of S-0-0145, the following lines with the respective more significant bits.

See also Functional Description "Configurable Signal Status Word"

- Use**
- The IDNs of the parameters that can be entered in S-0-0027 are contained in "S-0-0399, IDN-list of configurable data in signal control word".
 - The assignment with regard to which bit of the respective parameter is to be written in S-0-0027 is made in "S-0-0329, Assign list signal control word".
 - If the IDN S-0-0000 is entered, the respective bit does not have any function in the signal control word S-0-0145.
 - If an IDN is entered that is not contained in S-0-0399, the parameter error "Data incorrect" (error code 7008h) is generated.

S-0-0027 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: s. Text	

4.1.21 S-0-0029, MDT error counter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	SoE, SoV				
	Device parameter:	device-specific				

Function This parameter displays the number of all invalid master data telegrams (MDTs) in the communication phases 3 and 4.

See also Functional Description "Interface Errors and Diagnostic Possibilities"

Use If two MDTs are invalid in immediate succession, the error "F4002 Double MDT failure shutdown" is generated and the drive is switched back to communication phase 0.

The maximum countable number of invalid MDTs is $2^{16} - 1$ (65535). If parameter S-0-0029 has high values, this implies frequent communication failures.



The content of S-0-0029 is reset to zero in the transition command "S-0-0127, C0100 Communication phase 3 transition check".

S-0-0029 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: ---	

4.1.22 S-0-0030, Manufacturer version

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter contains the drive firmware version in the form of a text (ASCII format).

See also Functional Description "System Overview"

Structure Interpret the content of the parameter as follows:

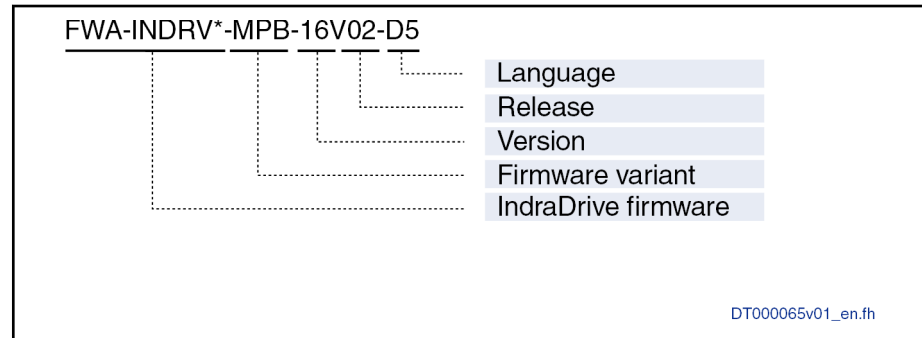


Fig. 4-2: Structure of S-0-0030, Manufacturer version

S-0-0030 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

4.1.23 S-0-0032, Primary operation mode

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value in this parameter.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...



The actual selectable operation mode depend on the firmware used, set functional package ("P-0-2003") and field bus profile type ("P-0-4085").

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag
- Activation of position control in cooperation with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

- The default value depends on the firmware used and the set functional package

Use In the various communication buses, operation modes are activated via the respective control word.

- sercos III: "S-0-0134, Master control word".
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- the primary operation mode is selected in the control word, and
- Drive is in status "Stopped".

See also Functional Description "Selecting the Operating Mode"

S-0-0032 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.1.24 S-0-0033, Secondary operation mode 1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value in this parameter.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag
- Activation of position control in conjunction with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

- The default value depends on the firmware used and the set functional package

Use In the various communication buses, operation modes are activated via the respective control word.

- sercos III: "S-0-0134, Master control word".
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 1 is selected in the control word, and
- drive is in status "Stopped".

See also Functional Description "Selecting the Operating Mode"

S-0-0033 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.1.25 S-0-0034, Secondary operation mode 2

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value in this parameter.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag
- Activation of position control in conjunction with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

- The default value depends on the firmware used and the set functional package

Use In the various communication buses, operation modes are activated via the respective control word.

- sercos III: "S-0-0134, Master control word".
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 2 is selected in the control word, and
- drive is in status "Stopped".

See also Functional Description "Selecting the Operating Mode"

S-0-0034 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.1.26 S-0-0035, Secondary operation mode 3

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value in this parameter.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag
- Activation of position control in conjunction with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

- The default value depends on the firmware used and the set functional package

Use In the various communication buses, operation modes are activated via the respective control word.

- sercos III: "S-0-0134, Master control word".
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- The secondary operation mode 3 is selected in the control word, and
- Drive is in status "Stopped"

See also Functional Description "Selecting the Operating Mode"

S-0-0035 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.1.27 S-0-0036, Velocity command value

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	VelGenerator.SetVel				

Function The control unit cyclically enters the command value during the operation mode "Velocity control" into this parameter.



The real effective velocity command value (addition of all velocity command value forming parts) is shown on the input of the velocity control unit in the parameter "P-0-0048".

See also Functional Description "Velocity Control"

S-0-0036 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0044 / S-0-0044 Default value: ---

4.1.28 S-0-0037, Additive velocity command value

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	VelGenerator.SetVelActiveAdditive				

Function The control unit cyclically enters an additive command value in speed and position controlled operation modes into this parameter, if the control unit provides a corresponding value.



The real effective velocity command value (addition of all velocity command value forming parts) is shown on the input of the velocity control unit in the parameter "P0-0048".

See also Functional Description "Velocity Control"

S-0-0037 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: ---	

4.1.29 S-0-0038, Positive velocity limit value

Allocation	Contained in 16VRS:						«-»		
	Contained in 17VRS:	«HDB»							
	Contained in 18VRS:	«HDB»					«HDC»		
	Contained in 19VRS:						«-»		
	Contained in 20VRS:	«HDB»					«HDC»		
			«HDE»		«HDP»		«HDM»		«HDS»
Device parameter:	axis-specific								
Property name:	VelGenerator.VelLimitPositiv								

Function Value for the allowed maximum positive velocity command value of the axis irrespective of the application.

See also functional description "Velocity control"

- Use**
- If "S-0-0091, Bipolar velocity limit value" is less than "S-0-0038, Positive velocity limit value", the limit value from "S-0-0091" becomes effective.
 - The default value for "S-0-0038" is "0" (switched off); thus the value from "S-0-0091" acts as limit for positive velocities.

S-0-0038 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: s. Text	

4.1.30 S-0-0039, Negative velocity limit value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:	VelGenerator.VelLimitNegativ						

Function Value for the maximum negative velocity command value of the axis allowed for the application at hand.

See also functional description "Velocity control"

- Use**
- If "S-0-0091, Bipolar velocity limit value" is less than "S-0-0039, Negative velocity limit value" in terms of amount, the limit value from "S-0-0091" becomes effective.
 - The default value for "S-0-0039" is "0" (switched off); thus the value from "S-0-0091" acts as limit for negative velocities.

S-0-0039 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: s. Text	

4.1.31 S-0-0040, Velocity feedback value of encoder 1

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	"S-0-0040" contains the velocity feedback of encoder 1.						
	See also parameter description "S-0-0051, Position feedback value 1"						
S-0-0040 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 S-0-0046	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

4.1.32 S-0-0041, Homing velocity

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						PosGenerator.HomingVel
Function	The product from "S-0-0041, Homing velocity" and "S-0-0108, Feedrate override" determines the maximum velocity of the axis during "S-0-0148, C0600 Drive-controlled homing procedure command".						
	See also Functional Description "Establishing the Position Data Reference"						
S-0-0041 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 3	
	HDx:	min./max.: S-0-0044 / S-0-0044				Default value: 100,0000	

4.1.33 S-0-0042, Homing acceleration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						PosGenerator.HomingAcc
Function	The value for acceleration is entered in this parameter. With this value, the drive changes the internally generated velocity command value during the execution of "S-0-0148, C0600 Drive-controlled homing procedure command".						
		The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". The value of parameter "S-0-0042, Homing acceleration" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.					
See also Functional Description "Establishing the Position Data Reference"							
S-0-0042 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM SP	Validity ch.:	PM->OM	Format:	DEC_OV	

Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 1000,000	

4.1.34 S-0-0043, Velocity polarity parameter

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific

Function In this parameter it is possible to change, related to the application, the polarities of the velocity data. The polarities aren't changed over inside but outside (at the input and output) of the controlled system.

See also Functional Description "Scaling of Physical Data"

Structure

Bit	Designation/function	Comment
0	Velocity command value 0: positive polarity 1: negative polarity	
1	Velocity command value, additive 0: positive polarity 1: negative polarity	
2	Actual velocity value 0: positive polarity 1: negative polarity	

Tab. 4-7: Velocity Polarities



Bits 1 and 2 are copies of bit 0. Only changes in bit 0 are effective. It is impossible to have different settings for the individual bits!

- Use**
- **The following applies to rotary drives:** Clockwise rotation of the input shaft results in a positive actual velocity value (positive polarity).
 - **The following applies to linear drives:** A positive valve actuation value results in a positive actual velocity value (positive polarity).

S-0-0043 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0x0 / 0x7			Default value: 0x0	

4.1.35 S-0-0044, Velocity data scaling type

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific

Function The scaling type of the velocity data defines the format and the relationship in which the velocity data are exchanged between the drive and the control or interface.



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of velocity, position or acceleration data in the drive.

Structure

See also Functional Description "Scaling of Physical Data"

Bit	Designation/function	Comment
2-0	Scaling type 001: Linear scaling 010: Rotary scaling	
3	0: Preferred scaling 1: Parameter scaling	
4	Unit for linear scaling 0: Millimeter [mm] 1: Inch [in] Unit for rotary scaling 0: Revolution 1: Reserved	
5	unit of time 0: Minute [min] 1: Second [s]	
6	Data reference 0: With respect to motor shaft 1: With respect to load	
15-7	Reserved	

Tab. 4-8: S-0-0044, Velocity data scaling type

Use The drive represents the values of the velocity data parameters (e.g. S-0-0040, Velocity feedback value) with the set scaling. The setting of the scaling is specified by the control.

If the preferred scaling is selected (bit 3 = 0), the following parameters are preset and cannot be changed:

- S-0-0045, Velocity data scaling factor
- S-0-0046, Velocity data scaling exponent

If parameter scaling is selected, the desired parameter values must be entered for scaling.

S-0-0044 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x41

4.1.36 S-0-0045, Velocity data scaling factor

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					

Function In the case of parameter scaling (see [S-0-0044](#)), the scaling factor and the decimal format (the decimal place) of the velocity data are determined via the following parameters.

- [S-0-0045](#), Velocity data scaling factor and
- [S-0-0046](#), Velocity data scaling exponent

See also Functional Description "Scaling of Physical Data"

Use If preferred scaling is selected in [S-0-0044](#), Velocity data scaling type, the values in [S-0-0045](#) and [S-0-0046](#) are set automatically by the drive.

[S-0-0045](#) - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 1 / 65535

Default value: 1

4.1.37 [S-0-0046](#), Velocity data scaling exponent

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function In the case of parameter scaling (see [S-0-0044](#)), the scaling factor and the decimal format (the decimal place) of the velocity data are determined via the following parameters.

- "S-0-0046, Velocity data scaling exponent" and
- "S-0-0045, Velocity data scaling factor"

See also Functional Description "Scaling of Physical Data"

Use If preferred scaling is selected in "S-0-0044, Velocity data scaling type", the values in "S-0-0045" and "S-0-0046" are set automatically by the drive.

[S-0-0046](#) - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: -10 / -3

Default value: ---

4.1.38 [S-0-0047](#), Position command value

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosGenerator.SetPos					

Function



The content and significance of [S-0-0047](#) are different for read and write access!

Write Access

In the "position control" mode the control unit by means of "S-0-0047" and in the clock of its interpolation cycle time writes the cyclic position command values to the drive.

If required, these position command values coming directly from the control unit can be read via "P-0-0047, Position command value control"!



The interpolation cycle time of the control unit (cf. [S-0-0001](#)) can be a multiple of the communication cycle time (cf. [S-0-0002](#)) so that [P-0-0047](#) is updated on the same time base, too!

Read Access

When [S-0-0047](#) is read, the effective position command value input at the input of the position loop is displayed in the parameter, this value can also be displayed via "[P-0-0434](#), Position command value of controller". The effective position command values in the "position control" mode are the position command values of the control unit, fine-interpolated, possibly filtered and jerk-limited by the drive! Parameter [S-0-0047](#) is therefore updated on the time base of the position loop cycle time (Advanced: 250µs, Basic: 500µs)!



[S-0-0047](#) is only updated in the "cyclic position control" mode and [P-0-0434](#) in all operation modes in which the position control loop is closed in the drive!

See also Functional Description "Position Control With Cyclic Command Value Input"

[S-0-0047](#) - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: ---	

4.1.39 [S-0-0049](#), Positive position limit value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The allowed travel range of an axis can be defined by position limit values. The greatest position feedback value (positive direction of travel) allowed is entered in this parameter.

See also functional description "Diagnostic messages and monitoring functions"

Use Activation

Position limit value monitoring only becomes active when the position feedback value of the position encoder has been homed. (Bit 0 or bit 1 in parameter "[S-0-0403](#), Position feedback value status" must be 1).

Position limit value monitoring can be switched off via bit 4 in "[S-0-0055](#), Position polarities".

Warning

If an "[S-0-0258](#), Target position" beyond the positive position limit value is provided to the drive, it sets warning bit 13 in "[S-0-0012](#), Class 2 Diagnostics" and generates warning "E2053 Target position out of travel range".

When the positive position limit value is exceeded the drive sets error bit 13 in "[S-0-0011](#), Class 1 diagnostics".

[S-0-0049](#) - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0076 / S-0-0076 Default value: 0,0000

4.1.40 S-0-0050, Negative position limit value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The allowed travel range of an axis can be defined by position limit values. The greatest position feedback value (negative direction of travel) allowed is entered in this parameter.

See also Functional Description "Diagnostic messages and monitoring functions"

Use Activation

Position limit value monitoring only becomes active, when the position feedback values of encoder 1 or, if applicable, encoder 2 have been referenced to the axis zero point, that is, an encoder has been homed. (Bit 0 or bit 1 in parameter "S-0-0403, Position feedback value status" must be 1).

Position limit value monitoring can be switched off via bit 4 in "S-0-0055, Position polarities".

Warning

If an "S-0-0258, Target position" beyond the negative position limit value is provided to the drive, it sets warning bit 13 in "S-0-0012, Class 2 Diagnostics" and generates warning "E2053 Target position out of travel range".

When the negative position limit value is exceeded the drive sets error bit 13 in "S-0-0011, Class 1 diagnostics".

S-0-0050 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0076 / S-0-0076 Default value: 0,0000

4.1.41 S-0-0051, Position feedback value of encoder 1

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.Enc1Pos					

Function "Position feedback value 1" shows the current position of encoder 1. After the drive is switched on, the actual position value is initialized, i.e. set to an initial value, when command "S-0-0422, C0200 Exit parameterization level procedure command" is being processed.

See also functional description "Measuring systems"

Use If encoder 1 is an absolute measuring system, the value in "S-0-0051" displays:

- the position referred to the machine zero point, if "S-0-0447, C0300 Set absolute position procedure command" was executed once for encoder 1 during initial commissioning.
- first of all the current absolute position of encoder 1 during initial commissioning. The absolute position does not have any reference to the machine zero point until "S-0-0447" is executed for the first time.

If encoder 1 is an incremental measuring system, the value in "S-0-0051" displays:

- first of all the actual position value that has not been homed. It refers to the value of "P-0-0019, Initial position value", unless an absolute optional encoder 2 is available. The initial position value then corresponds to the initial position of encoder 2 (default value of "P-0-0019" is zero).
- the position related to the machine zero point, if the "S-0-0148, C0600 Drive-controlled homing procedure command" was executed after drive enable and if, at the same time, encoder 1 had been selected with bit 3 in "S-0-0147, Homing parameter".

S-0-0051 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.1.42 S-0-0052, Reference distance of encoder 1

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.RefDistance1					

Function In this parameter, the desired actual position value for encoder 1 in relation to a certain axis position (dedicated position) is entered. By means of commands "S-0-0148, C0600 Drive-controlled homing procedure command" or "S-0-0447, C0300 Set absolute position procedure command" the value entered for encoder 1 in parameter "S-0-0052" becomes effective as actual position value at the dedicated position. This allows the establishment of a certain position reference system for an axis or changing of an existing reference system to another.

See also functional description "Establishing the position data reference"

Use Incremental measuring systems

With incremental measuring systems, the reference of actual position values to the axis zero point is established by means of command "drive-controlled homing procedure" at a mechanically determined, dedicated position, the so-called reference point. After homing, the "S-0-0051, Position feedback value 1" at the reference point corresponds to the value of parameter "S-0-0052". It is the distance between this dedicated point and the axis zero point.

Absolute measuring systems

With absolute measuring systems, command "set absolute position" at a dedicated position of the axis switches the current reference system of actual position values to a new one. "S-0-0051, Position feedback value of encoder 1" at this dedicated position is then the value of "S-0-0052".

The dedicated position can

- have a defined distance to the axis zero point and
- be provided as actual position value of the previous reference system (before the reference system was switched over).

S-0-0052 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 3

HDx: min./max.: S-0-0076 / S-0-0076 Default value: 0,0000

4.1.43 S-0-0053, Position feedback value of encoder 2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«HDS»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.Enc2Pos					
Function	“Position feedback value 2” shows the current position of encoder 2. After the drive is switched on, the actual position value is initialized, i.e. set to an initial value, when "S-0-0422, C0200 Exit parameterization level procedure command" is being processed. See also functional description “Measuring systems”						
Use	If encoder 2 is an absolute measuring system, the value in "S-0-0053" displays: - the position referred to the machine zero point, if "S-0-0447, C0300 Set absolute position procedure command" was executed once for encoder 2 during initial commissioning. - first of all the current absolute position of encoder 2 during initial commissioning. The absolute position does not have any reference to the machine zero point until "S-0-0447" is executed for the first time. If encoder 2 is an incremental measuring system, the value in "S-0-0053" displays: - first of all the actual position value that has not been homed. It refers to the value of "P-0-0019, Initial position value", unless an absolute encoder 1 is available. The initial position value then corresponds to the initial position of encoder 1 (default value of "P-0-0019" is zero). - the position related to the machine zero point, if the "S-0-0148, C0600 Drive-controlled homing procedure command" was executed after drive enable and if, at the same time, encoder 2 had been selected with bit 3 in "S-0-0147, Homing parameter".						
S-0-0053 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077	/
						S-0-0078	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

4.1.44 S-0-0054, Reference distance of encoder 2

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.RefDistance2					
Function	In this parameter, the desired actual position value in relation to a certain axis position (dedicated position) is entered. By means of command "S-0-0148, C0600 Drive-controlled homing procedure command" or "S-0-0447, C0300 Set absolute position procedure command" the value entered in parameter "S-0-0054" becomes effective as actual position value at the dedicated position. This allows the establishment of a certain position reference system for an axis or changing of an existing reference system to another. See also functional description “Establishing the position data reference“						

Use Incremental measuring systems

With incremental measuring systems, the reference of actual position values to the axis zero point is established by means of command "drive-controlled homing procedure" at a mechanically determined, dedicated position of the axis, the so-called reference point. After homing, the position feedback value of encoder 2 at the reference point corresponds to the value of parameter "S-0-0054". It is the distance between this dedicated point and the axis zero point.

Absolute measuring systems

With absolute measuring systems, command "set absolute position" at a dedicated position of the axis switches the current reference system of actual position values to a new one.

The dedicated position can

- have a defined distance to the axis zero point and
- be provided as actual position value of the previous reference system (before the reference system was switched over).

S-0-0054 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076				Default value: 0,0000

4.1.45 S-0-0055, Position polarities

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function By means of this parameter it is possible to invert the polarities of the indicated position data. The polarities are changed outside of the controlled system, i.e. at the input and output of the controlled system.



The position polarity must be determined during initial commissioning of an axis before establishing the machine zero point for the measuring systems, because a change in the polarity results in different actual position values.

The following applies to rotary drives:

Clockwise rotation of the drive shaft in the case of positive position command value difference and positive polarity.

The following applies to linear drives:

Positive valve actuating variable with positive position command value difference and positive polarity.

With bit 4 software position limit values are activated or deactivated

Structure

Bit	Designation/function	Comment
0	Position command value 0: positive polarity 1: negative polarity	
1	Position command value, additive 0: positive polarity 1: negative polarity	
2	Actual position value 1 0: positive polarity 1: negative polarity	
3	Actual position value 2 0: positive polarity 1: negative polarity	
4	Position limit values 0: not active 1: active	

Tab. 4-9: S-0-0055, Position polarities



Bits 1, 2 and 3 are copies of bit 0. Only changes in bit 0 are effective. It is impossible to have different settings for the individual bits!

S-0-0055 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0x0 / 0x1F			Default value: 0x0	

4.1.46 S-0-0057, Position window

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function If an operation mode with drive-internal position control is activated in the drive, various status messages are generated with regard to the positioning behavior of the drive.

See also Functional Description "Positioning block mode"

Use Amongst others, "S-0-0057, Position window" is used as "window" for the following status messages and functionalities:

- **In position:** "S-0-0336, Status "In position"" and "S-0-0013, Class 3 diagnostics"; bit 6 = 1
|Following distance (S-0-0189)| < positioning window (S-0-0057)
- **IN_TARGETPOSITION** S-0-0437, positioning status; bit 1
(S-0-0258 - S-0-0386) < S-0-0057
- **ITP:** "S-0-0338, Status "In target position"" and "S-0-0437, Positioning status"; bit 2
(S-0-0430 - S-0-0386) < S-0-0057

&& In position (S-0-0036)

&& n_feedback = 0 (S-0-0331)

- While "S-0-0148, C0600 Drive-controlled homing procedure command" is being executed, the drive signals the termination of the command when the drive-internal position command value generator has reached its target value and the difference between this final value and the actual position value is less than the positioning window.
- As hysteresis window for position limit value monitoring. This means that when the drive overran the position limit value, the travel range is restricted additionally by the positioning window.
- If the position limit values are active, positioning in the "jog" mode is based on the position limit value positioning window.
- For the "spindle positioning" command to signal that the spindle is in position.

See also parameter description "P-0-0555, Axis status word"

S-0-0057 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,1000	

4.1.47 S-0-0058, Reversal clearance

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The reversal clearance describes the absolute measure of backlash between drive and load in the case of a reversal of direction, referring to the position data.

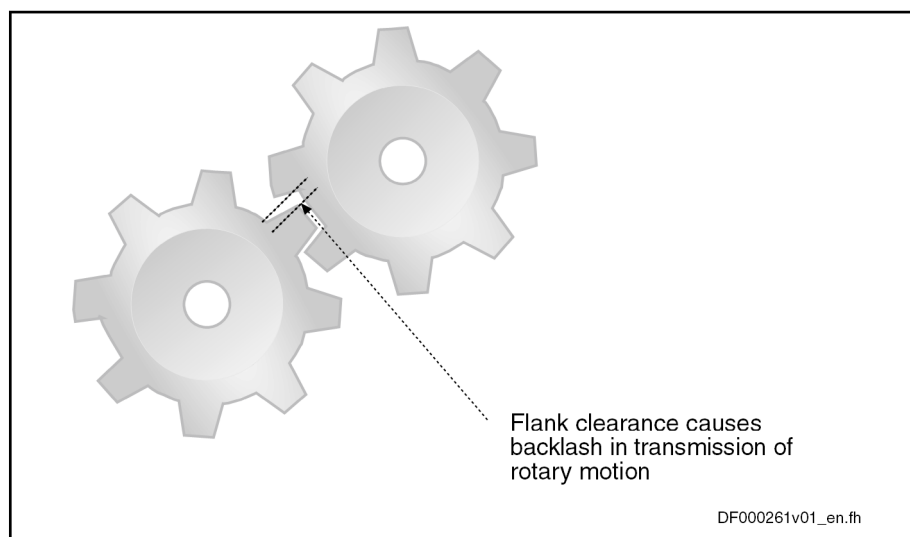


Fig. 4-3: Graphical Representation of the Reversal Clearance in the Case of Reversal of Direction

See also Functional Description "Axis Error Correction"

Use When using the function, observe the following aspects:

- By means of the backlash on reversal correction, it is easily possible to correct backlash in the mechanical axis system.

- The function is activated by inputting the backlash in parameter "S-0-0058, Reversal clearance".
- The processing of the reversal clearance depends on:
 - Direction of motion in the case of position-controlled operation modes
 - Velocity command value (S-0-0036) and standstill window (S-0-0124) in the case of velocity control

S-0-0058 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.1.48 S-0-0059, Position switch flag parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
Device parameter:	axis-specific					

Function Bit 0 of this parameter displays the switch status of a "virtual", position-dependent switch. The switch positions are preset in "S-0-0060/S-0-0460, Position switch point 1 "On"/"Off"" (cf. adjusting the switch-on/switch-off edge of a mechanical switch cam).

Structure

Bit	Designation/function	Comment
0	Switch status of virtual switch 0: Open 1: Closed	

Tab. 4-10: S-0-0059, Position switch flag parameter

S-0-0059 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.1.49 S-0-0060, Position switch point 1 "On"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
Device parameter:	axis-specific					

Function This parameter is used to define the activation position for a virtual position-dependent switch (cf. Adjusting the activation position by mechanical cams). If the position feedback value (S-0-0051) is lower than the activation position, the appropriate bit of "S-0-0059, Position switch flag parameter" indicates zero. Otherwise, it indicates "1" provided the position feedback value has not exceeded the value of "S-0-0460, Position switch point 1 "Off"".

S-0-0060 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.1.50 S-0-0076, Position data scaling type

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function The scaling type of position data determines the format and the relation in which the position data are exchanged between the drive and the control unit or user interface. The drive represents the values of the position data parameters (e.g. [S-0-0051](#), Position feedback value 1) with the set scaling. The setting of scaling is determined by the control unit.



Any change in the parameter setting has an effect on scaling. Such a change therefore has an effect on the representation and processing of velocity, position or acceleration data in the drive.

Structure See also functional description "Scaling of physical data"

Bit	Designation/function	Comment
2-0	Scaling type 0 0 1: : Linear scaling 0 1 0: Rotary scaling	
3	0: Preferred scaling 1: Parameter scaling	
4	Unit for linear scaling 0: Meter [m] 1: Inch [in] Unit for rotary scaling 0: Angular degree 1: Reserved	
5	Reserved	
6	Data reference 0: With respect to motor shaft 1: With respect to load	
7	Processing format 0: Absolute format 1: Modulo format	
15-8	Reserved	

Tab. 4-11: S-0-0076, Position data scaling type

Use If preferred scaling is selected (bit 3 = 0), the following parameters are preset and cannot be changed:

- [S-0-0077](#), Linear position data scaling factor
- [S-0-0078](#), Linear position data scaling exponent
- [S-0-0079](#), Rotational position resolution

If parameter scaling (bit 3 = 1) is selected, the desired values have to be entered in the specified parameters for scaling.



See also example of "S-0-0077, Linear position data scaling factor"

S-0-0076 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x41	

4.1.51 S-0-0077, Linear position data scaling factor

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In the case of linear parameter scaling (see S-0-0076), the scaling factor and the decimal format (the decimal place) of the position data parameters are determined with this parameter and with "S-0-0078, Linear position data scaling exponent".

If preferred scaling is selected in "S-0-0076, Position data scaling type", the values in S-0-0077 and S-0-0078 are set automatically by the drive.



Any change in the parameter setting has an effect on scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

Use Example of position data display in the case of linear scaling:

Physical actual position value of encoder 1 equals 0.12 m (meters)

A) Selected scaling = linear preferred scaling (S-0-0077 = 1, S-0-0078 = -7). This results in the numeric value 1200000 for "S-0-0051, Position feedback 1 value" (with unit mm and 4 decimal places).

B) Selected scaling = linear parameter scaling (S-0-0077 = 3, S-0-0078 = -7). This results in the numeric value 400000 for "S-0-0051, Position feedback 1 value" (with unit mm and 4 decimal places).

S-0-0077 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 1 / 65535			Default value: 1	

4.1.52 S-0-0078, Linear position data scaling exponent

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In the case of linear parameter scaling (see S-0-0076), the scaling factor and the decimal format (the decimal place) of the position data parameters are determined with this parameter and with "S-0-0077, Linear position data scaling factor".



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

Use If preferred scaling is selected in "S-0-0076, Position data scaling type", the values in S-0-0077 and S-0-0078 are set automatically by the drive.



See also example in description of "S-0-0077, Linear position data scaling factor".

S-0-0078 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -10 / -3			Default value: ---	

4.1.53 S-0-0079, Rotational position resolution

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In the case of rotary parameter scaling (see S-0-0076), the smallest angle value is determined with this parameter for the rotary position data parameters.

$$\text{smallest angle} = \frac{360 \text{ degr}}{\text{Rotational position resolution}}$$

Fig. 4-4: Smallest angle value for the rotary position data parameters

See also Functional Description "Scaling of Physical Data"

Use The smallest angle value can refer to the rotary drive or the load (see S-0-0076). If rotary preferred scaling is set (see S-0-0076), the value in "S-0-0079, Rotational position resolution" is fixed to 3.600.000. The smallest angle value is therefore fixed to 0.0001 degree of angle for all rotary position data.

S-0-0079 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
HDB:	1 / 4294967295			3600000	
HDC:	1 / 4294967295			3600000	
HDE:	1 / 4294967295			3600000	
HDP:	1 / 4294967295			3600000	
HDM:	1 / 4294967295			3600000	
HDS:	--- / ---			360	

4.1.54 S-0-0080, Torque/force command value (2 bytes)

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»



In the "torque/force control" mode, it generally does not make sense to use this parameter, because the control unit should only preset one command value ([S-0-0080](#), Torque/force command value)! Feedforward values, if required, should already be contained in the value of "[S-0-0080](#)".

S-0-0081 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0086 / S-0-0086			Default value: ---	

4.1.56 S-0-0082, Torque/force limit value positive

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
	Device parameter:	axis-specific
	Property name:	ForceGenerator.ForceLimitPositive

Function This parameter allows determining a torque and/or force limit value for positive torque/force command values.

See also Functional Description "Torque/Force Limitation"

Use The unit for the values of this parameter depends on the scaling that has been set in "[S-0-0086](#), Torque/force data scaling type".



- This limit value has a unipolar effect. The bipolar effective limit value "[S-0-0092](#), Bipolar torque/force limit value" still exists. The lower value in the above parameter is the active limit value.
- The positive limit value must be greater than "[S-0-0083](#), Torque/force limit value negative".
- The active torque/force limit value is only effective in "Torque control" or "Alternating control" operating mode

S-0-0082 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0086 / S-0-0086			Default value: 400,0	

4.1.57 S-0-0083, Torque/force limit value negative

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
	Device parameter:	axis-specific
	Property name:	ForceGenerator.ForceLimitNegative

Function This parameter allows determining a torque and/or force limit value for negative torque/force command values.

See also Functional Description "Torque/force limitation"

Use The unit for the values of this parameter depends on the scaling that has been set in "[S-0-0086](#), Torque/force data scaling type".



- This limit value has a unipolar effect. In addition, there is a bipolar limit value, "S-0-0092, Bipolar torque/force limit value". The lower value of the above parameters is the active limit value.
- The negative limit value must be less than "S-0-0082, Torque/force limit value positive"!
- The active torque/force limit value is effective only in operation mode "torque control" or "alternating control"

S-0-0083 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0086 / S-0-0086			Default value: ---	

4.1.58 S-0-0084, Torque/force feedback value (2 bytes)

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	ActualValue.ActForce_2B	

Function The respective current actual torque/force value is displayed. This may differ due to the measuring method and/or configuration of the axis.

Use In the case of differential pressure measurement, the current actual torque/force value is calculated using the following formula:

$$F = p_A * A_A - p_B * A_B$$

Fig. 4-5:

The actual pressure value can also be measured directly by means of a load cell.

The measuring method can be selected via the "Force acquisition control word", P-0-2937.0.1



As of HDx20 instead of parameter S-0-0084, parameter S-0-0552 is used. It features an extended range of numbers.

In S-0-0084 the same value is shown as in S-0-0552, but only up to the number range limit.

Parameter S-0-0084 is no longer used for MLC-H. The property name was transferred to parameter S-0-0552.

S-0-0084 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.1.59 S-0-0085, Torque/force polarity parameter

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»

	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Function	In this parameter it is possible to invert the polarities of the indicated torque/force data with regard to the application. The polarities are changed outside of the controlled system, i.e. at the input and output of the controlled system.						
	The following applies to rotary drives:						
	Clockwise rotation of the drive shaft in the case of positive torque and positive polarity.						
	The following applies to linear drives:						
	Positive valve actuating variable in the case of positive force and positive polarity.						
	See also Functional Description "Scaling of Physical Data"						

Bit	Designation/function	Comment
0	Torque command value 0: positive polarity 1: negative polarity	
1	Torque command value additive 0: positive polarity 1: negative polarity	
2	Bit 2: actual torque value 0: positive polarity 1: negative polarity	

Tab. 4-12: S-0-0085, Torque/force polarity parameter



Bits 1 and 2 are copies of bit 0. Only changes in bit 0 are effective. It is impossible to have different settings for the individual bits!

S-0-0085 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: 0x0 / 0x7		Default value: 0x0	

4.1.60 S-0-0086, Torque/force data scaling type

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function	This parameter can be used to set the unit and the reference of the torque/force data of a drive.



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of torque/force data in the drive.

See also Functional Description "Scaling of Physical Data"

Structure	Bit	Designation/function	Comment
	2-0	Scaling type 000: Percentage-based scaling (% of reference value) 001: Linear scaling (force in N, lbf) 010: Rotary scaling (torque in Nm, inlbf)	
	3	0: Preferred scaling 1: Parameter scaling	
	4	Force measurement unit 0: Newton [N] 1: Pound-force [lbf] Torque measurement unit 0: Newton meter [Nm] 1: Inch pound-force [lbf]	
	6	Data reference 0: At the cylinder/ hydraulic motor 1: With respect to load	
	15-7	Reserved	

Tab. 4-13: S-0-0086, Torque/force data scaling type

Use The following settings can be made:

If the preferred scaling is selected (bit 3 = "0"), the following parameters are preset and cannot be changed:

- "S-0-0093, Torque/force data scaling factor"
- "S-0-0094, Torque/force data scaling exponent"

If parameter scaling is selected, the desired parameter values must be entered for scaling. If percentage-based scaling is selected, parameter scaling is not allowed.

Use **Calculating the reference value**

If percentage-based scaling is selected, a reference value (100 % value) is required for torque/force data. It must be entered by the user.

"S-0-0534, Maximum torque/force motor"

S-0-0086 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 0x40	

4.1.61 S-0-0089, MDT Transmit starting time (T2)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	s. Text				
	Device parameter:	device-specific				

Function Start of transmission of the master data telegram after the end of the master synchronization telegram. The master transmits this value to the slave in communication phase 2. The value is activated in phase 3.

This parameter is not used with EtherCAT.

S-0-0089 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: 0 / 65000		Default value: 600	

4.1.62 S-0-0091, Bipolar velocity limit value

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		VelGenerator.VelLimitBipolar				

Function Value for the maximum velocity command value of the drive allowed for the application at hand irrespective of the direction of travel.

The maximum value for "S-0-0091" is the value of "S-0-0113, Maximum velocity of the drive". This value is at the same time the maximum value for all other velocity parameters.

The maximum velocity limit can be influenced in dependence on the direction of travel by parameters "S-0-0038, Positive velocity limit value" and "S-0-0039, Negative velocity limit value". The default value of these two parameters is "0" and they are therefore switched off; only "S-0-0091" is effective.

See also functional description "Velocity control"

S-0-0091 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1

Input	min./max.	Default value
HDB:	S-0-0044 / S-0-0044	6000,0000
HDC:	S-0-0044 / S-0-0044	6000,0000
HDE:	S-0-0044 / S-0-0044	6000,0000
HDP:	S-0-0044 / S-0-0044	6000,0000
HDM:	S-0-0044 / S-0-0044	6000,0000
HDS:	--- / ---	1000,0000

4.1.63 S-0-0092, Bipolar torque/force limit value (2 bytes)

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ForceGenerator.ForceLimitBipolar				

Function The parameter is used as limit value for "Positive stop drive procedure"

See also Functional Description "Torque/force limitation"

Use The parameter is bipolar.

As of firmware version 19: The parameter limits the limit values "S-0-0082, Torque/force limit value positive" and "S-0-0083, Torque/force limit value negative".

The unit of "S-0-0092" depends on the scaling that has been set.

The bipolar torque/force limit value also has an effect on "C1300 Positive stop drive procedure command". The value of "S-0-0092" is a criterion for the acknowledgement of "C1300".

See also parameter description "S-0-0086, Torque/force data scaling type"

As of HDB20, HDC20: This parameter is now used only with alternating control for the command "Positive stop drive procedure". Otherwise, parameters "S-0-0550" and "S-0-0551" are valid.

As of HDS20: The parameter is no longer used. Parameters "S-0-0550" and "S-0-0551" are valid.

S-0-0092 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1

Input	min./max.	Default value
HDB:	S-0-0086 / S-0-0086	400,0
HDC:	S-0-0086 / S-0-0086	400,0
HDE:	S-0-0086 / S-0-0086	400,0
HDP:	S-0-0086 / S-0-0086	400,0
HDM:	S-0-0086 / S-0-0086	400,0
HDS:	--- / ---	0,0

4.1.64 S-0-0093, Torque/force data scaling factor

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB» «HDC»				
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»				
	Device parameter:	axis-specific				

Function This parameter and parameter "S-0-0094, Torque/force data scaling exponent" are used to define the scaling factor and the decimal format (decimal place) of the torque/force data parameters in the drive when parameter scaling is used ("S-0-0086").



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of torque/force data in the drive.

If preferred scaling is selected in "S-0-0086, Torque/force data scaling type", the drive sets the values in "S-0-0093" and "S-0-0094" automatically.

See also Functional Description "Scaling of Physical Data"

S-0-0093 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	1 / 65535	1
HDC:	1 / 65535	1
HDE:	1 / 65535	1
HDP:	1 / 65535	1
HDM:	1 / 65535	1
HDS:	1 / 512	1

4.1.65 S-0-0094, Torque/force data scaling exponent

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB» «HDC»				
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»				
	Device parameter:	axis-specific				

Function This parameter and parameter "S-0-0093, Torque/force data scaling factor" are used to define the scaling factor and the decimal format (decimal place) of the torque/force data parameters when parameter scaling is used (S-0-0086).



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of torque/force data in the drive.

See also Functional Description "Scaling of Physical Data"

Use If preferred scaling is selected in "S-0-0086, Torque/force data scaling type", the drive sets the values in "S-0-0093" and "S-0-0094" automatically.

S-0-0094 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -2 / 6			Default value: ---	

4.1.66 S-0-0095, Diagnostic message

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ErrorHandling.DiagnoseText				

Function This parameter contains the operating status of the drive at present relevant in the form of a **text**.

Preceding the text is the respective content of parameter "S-0-0390, Diagnostic message number".

Example: "A0010 Drive HALT"

See also Functional Description "Coded Diagnostic Drive Messages"

S-0-0095 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.1.67 S-0-0097, Mask class 2 diagnostics

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function With this parameter it is possible to adjust the change bit of class 2 diagnostics in the drive status to the requirements of the machine control unit.

Due to the default setting in parameter S-0-0097 (all bits are "1") every change of a bit in the "S-0-0012, Class 2 diagnostics" parameter is displayed by the change bit of class 2 diagnostics in the drive status word.



The S-0-0012 parameter is a message parameter that displays different shutdown pre-warnings of the drive by means of the individual bits.

See also Functional Description "Status Classes, Status Displays, Control Parameters"

Use If only the change of specific shutdown pre-warnings of the drive is to be queried on the control-side by means of the change bit of class 2 diagnostics in the drive status word, the display of irrelevant pre-warning changes can be suppressed ("masked") by this parameter (S-0-0097).

The irrelevant bits of the "S-0-0012, Class 2 diagnostics" parameter are masked by the value "0" at the same position of the bit list of this parameter (S-0-0097).

S-0-0097 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0xFFFF

4.1.68 S-0-0098, Mask class 3 diagnostics

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	SoE, SoV						
Device parameter:	axis-specific						

Function With this parameter it is possible to adjust the change bit of class 3 diagnostics in the drive status to the requirements of the machine control unit.

Due to the default setting in parameter S-0-0098 (all bits are "1") every change of a bit in the "S-0-0013, Class 3 diagnostics" parameter is displayed by the change bit of class 3 diagnostics in the drive status word.



The S-0-0013 parameter is a message parameter that displays different operating states of the drive by means of the individual bits.

See also Functional Description "Status Classes, Status Displays, Control Parameters"

Use If only the change of specific operating states of the drive is to be queried on the control-side by means of the change bit of class 3 diagnostics in the drive status word, the display of irrelevant operating state changes can be suppressed ("masked") by this parameter (S-0-0098).

The irrelevant bits of the "S-0-0013, Class 3 diagnostics" parameter are masked by the value "0" at the same position of the bit list of this parameter (S-0-0098).

S-0-0098 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0xFFFF

4.1.69 S-0-0099, C0500 Reset class 1 diagnostics

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific						

Function By means of this parameter it is possible to start the command for resetting error messages. When the causes of the errors are removed, all present error messages are reset and the drive goes to its regular status.



As an alternative you can activate the command for resetting error messages by pressing the "Esc" key on the control panel of the drive controller!

⚠ CAUTION

Damage to the internal memory (flash) caused by too many write accesses

⇒During the execution of this parameter command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

See also Functional Description "Error"

S-0-0099 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2 S-0-0101 - S-0-0200

4.2.1 S-0-0103, Modulo value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ActualValue.ModuloValue				

Function When modulo format is set ([S-0-0076](#), Position data scaling type, bit 7), the modulo value defines the numerical value at which the position data overflow to "0".

See also parameter description "[S-0-0393](#), Command value mode"

See also functional description "Notes on commissioning"

Use Observe the following facts for setting "[S-0-0103](#)":

- The value in "[S-0-0103](#)" must be less than the value of "[S-0-0278](#), Maximum travel range"; otherwise, the drive signals C0273.
- The modulo value also has an effect on bit 6 of "[S-0-0277](#), Position feedback 1 type" and "[S-0-0115](#), Position feedback 2 type". This bit indicates the possibility of absolute evaluation of the encoder.

S-0-0103 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 360,0000	

4.2.2 S-0-0104, Position loop Kv-factor

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	PosControl.KvFactor				

Function Parameter "[S-0-0104](#), Position loop Kv-factor" contains the value for the proportional gain of the position controller.

See also functional description "Open and closed-loop drive control"

Use



The unit of "[S-0-0104](#), Position loop Kv-factor" is "1000 1/min".

Example conversion

$$S-0-0104 = 1,0 \frac{1000}{\text{min}} = 1,0 \cdot \frac{1000}{60} \frac{1}{\text{s}} = 16,67 \frac{1}{\text{s}}$$

Fig. 4-6: S-0-0104, Position loop Kv-factor

S-0-0104 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	1000/min	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: 0,00 / 655,35 **Default value:** 1,00

4.2.3 S-0-0108, Feedrate override

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	PosGenerator.FeedRateOverride

Function Parameter "S-0-0108" is used for variable adjustment of a predefined command velocity.

To achieve this, the effective command velocity

- S-0-0041, Homing velocity
- S-0-0259, Positioning Velocity
- P-0-4007, Positioning block velocity

is calculated by multiplying it by the value of "S-0-0108, Feedrate override".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

Use The feedrate override is effective in all interpolating operation modes and/or commands, such as:

- Drive-internal interpolation
- Drive-controlled positioning (jog)
- Positioning block mode
- Commands initiating interpolating movements of the drive (S-0-0148, C0600 Drive-controlled homing procedure command)



Parameter "S-0-0108" can be configured cyclically and also be assigned to an analog input so that it can be perfectly used for what is called setting-up mode.

S-0-0108 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,00 / 600,00	100,00
HDC:	0,00 / 600,00	100,00
HDE:	0,00 / 600,00	100,00
HDP:	0,00 / 600,00	100,00
HDM:	0,00 / 600,00	100,00
HDS:	0,00 / 6,00	100,00

4.2.4 S-0-0113, Maximum velocity of the drive

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Value for the maximum allowed velocity command value of the drive. The velocity feedback value may be a maximum of 12.5 % higher than the value of "S-0-0113". With higher feedback values, the drive reacts with an error reaction and generates error message "F8079".

See also functional description "Limitations"

Use Min./max. values

The maximum value is 25000000 mm/min, the minimum value is 0.01 mm/min

Unit, decimal places

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor/cylinder (rotary or linear) entered in "P-0-4014, Type of construction of motor/cylinder":

Type of construction of motor / cylinder (P-0-4014)		Decimal places (P-0-4014)	
Rotary	Linear	Rotary	Linear
min ⁻¹	mm/min	4	2

Tab. 4-14: Unit and decimal places of S-0-0113, depending on P-0-4014

S-0-0113 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	P-0-4014	Extr. val. ch.:	+	Decim. pl.:	P-0-4014
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

HDx: min./max.: 0 / P-0-4014 Default value: 3000,0000

4.2.5 S-0-0115, Encoder 2, type of position encoder

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.Enc2Type					

Function This parameter defines the essential properties of encoder 2.

See also functional description "Measuring systems"

Structure

Bit	Designation/function	Comment
0	Kind of encoder 0: Rotary 1: Linear	
1	Distance-coded measuring system 0: No distance-coded reference marks 1: Distance-coded reference marks (S-0-0165, S-0-0166)	

Bit	Designation/function	Comment
3	Direction of motion 0: Not inverted 1: Inverted	
5	Setup of distance-coded measuring system 0: Positive direction of counting 1: Negative direction of counting	
6	Absolute evaluation (display bit) 0: Not possible (relative measuring system) 1: Possible (absolute measuring system) See also "S-0-0379, Absolute encoder range of encoder 2"	
8/7	Absolute evaluation configuration Bit 6 = 0: 0x: Relative evaluation of the relative measuring system. The measuring system must be re-homed on each re-start. 1x: Absolute evaluation of the relative measuring system is forced (only possible with single- and multi-turn encoders). Bit 6 = 1: x0: Absolute evaluation of the absolute measuring system (standard). x1: Relative evaluation of the absolute measuring system.	Not defined in sercos
9	Cyclic marker evaluation 0: Deactivated 1: Activated	

Tab. 4-15: S-0-0115, Position feedback 2 type

S-0-0115 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0x0
HDC:	--- / ---	0x0
HDE:	--- / ---	0x0
HDP:	--- / ---	0x0
HDM:	--- / ---	0x0
HDS:	--- / ---	0x1

4.2.6 S-0-0116, Resolution of feedback 1

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					«HDS»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«HDS»
	Device parameter:	axis-specific					
Property name:	ActualValue.Enc1Resolution						

Function This parameter specifies the resolution of the encoder 1.
See also Functional Description "Measuring Systems"

Use The value means:

- In case of rotary drives, the number of division periods or cycles per revolution (DP/rev).
- In the case of digital rotary encoders, the number of increments per revolution of the encoder shafts (incr/rev, e.g. 131072 incr/rev for a 17-bit encoder).
- In case of linear drives, the resolution in mm (mm/scale division).

The significance of the value of "S-0-0116" is determined by "P-0-4014, Type of construction of motor / cylinder " (rotary or linear motor).

Unit, decimal places

The drive firmware automatically adjusts the unit and decimal places to the type of construction entered in "P-0-4014, Type of construction of motor / cylinder":

Unit for type of construction of motor / cylinder (P-0-4014)		Decimal places for type of construction of motor / cylinder (P-0-4014)	
Rotary	Linear	Rotary	Linear
DP/per revolution (incr/rev)	mm	0	5

Tab. 4-16: Unit and Decimal Places of S-0-0116, Depending on P-0-4014

S-0-0116 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	DP/Rev	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

Input	min./max.	Default value
HDB:	--- / ---	200
HDC:	--- / ---	200
HDE:	--- / ---	200
HDP:	--- / ---	200
HDM:	--- / ---	200
HDS:	--- / ---	0.002

4.2.7 S-0-0121, Input revolutions of load gear

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function If a mechanical gear is installed between the drive and the load, the gear ratio of the gear is entered via "P-0-0121" and "S-0-0122, Output revolutions of load gear".

See also functional description "Status classes, status displays, control parameters"

Use In this parameter the number (integer) of the input revolutions (gear input) has to be entered, which result in an integral number of gear output revolutions ("S-0-0122, Output revolutions of load gear").

The gear ratio of the gear is:

$$\frac{\text{S-0-0121, Input revolutions of load gear}}{\text{S-0-0122, Output revolutions of load gear}}$$

Fig. 4-7: Calculating the gear ratio

Example:

5 input revolutions of the drive result in 2 output revolutions of the gear.

→ S-0-0121 : 5

→ S-0-0122 : 2

S-0-0121 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3
HDx:			min./max.: 1 / 4294967295	Default value: 1	

4.2.8 S-0-0122, Output revolutions of load gear

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
Function	If a mechanical gear has been built in between drive and load, the gear ratio is input by means of "S-0-0122" and "S-0-0121, Input revolutions of load gear".	
	See also Functional Description "Scaling of Physical Data"	
Use	In this parameter the number (integral) of gear output revolutions is entered that are caused by an integral number of drive revolutions ("S-0-0121, Input revolutions of load gear").	
	The gear ratio is:	

$$\frac{\text{S-0-0121, Input revolutions of load gear}}{\text{S-0-0122, Output revolutions of load gear}}$$

Fig. 4-8: Calculating the gear ratio

Example:

5 drive revolutions result in 2 gear output revolutions.

→ S-0-0121 : 5

→ S-0-0122 : 2

S-0-0122 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3
HDx:			min./max.: 1 / 4294967295	Default value: 1	

4.2.9 S-0-0123, Feed constant

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.FeedConstant
Function	This parameter is only relevant for linear axes that are driven by a hydraulic motor. The feed constant is the path traveled by the axis if the drive output shaft or hydraulic motor shaft turns one revolution.	

See also Functional Description "I/O Mode (Positioning and Velocity Specification)"

Use Determining the feed constant for different mechanical transmission elements:

Ball bearing spindle	Gear rack + pinion
Feed constant = spindle pitch (typical value 10.00 mm)	Feed constant = effective diameter of the pinion • π = effective circumference of the pinion

Tab. 4-17: Determining the feed constant



The unit depends on bit 4 in "S-0-0076, Position data scaling type".

S-0-0123 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
HDB:	S-0-0076 / S-0-0076		10,0000		
HDC:	S-0-0076 / S-0-0076		10,0000		
HDE:	S-0-0076 / S-0-0076		10,0000		
HDP:	S-0-0076 / S-0-0076		10,0000		
HDM:	S-0-0076 / S-0-0076		10,0000		
HDS:	--- / ---		1,0000		

4.2.10 S-0-0124, Standstill window

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ActualValue.StandStillWindow				

Function To allow the detection of a motor or axis standstill, a threshold value for velocity must be entered in this parameter. When the amount falls below the "S-0-0040, Velocity feedback value" of this threshold, the drive controller detects a standstill. In the case of standstill, bit 1 of "S-0-0013, Class 3 diagnostics" and message "S-0-0331, Status n_feedback = 0" are set.

See also Functional Description "Drive Halt"

Use The standstill window is also effective in the case of:

- Cancellation or interruption of a drive control command. The cancellation or interruption is acknowledged when the drive is at rest.
- Drive-controlled homing. The actual and command values are only changed over when the drive is at rest.
- Command value processing. Upon changing over of the operation mode, command value processing is initialized on the basis of velocity = 0, when the drive is at rest.
- "C1300 Positive stop drive procedure" The value of "S-0-0124" is a criterion for the acknowledgement of "C1300".
- Axis error correction. The value serves as criterion for detecting the positive or negative direction of motion of the axis.

S-0-0124 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 20,0000	

4.2.11 S-0-0125, Velocity threshold vx

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	Is the value of "S-0-0040, Velocity feedback value"fallen below the value of "S-0-0125, Velocity threshold nx", then:						
	- the drive displays the message "S-0-0332, Status n_feedback < nx" and - sets a bit into "S-0-0013, Class 3 diagnostics".						
S-0-0125 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1	
	HDx:	min./max.: S-0-0044 / S-0-0044				Default value: 1000,0000	

4.2.12 S-0-0126, Torque threshold Tx

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
Function	In this parameter the torque/force message threshold is entered. At a torque work load above this threshold the controller generates the message T >= Tx (S-0-0333).					
	See also Parameter Description "S-0-0013, Class 3 diagnostics"					
S-0-0126 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:	min./max.: S-0-0086 / S-0-0086			Default value: 100,0	

4.2.13 S-0-0127, C0100 Communication phase 3 transition check

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Hardware						Sercos, SoE, SoV
	Device parameter:						axis-specific
Function	When command "S-0-0127" is being executed, all interface parameters are checked for validity.						
	See also Functional Description "Device control and state machines"						
Use	If invalid interface parameters are present						
	- the drive terminates the command and an error message is generated and - the invalid parameters are entered in parameter "S-0-0021, IDN-list of invalid operation data for CP2".						

Moreover, encoder data settings are checked and the scalings are calculated (see error messages C01xx).

The following commands can be used for switching from the parameter mode to the operating mode:

- [S-0-0127](#), C0100 Communication phase 3 transition check
- [S-0-0128](#), C5200 Communication phase 4 transition check



The execution of the command only results in switching from the parameter mode to the operating mode when master communication is inactive ([P-0-4086](#) = xx1b)!

[S-0-0127](#) - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.2.14 [S-0-0128](#), C5200 Communication phase 4 transition check

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Hardware	Sercos, SoE, SoV						
Device parameter:	axis-specific						

Function When setting the parameter "[S-0-0128](#)", all parameters are checked for validity and limit value violation.

See also Functional Description "Device Control and State Machine"

Use If invalid parameter or limit value violations exist, the drive ends the command with an error message and the invalid parameters are entered into "[S-0-0022](#), IDN-list of invalid operation data for CP3". Furthermore, different drive functions are initialized.

With the commands

- [S-0-0127](#), C0100 Communication phase 3 transition check and
- [S-0-0128](#), C5200 Communication phase 4 transition check

is it possible to switch from parameter mode into operation mode.



Setting the parameter only results in switching from parameter mode into operation mode for inactive master communication ([P-0-4086](#) = xx1b)!

[S-0-0128](#) - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.2.15 [S-0-0134](#), Master control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific						

Function In case of drives with sercos drive profile, the master control word is cyclically transmitted from master to drive.

The following control information is defined, e.g.,

- Drive enable
- Drive Halt
- Selection of command operation mode

The exact structure of the control word is illustrated below.

See also Functional Description "Device Control and State Machine"

See also Functional Description "SERCOS Interface"

See also Functional Description "Drive Halt"

Structure EtherCAT:

Bit	Designation/function	Comment
5-0	Control information for service channel	
7/6	Real-time control bits 1 and 2	
11/9/8	Command operation mode: 0x00: Primary operation mode 0x01: Secondary operation mode 1, etc. 1x11: Secondary operation mode 7	
10	IPOSYNC, interpolator clock, toggles when new command values are to be transmitted	
13	Drive Halt, 1-0 change: Deceleration of drive while maintaining maximum acceleration (S-0-0138) (only possible if bits 14 and 15 = 1)	
14	Drive enable: 1-0 change: Torque disable without delay (independent of bit 15 or 13)	
15	Drive ON: 1-0 change: Best possible deceleration (only possible if bit 14 = 1)	

Tab. 4-18: Structure of Master Control Word EtherCAT (S-0-0134)

sercos

Bit	Designation/function	Comment
10-8	Command operation mode 000: Primary operation mode 001: Secondary operation mode 1, etc. 111: Secondary operation mode 7	
13	Drive Halt, 1-0 change: Deceleration of drive while maintaining maximum acceleration (S-0-0138) (only possible if bits 14 and 15 = 1)	

Bit	Designation/function	Comment
14	Drive enable 1-0 change: Torque disable without delay (independent of bit 15 or 13)	
15	Drive ON 1-0 change: Best possible deceleration (only possible if bit 14 = 1)	

Tab. 4-19: Structure of Master Control Word sercos (S-0-0134)



With sercos, the real-time control bits reside in the control word of the connection (S-0-1050.x.8).

S-0-0134 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.16 S-0-0135, Drive status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In case of drives with sercos drive profile, the drive status word is cyclically transmitted from drive to master. There is important status information contained in the drive status word, for example:

- Readiness for operation of control and power sections
- Drive errors
- Change bits class 2 and 3 diagnostics
- Current operation mode

See also Functional Description "Device Control (State Machine)"

See also Functional Description "SERCOS Interface"

See also Functional Description "Drive Halt"

Structure EtherCAT:

Bit	Designation/function	Comment
2-0	Control information for service channel	
3	Status of command value processing	
5	Command change bit 1: Changed command status 0: Unchanged command status	
7/6	Real-time status bits 1 and 2	
10-8	Actual operation mode 000: Primary operation mode active 001: Secondary operation mode 1 active 010: Secondary operation mode 2, etc.	

Bit	Designation/function	Comment
11	Class 3 diagnostics message (cf. S-0-0013) The bit is set if a class 3 diagnostics message is present.	
12	Class 2 diagnostics warning (cf. S 0-0012) The bit is set if a class 2 diagnostics warning is present.	
13	Class 1 diagnostics drive error (cf. S-0-0011) The bit is set if a class 1 diagnostics error is present (drive lock-out).	
15/14	Ready for operation (P-0-0116, bit 15/14) 00: Not ready for power on (e.g., P2) 01: Ready for power on (bb) 10: Control section and power section ready for op. (Ab) 11: In operation, with torque (e.g. AF)	

Tab. 4-20: Structure of Drive Status Word EtherCAT

sercos:

Bit	Designation/function	Comment
3	Status of command value processing 0: Drive ignores command value input 1: Drive follows command value input	
4	Status Drive Halt 0: Not active, bit 13 in "S-0-0134" is 1 1: Active, bit 13 in "S-0-0134" was set to 0, actual velocity within "S-0-0124, Standstill window"	
5	Position feedback value status (S-0-0403)	
7	Hardware enable (emergency stop) 0: Not active (bits 15 and 14 of "S-0-0134" are ignored, emergency stop is active) 1: Active	
10-8	Actual operation mode 000: Primary operation mode active 001: Secondary operation mode 1 active 010: Secondary operation mode 2, etc.	
12	Class 2 diagnostics warning (cf. S 0-0012) The bit is set if a class 2 diagnostics warning is present.	

Bit	Designation/function	Comment
13	Class 1 diagnostics drive error (cf. S-0-0011) The bit is set if a class 1 diagnostics error is present (drive lock-out).	
15/14	Ready for operation (P-0-0116, bit 15/14) 00: Not ready for power on (e.g., P2) 01: Ready for power on (bb) 10: Control section and power section ready for op. (Ab) 11: In operation, with torque (e.g. AF)	

Tab. 4-21: Structure of Drive Status Word Sercos (S-0-0135)



With sercos, the real-time status bits reside in the control word of the connection (S-0-1050.x.8).



The command change bit and the bit for displaying the subdevice status are specified in S-0-1045, sercos III: Device Status (S-Dev)

S-0-0135 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.17 S-0-0138, Bipolar acceleration limit value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter limits the command acceleration in all operation modes (not torque control). The parameter has to be parameterized according to the machine limits. It acts as limit value in command value processing and in the velocity control loop.

Command value limitation of the following parameters:

- S-0-0260, Positioning acceleration
- S-0-0359, Positioning deceleration
- S-0-0372, Drive Halt acceleration bipolar
- S-0-0429, Emergency stop deceleration
- P-x-1201, Ramp 1 pitch
- P-x-1203, Ramp 2 pitch
- P-x-1211, Deceleration ramp 1
- P-x-1213, Deceleration ramp 2
- P-x-1461, PLC/setting-up mode Ramp pitch
- P-x-1463, PLC/setting-up mode Deceleration ramp

Limitation of the current acceleration in the velocity control loop to the value of "S-0-0138".



The value selected for "S-0-0138" always has to be a bit higher than the acceleration command values which take effect in the corresponding operation mode, because otherwise the warning "E2070 Acceleration limit active" and possibly the lag error monitor (F2028) will be falsely triggered due to control processes. With "S-0-0138" equal zero, acceleration is not limited.



Motor operation without encoder: When acceleration limitation is deactivated by S-0-0138 = 0, the following acceleration values are effective:

- U/f operation: Value of "P-0-0569, Maximum stator frequency slope"
- FXC operation: internal acceleration limit value (depending on moment of inertia of the axis)



If "best possible deceleration" is used (velocity command value reset, emergency stop with P-0-0119; bit 7... 0 = 0) the velocity command value is reset without taking account of "S-0-0138".

See also Functional Description "Positioning block mode"

See also Functional Description "Drive-controlled positioning"

See also Functional Description "Drive-internal interpolation"

See also Functional Description "Position control with cyclic command value input"

S-0-0138 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

4.2.18 S-0-0139, C1600 Parking axis procedure command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function By starting this command the drive is brought to the status "parking axis".

See also functional description "Parking axis"

Use Starting the command

The command can only be activated in the parameter mode. As long as the command is active, the following is caused when the parameterization level is exited (cf. "S-0-0422, C0200 Exit parameterization level procedure command"):

- No axis-specific calculations/checks/initializations are carried out.
- Encoder monitoring of axis-related encoders is not activated.
- Reference bits of axis-related encoders in "position feedback value status" remain at 0.
- In the operating mode no controller enable can be set.
- In the operating mode only commands can be activated, which can also be executed in the parameter mode.

Clearing the command

The command can be optionally set or cleared while the axis is in the parameter mode.

The command cannot be cleared while the axis is in the operating mode.

The command is automatically cleared when the axis changes over to the parameter mode.



In order that the command change bit remains free for other commands, the command is not acknowledged as completed.

S-0-0139 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.19 S-0-0142, Application type

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function As of firmware version 18VRS: "S-0-1302.0.3" replacement parameter for a compatible access and communication interfaces which do not support any 32-bit ident numbers (EIDN).

A describing name (text) for the drive or the axis (e.g. swiveling axis) can be stored in this parameter.



It does not affect the function.

The following applies:

- A UTF-8 character set can be used to write on the parameter.
- Size in number of bytes: 40
- A UTF-8 character can be between 1 and 3 bytes.
- Depending on the UTF-8 characters used, the number of the characters that can be entered reduces.
- The parameter is emptied during default loading (actual length = 0).

S-0-0142 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.2.20 S-0-0144, Signal status word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function By means of the signal status word, it is possible to transmit signals in real time from the drive to the control unit.



The "S-0-0144" only contains current values, if it is cyclically read. The oscilloscope function does not readout the value, but access onto the latest read value.

See also Functional Description "Configurable Signal Status Word"

Use

For this purpose, the signal status word must be configured as a cyclic data to the actual value telegram or a producer connection.

- [S-0-0016](#), Configuration list of AT
- [S-0-1050.x.6](#), SIII-Connection: Configuration list
- [P-0-4081](#), Field bus: Config. list of cyclic command value data ch.



When the parallel interface is used, parameter [S-0-0144](#) contains the status bits.

The bits in the signal status word can be configured by means of the parameters

- [S-0-0026](#), Configuration list signal status word and
- [S-0-0328](#), Assign list signal status word

S-0-0144 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.2.21 S-0-0145, Signal control word

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function

By means of the signal control word, it is possible to transmit signals in real time from the control unit to the drive.

See also Functional Description "Configurable Signal Control Word"

Use

For this purpose, the signal control word must be configured as a cyclic data to the command value telegram or a consumer connection.

- [S-0-0024](#), Config. list of the master data telegram
- [S-0-1050.x.6](#), SIII-Connection: Configuration list
- [P-0-4080](#), Field bus: Config. list of cyclic actual value data ch.



When the parallel interface is used, parameter "S-0-0145" contains the status bits.

The bits in the signal control word can be configured by means of the parameters

- [S-0-0027](#), Configuration list signal control word and
- [S-0-0329](#), Assign list signal control word

S-0-0145 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.2.22 S-0-0146, C4300 NC-controlled homing procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The procedure for which the master, to establish the position data reference, uses the travel motion for searching the dedicated point is called "NC-controlled homing procedure".

See also Functional Description "NC-Controlled Homing"

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

Structure

Bit	Designation/function	Comment
1/0	00: clear	
	11: set	
	01: interrupt	

Tab. 4-22: S-0-0146, C4300 NC-controlled homing procedure command

Use On the drive side the entire procedure is supported via three commands:

- NC-controlled homing procedure command ([S-0-0146](#))
- Calculate displacement procedure command ([S-0-0171](#))
- Displacement to referenced system procedure command ([S-0-0172](#))

After the master has started "C4300", it has to input command values for the search for the dedicated point. When the drive has identified the dedicated point, this is signaled in [S-0-0408](#), **Reference marker pulse registered** and the command execution is acknowledged. The master then shuts down the axis and clears the command.

S-0-0146 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.2.23 S-0-0147, Homing parameter

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	PosGenerator.HomingControlWord

Function This parameter serves to make settings for the following commands:

- [S-0-0146](#), C4300 NC-controlled homing procedure command
- [S-0-0148](#), C0600 Drive-controlled homing procedure command
- [S-0-0171](#), C4400 Calculate displacement procedure command
- [S-0-0172](#), C4500 Displacement to referenced system procedure command

The settings are based on the system, NC and drive installations.

See also Functional Description "Establishing position data reference for relative measuring systems"

Structure

Bit	Designation/function	Comment
0	Reference travel direction (*1 0: Positive = motion in the direction of increasing actual position values (to positive travel range limit) 1: Negative = motion in the direction of decreasing actual position values (to negative travel range limit)	
1	Home switch edge selection 0: Positive edge ("activated" at high signal) 1: Negative edge ("activated" at low signal)	
2	Home switch (*2 0: Connected to master (NC) 1: Connected to drive	
3	Encoder selection 0: Encoder 1 1: Encoder 2 (not supported at present)	
4	Evaluation in the drive (*2 0: Home switch and homing enable (only when bit 2 = "1") 1: Only homing enable	
5	Evaluation of home switch (*1 0: Yes 1: No	
6	Evaluation of reference mark 0: Yes 1: No	

Bit	Designation/function	Comment
8/7	Stop/positioning/run path - only drive-controlled homing 00: Stop Once C0600 has been started, the drive stops after position data reference has been established for the measuring system, if this is a relative measuring system (if the measuring system is an absolute one, the drive stops after position data reference has been established and C0300 is inactive). 01: Positioning Once C0600 has been started, the drive positions to the reference point, if the measuring system is a relative one, after the position data reference is established. (if the measuring system is an absolute one, the drive moves to the position of "S-0-0052", "S-0-0054", provided C0300 is not active). 10: Run path - applies only for measuring systems with distance-coded reference marks: For drive-controlled establishing of the position data reference, the drive always moves over a distance that corresponds to the double reference mark distance. 11: Not allowed Note: If a positive stop is used as dedicated point, "Stop" is inappropriate for signaling completion of the homing command. → Select "Positioning". The reference point must be within the travel range of the axis.	
9	Evaluation of travel range limit switch as home switch (*1) 0: No 1: Yes	
10	Evaluation axis blocking (positive stop) for homing (*1) 0: No 1: Yes	

(*1 Drive-controlled homing procedure only

(*2 NC-controlled homing only

Tab. 4-23: Relevant bits of S-0-0147, Homing parameter

S-0-0147 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x24

4.2.24 S-0-0148, C0600 Drive-controlled homing procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific

Function When setting and enabling this command, the drive enable generally must be present. The drive now goes to internal position control and accelerates with "S-0-0042, Homing acceleration" to "S-0-0041, Homing velocity".

In the special case "homing without drive enable", an incremental encoder is homed without motion. For this purpose, the control bits "homing without

home switch" and "homing without reference mark" must have been set in the homing parameter ([S-0-0147](#), bit5/6). The reference then relates to the current actual position value.

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

Use The following steps are processed:

- In parameter "[S-0-0403](#), Position feedback value status", the bit of the corresponding encoder (depending on bit 3 of "[S-0-0147](#), Homing parameter") is first set to zero.
- As long as the command is active, the cyclic command values of the control unit are ignored.
- Upon correct execution of the command (drive has stopped and actual position value is related to axis zero point), the drive sets the corresponding bit in parameter "[S-0-0403](#), Position feedback value status" to "1".



The sequence of the homing procedure is determined via [S-0-0147](#), too.



With regard to the relevant encoder, the bit corresponds to the signal "in reference".

[S-0-0148](#) - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.25 [S-0-0149](#), C1300 Positive stop drive procedure command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function By setting and enabling this command all monitors are switched off which would otherwise, when the drive is blocked by positive stop, cause a class 1 diagnostics error message.

See also Functional Description "Positive Stop Drive Procedure"

Structure

Bit	Designation/function	Comment
1/0	00: clear 11: set 01: interrupt	

Tab. 4-24: [S-0-0149](#), C1300 Positive stop drive procedure command

Use The following error messages are inactive when the command C1300 is active:

- "F2028 Excessive deviation"
- "F2037 Excessive position command difference"
- "F2039 Maximum acceleration exceeded"
- "F8078 Speed loop error"

When the command is cleared again, the monitors are reset to their original status.

S-0-0149 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.2.26 S-0-0150, Reference offset of encoder 1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The value of this parameter is the position difference between the dedicated point (reference mark of encoder 1 after actuation of the home switch) and the reference point determined on the axis side.

$$X_{\text{Reference point}} = X_{\text{Dedicated point}} + (S-0-0150)$$

X_{Reference point}: actual position value*) of the reference point on the axis side
X_{Dedicated point}: actual position value*) of the reference mark defined by encoder 1

S-0-0150: Reference offset 1 (signed)
***):** both actual position values must have the same data reference.

Fig. 4-9: Effectiveness of using S-0-0150

See also functional description "Establishing position data reference for relative measuring systems"

Use This parameter can be used to compensate for the position difference between the position of the reference mark (dedicated point) of encoder 1 and the position of the reference point determined on the axis side.



In the case of positive (alternatively: negative) sign of "S-0-0150" the actual position value of the reference point is more positive (alternatively: more negative) than that of the dedicated point. The homing direction has no influence!

S-0-0150 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3

HDx:	min./max.: S-0-0076 / S-0-0076	Default value: 0,0000

4.2.27 S-0-0151, Reference offset of encoder 2

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The value of this parameter is the position difference between the dedicated point (first reference mark of encoder 2 after actuation of the home switch) and the reference point determined on the axis side.

$$x_{\text{Reference point}} = x_{\text{Dedicated point}} + (S-0-0151)$$

$x_{\text{reference point}}$ Actual position value*) of the axis-side reference point
 $x_{\text{dedicated point}}$ Actual position value*) of the dedicated point determined by a reference mark of encoder 2
S-0-0151 Reference offset of encoder 2 (signed)
 *) Both actual position values must have the same position data reference!

Fig. 4-10: Operating principle of S-0-0151

See also functional description "Establishing position data reference for relative measuring systems"

Use This parameter can be used to compensate for the position difference between the encoder mounting-related position of the reference mark (dedicated point) of encoder 2 and the position of the reference point determined on the axis side.



In the case of positive (alternatively: negative) sign of **S-0-0151** the actual position value of the reference point is more positive (alternatively: more negative) than that of the dedicated point. The homing direction has no influence!

S-0-0151 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.2.28 S-0-0152, C0900 Position spindle procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «-» «HDM» «-»
	Device parameter:	axis-specific

Function When setting and enabling this command the "Position spindle" function is activated in the drive, if it is in drive enable.

See also Functional Description "Spindle Positioning"

Use We distinguish between:

- **Absolute positioning:** This means that the drive moves to the target position entered in "**S-0-0153**, Spindle angle position".
- **Relative positioning:** This means that the drive travels the travel distance entered in "**S-0-0180**, Spindle relative offset".

In both cases the cyclic command values are ignored and the drive positions at the effective target position taking the parameters into account:

- **S-0-0372**, Drive Halt acceleration bipolar
- **S-0-0154**, Spindle position parameter
- **S-0-0222**, Spindle positioning speed
- **S-0-0349**, Jerk limit bipolar

After the spindle positioning process is over the "**S-0-0336**, Message In position" message is set, the command, in the command acknowledgment, is not acknowledged as being completed.



- If the drive is not in reference ("[S-0-0403](#), Position feedback value status", bit 0 = 0), a homing procedure is automatically started before positioning.
- For homing and positioning the encoder selected in "[S-0-0147](#), Homing parameter", bit 3 is used.

S-0-0152 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.29 S-0-0153, Spindle angle position

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	axis-specific				

- Function** This parameter contains the absolute target position (in the case of absolute positioning) for the command "[S-0-0152](#), C0900 Position spindle command".
See also Functional Description "Spindle Positioning"
See also Parameter Description "[S-0-0180](#), Spindle relative offset"

S-0-0153 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.2.30 S-0-0154, Spindle positioning parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	axis-specific				

- Function** The options of the "position spindle" function are determined in this parameter.
The following options can be selected:
- spindle clockwise
 - spindle counter-clockwise
 - shortest distance
 - absolute positioning
 - relative positioning

Prerequisite: The position data format must be "modulo" ("[S-0-0076](#), Position data scaling type")!

See also Functional Description "Spindle Positioning"

Structure	Bit	Designation/function	Comment
	1/0	spindle motion 0 0: positive direction 0 1: negative direction 1 0: shortest distance	
	2	positioning 0: absolute 1: relative	

Tab. 4-25: Relevant bits of S-0-0154, Spindle position parameter

Use The selection whether to position with motor encoder or spindle encoder is made in bit 3 of "S-0-0147, Homing parameter".

- By means of "S-0-0417, Velocity threshold for positioning in modulo format" it is possible to define a threshold value for the actual velocity above which the drive moves to a target position without reversing even if the specification in S-0-0154 should cause reversing! S-0-0417 is deactivated with the value "0", very small values can cause unpredictable drive behavior!
- By means of "S-0-0418, Target position window in modulo format" it is possible to determine a symmetrical position range relative to the current position ("target position window"). Within this range the drive always moves to a target position over the shortest distance even if only one direction of movement has been determined for positioning in S-0-0154! S-0-0418 is deactivated with the value "0".

S-0-0154 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x2	

4.2.31 S-0-0157, Velocity window

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The velocity window is an absolute threshold value. If the percentage-based threshold is used at the same time, it is the tolerance window or a partial value of it.

Type of threshold	Parameter	Threshold value	Explanation
Absolute threshold	S-0-0157	Amount of S-0-0157	Fixed value

S-0-0157 Velocity window

Tab. 4-26: Thresholds for " $n_{feedback} = n_{command}$ " message

See also Functional Description "Class diagnostics"

Use If the actual velocity window is within the tolerance window established by the firmware, the drive outputs the message " $n_{feedback} = n_{command}$ ".

Message	Criterion	Firmware	Explanation
S-0-0330 = "1"	$n_{\text{command, res}} - n_{\text{feedback}} < \pm$ S-0-0157	FW 16VRS	Absolute tolerance window
(Bit in S-0-0013)	$n_{\text{command, res}} - n_{\text{feedback}} < \pm$ (S-0-0157 + S-0-0036 + S-0-0037 + P-0-0690 * S-0-0272)	As of FW 17VRS	Absolute plus command-value-percentage-based tolerance window

S-0-0157

Velocity window

S-0-0272

Velocity window, percentage-based

S-0-0036

Velocity command value

S-0-0037

Additive velocity command value

S-0-0013

Class 3 diagnostics

 n_{feedback}

S-0-0040, Velocity feedback value

 $n_{\text{command, res}}$

S-0-0036 + S-0-0037

Tab. 4-27:

Criteria for " $n_{\text{feedback}} = n_{\text{command}}$ " message

The percentage-based threshold (P-0-0272) is available as of firmware version 17VRS!

S-0-0157 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 100,0000	

4.2.32 S-0-0159, Monitoring window of following distance

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.ModelWindow					

Function If an operation mode with drive-internal position control is activated in the drive, the position control loop is monitored. For this purpose, in the "model monitoring" mode (P-0-2820, bit 1 = 0) an "actual model position value" is calculated in the drive and compared to the real actual position value. In the "following distance monitoring" mode (P-0-2820, bit 1 = 1) the "position command value of controller, delayed" (P-0-2831.0.6) is compared to the "actual position value".



The maximum deviation that occurred is always stored in parameter "P-0-0098, Max. model deviation".

See also description of diagnostic messages "F2028, Excessive deviation"

Use With the help of parameter "S-0-0159" the tolerated maximum deviation between the actual and the calculated "actual model position value" or the tolerated maximum following distance can be set. If the position deviation exceeds the value entered in "S-0-0159" the drive cannot follow the given command value and this results in the generation of error F2028 in class 1 diagnostics.



A monitoring window equal to 0 deactivates model or following error monitoring.

S-0-0159 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	S-0-0076 / S-0-0076	100,0000
HDC:	S-0-0076 / S-0-0076	100,0000
HDE:	S-0-0076 / S-0-0076	100,0000
HDP:	S-0-0076 / S-0-0076	100,0000
HDM:	S-0-0076 / S-0-0076	100,0000
HDS:	--- / ---	1,0000

4.2.33 S-0-0160, Acceleration data scaling type

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific

Function As described below, it is possible to set different scaling types for the acceleration data in the drive.

The scaling type of the acceleration data determines in which format and which reference the acceleration data are exchanged between the drive and the control unit or user interface. The values of the acceleration data parameters (e.g. S-0-0138, Bipolar acceleration limit value) are displayed by the drive with the scaling that has been set. The scaling setting is normally preset by the control unit.



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

Structure

Bit	Designation/function	Comment
2-0	scaling type 001: linear scaling 010: rotary scaling 011: ramp time	
3	0: preferred scaling 1: parameter scaling	
4	unit for linear scaling 0: meter [m] 1: inch [in] unit for rotary scaling 0: radian [rad] 1: reserved	
5	unit of time 0: second [s ²] 1: reserved	

Bit	Designation/function	Comment
6	data reference 0: with respect to motor shaft 1: with respect to load	
15-7	reserved	

Tab. 4-28: S-0-0160, Acceleration data scaling type

Use The following settings can be made:

In the case of preferred scaling (bit 3 = 0), the following parameters are pre-defined and cannot be changed:

- [S-0-0161](#), Acceleration data scaling factor
- [S-0-0162](#), Acceleration data scaling exponent

In the case of parameter scaling, the scaling is realized by inputting the desired parameter values.

S-0-0160 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x41	

4.2.34 S-0-0161, Acceleration data scaling factor

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In the case of parameter scaling (see [S-0-0160](#)), the scaling factor and the decimal format (the decimal place) of the acceleration data parameters are determined with this parameter and with "[S-0-0162](#), Acceleration data scaling exponent".



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

Use If preferred scaling is selected in "[S-0-0160](#), Acceleration data scaling type", the values in [S-0-0161](#) and [S-0-0162](#) are set automatically by the drive.

S-0-0161 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 1 / 65535			Default value: 1	

4.2.35 S-0-0162, Acceleration data scaling exponent

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In the case of parameter scaling (see [S-0-0160](#)) the scaling factor and the decimal format (the decimal place) of the acceleration data parameters are

determined with this parameter and with "S-0-0161, Acceleration data scaling factor".

See also Functional Description "Scaling of Physical Data"

Use If preferred scaling is selected in "S-0-0160, Acceleration data scaling type", the values in S-0-0161 and S-0-0162 are set automatically by the drive.

S-0-0162 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: -10 / -3	Default value: ---	

4.2.36 S-0-0164, Acceleration feedback value encoder 1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function "S-0-0164" shows the acceleration feedback value of encoder 1. "S-0-0164" is a differentiated velocity feedback value of encoder 1, which has been filtered via 4 ms.

S-0-0164 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	--	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: S-0-0160 / S-0-0160	Default value: ---	

4.2.37 S-0-0171, C4400 Calculate displacement procedure command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The procedure for which the master, to establish the position data reference, uses the travel motion for searching the dedicated point is called "NC-controlled homing procedure". On the drive side the entire procedure is supported via three commands:

- NC-controlled homing procedure command (S-0-0146)
- Calculate displacement procedure command (S-0-0171)
- Displacement to referenced system procedure command (S-0-0172)

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

Structure

Bit	Designation/function	Comment
0	Command in drive 0: Clear 1: Set	
1	Command execution 0: Interrupt 1: Execute	

Tab. 4-29: S-0-0171, C4400 Calculate displacement procedure command

Use The master can start the command "C4400 Calculate displacement procedure command" after the drive has successfully completed the command "C4300 NC-controlled homing procedure command" for searching the reference point. By means of command C4400 the drive calculates the required actual position value displacement in order to establish the axis zero point reference of the actual position values.

The displacement value is displayed in

- "S-0-0175, Offset parameter 1" (encoder 1) or
- "S-0-0176, Offset parameter 2" (encoder 2)

and the drive then acknowledges the command execution. After that the master clears the command.

S-0-0171 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.2.38 S-0-0172, C4500 Displacement to referenced system procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function When this command is started, the drive switches to the referenced actual value system, enters the referenced actual position value 1 (S-0-0051) or actual position value 2 (S-0-0053) and signals this in parameter "S-0-0403, Position feedback value status". In order to inform the master of this switching action in real time, bit 0 from S-0-0403 can be assigned to a real-time status bit.

See also Functional Description "Establishing the Position Data Reference"

Structure

Bit	Designation/function	Comment
0	Command in drive 0: Clear 1: Set	
1	Command execution 0: Interrupt 1: Execute	

Tab. 4-30: S-0-0172, C4500 Displacement to referenced system procedure command

- Use**
- During the active command the master switches to the referenced position command value system and signals this with "S-0-0404, Position command value status".
 - In order that the drive is informed of the switching process in a chronologically consistent way with the switching of the cyclic command values, bit 0 from "S-0-0404, Position command value status" must have been assigned to a real-time control bit.
 - The drive completes the command correctly when the bits "S-0-0403, Position feedback value status" and "S-0-0404, Position command value status" have been set.

- The bit "position command value status" must be set by the control unit independent of the operation mode.

S-0-0172 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.2.39 S-0-0175, Offset of position feedback value of encoder 1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Display parameter which shows the difference between the position reference system and the absolute measuring system before and after homing or setting the absolute position for encoder 1.

S-0-0175 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: S-0-0076 / S-0-0076	Default value:	---

4.2.40 S-0-0176, Offset of position feedback value of encoder 2

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Display parameter which shows the difference between the position reference system and the absolute measuring system before and after homing or setting the absolute position for encoder 2.

S-0-0176 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: S-0-0076 / S-0-0076	Default value:	---

4.2.41 S-0-0177, Absolute offset encoder 1

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.Enc1Offset

Function This parameter is required for homing a distance-coded encoder. It defines the offset between the zero point of the encoder (position of the 1st reference mark of the encoder) and the machine zero point.

See also functional description "Establishing the position data reference"

Use The correct value for this parameter is determined in two steps:

- First the value "0" is entered in "S-0-0177" and the command "S-0-0148, C0600 Drive-controlled homing procedure command" is executed. Position feedback value 1 in "S-0-0051" then displays the current position referred to the zero point of the encoder.

- If the axis is then jogged to the machine zero point, the value displayed in "S-0-0051" at that point is to be entered in "S-0-0177" with inverted sign.

After the homing command has been executed again, the value in "S-0-0051" then shows the position with reference to the machine zero point.



In case the drive is equipped with an encoder 2 in addition to encoder 1, bit 3 of "S-0-0147, Homing parameter" determines, which encoder is to be homed.

S-0-0177 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.2.42 S-0-0178, Absolute offset encoder 2

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	ActualValue.Enc2Offset	

Function This parameter is required for homing a distance-coded encoder 2. It describes the offset between the zero point of the encoder (position of the 1st reference mark of encoder 2) and the machine zero point.

See also functional description "Establishing the position data reference"

Use The correct value for this parameter is determined in two steps:

- First the value "0" is entered in S-0-0178 and the command "S-0-0148, C0600 Drive-controlled homing procedure command" is executed. Position feedback value 2 in "S-0-0053" then displays the current position referred to the zero point of encoder 2.
- If the axis is then jogged to the machine zero point, the value displayed in "S-0-0053" at that point has to be entered in "S-0-0178" with inverted sign.

After the homing command has been carried out again, the value in S-0-0053 then displays the position with regard to the machine zero point.



In case the drive is equipped with encoder 2 in addition to encoder 1, bit 3 of "S-0-0147, Homing parameter" determines, which encoder is to be homed!

S-0-0178 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.2.43 S-0-0180, Spindle relative offset

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «-» «HDM» «-»
Device parameter:	axis-specific	

Function This parameter contains the travel distance (for relative positioning) for the command "S-0-0152, C0900 Position spindle procedure command".



The effective absolute target position is display in "S-0-0430, Effective target position" during active command "S-0-0152, C0900 Position spindle procedure command"!

See also Functional Description "Position Spindle"

S-0-0180 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.2.44 S-0-0185, Length of the configurable data record in the AT

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	SoE, SoV					
Device parameter:	device-specific					

Function In the operating data of this parameter, the SERCOS drive indicates the maximum length in byte that it can process in the configurable data record of the drive data telegram.

The maximum length depends on the relation of position cycle time and SERCOS cycle time:

- SERCOS cycle time = position clock: Max. length 24 bytes
- SERCOS cycle time > position clock: Max. length 48 bytes

See also Functional Description "Basic Functions of Master Communication"

S-0-0185 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.45 S-0-0186, Length of the configurable data record in the MDT

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	SoE, SoV					
Device parameter:	device-specific					

Function In the operating data of this parameter, the SERCOS drive indicates the maximum length in byte that it can process in the configurable data record of the master data telegram.

The maximum length depends on the relation of position cycle time and SERCOS cycle time:

- SERCOS cycle time = position clock: Max. length 24 bytes
- SERCOS cycle time > position clock: Max. length 48 bytes

See also Functional Description "Basic Functions of Master Communication"

See also Functional Description "Performance Data"

S-0-0186 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV

Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.46 S-0-0187, List of configurable data in the AT

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				

Function This list contains the IDNs of the parameters or operating data which can be configured in the actual value telegram.

See also Functional Description "Basic Functions of Master Communication", "Master Communication"

See also Parameter Description "S-0-0016, Config. list drive telegram", "S-0-1050.x.6, SIII-Connection: Configuration list", "P-0-4080, Field bus: Config. list of cyclic actual value data ch."

S-0-0187 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: ---	

4.2.47 S-0-0188, List of configurable data in the MDT

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				

Function This list contains the IDNs of the parameters or operating data which can be configured in the command value telegram.

See also Functional Description "Basic Functions of Master Communication", "Master Communication"

See also Parameter Description "S-0-0024, Configuration list of MDT", "S-0-1050.x.6, SIII-Connection: Configuration list", "P-0-4081, Field bus: Config. list of cyclic command value data ch."

S-0-0188 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: ---	

4.2.48 S-0-0189, Following distance

Allocation	Contained in 16VRS:	«HDS»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				
Property name:	PosControl.Deviation				

Function If an operation mode with internal position control is activated in the drive, the current difference between the position command value (P-0-0434) and the position feedback value (S-0-0051/S-0-0053) is displayed in parameter "S-0-0189, Following distance".

See also Functional Description "Position controller"

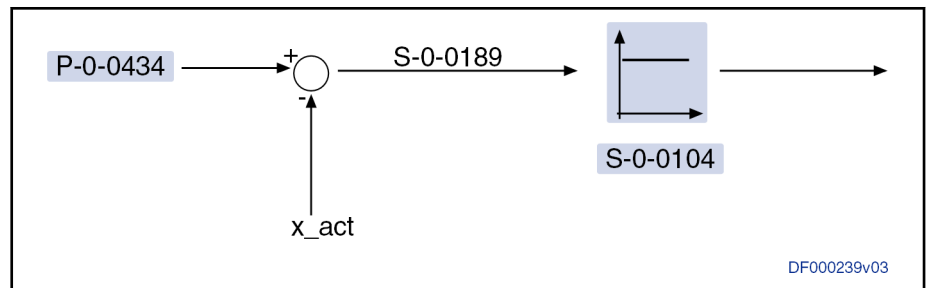


Fig. 4-11: S-0-0189, Position control loop control deviation (following distance)

Use The content of "S-0-0189, Following distance" therefore corresponds to the control deviation of the position controller which is also used for many status messages. If position control is not active, the value of the parameter is set to "0".

S-0-0189 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.2.49 S-0-0190, C4200 Drive-controlled oscillation procedure command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used for starting the function "drive-controlled oscillation". The command is realized via the drive-internal velocity control. The drive automatically generates the velocity command value course for the oscillation movement.

See also Functional Description "Drive-controlled oscillation"

See also Functional Description "Command processing"

S-0-0190 - Attributes	Function:	Cmd	Editable:	OM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.2.50 S-0-0191, C1500 Cancel reference point procedure command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «HDS»
	Device parameter:	axis-specific				

Function Setting and enabling the command "cancel reference point procedure" clears the reference of the encoder defined via "S-0-0147, Homing parameter". The actual position value status (bit 0 in S-0-0403) is cleared, too.

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

See also Functional Description "Command Processing"

Structure	Bit	Designation/function	Comment
	0	command in drive 0: clear 1: set	
	1	command execution 0: interrupt 1: execute	

Tab. 4-31: S-0-0191, C1500 Cancel reference point procedure command

Use The drive completes the command correctly when the actual position value status bit is set to "0" and the actual position value of the active measuring system no longer refers to the machine zero point (= is no longer referenced).

S-0-0191 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.51 S-0-0192, IDN-list of all backup operation data

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «HDS»
	Device parameter:	axis-specific				

Function In this list, the IDNs of those parameters are stored the values of which are axis-specific and for regular operation have to be loaded to the drive of the respective axis.

See also Functional Description "Parameters, Basics"

Use Depending on the setting in "S-0-0269, Storage mode", these parameters are stored, continuously or in a command-controlled way, in the internal, non-volatile memory.



The control unit should use this parameter in order to make a backup copy of the drive parameters and the axis-specific values.

S-0-0192 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.52 S-0-0193, Positioning jerk

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The positioning jerk limits the change in acceleration per unit of time in the following operation modes

- Drive-internal interpolation and
- Drive-controlled positioning



The value "0" switches the jerk filter off!

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

S-0-0193 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

4.2.53 S-0-0197, C3300 Set coordinate system procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function With "S-0-0197, C3300 Set coordinate system procedure command", the drive disconnects from the control unit and goes to standstill in a drive-controlled way. As in the case of "Drive Halt", this takes place depending on the active operation mode, with a position ramp or a speed ramp. In standstill, the "S-0-0198, Initial coordinate value" is now entered in the position system display.

See also Functional Description "Command Processing"

S-0-0197 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.2.54 S-0-0198, Initial coordinate value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In standstill, the initial coordinate value is entered in the position system display.

S-0-0198 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.2.55 S-0-0199, C3400 Shift coordinate system procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function With this command the master can set the actual value system of a moving axis to a different display reference. The position data reference of the axis is not influenced!

See also Functional Description "Command Processing"

Use The drive in this case becomes independent of the command values preset by the control unit, but maintains the active motion. The display of the actual position value changes abruptly by adding "S-0-0275, Coordinate offset val-

ue". With the command still active, the control unit accepts the current actual position value. After the command was cleared, the control unit presets the command values again.

The offset of the position display is displayed in "S-0-0283, Current coordinate offset".

S-0-0199 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3 S-0-0201 - S-0-0400

4.3.1 S-0-0206, Drive on delay time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Parameter "S-0-0206" is used for a defined delay after the drive enable was set.

When the drive enable is set, "P-0-0115, Device Control: Status word" bit 14 becomes equal to 1 (Ab => AF). In addition, "bit 1, ready signal" is set. "P-0-0115, bit 7, Operation mode initialized" is set only after the delay time elapsed.

As long as the delay time is active, diagnostic message "A4000 Switch-on/switch-off delay active" is displayed.

S-0-0206 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
HDx:	min./max.: 0,0 / 10000,0			Default value: 0,0	

4.3.2 S-0-0207, Drive off delay time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Parameter "S-0-0207" is used for a defined delay after the drive enable was reset.

When the drive enable is removed or an error reaction occurs (F2, F4, F6) the axis is stopped first. When the axis is at standstill, "P-0-0115, Device Control: Status word" bit 7, "Operation mode initialized", and bit 1, "Drive ready", are reset, but the drive still remains in AF. Only after the delay time elapsed is P-0-0115, bit 14 reset (AF=>Ab).

As long as the delay time is active, diagnostic message "A4000 Switch-on/switch-off delay active" is displayed.

S-0-0207 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
HDx:	min./max.: 0,0 / 10000,0			Default value: 0,0	

4.3.3 S-0-0208, Temperature data scaling type

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Via this parameter, the temperature data unit of the control is determined. The values are exactly displayed with the first decimal place.

Bit	Designation/function	Comment
0	Temperature data in 0:Degree Celsius (°C) 1:Fahrenheit (F)	
15...1	Reserved	

Tab. 4-32: Settings for Temperature Data

S-0-0208 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

4.3.4 S-0-0213, Oscillation speed

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»		«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The oscillation speed is the amplitude of the speed oscillation around the "S-0-0214, Oscillation offset speed".

See also Functional Description "Drive-Controlled Oscillation"

S-0-0213 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	rpm	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,0000 / 214748,3647			Default value: 8,0000	

4.3.5 S-0-0214, Oscillation offset speed

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»		«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The oscillation offset speed is the average value of speed oscillation.

See also Functional Description "Drive-Controlled Oscillation"

S-0-0214 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	rpm	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,0000 / 214748,3647			Default value: 1,0000	

4.3.6 S-0-0215, Oscillation cycle time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					

Contained in 16VRS:	«-»	«HDC»	«-»
Contained in 20VRS:	«-»	«HDC»	«-»
Device parameter:	axis-specific		

Function The oscillation cycle time is the periodic time of speed oscillation.

See also Functional Description "Drive-Controlled Oscillation"

S-0-0215 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,1 / 6553,5 Default value: 400,0

4.3.7 S-0-0216, C4100 Switch parameter set command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific

Function Parameter sets are switched when this command is executed.



If necessary, the system automatically switches to PM.



The parameter set switching functions is included in the base package of MPE.

See also Functional Description "Parameter Set Switching"

- Use**
- This requires that the settings made in "P-0-2216, Parameter set switching, configuration" and in "P-0-2217, Parameter set switching, preselection range" match the application.
 - After switching, the active parameter set is that which was entered in "S-0-0217, Preselect parameter set command" at the time of switching.
 - The parameter set active after switching is displayed in parameter "S-0-0254, Current parameter set".

S-0-0216 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.8 S-0-0217, Preselect parameter set command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific

Function The value of this parameter determines the number of the parameter set, which is activated by the execution of "S-0-0216, C4100 Switch parameter set command".

See also functional description "Command processing"

See also functional description "Parameter set switching"

This requires that the settings made in "P-0-2216, Parameter set switching, configuration" and in "P-0-2217, Parameter set switching, preselection range" match the application.

The maximum value depends on the firmware derivative:

- MPM (4 parameter sets): Maximum value = 3
- Others (8 parameter sets): Maximum value = 7

S-0-0217 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0 / s. Text Default value: ---

4.3.9 S-0-0219, IDN-list of parameter set

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function All IDNs concerned by "S-0-0216, C4100 Switch parameter set command" are listed in this parameter.



The number of parameters listed in S-0-0219 is determined by the setting in "P-0-2216, Parameter set switching, configuration" and "P-0-2217, Parameter set switching, preselection range".

See also Functional Description "Parameter Set Switching"

S-0-0219 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	+

HDx: min./max.: --- / --- Default value: ---

4.3.10 S-0-0222, Spindle positioning speed

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «-» «HDM» «-»
	Device parameter:	axis-specific

Function In this parameter, the maximum speed is entered at which the spindle rotates upon the "S-0-0152, C0900 Position spindle command".

See also Functional Description "Command processing"

See also functional description Spindle positioning

Use The motor accelerates to this speed on the basis of "S-0-0372, Drive Halt acceleration bipolar", in order to

- move to the target position entered in "S-0-0153, Spindle angle position", or
- to follow the travel distance entered in "S-0-0180, Spindle relative offset".

S-0-0222 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: S-0-0044 / S-0-0044 Default value: 0,0000

4.3.11 S-0-0254, Current parameter set

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function This parameter shows the number of the currently active parameter set.



The parameter set switching functions is included in the base package of MPE.

See also Functional Description "Parameter Set Switching"

S-0-0254 - Attributes

Function: Par	Editable: --	Data length: 2Byte
Memory: --	Validity ch.: --	Format: DEC_OV
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: AT	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- Default value: ---

4.3.12 S-0-0256, Multiplication 1

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»		«HDC»			«-»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific					

Function Parameter "S-0-0256, Multiplication 1 (encoder)" indicates by which factor the signals of the encoder in the drive are multiplied.

Use Multiplication 1 results subject to parameters "S-0-0278, Maximum travel range" and "S-0-0116, Encoder 1 resolution".

The drive-internal encoder resolution for the encoder is calculated from:

S-0-0116, Encoder 1 resolution x S-0-256, Multiplication

S-0-0256 - Attributes

Function: Par	Editable: --	Data length: 4Byte
Memory: --	Validity ch.: --	Format: DEC_OV
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- Default value: ---

4.3.13 S-0-0258, Target position

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function By this parameter the control unit presets the target position for the drive in the "Drive-internal interpolation" mode.

See also Functional Description "Drive-Internal Interpolation"

Use With the internally generated position command value sequence, the drive moves to the target position (S-0-0258) and, apart from the positioning velocity (S-0-0259), takes the maximum positioning acceleration (S-0-0260) or deceleration (S-0-0359), the maximum positioning jerk (S-0-0193) and the feedrate override (S-0-0108) into consideration.

S-0-0258 - Attributes

Function: Par	Editable: ++	Data length: 4Byte
Memory: --	Validity ch.: --	Format: DEC_MV
Unit: S-0-0076	Extr. val. ch.: +	Decim. pl.: S-0-0077 / S-0-0078
Cycl. tra.: MDT	Comb. check: --	Set-depend.: --

HDx: min./max.: S-0-0076 / S-0-0076 Default value: ---

4.3.14 S-0-0259, Positioning velocity

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	Via this parameter, the maximum velocity is indicated to the drive in the operation modes "drive-internal interpolation" and "drive-controlled homing procedure", with which the drive should move to the target position ("S-0-0258, Target position" or "S-0-0282, Positioning command value").						
	See also Functional Description "Drive-Internal Interpolation"						
	See also Functional Description "Drive-Controlled Positioning"						
	See also Functional Description "Positioning Block Mode"						
Use	The drive-internal generated position command value characteristic considers the positioning velocity (S-0-0259) and the maximum positioning acceleration (S-0-0260) or positioning deceleration (S-0-0359), the maximum positioning jerk (S-0-0193) and the feedrate-override (S-0-0108).						
S-0-0259 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046	/
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: S-0-0044 / S-0-0044				Default value: 10,0000	

4.3.15 S-0-0260, Positioning acceleration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	By this parameter the maximum acceleration at which to move to the target position ("S-0-0258, Target position" or "S-0-0282, Positioning command value") is preset for the drive in the "drive-internal interpolation" and "drive-controlled positioning" modes.						
	See also Functional Description "Drive-Internal Interpolation"						
	See also Functional Description "Drive-Controlled Positioning"						
	The internally generated position command value sequence, apart from the positioning acceleration (S-0-0260) or deceleration (S-0-0359), takes the maximum positioning velocity (S-0-0259), the maximum positioning jerk (S-0-0193) and the feedrate override (S-0-0108) into consideration.						
	The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". With the value "0", the parameter S-0-0138 will take effect. The value of parameter "S-0-0260, Positioning acceleration" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.						
S-0-0260 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162	/
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	

HDx: min./max.: [S-0-0160](#) / [S-0-0160](#) Default value: 1000,000

4.3.16 S-0-0261, Coarse position window

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The parameter "[S-0-0261](#), Coarse position window" is used for the status message "In Position coarse" ([S-0-0013](#), Class 3 diagnostics, bit 11 = 1) |lag error ([S-0-0189](#))| < position window ([S-0-0261](#)).

See also Parameter Description "Status Classes, Status Displays, Control Parameters"

S-0-0261 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: [S-0-0076](#) / [S-0-0076](#) Default value: 0,5000

4.3.17 S-0-0262, C07_x Load defaults procedure command

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific

Function Parameter "C07_x Load defaults procedure command" can be used to load different default parameter values depending on "[P-0-4090](#), Configuration for loading default values"

See also Functional Description "Loading, storing and saving parameters"

Use The following parameter values can be loaded:

- Factory settings:** Default values stored in the firmware are loaded (firmware-specific default values for non-volatile parameters). "[P-0-4090](#)" can be used to hide selected parameter groups.
 Only possible in parameterization mode.
 Impossible when the drive is locked with a customer password (-> C0752).
- Activate field bus profile settings:** Profile-dependent parameters are set to their default values.
 Only possible in parameterization mode.
 Impossible when the drive is locked with a customer password (-> C0752).
- MLD parameters (as of HDC-18VRS, HDP-20VRS or HDM-20VRS):** Parameters of the integrated control are set to their default values. The PLC is stopped and the boot project is deleted.
 Only possible in parameterization mode.
 Impossible when the drive is locked with a customer password (-> C0752).

NOTICE

Damage to the internal memory (flash) caused by too many write accesses!

Execution of this parameter command requires writing to the internal memory (flash). Since each flash memory allows only a limited number of write accesses before its cells are destroyed, such write accesses should not be made too often.



When this command is executed, optimized axis-specific parameter values might be overwritten! →Execute this command only during initial commissioning.

S-0-0262 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.18 S-0-0263, C2300 Load working memory procedure command

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This command copies the parameter sets from the active, non-volatile memory into the volatile memory of the drive-controller (RAM memory). The active non-volatile memory is the device-internal flash memory.

NOTICE

Damage of the internal memory (flash) due to excessive write accesses!

This parameter command is recorded in the internal memory (flash), when executing it. As each flash only permits a limited number of write accesses before its cells are damaged, please heed that such write accesses are not overused.

S-0-0263 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.19 S-0-0264, C2200 Backup working memory procedure command

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This command copies the parameter sets from the volatile memory of the drive-controller (RAM memory) and saves it in the active non-volatile memory. The active non-volatile memory is the device-internal flash memory.

NOTICE

Damage of the internal memory (flash) due to excessive write accesses!

This parameter command is recorded in the internal memory (flash), when executing it. As each flash only permits a limited number of write accesses before its cells are damaged, please heed that such write accesses are not overused.

S-0-0264 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.3.20 S-0-0265, Language selection

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function All parameter names, units and diagnostic/error messages are stored in several languages in the drive controller. This parameter determines, in which language the texts are to be issued.

As of firmware version 20V08, only the German and the English language versions are available for the parameter names. If you switch to French, Spanish or Italian, the parameter names are shown in English.

- 0: German
- 1: English
- 2: French
- 3: Spanish
- 4: Italian

See Functional Description "Coded diagnostic messages of the drive"

S-0-0265 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0 / s. Text	1
HDC:	0 / s. Text	1
HDE:	0 / s. Text	1
HDP:	0 / s. Text	1
HDM:	0 / s. Text	1
HDS:	0 / 4	0

4.3.21 S-0-0267, Password

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The customer password can be entered and activated via this parameter.



A coded password storage was introduced in the firmware version 20V12. To downgrade from the firmware version 20V12 to a firmware version lower than 20V12 and if a customer password was specified, reset the password to the default password 007 before downgrading: Enter <Password>_007_007.

In the initial state, the password 007 is entered. Thus, it can be written on all parameters.

Also refer to the functional description "Password use"

Use

The customer password is used to protect the values of the parameters in "S-0-0279, IDN list of password-protected operating data" against unintended or unauthorized changes.



The following parameters are still protected by a customer password irrespective of S-0-0279:

- "S-0-0279, IDN list of password-protected operating data"
- "P-0-1535, IP communication settings" (disabling IP services)
- "P-0-4064.0.1, Password configuration"



Bosch Rexroth reserves the function of a master password. In this context, the parameter is additionally used to unlock the customer service functions (P-0-4064, Password level).

The customer password has to meet the following boundary conditions:

- At least 3 characters
- Up to 10 characters
- May only include the characters a...z, A...Z and the digits 0...9

Displaying the customer password (S-0-0267) depends on the password level (P-0-4064):

- 007 - No customer password set (password level = 0)
- \$\$\$ - Customer password activated and device unlocked (password level = 1)
- *** - Customer password activated and device locked (password level = 2)
- As of the firmware version 20V12: xxx - Password entry lock after multiple incorrect entries active (password level < 0)

If the password entry lock is active, the negative value in P-0-4064 visualizes the inhibit time in seconds. The inhibit time becomes active after multiple incorrect entries and it is triggered again after each further incorrect entry.

After entering the password correctly or rebooting, multiple incorrect entries are again accepted.

The first incorrect entry after unlocking an axis locks the axis again and it is not considered as incorrect input.

S-0-0267 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.3.22 S-0-0269, Storage mode

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function It is stipulated due to bit 0 of this parameter, into which mode the parameter values are stored.

Depending on the setting, there is the following behavior:

- **0:** Changes in the parameter are maintained, even if 24V voltage fails (non-volatile behavior).
- **1:** Changes in the parameter get lost after 24V have been switched off (volatile behavior).

See Functional Description "Loading, Storing and Saving Parameters"

Use



The number of writing cycles for the device memory is limited; therefore, set the storage mode to "1" for cyclic write accesses in order to avoid damage to the active memory!

Observe the following aspects for use:

- The "S-0-0269" is not stored in the drive. After switching-off the control voltage, it is always reset to "0" (non-volatile memory), so you must set it specifically to "1" (volatile memory) after boot-up, if required.
- For permanent MLD control, the memory mode S-0-0269 is set to non-volatile (S-0-0269 = 1) after every boot-up of the drive. If required, it can be set to volatile (S-0-0269 = 0) in the MLD program or execute the command "C2200 Backup working memory procedure command".
- To maintain the parameter settings in case voltage fails with the storage mode "1", previously execute the command "S0-0264, C2200 Backup working memory procedure command".

S-0-0269 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x1 Default value: ---

4.3.23 S-0-0270, IDN-list of selected backup operation data

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The contents of all parameters the IDNs of which are listed in this parameter are saved from the working memory (volatile memory) to the active non-volatile memory by activating the parameter "S-0-0293, C2400 Selectively back-up working memory procedure command".

The active non-volatile memory is the device-internal flash memory.

See also Functional Description "Parameters, Basics"

S-0-0270 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.3.24 S-0-0272, Velocity window as percentage

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Based on the resulting velocity command value (S-0-0036 + S-0-0037), the "velocity window as percentage" defines a part of the active velocity window.

Type of threshold	Parameter	Threshold value	Explanation
Percentage-based threshold	S-0-0272	Value of (S-0-0036 + S-0-0037 + P-0-690) * S-0-0272	Velocity command value percentage

S-0-0272 Velocity window as percentage

S-0-0036 Velocity command value

S-0-0037 Additive velocity command value

Tab. 4-33: Percentage-Based Threshold for Status " $n_{feedback} = n_{command}$ "

Use If the actual velocity value is within the calculated velocity window, the drive sets bit 0 of "S-0-0013, Class 3 diagnostics" (status " $n_{feedback} = n_{command}$ ").

See also Functional Description "Status Classes, Status Displays, Control Parameters"

S-0-0272 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV
Unit: %	Extr. val. ch.: +	Decim. pl.: 2
Cycl. tra.: MDT	Comb. check: --	Set-depend.: Grp. 1

HDx: min./max.: 0,00 / 100,00 **Default value:** 0,00

4.3.25 S-0-0273, Maximum drive off delay time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter serves to enter the maximum time that the drive may need to stop the axis with the error reaction. Do not forget to include a safety allowance in your calculation.

Use After the time entered in this parameter has elapsed, the "F6024 Maximum braking time exceeded" error is output.

S-0-0273 - Attributes

Function: Par	Editable: PM	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV
Unit: ms	Extr. val. ch.: +	Decim. pl.: 1
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: 50,0 / 10000,0 **Default value:** 1000,0

4.3.26 S-0-0275, Coordinate offset value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In this parameter the difference is entered by which the actual position value display changes (addition to current actual position value), when "S-0-0199, C3400 Shift coordinate system procedure command" is executed.

The unit of the value corresponds to the selected position scaling.

S-0-0275 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: [S-0-0076](#) / [S-0-0076](#) **Default value:** 0,0000

4.3.27 S-0-0277, Encoder 1, type of position encoder

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.Enc1Type

Function This parameter defines the essential properties of encoder 1.

See also functional description "Absolute measuring systems"

Structure

Bit	Designation/function	Comment
0	Kind of encoder 0: Rotary 1: Linear	
1	Distance-coded measuring system 0: No distance-coded reference marks 1: Distance-coded reference marks "S-0-0165, S-0-0166"	
3	Direction of motion 0: Not inverted 1: Inverted	
5	Setup of distance-coded measuring system 0: Positive direction of counting 1: Negative direction of counting	
6	Absolute evaluation (display bit) 0: Not possible (relative measuring system) 1: Possible (absolute measuring system) See also " S-0-0378 , Absolute encoder range of encoder 1"	

Bit	Designation/function	Comment
8/7	Absolute evaluation configuration Bit 6 = 0: 0x: Relative evaluation of the relative measuring system. The measuring system must be re-homed on each restart. 1x: Absolute evaluation of the relative measuring system is forced (only possible with single- and multi-turn encoders). Bit 6 = 1: x0: Absolute evaluation of the absolute measuring system (standard). x1: Relative evaluation of the absolute measuring system.	Not defined in sercos
9	Cyclic marker evaluation 0: Inactive 1: Active	

Tab. 4-34: S-0-0277, Position feedback 1 type

Use

- If the connected encoder is a linear encoder, bit 0 is set to "1".
- Depending on the absolute encoder range and the maximum travel range or modulo value, bit 6 is either set or cleared.
- If absolute evaluation is possible (bit 6 = 1), absolute evaluation is automatically activated. However, the user can deactivate it by setting bit 7.
- Even if absolute evaluation is impossible (bit 6 = 0), the user can "force" (activate) it via bit 8.

NOTICE

Property damage, if controlling on the master side is based on incorrect actual position values!

The user has to ensure that with "forced" (bit 8) absolute actual position values, the powered off axis is never displaced by more than half the absolute encoder range in relation to the power-off position. Otherwise, collisions with machine parts and workpiece rejects may occur.

S-0-0277 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
HDx:	min./max.: --- / ---			Default value:	0x41

4.3.28 S-0-0278, Maximum travel range

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function

Parameter "S-0-0278, Maximum travel range" defines the greatest possible mechanical travel distance of the machine. If the parameter value is 0, then the double cylinder length ("S-0-0819, Cylinder length") is automatically used as maximum travel range.

See also Functional Description: "Absolute measuring systems"

- Use**
- If scaling in absolute format is set (see also "S-0-0076, Position data scaling type"), the value is entered as bipolar value.
 - The parameter "S-0-0278, Maximum travel range" has an influence on parameter "P-0-0129, Internal position data format" and therefore on the internal encoder and position resolution.
 - In addition, the limit value for velocity and acceleration of the drive-internal position command value generator are influenced by the maximum travel range.
 - The maximum input value for "S-0-0259, Positioning velocity" and "S-0-0260, Positioning acceleration", among others, depend on the value in "S-0-0278".
 - The smaller the set maximum travel range, the smaller is the multiplication and the drive-internal position resolution, and the higher are the limit values of acceleration and velocity data.
 - The value for the maximum travel range also influences bit 6 of "S-0-0277, Position feedback 1 type". This bit indicates the possibility of absolute evaluation of the encoder.

S-0-0278 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.3.29 S-0-0279, IDN-list of password-protected operation data

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»		«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

- Function**
- By means of a customer password ("S-0-0267, Password"), the values of the parameters contained in this list can be protected against inadvertent or unauthorized changes. In its default status, this parameter contains an empty list. The user can enter IDNs in this list according to his requirements.

See also Functional Description "Using a Password"

S-0-0279 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

4.3.30 S-0-0282, Positioning command value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»		«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

- Function**
- By this parameter the control unit presets the target position (absolute position) or a relative travel distance for the drive in the "Drive-controlled positioning" mode.



The effective target position at which the drive positions can be read at any time from "S-0-0430, Effective target position"!

See also Functional Description "Drive-Controlled Positioning"

Use Upon a change of the edge of bit 0 in "S-0-0346, Positioning control word", the drive, controlled by an internally generated position command value, moves to an axis position that corresponds to the positioning command value (S-0-0282).

In addition, the drive takes the following positioning data into account:

- S-0-0259, Positioning Velocity
- S-0-0260, Positioning acceleration or S-0-0359, Positioning deceleration
- S-0-0193, Positioning jerk
- S-0-0108, Feedrate override

S-0-0282 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: ---	

4.3.31 S-0-0283, Current coordinate offset

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter shows, by which value the position feedback value was offset as against the real actual position value, when "S-0-0197, C3300, Set coordinate system procedure command" or "S-0-0199, C3400, Shift coordinate system procedure command" was executed.



The unit of the value corresponds to the selected position scaling.

S-0-0283 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.32 S-0-0284, Secondary operation mode 4

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag error

- Activation of position control in conjunction with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

Use The default value depends on the used firmware and the set functional package. In the various communication buses, operation modes are activated via the respective control word.

- sercos III: "S-0-0134, Master control word"
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 4 is selected in the control word, and
- drive is in status "Stopped".

See also Functional Description "Selecting the Operating Mode"

S-0-0284 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx: min./max.: --- / --- Default value: s. Text					

4.3.33 S-0-0285, Secondary operation mode 5

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag

- Activation of position control in conjunction with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

- The default value depends on the firmware used and the set functional package

Use In the various communication buses, operation modes are activated via the respective control word.

- sercos III: "S-0-0134, Master control word."
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 5 is selected in the control word, and
- the drive is in status "Stopped".

See also Functional Description "Selecting the Operating Mode"

S-0-0285 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** s. Text

4.3.34 S-0-0286, Secondary operation mode 6

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag

- Activation of position control in conjunction with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

Use The default value depends on the firmware used and the set functional package

In the various communication buses, operation modes are activated via the respective control word.

- SERCOS III: "S-0-0134, Master control word."
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 6 is selected in the control word, and
- the drive is in status "Stopped".

See also Functional Description "Selecting the Operating Mode"

S-0-0286 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx: min./max.: --- / --- Default value: s. Text					

4.3.35 S-0-0287, Secondary operation mode 7

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The operation mode is set by entering a binary value.

Selectable operation modes are:

- Velocity control
- Torque/force control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag

- Activation of position control in conjunction with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

- The default value depends on the used firmware and the set functional package

Use In the various communication buses, operation modes are activated via the respective control word.

- sercos III: "S-0-0134, Master control word."
- Servodrive application layer profile over EtherCAT: "S-0-0134, Master control word"
- Servodrive application layer profile over Varan: "S-0-0134, Master control word"
- Can application layer profile over EtherCAT: "P-0-4094.0.1, Fluidpower control word"
- Field buses (EtherNet/IP + Profinet): "P-0-4077, Field bus: Control word"
- Easy Startup mode: "P-0-0120, Control word easy startup"

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 7 is selected in the control word, and
- drive is in status "Stopped"

See also Functional Description "Selecting the Operating Mode"

S-0-0287 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** s. Text

4.3.36 S-0-0292, List of supported operation modes

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter lists all operation modes which are supported by the drive firmware used.

It displays the codes (hexadecimal) of the operation modes, which can be entered as binary values in parameters "S-0-0032" to "S-0-0035" and "S-0-0284" to "S-0-0287" (primary and secondary operation modes).

See also Functional Description "Operation modes"

Structure The table below shows a reference list of all potential operation modes with allocated code.



Depending on the firmware, function package and hardware configuration used, list parameter "S-0-0292" may contain only a part of the codes listed in this table.

Switchover of the control encoder and the position operation mode can be controlled via parameter "S-0-0520" in the operation modes provided to this end ("with axis control word").

Operation mode	Coding shown in S-0-0292
Closed-loop torque/force control	0x0001
(Open/closed-loop) velocity control	0x0002
Position control, encoder 1	0x0003
Position control, lagless, encoder 1	0x000B
Direct valve control	0x0051
(Open/closed-loop) flow control	0x0052
Closed-loop pressure control / (open/closed-loop) flow control	0x0055
Closed-loop pressure/swivel angle control	0x0056
Closed-loop torque/force control / direct valve control	0x8051
Closed-loop torque/force control / (open/closed-loop) flow control	0x8052
Closed-loop pressure control / direct valve control (p/Q)	0x8055
Position control, drive-controlled, encoder 1	0x0103
Position control drive-controlled, lagless, encoder 1	0x010B
Position control, drive-controlled, with axis control word	0x0305
Position control with axis control word	0x0205
Drive-internal interpolation, encoder 1	0x0113
Drive-internal interpolation, lagless, encoder 1	0x011B
Drive-internal interpolation with axis control word	0x0315
Drive-controlled positioning, encoder 1	0x0123
Drive-controlled positioning, lagless, encoder 1	0x012B
Drive-controlled posit. with ctrl word of axis controller	0x0325
Positioning block mode, encoder 1	0x0133
Positioning block mode, lagless, encoder 1	0x013B
Positioning block mode with axis control word	0x0335

Tab. 4-35: List of operation modes with code

S-0-0292 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.37 S-0-0293, C2400 Selectively backup working memory procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function With this command, the contents of all parameters whose IDN is listed in the parameter "S-0-0270, IDN-list of selected backup operation data" are saved by the working memory (volatile memory) into the internal flash memory.

See also Functional Description Command Processing

S-0-0293 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

4.3.38 S-0-0298, Reference cam shift

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter displays the distance by which the home switch (reference cam) is to be shifted in order to realize the optimum distance between home switch and selected reference mark of the encoder.

See also Functional Description "Establishing the Position Data Reference"

Use When homing an axis an actual position value referred to the axis zero point is assigned to a reference mark of the encoder. If the encoder has several reference marks over the travel range of the axis, it is necessary to select one and always the same reference mark for an unequivocal reference to the axis zero point. This is done with a home switch that is mounted at one end of the travel range. The switch is actuated by the axis during homing, the position reference to the axis zero point is established by the next reference mark of the encoder the axis passes. The distance between home switch and reference mark mustn't fall below a minimum value. Otherwise, depending on the situation, it may not be the next reference mark that is recognized after the home switch signal, but only the reference mark after the next. This would not allow establishing an unequivocally reproducible zero point reference to the axis; the distance between home switch and reference mark is therefore monitored by the drive.

Monitoring

- The optimum distance between home switch and reference mark is displayed in "S-0-0298, Reference cam shift".
- If the distance is outside of the allowed range, the command "S-0-0148, C0600 Drive-controlled homing procedure command" is terminated with the error "C0602 Distance home switch - reference mark erroneous".

Establishing the Regular Status

If the distance is outside of the allowed range, the distance is displayed in this parameter (S-0-0298). The regular status can be established by means of parameter or mechanically:

- Enter the value that is displayed in S-0-0298 in the parameter "S-0-0299, Home switch offset". This causes the effective home switch signal to be shifted with regard to the actually existing one. Or:
- Shift the position of the home switch by the value displayed in S-0-0298.



The settings for home switch, reference mark, encoder and homing procedure are made in "S-0-0147, Homing parameter"!

S-0-0298 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.3.39 S-0-0299, Home switch offset

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function By means of this parameter it is possible to virtually offset, by a certain distance, the point at which the home switch signal becomes effective with regard to the real switch point. This distance is entered in this parameter.

See also Functional Description "Establishing the Position Data Reference"

Use The value for the distance is displayed in "S-0-0298, Reference cam shift", when the "Drive-controlled homing procedure" command is terminated with the "C0602 Distance home switch - reference mark erroneous" error.



It is now only the reference mark after the next reference mark of the encoder that is detected after the home switch signal. This allows establishing an unequivocally reproducible zero point reference to the axis. Depending on the situation, this would not have been possible with the next reference mark!

S-0-0299 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3
	HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.3.40 S-0-0301, Allocation of real-time control bit 1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	ServoDrive				
	Device parameter:	axis-specific				

Function With the help of "S-0-0301" and "S-0-0413", a bit (real-time control bit 1) of a parameter can be written directly in the drive.

To be able to directly write the bit of a parameter as real-time control bit 1 in the drive, the IDN of the parameter that contains the bit to be written has to be entered in "S-0-0301". The bit number of real-time control bit 1 has to be entered in "S-0-0413".



With the help of "S-0-0303" and "S-0-0414" a further bit (real-time control bit 2) of a parameter can be written directly in the drive.



The IDNs of the parameters which can be entered in "S-0-0301" are listed in "S-0-0399, IDN-list of configurable data in signal control word". Command parameters are not possible!

See also Functional Description "Real-time control bit and real-time status bit"

Use The real-time control bits are an integral part of parameter "S-0-0134, Master control word" and are therefore cyclically sent to the drive (in real time), i.e. a bit of the assigned parameter can be written in the clock cycle of Sercos communication.



- If the relevant parameter is not available, the drive responds with the service channel error message "Invalid datum".
- If the relevant parameter is available, but cannot be written in phase 4, the drive responds with the error message "Invalid datum".

S-0-0301 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** 0

4.3.41 S-0-0303, Allocation of real-time control bit 2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	ServoDrive						
Device parameter:	axis-specific						

Function With the help of "S-0-0303" and "S-0-0414" a bit (real-time control bit 2) of a parameter can be written directly in the drive.

To be able to directly write the bit of a parameter as real-time control bit 2 in the drive, the IDN of the parameter that contains the bit to be written has to be entered in "S-0-0303". The bit number of real-time control bit 2 has to be entered in "S-0-0414".



With the help of "S-0-0301" and "S-0-0413" a further bit (real-time control bit 1) of a parameter can be written directly in the drive.



The IDNs of the parameters which can be entered in "S-0-0303" are listed in "S-0-0399, IDN list of configurable data in signal control word". Command parameters are not possible!

See also Functional Description "Real-time control bit and real-time status bit"

Use The real-time control bits are an integral part of parameter "S-0-0134, Master control word" and are therefore cyclically sent to the drive (in real time), i.e. a bit of the assigned parameter can be written in the clock cycle of Sercos communication.



- If the relevant parameter is not available, the drive responds with the service channel error message "Invalid datum".
- If the relevant parameter is available, but cannot be written in phase 4, the drive responds with the error message "Invalid datum".

S-0-0303 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 0	

4.3.42 S-0-0305, Allocation of real-time status bit 1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	ServoDrive				
	Device parameter:	axis-specific				

Function The real-time status bits 1 and 2 allow mapping one bit of a parameter to "S-0-0135, Drive status word" for direct access by a control unit.

- The IDN of the parameter containing the bit to be read by the real-time status bit 1 is entered in parameter "S-0-0305".
- The bit number is entered in "S-0-0415, Bit number allocation of real-time status bit 1".



The IDNs of the parameters that can be entered in "S-0-0305" are contained in "S-0-0398, IDN-list of configurable data in signal status word".

See also Functional Description "Real-Time Control Bit and Real-Time Status Bit"

Use The real-time status bits are part of the parameter "S-0-0135, Drive status word" and are cyclically ("in real time") sent by the drive to the master, i.e. one bit of the assigned parameter can be evaluated in the master at the pulse frequency of SERCOC communication.



- If the respective parameter is not available, the drive reacts with the service channel error message "Invalid data".
- If the respective parameter is available but cannot be written to in phase 4, the drive reacts with the error message "Invalid data".

S-0-0305 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 0	

4.3.43 S-0-0307, Allocation of real-time status bit 2

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	ServoDrive				
	Device parameter:	axis-specific				

Function The real-time status bits 1 and 2 allow mapping one bit of a parameter to "S-0-0135, Drive status word" for direct access by a control unit.

- The IDN of the parameter containing the bit to be read by the real-time status bit 2 is entered in parameter "S-0-0307".
- The bit number is entered in "S-0-0416, Bit number allocation of real-time status bit 2".

See also Functional Description "Real-Time Control Bit and Real-Time Status Bit"

Use



The IDNs of the parameters that can be entered in "S-0-0307" are contained in "S-0-0398, IDN-list of configurable data in signal status word".

The real-time status bits are part of the parameter "S-0-0135, Drive status word" and are cyclically ("in real time") sent by the drive to the master, i.e. one bit of the assigned parameter can be evaluated in the master at the pulse frequency of SERCOC communication.



- If the respective parameter is not available, the drive reacts with the service channel error message "Invalid data".
- If the respective parameter is available but cannot be written to in phase 4, the drive reacts with the error message "Invalid data".

S-0-0307 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

4.3.44 S-0-0315, Positioning velocity > nLimit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function When the positioning velocity with active positioning mode (interpolation, positioning or positioning block mode) has exceeded the limit value indicated in S-0-0091,

- limitation to the value in S-0-0091 takes place in the ramp generator and
- the message "Positioning velocity > nLimit" is generated, i.e. bit 0 is set in S-0-0315.



The message bit can be configured, for example, in the signal control word or as real-time status bit!

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation "

See also Functional Description "Status Classes, Status Displays, Control Parameters"

S-0-0315 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.45 S-0-0316, Inverse feed constant

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				

	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter is relevant only for rotary axes that are powered by a cylinder (e.g. gate actuator). The inverse feed constant is the change in angle that is carried out by the axis when the cylinder performs a certain stroke.					
S-0-0316 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 10,0000	

4.3.46 S-0-0323, Target position outside of travel range

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC» «-»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:							axis-specific
Function	When the new target position with active positioning mode (interpolation, positioning or positioning block mode) is outside of the position limit values (cf. S-0-0049 , S-0-0050) and the drive has been homed,							
	- the drive generates the warning E2053 Target position out of travel range and - the message "target position outside of travel range" (i.e. bit 0 in S-0-0323) is generated.							
 The message bit can be configured, for example, in the signal control word or as real-time status bit!								
See also Functional Description "Drive-Controlled Positioning"								
See also Functional Description "Positioning Block Mode"								
See also Functional Description "Drive-Internal Interpolation"								
See also Functional Description "Status Classes, Status Displays, Control Parameters"								
S-0-0323 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: ---		

4.3.47 S-0-0326, Parameter checksum

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	When reading this parameter the checksum is generated by all parameter values the IDNs of which are listed in parameter "S-0-0327, IDN list of checksum parameter".					
	See also Functional Description "Parameters, Basics"					
S-0-0326 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.3.48 S-0-0327, IDN list of checksum parameter

Allocation	Contained in 16VRS:				«-»									
	Contained in 17VRS:				«HDB»									
	Contained in 18VRS:		«HDB»		«HDC»		«-»							
	Contained in 20VRS:		«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«-»	
	Device parameter:				axis-specific									
Function	The IDNs of those parameters the checksum of which is to be generated are entered in this parameter. The checksum generation is triggered with the reading of the parameter "S-0-0326, Parameter checksum". In the default status, there haven't any IDNs been entered in parameter S-0-0327.													
See also Functional Description "Parameters, Basics"														
S-0-0327 - Attributes	Function:	Par			Editable:	++			Data length:	4Byte var.				
	Memory:	PARAM_SP			Validity ch.:	PM->OM			Format:	IDN				
	Unit:	--			Extr. val. ch.:	--			Decim. pl.:	0				
	Cycl. tra.:	--			Comb. check:	--			Set-depend.:	--				
	HDx:				min./max.:	--- / ---			Default value:	s. Text				

4.3.49 S-0-0328, Assign list signal status word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
Function	In this list parameter, the assignment is made as to which bit of the respective parameter entered in "S-0-0026, Configuration list for signal status word" is to be mapped to "S-0-0144, Signal status word".					
	See also Functional Description "Configurable Signal Status Word"					
Use	The first line of the list contains the number of the bit of the first parameter from the list of S-0-0026 that is mapped in the LSB of S-0-0144. The other lines of the list correspond respectively with the other parameters from the list of S-0-0026 and the more significant bits of S-0-0144.					
S-0-0328 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0 / 31			Default value: s. Text	

4.3.50 S-0-0329, Assign list signal control word

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»		«-»		
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	In this list parameter, the assignment is made as to which bit of the respective parameter entered in "S-0-0027, Configuration list for signal control word" is written via the signal control word (S-0-0145).							
	See also Functional Description "Configurable Signal Control Word"							
Use	The first line of the list contains the number of the bit of the first parameter from the list of S-0-0027 that is written with the LSB of S-0-0145. The other lines of the list correspond respectively with the other parameters from the list of S-0-0027 and the more significant bits of S-0-0145.							
S-0-0329 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte var.		
	Memory:	PARAM SP	Validity ch.:	PM->OM	Format:	DEC OV		

Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / 31			Default value: s. Text	

4.3.51 S-0-0330, Status "v_feedback = v_command"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:		axis-specific				

Function This parameter shows whether the feedback value of velocity has reached the command value within a tolerance window (message "n_feedback = n_command"). The tolerance window is determined by the threshold values:

Type of threshold	Parameter	Threshold value	Explanation
Absolute threshold	S-0-0157	Amount of S-0-0157	Fixed value
As of FW 17VRS threshold in percent	S-0-0272	Amount of (S-0-0036 + S-0-0037 + P-0-0690) * S-0-0272	Percentage of the velocity command value

S-0-0157 Velocity window
S-0-0272 Velocity window, percentage-based
S-0-0036 Velocity command value
S-0-0037 Additive velocity command value
P-0-0690 Additive velocity command value, process loop

Tab. 4-36: Thresholds for "n_feedback = n_command" message

Use Bit 0 of this parameter becomes "1", when the velocity feedback value n_{feedback} (S-0-0040) is within the tolerance window around the resulting velocity command value $n_{\text{command, res}}$ (S-0-0036 + S-0-0037):

Message	Criterion	Firmware	Explanation
S-0-0330 = "1" (Bit in S-0-0013)	$n_{\text{command, res}} - n_{\text{feedback}} < \pm \text{S-0-0157}$	FW 16VRS	Absolute tolerance window
	$n_{\text{command, res}} - n_{\text{feedback}} < \pm (\text{S-0-0157} + \text{S-0-0036} + \text{S-0-0037} * \text{S-0-0272})$	As of FW 17VRS	Absolute plus command-value-percentage-based tolerance window

S-0-0157 Velocity window
S-0-0272 Velocity window, percentage-based
S-0-0036 Velocity command value
S-0-0037 Additive velocity command value
S-0-0013 Class 3 diagnostics
 n_{feedback} S-0-0040, Velocity feedback value
 $n_{\text{command, res}}$ S-0-0036 + S-0-0037

Tab. 4-37: Criteria for "n_feedback = n_command" message

See also Functional Description "Status classes, status displays, control parameters"

S-0-0330 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.3.52 S-0-0331, Status "v_feedback = 0"

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Property name:		ActualValue.InStandStill					
Function	This parameter displays whether the actual velocity value has fallen below a threshold value that can be set, below which the controller recognizes motor or axis standstill ("n_feedback = 0" message). See also Functional Description "Status Classes, Status Displays, Control Parameters"						
Use	Bit 0 of this parameter becomes "1" when the absolute value of S-0-0040 , Velocity feedback value is smaller than the value of S-0-0124 , Standstill window. This message also appears in S-0-0013 , Class 3 diagnostics.						
S-0-0331 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

4.3.53 S-0-0332, Status "v_feedback < vx"

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	This parameter displays whether the actual velocity value has fallen below a threshold value that can be set ("n_actual = nx" message). See also Functional Description "Status Classes, Status Displays, Control Parameters"							
Use	Bit 0 of this parameter becomes "1" when the absolute value of S-0-0040 , Velocity feedback value is smaller than the value of S-0-0125 , Velocity threshold nx. This message also appears in S-0-0013 , Class 3 diagnostics.							
S-0-0332 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

4.3.54 S-0-0333, Status "T >= Tx"

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	This parameter indicates whether the actual torque or force value has exceeded a threshold value ("T >= Tx" message) that can be set. See also Functional Description "Status Classes, Status Displays, Control Parameters"						
Use	Bit 0 of this parameter becomes "1" when the absolute value of S-0-0084 , Torque/force feedback value is greater than or equal to the value of S-0-0126 , Torque threshold Tx. This message also appears in S-0-0013 , Class 3 diagnostics.						

S-0-0333 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.3.55 S-0-0334, Status "T >= Tlimit"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter shows whether the feedback value of torque or force has reached the limit value (message "n_feedback = n_command").

Up to firmware version 19: The limit value is determined by the smallest value of

- "S-0-0092, Bipolar torque/force limit value"
- "S-0-0082, Torque/force limit value positive"
- "S-0-0083, Torque/force limit value negative"

As of firmware version 20: The limit value is determined by exceeding of/falling below

- "S-0-0550, Negative position limit value"
- "S-0-0551, Position feedback value of encoder 1"

Use **Up to firmware version 19:** Bit 0 of this parameter becomes "1", if the amount of "S-0-0084, Torque/force feedback value" is equal to or greater than the specified limit value.

As of firmware version 20: Bit 0 of this parameter becomes "1", if "S-0-0552, Reference distance of encoder 1" is outside the specified limit value.

* This message is also displayed in "S-0-0013, Class 3 diagnostics".

S-0-0334 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.3.56 S-0-0335, Status "v_command > v_limit"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter displays when the absolute velocity command value is greater than the velocity limit value that can be set ("n_command > n_limit" message).

See also Functional Description "Velocity Limitation"

Use Bit 0 of this parameter becomes "1", when the absolute value of the resulting velocity command value (S-0-0036 + S-0-0037) is greater than the value of S-0-0091, Bipolar velocity limit value.

This message also appears in S-0-0013, Class 3 diagnostics.

S-0-0335 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.3.57 S-0-0336, Status "In position"

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	If an operation mode with internal position control has been activated in the drive, this parameter is used to map the "In position" message to an individual IDN (bit 0). This allows assigning the status message to a real-time status bit in "S-0-0135, Drive status word".						
	See also Functional Description "Status Classes, Status Displays, Control Parameters "						
	See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"						
Use	The "In position" message (S-0-0336 Bit 0 = 1) is also defined as a bit in class 3 diagnostics (S-0-0013 Bit 6) and is set when the following distance (S-0-0189) is smaller than the position window (S-0-0057).						



When the command "position spindle" is executed, the message is set when the spindle is in target position.

S-0-0336 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.3.58 S-0-0338, Status "In target position"

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	When the drive positions at the active target position S-0-0430, it generates this message if						
	the actual position value of the axis is within the position window around the active target position (⇒ In position: "S-0-0336")						
	and						
	the axis has stopped, i.e. the actual velocity is within the S-0-0124, Standstill window (⇒ In standstill: "S-0-0331").						



The message bit can be configured, for example, in the signal control word or as real-time status bit! The message is generated after initialization in any status, i.e. also with operation mode not activated!

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

S-0-0338 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.59 S-0-0341, Status "In coarse position"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function This parameter was introduced for the 'In Position coarse' message in order to make the assignment to a real-time status bit (e.g. [S-0-0303](#)) possible. The 'In Position coarse' message ([S-0-0341](#) Bit 0 = 1) is also defined as a bit in class 3 diagnostics ([S-0-0013](#) Bit 11) and is set when [S-0-0189](#), Following error is smaller than [S-0-0261](#), Positioning window coarse.

See also Functional Description "Status Classes, Status Displays, Control Parameters "

S-0-0341 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.60 S-0-0342, Status "Target position attained"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function This parameter is used to signal, whether the position command value generated within the drive has reached the target position.

Bit 0 of this parameter becomes "1", if, in the case of drive-controlled positioning processes, the command value of the interpolator ([P-0-0434](#), Position command value of controller) has reached the target position "[S-0-0430](#), Effective target position". This message is also displayed in "[S-0-0013](#), Class 3 diagnostics".

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

S-0-0342 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.61 S-0-0343, Status "Interpolator halted"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function Message parameter that, with the value "1", displays the following interpolator (command value generator) states in the "Drive-internal interpolation" and "Drive-controlled positioning" modes:

- velocity command value ([P-0-0048](#)) is zero and

- drive-internal position command value ([P-0-0434](#)) has not yet reached the target position ([S-0-0258](#) or P-0-0050).



This message signals that the value "0" is written to "[S-0-0259](#), Positioning Velocity" during a positioning process, for example.

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

S-0-0343 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.62 S-0-0346, Positioning control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter is used as control word in all drive-internal positioning modes to control the positioning operation.

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

Structure The parameter has the following structure:

Bit	Designation/function	Comment
0	Acceptance of positioning command value Applied by toggling	
2/1	Activation of positioning 00: Positioning active, started by toggling of bit 0 Positioning aborted by: 01: Infinite travel in positive direction (jog+) 10: Infinite travel in negative direction (jog-) 11: Stopping the axis (positioning stop)	
3	Kind of positioning command value 0: Absolute 1: Relative (depending on bit 4)	Has no effect in positioning block mode
4	Dedicated point for positioning command values 0: Last effective target position (S-0-0430) 1: Active position feedback value (S-0-0386)	Has no effect in positioning block mode

Bit	Designation/function	Comment
5	Immediate block change 0: Drive moves to current target position, before positioning at new target position 1: Immediate block change, i.e., drive immediately moves to new target position	Has no effect in positioning block mode
7/6	Behavior for sequential block (bit 5=0) 00: Halt at target position of start block 01: Overrunning target position of start block (mode 1) 10: Overrunning target position of start block (mode 2)	Has no effect in positioning block mode

Tab. 4-38: Relevant Bits of S-0-0346, Positioning control word

Use Bit 0: Command values or block applied by toggling

- "S-0-0282, Positioning command value during drive-controlled positioning (absolute position)
- ""P-0-4026, Positioning block selection" in positioning block mode, wherein actual application is initiated by 0 → 1 edge of "P-0-4060", bit 0.



Thereafter, "S-0-0419, Positioning command acknowledge" confirms that the command value has been applied.

Bit 4: Dedicated point for positioning command values

- **Bit 4 = 0:** Incremental dimension reference is maintained
- Reference for positioning is the previous target position (S-0-0430). Any possibly existing residual path is taken into account in relative positioning (residual path of 20 mm + 100 mm relative target position result in a travel motion of 120 mm).
⇒ Incremental dimension is maintained in case of successive positioning procedures.
- **Bit 4 = 1:** Incremental dimension reference gets lost.
Reference for positioning is the current position feedback value (cf. S-0-0386), with the result that any possibly existing residual path is not traveled (e.g., residual path of 20 mm + 100 mm relative target position result in a travel motion of 100 mm).
⇒ Incremental dimension reference gets lost in case of successive rel. travel blocks!



In the context of absolute positioning procedures, bit 4 only makes sense in connection with special cases, i.e., with command "positive stop drive procedure" or in "modulo mode", and only has to be taken into account in these cases!

Bit 7/6: Bit 7/6: Behavior in sequential block mode (S-0-0134, bit 5 = 0)

- **00: Intermediate stop** - Block transition with halt at target position of start block
- **01: Mode 1** - Block transition with velocity of start block (target position of the start block is overrun with the velocity of the start block).
- **10: Mode 2** - Block transition with velocity of sequential block (target position of the start block is overrun with the velocity of the sequential block). If required, changes in velocity are carried out as early as during

the start block. Switching to the next target position does not occur until the previous target position is overrun.



For field bus drives, some of the bits are already contained in the field bus control word (cf. [P-0-4077](#)).

S-0-0346 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.63 S-0-0347, Velocity error

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	VelControl.Deviation					

Function The parameter indicates the difference between the filtered velocity command value, [P-0-2833.0.5](#), and velocity feedback value, [S-0-0535](#).

See also functional description "Velocity control"

S-0-0347 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.64 S-0-0348, Acceleration feedforward gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	VelControl.AccFeedforwardGain					

Function The acceleration feedforward control reduces the following error during acceleration in lagless operation.



The acceleration feedforward control only takes effect in lagless operation ([P-0-0040](#)).

The acceleration command value obtained from double differentiation of the position command value is multiplied by the content of "S-0-0348" and converted into a velocity by means of "P-0-2845.0.2". Downstream of the smoothing filter "P-0-0180" the calculated value is finally added to the velocity controller output.

See also functional description "Control loop structure"

See also functional description "Position controller"

Use



The acceleration feedforward control is activated by entering a value greater than 0 in "S-0-0348" (S-0-0348 = 0 ⇒ switched off).

For optimum parameterization of the acceleration feedforward control, in "S-0-0348"

- the total mass (drive + load) has to be entered in kg (linear drive)

- the total mass inertia (drive + load) has to be entered in relation to the output shaft in gm^2 (rotary drive).



The value entered in "S-0-0348" has to be adjusted on site depending on the respective mechanical system.

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the actuator (rotary or linear) entered in "P-0-4014, Type of construction of motor".

- Rotary motor: $\text{mN}\cdot\text{m} / \text{rad/s}^2 \Rightarrow \text{g}\cdot\text{m}^2$
- Cylinder: $\text{mN} / \text{mm/s}^2 \Rightarrow \text{kg}$

S-0-0348 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	$\text{mNm}/(\text{rad/s}^2)$	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: 0,0000 / 214748,3647			Default value: 0,0000	

4.3.65 S-0-0349, Bipolar jerk limit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The jerk limit bipolar describes the maximum allowed change in acceleration per time (= jerk), symmetrically in both directions (accelerating and decelerating).



The jerk limit bipolar limits the change in acceleration per time in the case of "Drive Halt", the error reaction for quick stop (velocity command value reset with filter and ramp) and the command values that generate position command values for themselves. The value "0" switches the jerk filter off!

See also Functional Description "Establishing the Position Data Reference (Drive-Controlled Homing Procedure)"

See also Functional Description "Spindle Positioning"

See also Functional Description "Drive Halt"

S-0-0349 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

4.3.66 S-0-0359, Positioning deceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function By this parameter the maximum deceleration at which to move to the target position ("S-0-0258, Target position" or "S-0-0282, Positioning command value") is preset for the drive in the "drive-internal interpolation" and "drive-controlled positioning" modes.

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

Use The internally generated position command value sequence, apart from the positioning acceleration (S-0-0260) or deceleration (S-0-0359), takes the maximum positioning velocity (S-0-0259), the maximum positioning jerk (S-0-0193) and the feedrate override (S-0-0108) into consideration.



The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". The value of parameter "S-0-0359, Positioning deceleration" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.

S-0-0359 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0160 / S-0-0160 Default value: 1000,000

4.3.67 S-0-0360, Data container A: Command value 1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In parameter "S-0-0360, Data container A: Command value 1", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0370 Data container A: Configuration list command value-1".

If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0360, Data container A: Command value 1" is used. In order to use the data container, the parameter S-0-0360 has to be entered in the list of cyclic data in phase 2 or PM.

See also Functional Description "Multiplex Channel"

S-0-0360 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.68 S-0-0362, Data container A: List index command values

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter contains the list index by means of which it is possible to access individual list elements configured in "data container A: configuration list command value-x".

It is thereby possible with the multiplex channel to write individual elements of a list via an index in a controlled way. The parameter S-0-0362, Data container A: list index command values can, depending on the requirements, be configured in the cyclic command values or write accessed via the non-cyclical data channel or some other interface.



The parameter becomes effective only if a list parameter is addressed via [S-0-0368](#), Data container A: addressing.

See also Functional Description "Multiplex Channel"

S-0-0362 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.69 S-0-0364, Data container A: Feedback value 1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function To parameter "[S-0-0364](#), Data container A: Feedback value 1", the drive copies the data of the source parameter which is addressed via "[S-0-0368](#), Data container A: Addressing" from "[S-0-0371](#), Data container A: Configuration list feedback value -1".

See also Functional Description "Multiplex Channel"

Use If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "[S-0-0364](#), Data container A: Feedback value 1". In order to use the data container, the parameter [S-0-0364](#) has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0364 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.70 S-0-0366, Data container A: List index feedback values

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function This parameter contains the list index by means of which it is possible to access individual list elements configured in "data container A: configuration list feedback value-x".

See also Functional Description "Multiplex Channel"

Use It is thereby possible with the multiplex channel to read individual elements of a list via an index in a controlled way. The parameter [S-0-0366](#), Data container A: list index feedback values can, depending on the requirements, be configured in the cyclic command values or write accessed via the non-cyclical data channel or some other interface.



The parameter becomes effective only if a list parameter is addressed via [S-0-0368](#), Data container A: addressing.

S-0-0366 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.71 S-0-0368, Data container A: Addressing

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter contains the indices by means of which the parameter lists "data container A: configuration list command value-x" and "data container A: configuration list feedback value-x" are accessed. This defines the content of the two data containers "data container A: configuration list command value-x" and "data container A: configuration list feedback value-x". Only bits 0...4 (for command values) and 8...12 (for actual values) are used for addressing; the other bits are cut off.

See also Functional Description "Multiplex Channel"

Structure

Bit	Designation/function	Comment
0-4	addressing for command values	
8-12	addressing for actual values	

Tab. 4-39: S-0-0368, Data container A: addressing



If the indicated index is greater than the number of elements in the respective list, the warning "E4008 Invalid addressing command value data container A" or "E4009 Invalid addressing actual value data container A" is generated.



The parameter "S-0-0368, Data container A: addressing" can, depending on the requirements, be configured in the cyclic command values or write accessed via the non-cyclical data channel or some other interface.

S-0-0368 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.72 S-0-0370, Data container A: Configuration list command value-1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Parameter "S-0-0370, Data container A: Configuration list command value -1", serves to enter the IDNs which are transmitted in "S-0-0360, Data container A: Command value 1" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0370 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0370" are contained in the list "S-0-0188, List of configurable data in the MDT". If this is

not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in [S-0-0370](#).

S-0-0370 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.3.73 S-0-0371, Data container A: Configuration list feedback value-1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "[S-0-0371](#)" serves to enter the IDNs which are transmitted in "[S-0-0364](#), Data container A: Feedback value 1" depending on the index in "[S-0-0368](#), Data container A: Addressing", high byte. Writing to [S-0-0371](#) is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "[S-0-0127](#), C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "[S-0-0371](#)" are contained in the list "[S-0-0187](#), List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in [S-0-0371](#).

S-0-0371 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.3.74 S-0-0372, Drive Halt acceleration bipolar

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In this parameter is set, with which maximum deceleration value a drive is shut down with

- Speed command value reset with ramp
- Drive Halt

.

See also Functional Description "Drive Halt"

See also Functional Description: "Best Possible Deceleration"

Use Additionally, the value of this parameter acts as maximum acceleration or deceleration in spindle positioning process (C0900 Position spindle procedure command).



The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". The value of parameter "S-0-0372, Drive Halt acceleration bipolar" should always be smaller than the value of the parameter "S-0-0138", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.

S-0-0372 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0160 / S-0-0160			Default value:	10000,000

4.3.75 S-0-0375, Diagnostic numbers list

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific				

Function The drive enters any change of parameter "S-0-0390, Diagnostic message number" in this list. The list is organized as a ring buffer with a maximum of 50 diagnostic message numbers. When the list is read, the last diagnostic message number displayed is displayed in the 1st element of the parameter.



The list from "P-0-0105, Time stamp for list of diagnostic message numbers" corresponds with the parameter "S-0-0375". The diagnostic message numbers relating to the respective point of time are each entered in the same line respectively.

See also Functional Description "Diagnostic System"

S-0-0375 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

4.3.76 S-0-0378, Absolute encoder range, encoder 1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter indicates how large "S-0-0278, Maximum travel range" may be selected in order that an absolute encoder 1 can in fact be evaluated in absolute form.

See also functional description "Absolute measuring systems"

Use If the encoder position exceeds this maximum travel range, bit 6 in the position feedback type parameter "S-0-0277" is set to zero. The actual position value displayed is no longer unequivocal and the reference of encoder 1 is cleared. The reference status of the position encoders connected to the drive is displayed in parameter "S-0-0403, Position feedback value status".

See also functional description "Absolute measuring systems"

S-0-0378 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV

Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 360,0000	

4.3.77 S-0-0386, Active position feedback value

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.ActPos					
Function	The value of parameter "S-0-0386, Active position feedback value" always displays the current position of the encoder that was set in the presently active operation mode. According to the operation mode that was set, the active actual position value therefore either corresponds to parameter "S-0-0051, Position feedback value 1" or to parameter "S-0-0053, Position feedback value 2".						
S-0-0386 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

4.3.78 S-0-0390, Diagnostic message number

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ErrorHandling.DiagnoseNumber					
Function	This parameter shows the current diagnostic message number. This enables the control unit to generate its own diagnostic messages by means of this number (e.g., in languages in which the diagnostic message texts have not been stored in the drive). As of HDx-18VRS, diagnostic codes conforming with sercos are used (bits 24 to 31).						



To achieve a behavior which is compatible with previous versions from MPx-18VRS onwards, "bit 0" must be set to "1" in parameter [P-0-0006](#).

Example:

Diagnostic message text in "S-0-0095": "F2007 Switching to non-initialized operation mode"

->

Diagnostic message number in "S-0-0390" (up to HDx-17VRS): 0xF2007 (hex)

Diagnostic message number in "S-0-0390" (as of HDx-18VRS): 0xC00F2007 (hex)

See functional description "Coded diagnostic messages of the drive"

S-0-0390 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.79 S-0-0390.0.136, Detailed diagnostic message

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Alias idn:	P-0-2729				

Function Parameter "S-0-0390.0.136" contains the reported detailed diagnostics in the form of a hexadecimal number and refers to the diagnostic message in parameter "S-0-0390 Diagnostic message - Number". User-specific detailed diagnostics are described under main diagnostics in the description of diagnostic messages.

S-0-0390.0.136 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.3.80 S-0-0393, Command value mode

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	PosGenerator.SetValueModus				

Function This parameter is used as control word for positioning.
 See also Functional Description "Drive-Controlled Positioning"
 See also Functional Description "Positioning Block Mode"
 See also Functional Description "Drive-Internal Interpolation"

Structure	Bit	Designation/function	Comment
	1/0	Mode 00: Positive direction The only direction of rotation allowed for jogging and positioning (relative/absolute) is in positive direction (see also F2059 Incorrect command value direction when positioning) 01: Negative direction The only direction of rotation allowed for jogging and positioning (relative/absolute) is in negative direction (see also F2059 Incorrect command value direction when positioning) 10: Shortest distance Both positive and negative directions of rotation are allowed for jogging and positioning (relative/absolute). Note: If, when a positioning mode is activated, the current travel direction or direction of rotation is opposed to the direction (positive / negative) parameterized in " S-0-0393 , Command value mode", error F2059 is not generated. In this case, the axis decelerates with the parameterized deceleration. Note: Bit 1/0 has an effect on the direction of rotation of "modulo-scaled axes" during homing.	
	2	Command value reference when operation mode activated 0: Reference for positioning is current actual position 1: Reference for positioning is the content of " S-0-0430 , Effective target position" (residual path processing)	

Tab. 4-40: Structure of Parameter S-0-0393

Use with regard to "Modulo axes"

This parameter defines the sense of rotation of a "modulo axis" in the case of drive-controlled positioning processes.

"Modulo axes" are, for example, circular tables, spindles etc that, due to their mechanical structure, do not have any travel range limits and can turn "endlessly". After one axis revolution, the actual position value of the "modulo axis" is repeated in relation to the home point. Due to this mechanical property, a mode for positioning processes must be defined because a target position can be reached in both directions of rotation or over a longer or shorter distance.



The position data format must be "modulo" ([S-0-0076](#), Position data scaling type).

Residual path processing

The following sections describe some special cases regarding residual path processing:

- If residual path processing is active, the drive, after the operation mode has been activated, travels the residual path without repeated command value acceptance if "[S-0-0430](#)" is applicable and the axis has been homed.



When the control voltage is switched off, the content of "S-0-0430" is automatically saved and restored when the drive is switched on again.

- If drive-internal positioning is aborted by jogging or stopping the positioning process (S-0-0346; bit 2/1 = 11), the new positioning command value, too, is not applied before bit 0 in "S-0-0346" is toggled the next time. Any possibly existing residual path from the previous positioning process is cleared. When jogging and stopping the positioning process, the current values of "S-0-0259, Positioning velocity" and "S-0-0260, Positioning acceleration" or "S-0-0359, Positioning deceleration" are active.
- Residual path processing in the case of repeated activation of the operation mode is only carried out when bit 2 = 1 and the axis has remained homed since the last positioning.

S-0-0393 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x7 Default value: 0x2

4.3.81 S-0-0398, IDN-list of configurable data in signal status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function This parameter contains the IDNs of those parameters that can be entered in "S-0-0026, Configuration list signal status word" or "S-0-1050.x.20, sercos Connection: IDN allocation of real-time bit" and "P-0-0310, Digital outputs, assignment list".

See also Functional Description "Digital Inputs/Outputs"

Use "S-0-0026" is a list with a maximum of 16 parameter IDNs, one bit of each is to be mapped to "S-0-0144, Signal status word". The assignment with regard to which bit of the respective parameter is mapped to "S-0-0144" is made in "S-0-0328, Assign list signal status word".

"S-0-1050.x.20" is a list with a maximum of 2 parameter IDNs of which one bit each is to be mapped to the connection control (C-Con). The assignment with regard to which bit of the respective parameter is mapped to "S-0-1050.x.20" is made in "S-0-1050.x.21, sercos Connection: Bit allocation of real-time bit".

IDN numbers (parameters) can be assigned to digital outputs via "P-0-0310". The relevant bit is configured via "P-0-0311". The state of the assigned parameters is transmitted to the digital outputs.

S-0-0398 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.3.82 S-0-0399, IDN-list of configurable data in signal control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function This parameter contains the IDNs of those parameters that can be entered in "S-0-0027, Configuration list for signal control word" or "S-0-1050.x.20, sercos Connection: IDN allocation of real-time bit" and "P-0-0300, Digital inputs, assignment list".

See also Functional Description "Digital Inputs/Outputs"

Use S-0-0027 is a list with a maximum of 16 parameter IDNs, one bit of each is to be written via "S-0-0145, Signal control word". The assignment with regard to which bit of the respective parameter is to be written in "S-0-0027" is made in "S-0-0329, Assign list signal control word".

"S-0-1050.x.20" is a list with a maximum of 2 parameter IDNs of which one bit each is to be mapped to the connection control (C-Con). The assignment with regard to which bit of the respective parameter is mapped to "S-0-1050.x.20" is made in "S-0-1050.x.21, sercos Connection: Bit allocation of real-time bit".

IDN numbers (parameters) can be assigned to digital inputs via "P-0-0300". The state of the digital inputs is transmitted to the assigned parameters. The relevant bit is configured via "P-0-0301".

S-0-0399 - Attributes

Function: Par	Editable: --	Data length: 4Byte var.
Memory: --	Validity ch.: --	Format: IDN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- Default value: ---

4.3.83 S-0-0400, Home switch

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «HDB»
	Contained in 18VRS: «HDB» «HDC» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter: axis-specific

Function The switch status of the home switch connected to the controller is mapped in this parameter.

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

Structure

Bit	Designation/function	Comment
0	home switch 0: not activated (0V) 1: activated (24V)	

Tab. 4-41: Relevant bits of "S-0-0400, Home switch"



- By means of this parameter, the switch status of the home switch can be assigned to a real-time status bit, for example!
- To evaluate the home switch, S-0-0400 must be assigned to the digital input in "P-0-0300, Digital I/Os, assignment list" provided for this purpose, "P-0-0301, Digital I/Os, bit numbers" must be set accordingly!

S-0-0400 - Attributes

Function: Par	Editable: --	Data length: 2Byte
Memory: --	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: AT	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- Default value: ---

4.4 S-0-0401 - S-0-4095

4.4.1 S-0-0403, Position feedback value status

Allocation	Contained in 16VRS:	«-»												
	Contained in 17VRS:	«HDB»												
	Contained in 18VRS:	«HDB» «HDC» «HDS»												
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»												
	Device parameter:	axis-specific												
	Property name:	ActualValue.PosActValueStatus												
Function	This parameter displays the status messages of the position feedback values of the connected encoders. In bit 0, it additionally displays the position status of the encoder declared via bit 3 of "S-0-0147, Homing parameter".													
	See also Functional Description "Establishing the Position Data Reference"													
Structure	<table border="1"> <thead> <tr> <th>Bit</th><th>Designation/function</th><th>Comment</th></tr> </thead> <tbody> <tr> <td>0</td><td>Status of position feedback value of reference encoder (encoder 1 or 2) 0: Relative 1: Homed</td><td></td></tr> <tr> <td>1</td><td>Status of encoder 1 S-0-0051, Position feedback value 1 0: Relative 1: Homed</td><td></td></tr> <tr> <td>2</td><td>Status of encoder 2 S-0-0053, Position feedback value 2 0: Relative 1: Homed</td><td></td></tr> </tbody> </table>		Bit	Designation/function	Comment	0	Status of position feedback value of reference encoder (encoder 1 or 2) 0: Relative 1: Homed		1	Status of encoder 1 S-0-0051, Position feedback value 1 0: Relative 1: Homed		2	Status of encoder 2 S-0-0053, Position feedback value 2 0: Relative 1: Homed	
Bit	Designation/function	Comment												
0	Status of position feedback value of reference encoder (encoder 1 or 2) 0: Relative 1: Homed													
1	Status of encoder 1 S-0-0051, Position feedback value 1 0: Relative 1: Homed													
2	Status of encoder 2 S-0-0053, Position feedback value 2 0: Relative 1: Homed													

Tab. 4-42: Relevant Bits of S-0-0403

Use If the drive reacts to commands "S-0-0148, C0600 Drive-controlled homing procedure command" or "S-0-0447, C0300 Set absolute position procedure command", bit 0 is reset when these commands are started (value "0"); after the respective command reaction is successfully completed, bit 0 is set again (value "1").

If devices are provided with a sercos interface, the status message of the position feedback values can be allocated to a real-time status bit and therefore constantly reported to the NC in the drive status.

See also Parameter Description "S-0-0305, Allocation of real-time status bit 1"

S-0-0403 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0x0 / 0x7			Default value: ---	

4.4.2 S-0-0404, Position command value status

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
Function	When the position command value is switched to axis reference, the master sets the position command value status to "homed". This signals to the drive that the master, as of this point of time, refers all position command values to	

the axis zero point. The master simultaneously enters the new position command value in the cyclic data.

See also Functional Descriptions "Establishing Position Data Reference for Relative Measuring Systems"

Structure

Bit	Designation/function	Comment
0	status of position command value 0: relative 1: homed (referring to axis zero point)	

Tab. 4-43: Relevant bits of S-0-0404, Position command value status

S-0-0404 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.3 S-0-0407, Homing enable

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function For NC-controlled homing the master-side homing enable is one of the requirements for starting the search for the reference point on the drive side. Via this parameter the homing enable can be assigned to a real-time control bit. The drive only evaluates the homing enable with active command "C4300 NC-controlled homing procedure"!

See also Functional Descriptions "Establishing Position Data Reference for Relative Measuring Systems"

Structure

Bit	Designation/function	Comment
0	Homing enable set on master side? 0: no 1: yes	

Tab. 4-44: Relevant bits of S-0-0407, Homing enable

S-0-0407 - Attributes

Function:	Par	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.4 S-0-0408, Reference marker pulse registered

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function For non distance-coded encoders

In this parameter, the drive informs about the registration of the reference point (reference mark) for NC-controlled homing procedure only, if "S-0-0407, Homing enable" exists on the master side and the reference mark of the encoder was identified. At the same time, the drive stores the non-homed actual

position value of the identified mark in "S-0-0173, Marker position A" (encoder 1) or "S-0-0174, Marker position B" (encoder 2).

For distance-coded encoders

In the case of NC-controlled homing, in this parameter the drive informs about the registration of both reference marks of the distance-coded encoder, irrespective of "S-0-0407, Homing enable". The drive stores the non-homed actual position values of both identified reference marks in "S-0-0173, Marker position A" (first identified reference mark) or "S-0-0174, Marker position B" (second identified reference mark).

Structure

Bit	Designation/function	Comment
0	Reference mark(s) registered? 0: No 1: Yes	

Tab. 4-45: Relevant Bits



The parameter is only valid while command "C4300 NC-controlled homing procedure command" is active. This message is not generated with drive-controlled homing (C0600)!

S-0-0408 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.5 S-0-0413, Bit number allocation of real-time control bit 1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	ServoDrive	
Device parameter:	axis-specific	

Function By means of the real-time control bits 1 and 2 it is possible to directly write, at each case, one bit of a parameter in the drive.

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

Use The IDN of the parameter that contains the bit to be written by the real-time control bit 1 is entered in "S-0-0301, Allocation of real-time control bit 1", the bit number is entered in this parameter.

The real time control bits are part of the master control word (S-0-0134) and are cyclically ("in real time") sent to the drive, i.e. in the clock of the SERCOS communication one bit of the assigned parameter can be written.

S-0-0413 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0 / 15	Default value:	0

4.4.6 S-0-0414, Bit number allocation of real-time control bit 2

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»

Hardware

ServoDrive

Device parameter:

axis-specific

Function

By means of the real-time control bits 1 and 2 it is possible to directly write, at each case, one bit of a parameter in the drive.

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

Use

The IDN of the parameter that contains the bit to be written by the real-time control bit 2 is entered in "S-0-0303, Allocation of real-time control bit 2", the bit number is entered in this parameter.

The real time control bits are part of the master control word (S-0-0134) and are cyclically ("in real time") sent to the drive, i.e. in the clock of the SERCOS communication one bit of the assigned parameter can be written.

S-0-0414 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:

min./max.: 0 / 15

Default value: 0

4.4.7 S-0-0415, Bit number allocation of real-time status bit 1

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	ServoDrive					
Device parameter:	axis-specific						
Function	By means of the real-time status bits 1 and 2 it is possible to map a parameter bit for direct access by a control unit.						
	Via "S-0-0415, Bit number allocation of real-time status bit 1" it is possible to select the bit number of the desired bit of a parameter.						
 The respective IDN of the parameter is entered in parameter S-0-0305.							
See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"							
S-0-0415 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: 0 / 15				Default value: 0	

4.4.8 S-0-0416, Bit number allocation of real-time status bit 2

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Hardware ServoDrive Device parameter: axis-specific	
Function	By means of the real-time status bits 1 and 2 it is possible to map a parameter bit for direct access by a control unit. Via "S-0-0416, Bit number allocation of real-time status bit 2" it is possible to select the bit number of the desired bit of a parameter.	
	 The respective IDN of the parameter is entered in parameter S-0-0307.	

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

S-0-0416 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0 / 15 Default value: 0

4.4.9 S-0-0417, Positioning velocity threshold in modulo mode

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function During positioning with modulo scaling, the direction is primarily determined by parameter "S-0-0393" or "S-0-0393" (spindle positioning command). Under certain boundary conditions, deviating from this standard may be allowed.

The behavior during positioning is determined by the following parameters:

- S-0-0393, Command value mode or S-0-0154, Spindle positioning parameter
- S-0-0417, Positioning velocity threshold in modulo mode
- S-0-0418, Target position window in modulo mode

Parameter "S-0-0417" can be used to force maintaining the current direction of motion. If, when the positioning process is started, the currently set positioning command velocity (V_{current}) is higher than this value, the current direction of travel is generally maintained in all modes (shortest distance; only pos. direction, only neg. direction).

The effective threshold for "Positioning velocity threshold " is determined by the greater of the two values of:

- S-0-0417, Positioning velocity threshold in modulo mode
- S-0-0124, Standstill window
- Specific encoder standstill detection (smallest standstill threshold that can be detected by the encoder used)

Precondition: The position data format must be "modulo" (S-0-0076, Position data scaling type).



Special case for mode "shortest distance": S-0-0417 = "0"

The "positioning velocity threshold" is not effective.

See also functional description "Drive-internal interpolation"

See also functional description "Drive-controlled positioning"

See also functional description "Positioning block mode"

See also functional description "Spindle positioning"

S-0-0417 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0044 / S-0-0044 Default value: 0,0000

4.4.10 S-0-0418, Target position window in modulo mode

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function During positioning with modulo scaling, the direction is primarily determined by parameter "S-0-0393" or "S-0-0154" (spindle positioning command). Under certain boundary conditions, it is possible to deviate from this standard.

The behavior during positioning is determined by the following parameters:

- S-0-0393, Command value mode, or S-0-0154, Spindle positioning parameter
- S-0-0417, Positioning velocity threshold in modulo mode
- S-0-0418, Target position window in modulo mode

Parameter "S-0-0418" is used to control, at which position difference between new position target and existing position target traveling is determined by the "shortest distance" instead of positive or negative direction. The default value is 0.1000 (mm or degrees in preferred scaling). Checking for the target position window in the modulo mode is only active, if the current velocity is less than the "positioning velocity threshold". This is also valid for "S-0-0417 = 0".

Any braking distance greater than the "target positioning window" is not taken into account.

Precondition: The position data format must be "modulo" (S-0-0076, Position data scaling type).



If the target position window in modulo mode "S-0-0418 = 0", it is rendered ineffective. Merely the command value direction from "S-0-0393" and "S-0-0154" is effective.

If S-0-0418 is parameterized > S-0-0103: 2, traveling always follows the "shortest distance".

See also Functional Description "Drive-internal interpolation"

See also Functional Description "Drive-controlled positioning"

See also Functional Description "Positioning block mode"

See also Functional Description "Spindle positioning"

S-0-0418 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076				Default value: 0,1000

4.4.11 S-0-0419, Positioning command acknowledge

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In the "Drive-controlled positioning" mode the parameter is used to acknowledge the positioning command value acceptance.

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

Use The acceptance is acknowledged at the time a new value of "S-0-0282, Positioning command value" is accepted in "S-0-0430, Effective target position" which is the time of acceptance in the internal position command value generator.

If bit 5 = 0 in parameter "S-0-0346, Positioning control word", the acknowledge only takes place after the drive moved to the previous preset positioning value and the message "target position reached" (cf. S-0-0437, bit 0) was set.

S-0-0419 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.12 S-0-0420, C0400 Activate parameterization level procedure command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function When this command is started, the axis is moved to "parameterization level 1". To achieve this, the cyclically running axis functions (encoder evaluation, motor temperature monitoring, analog signal processing, etc.) are stopped. The reference of the axis-related position encoders is deleted.

The command cannot be executed if the axis is in "AF".

S-0-0420 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.13 S-0-0422, C0200 Exit parameterization level procedure command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Starting this command brings the drive from "parameterization level 1" to the operating mode. The axis-specific parameter conversions and initializations are carried out.

See also Functional Description "Drive Initialization"

S-0-0422 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.14 S-0-0423, IDN-list of invalid data for parameterization levels

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function By starting the command "C0200 Exit parameterization level procedure command", the drive parameters are checked and converted. If an error occurs while this is done, the respective parameters will appear in this list. This is also used by other drive commands to display faulty parameter.

See also Functional Description "Basic Functions of Master Communication":

S-0-0423 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.15 S-0-0424, Status parameterization level

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Status parameter displaying the current parameterization level:

0: operating mode

1: parameter mode; parameterization level 1 is active

See also Functional Description "Basic Functions of Master Communication"

S-0-0424 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.16 S-0-0425, Sub-device state machine control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The parameter determines the functions and the behavior of the subdevice state machine.

Structure

Bit	Designation/function	Comment
0	Coupling of subdevice state machine: 0: Coupled - With communication phase 4 transition check (S-0-0128) the axis is automatically switched to the operating mode (OM). (The communication phase is coupled to the axis control. "S-0-0128" starts internally "S-0-0422"). When the Sercos phase returns to "P0" switching to parameter mode (PM) takes place automatically. "S-0-0420" is started internally. 1: uncoupled - Switching over of the communication phase will not result in a change of state of the der subdevice state machine. This bit can be used to uncouple the subdevice state machine from the Sercos communication state machine.	

Tab. 4-46: S-0-0425, Sub-device state machine control

Use Consider the following cases when configuring the bits:

Bit 0: If bit 0 is set to 1, the master communication master has to switch the subdevice state machine over by itself. When the Sercos phase is switched, the subdevice always remains in its current state.



This is a temporary solution. If the subdevice remains in the operating mode (OM) after a Sercos phase switch, it is impossible to receive new data in the Sercos connections. In addition, the synchronicity of the device timing with the master communication timing (PLL) is not re-checked.

S-0-0425 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.17 S-0-0429, Emergency halt deceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific				

Function This parameter is used to set the deceleration ramp during the drive-side error reaction. Depending on the settings in "P-0-0119, Best possible deceleration", the emergency halt deceleration is used as reaction to errors of categories F2xxx, F3xxx or F6xxx, F7xxx.

See also Functional Description "Best Possible Deceleration"



The deceleration is limited to the value of "S-0-138, Bipolar acceleration limit value". The value of parameter "S-0-0429, Emergency halt deceleration" should always be smaller than the value of the parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter S-0-0138 will take effect.

S-0-0429 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0160 / S-0-0160 Default value: 0,000

4.4.18 S-0-0430, Effective target position

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In the operation modes

- drive-controlled positioning
- drive-internal interpolation
- positioning block mode

it is possible to read the current target position (absolute position) via this parameter.

See also Functional Description "Drive-Controlled Positioning"

Use In the case of "drive-controlled positioning", depending on the modalities defined in "S-0-0346, Positioning control word", the value in S-0-0430, after an

edge change of the positioning command value acceptance bit, corresponds to

- the value of "S-0-0282, Positioning command value", if this value had been defined as the absolute target position.
- the sum of the previous value of S-0-0430 and S-0-0282, if the new target position is referring to the previous target position (S-0-0346, bit 4 = 0).
- the sum of the actual position value S-0-0051 and S-0-0282 at the time of toggling, if the target position is referring to the current actual position value (S-0-0346, bit 4 = 1).



If residual path processing is possible when activating the "drive-controlled positioning" mode again, e.g. after the control voltage is switched on again in the case of axes with absolute measuring system, the effective target position still is contained in S-0-0430 ("non-volatile parameter")!

S-0-0430 - Attributes

Function:	Par RE-TAIN_KUNDE	Editable:	--	Data length:	4Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

4.4.19 S-0-0437, Positioning status

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter contains status bits of the positioning generator, which are generated in operation modes with internal interpolator (target position generator). These include, for instance, positioning block mode, drive-internal interpolation and drive-controlled positioning.



When the condition for the message is fulfilled, the relevant bit toggles from 0 to 1!

See also Functional Description "Drive-controlled positioning"

See also Functional Description "Positioning block mode"

See also Functional Description "Drive-internal interpolation"

Structure

Bit	Function
0	Target position attained (S-0-0342) S-0-0430 = P-0-0434 Remark: Generated only with active operation mode!
1	In target position (valid only for OM with drive-internal interpolation) S-0-0258 Target position - S-0-0386, Active position feedback value < S-0-0057 Remark: Is also generated while OM is deactivated!

Bit	Function
2	In target position (S-0-0338) (S-0-0430 - S-0-0386, Active position feedback value < S-0-0057) and status "in position" (S-0-0336) and status "n_feedback = 0" (S-0-0331) Is also generated while OM is deactivated!
3	Interpolator stopped (S-0-0343)
4	Constant command velocity
5	Drive accelerating
6	Drive decelerating
11 - 7	(reserved)
12	Jog mode active (see S-0-0346, bit 1 and 2)
13	Positioning velocity > nLimit (S-0-0315)
14	Target position outside position limit values (S-0-0323)
15	(reserved)

S-0-0437 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.20 S-0-0440, Marker position feedback 1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function For a drive with reference mark and with active function "cyclic reference mark detection", the actual position value of the reference mark (zero pulse) is stored in this parameter. This actual position value refers to the "active" coordinate system of encoder 1.

See also Functional Description "Cyclic Reference Mark Detection"

Use A control unit can read the marker position from the drive in the cyclic telegram and this position can then be used internally in the control unit for homing and for encoder monitoring.

When the function is active, the reference mark is permanently evaluated.



The parameter "Counter marker position feedback 1" (S-0-0442) is incremented with every error-free detection of the reference mark.

S-0-0440 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.21 S-0-0442, Counter marker position feedback 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function With active function "cyclic reference mark detection", the counter of the marker position is displayed in this parameter. This counter is incremented with every error-free detection of the reference mark of encoder 1.

See also Functional Description "Cyclic Reference Mark Detection"

Use A control unit can read the counter of the marker position from the drive in the cyclic telegram and it can then be used internally in the control unit for evaluating the cyclic marker position.

When the function is active, the counter of the marker position is permanently generated.



The parameter "marker position feedback 1" ([S-0-0440](#)) is generated every time the counter is incremented.

S-0-0442 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.22 S-0-0446, Ramp reference velocity for acceleration data

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function With scaling type "ramp time" for the acceleration data "[S-0-0160](#), Acceleration data scaling type", the value of this parameter and the ramp reference time are used as defining variables for the reference velocity ramp. The value of "[S-0-0446](#)" is scaled according to the settings for velocity data scaling "[S-0-0044](#), Velocity data scaling type".

See also Functional Description ""Scaling of physical data"

S-0-0446 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 3000,0000	

4.4.23 S-0-0447, C0300 Set absolute position procedure command

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function When commissioning an absolute measuring system, its actual position value at first displays an undefined value (possibly the value of [P-0-0019](#)), if the command "set absolute position" has not yet been executed.

See also functional description "Establishing the position data reference"

Use Encoder 1

By means of the command "set absolute position", the actual position value can be set to a desired new value at any position (new reference system). After the end of the command "set absolute position", the actual position value of the respective encoder refers to the new reference system.

The reference bit of the encoder in parameter "S-0-0403, Position feedback value status" then is "1".

After the end of the command "set absolute position", the actual position value of the respective encoder refers to the new reference system.



The command only acts on the connected absolute measuring system that has been selected in parameter "S-0-0448, Set absolute position control". It is only possible to select one measuring system at a time.

By means of a backup of all required data of an absolute measuring system in the feedback data memory or parameter data memory, all information will be available every time the system is switched on again. The actual position value retains its reference to the machine zero point.

S-0-0447 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.24 S-0-0448, Set absolute position control

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ActualValue.SetAbsPosControl				

Function This parameter is used to select the absolute encoder, for which the absolute position is to be set. In addition, the parameter determines, whether, in conjunction with an absolute measuring system, "S-0-0148, C0600 Drive-controlled homing procedure command" is to be possible apart from "S-0-0447, C0300 Set absolute position procedure command".

Structure

Bit	Designation/function	Comment
0	Set absolute position for encoder 1 0: no 1: yes	
1	Set absolute position for external (optional) encoder 0: no 1: yes	
2	"S-0-0447, C0300 Set absolute position procedure command" allowed with drive enable ("AF") 0: no 1: yes	
6-3	Reserved	

Bit	Designation/function	Comment
7	Permission for C0600 command Drive-controlled homing with absolute measuring system (valid for encoder 1 and optional (external) encoder) 0: no 1: yes	
15-8	Reserved	

Tab. 4-47: Relevant Bits of S-0-0448

S-0-0448 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Input	min./max.		Default value		
HDB:	--- / ---		s. Text		
HDC:	--- / ---		s. Text		
HDE:	--- / ---		s. Text		
HDP:	--- / ---		s. Text		
HDM:	--- / ---		s. Text		
HDS:	--- / ---		0x1		

4.4.25 S-0-0450, Data container A: Command value 2

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In parameter "S-0-0450, Data container A: Command value 2", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0490, Data container A: Configuration list command value 2".

See also Functional Description "Multiplex Channel"

Use If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0450, Data container A: Command value 2" is used. In order to use the data container, the parameter S-0-0450 has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0450 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---		Default value: ---		

4.4.26 S-0-0451, Data container A: Command value 3

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In parameter "S-0-0451, Data container A: Command value 3", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0491, Data container A: Configuration list command value 3".

See also Functional Description "Multiplex Channel"

Use If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0451, Data container A: Command value 3" is used. In order to use

the data container, the parameter [S-0-0451](#) has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0451 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.27 S-0-0452, Data container A: Command value 4

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In parameter "S-0-0452, Data container A: Command value 4", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0492, Data container A: Configuration list command value 4".

See also Functional Description "Multiplex Channel"

Use If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0452, Data container A: Command value 4" is used. In order to use the data container, the parameter [S-0-0452](#) has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0452 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.28 S-0-0453, Data container A: Command value 5

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In parameter "S-0-0453, Data container A: Command value 5", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0493, Data container A: Configuration list command value 5".

See also Functional Description "Multiplex Channel"

Use If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0453, Data container A: Command value 5" is used. In order to use the data container, the parameter [S-0-0453](#) has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0453 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.29 S-0-0454, Data container A: Command value 6

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»

S-0-0456 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.32 S-0-0460, Position switch point 1 "Off"

S-0-0460 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» Contained in 20VRS: «-» «-» «-» «-» «-» «-» Device parameter: axis-specific				
	Function	This parameter is used to define the deactivation position for a virtual position-dependent switch (cf. Adjusting the deactivation position by mechanical cams). If the position feedback value (S-0-0051) is higher than the deactivation position, the appropriate bit of "S-0-0059, Position switch flag parameter" indicates zero. Otherwise, it indicates "1" provided the position feedback value has not fallen below the value of "S-0-0060, Position switch point 1 "On"".				
	Function					
	Function					
	Function					
S-0-0460 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

4.4.33 S-0-0478, Position/travel range limit status

S-0-0478 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific Alias idn: P-0-0091				
	Function	This parameter displays the status of position limitation and travel range limit switch monitoring. The status of travel range limit switch monitoring is displayed even if monitoring has been deactivated.				
	Function	See also Functional Description of "Limitation/Travel Range Limit Switches"				
	Structure					
	Structure					
S-0-0478 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

Tab. 4-48: Relevant bits of P-0-0091

S-0-0478 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.34 S-0-0480, Data container A: Feedback value 2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function To parameter "S-0-0480, Data container A: Feedback value 2", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0500, Data container A: Configuration list feedback value 2".

If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0480, Data container A: Feedback value 2". In order to use the data container, the parameter S-0-0480 has to be entered in the list of cyclic data in phase 2 or PM.

See also Functional Description "Multiplex Channel"

S-0-0480 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.35 S-0-0481, Data container A: Feedback value 3

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function To parameter "S-0-0481, Data container A: Feedback value 3", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0501, Data container A: Configuration list feedback value 3".

See also Functional Description "Multiplex Channel"

Use If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0481, Data container A: Feedback value 3". In order to use the data container, the parameter S-0-0481 has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0481 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.36 S-0-0482, Data container A: Feedback value 4

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function To parameter "S-0-0482, Data container A: Feedback value 4", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0502, Data container A: Configuration list feedback value 4".

See also Functional Description "Multiplex Channel"

Use If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0482, Data container A: Feedback value 4". In order to use

the data container, the parameter [S-0-0482](#) has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0482 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.37 S-0-0483, Data container A: Feedback value 5

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function To parameter "[S-0-0483](#), Data container A: Feedback value 5", the drive copies the data of the source parameter which is addressed via "[S-0-0368](#), Data container A: Addressing" from "[S-0-0503](#), Data container A: Configuration list feedback value 5".

See also Functional Description "Multiplex Channel"

Use If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "[S-0-0483](#), Data container A: Feedback value 5". In order to use the data container, the parameter [S-0-0483](#) has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0483 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.38 S-0-0484, Data container A: Feedback value 6

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function To parameter "[S-0-0484](#), Data container A: Feedback value 6", the drive copies the data of the source parameter which is addressed via "[S-0-0368](#), Data container A: Addressing" from "[S-0-0504](#), Data container A: Configuration list feedback value 6".

See also Functional Description "Multiplex Channel"

Use If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "[S-0-0484](#), Data container A: Feedback value 6". In order to use the data container, the parameter [S-0-0484](#) has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0484 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.39 S-0-0485, Data container A: Feedback value 7

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	To parameter "S-0-0485, Data container A: Feedback value 7", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0505, Data container A: configuration list feedback value 7".					
	See also Functional Description "Multiplex Channel"					
Use	If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0485, Data container A: Feedback value 7". In order to use the data container, the parameter S-0-0485 has to be entered in the list of cyclic data in phase 2 or PM.					
S-0-0485 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: ---	

4.4.40 S-0-0486, Data container A: Feedback value 8

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:							axis-specific
Function	To parameter "S-0-0486, Data container A: Feedback value 8", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0506, Data container A: Configuration list feedback value 8".						
See also Functional Description "Multiplex Channel"							
Use	If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0486, Data container A: Feedback value 8". In order to use the data container, the parameter S-0-0486 has to be entered in the list of cyclic data in phase 2 or PM.						
S-0-0486 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

4.4.41 S-0-0490, Data container A: Configuration list command value 2

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	Parameter "S-0-0490, Data container A: Configuration list command value 2" serves to enter the IDNs which are transmitted in "S-0-0450, Data container A: Command value" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0490 is only possible in communication phase 2.						
	See also Functional Description "Multiplex Channel"						
Use	A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0490" are contained in the list "S-0-0188, List of configurable data in the MDT". If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.						



A maximum of 32 IDNs can be configured in [S-0-0490](#).

S-0-0490 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.4.42 S-0-0491, Data container A: Configuration list command value 3

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function Parameter "[S-0-0491](#)" serves to enter the IDNs which are transmitted in "[S-0-0451](#), Data container A: Command value 3" depending on the index in "[S-0-0368](#), Data container A: Addressing", low byte.

See also Functional Description "Multiplex Channel"

Use Writing to [S-0-0491](#) is only possible in communication phase 2. A check is run in the command "[S-0-0127](#), C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "[S-0-0491](#)" are contained in the list "[S-0-0188](#), List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in "[S-0-0491](#)".

S-0-0491 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.4.43 S-0-0492, Data container A: Configuration list command value 4

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function Parameter "[S-0-0492](#)" serves to enter the IDNs which are transmitted in "[S-0-0452](#), Data container A: Command value 4" depending on the index in "[S-0-0368](#), Data container A: Addressing", low byte. Writing to [S-0-0492](#) is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "[S-0-0127](#), C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "[S-0-0492](#)" are contained in the list "[S-0-0188](#), List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in [S-0-0492](#).

S-0-0492 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.44 S-0-0493, Data container A: Configuration list command value 5

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				

Function Parameter "S-0-0493" serves to enter the IDNs which are transmitted in "S-0-0453, Data container A: Command value 5" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0493 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0493" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0493.

S-0-0493 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.45 S-0-0494, Data container A: Configuration list command value 6

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				

Function Parameter "S-0-0494" serves to enter the IDNs which are transmitted in "S-0-0454, Data container A: Command value 6" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0494 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0494" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0494.

S-0-0494 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.46 S-0-0495, Data container A: Configuration list command value 7

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	Parameter "S-0-0495" serves to enter the IDNs which are transmitted in "S-0-0455, Data container A: Command value 7" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0495 is only possible in communication phase 2. See also Functional Description "Multiplex Channel"						
Use	A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0495" are contained in the list "S-0-0188, List of configurable data in the MDT". If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.						



A maximum of 32 IDNs can be configured in S-0-0495.

S-0-0495 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.47 S-0-0496, Data container A: Configuration list command value 8

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	Parameter "S-0-0496" serves to enter the IDNs which are transmitted in "S-0-0456, Data container A: Command value 8" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0496 is only possible in communication phase 2. See also Functional Description "Multiplex Channel"						
Use	A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0496" are contained in the list "S-0-0188, List of configurable data in the MDT". If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.						



A maximum of 32 IDNs can be configured in S-0-0496.

S-0-0496 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.48 S-0-0500, Data container A: Configuration list feedback value 2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function Parameter "S-0-0500" serves to enter the IDNs which are transmitted in "S-0-0480, Data container A: Feedback value 2" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0500 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0500" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0500.

S-0-0500 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: s. Text

4.4.49 S-0-0501, Data container A: Configuration list feedback value 3

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "S-0-0501" serves to enter the IDNs which are transmitted in "S-0-0481, Data container A: Feedback value 3" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0501 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0501" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0501.

S-0-0501 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: s. Text

4.4.50 S-0-0502, Data container A: Configuration list feedback value 4

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "S-0-0502" serves to enter the IDNs which are transmitted in "S-0-0482, Data container A: Feedback value 4" depending on the index in

"S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0502 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0502" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0500.

S-0-0502 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.51 S-0-0503, Data container A: Configuration list feedback value 5

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Parameter "S-0-0503" serves to enter the IDNs which are transmitted in "S-0-0483, Data container A: Feedback value 5" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0503 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0503" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0503.

S-0-0503 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.52 S-0-0504, Data container A: Configuration list feedback value 6

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Parameter "S-0-0504" serves to enter the IDNs which are transmitted in "S-0-0484, Data container A: Feedback value 6" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0504 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0504" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0504.

S-0-0504 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.4.53 S-0-0505, Data container A: Configuration list feedback value 7

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "S-0-0505" serves to enter the IDNs which are transmitted in "S-0-0485, Data container A: Feedback value 7" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0505 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0505" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0505.

S-0-0505 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.4.54 S-0-0506, Data container A: Configuration list feedback value 8

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "S-0-0506" serves to enter the IDNs which are transmitted in "S-0-0486, Data container A: Feedback value 8" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0506 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

Use A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0501" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in [S-0-0506](#).

S-0-0506 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.55 S-0-0520, Axis control word

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ActualValue.AxisControlWord					

Function The determinations for the selection of the actual position value are made with this parameter. The selection options depend on the active operation mode:

- Non-position-controlled operation modes
- Position-controlled operation modes

Selection of the position feedback values for non-position-controlled operation modes:

Operation mode	Code displayed in S-0-0292	Associated value of parameters S-0-0032...S-0-0035
Torque control	0x0001	0000.0000.0000.0001
Velocity control	0x0002	0000.0000.0000.0010
Direct valve control	0x0051	0000.0000.0101.0001

Tab. 4-49: Operation modes in which the active position feedback value (S-0-0386) can be selected directly via S-0-0520

See also functional description "Operation modes"

In torque and velocity control modes and in direct valve control, it can be defined whether the "S-0-0051, Position feedback value 1" or the "S-0-0053, Position feedback value 2" is to be displayed in "S-0-0386, Active position feedback value".

Bit	Designation/function	Comment
1/0	Selection of the position feedback value in non-position-controlled operation modes: 00 or 10: Encoder1 01: Encoder2 11: Hybrid actual position value for sum or redundancy (HDS only)	Hybrid actual position value, see also P-0-2936.0.1 (HDS only)

Tab. 4-50: Relevant Bits of S-0-0520, Axis control word for non-position-controlled operation modes

Selection of the position feedback value for non-position-controlled operation modes:

Operation mode	Code displayed in S-0-0292	Associated value of parameters S-0-0032 ... S-0-0035
Position control, drive-controlled	0x0305	0000.0011.0000.0101
Drive-controlled positioning	0x0215	0000.0010.0001.0101
Positioning block mode	0x0235	0000.0010.0011.0101
Drive-controlled interpolation	0x0315	0000.0011.0001.0101

Tab. 4-51: Operation modes where the active position feedback value can be cyclically selected by the master communication via [S-0-0520](#)

The position feedback value is selected in "[S-0-0520](#), Axis control word", while the acknowledgement, which position feedback value is in fact active in position control, is set in "[S-0-0521](#), Axis status word".

Bit	Designation/function	Comment
1/0	Selection of the position feedback value in position-controlled operation modes 00 or 10: Encoder1 01: Encoder2 11: Hybrid actual position value for sum or redundancy (HDS only)	Hybrid actual position value, see also P-0-2936.0.1 (HDS only)
2	Selection of the position control type 0: With lag 1: Lagless	Not implemented in HDS

Tab. 4-52: Relevant Bits of [S-0-0520](#), Axis control word



Operation modes where encoder 1 is invariably configured as position control encoder (... , encoder 1) do not allow any selection or switching of the actual position value via "[S-0-0520](#)"!

[S-0-0520](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

4.4.56 [S-0-0521](#), Axis status word

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.AxisStatusWord					

Function Up to firmware version 16VRS: Status word of position controller

In all operation modes the parameter displays current information relevant for position control in the active operation mode.

See also Functional Description "Operation modes"

Structure	Bit	Designation/function	Comment
	1/0	Encoder active in position control as 00: Encoder 1 01: Encoder 2 10: Encoder 1 (corresponds to "00") 11: Hybrid position control according to setting in P-0-2936.0.1	Encoder 2 und hybrid position control with HDS only
	2	Position control is ... 0: Subject to following distance 1: Lagless	Not implemented in HDS

Tab. 4-53: Relevant bits of the "S-0-0521, Axis status word"

Use Indication of the encoder active in position control

Encoder 1 is displayed as the active position control encoder if two different value pairs are set in bit 1/0. The selection of "Encoder 1" (bit 0 of "S-0-0520, Axis control word" or a position-controlled operation mode to "..., Encoder 1") has priority over the preselection shown by bit 1.

S-0-0521 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.57 S-0-0530, Clamping torque

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ForceGenerator.ForceClamping

Function This parameter can be used to limit the torque/force command value additionally at the positive stop to protect mechanical components in the drive train.

Use The parameter is effective in addition to further torque/force limit values when command "Positive stop drive procedure" ([S-0-0149](#)) is active and during homing at positive stop. The smallest value in terms of amount acts as blocking detection.

The parameter has a bipolar effect, i.e., the amounts of positive and negative command values are limited to the entered value, as far as it is the smallest of the limit values and a motor standstill was detected (check by means of P-0-0442/P-0-0443, Actual value torque limit negative (stationary)).

When the current torque/force limit value reaches this threshold, a positive acknowledgement is returned upon the "Positive stop drive procedure" command. With the "Drive-controlled homing procedure" command, the positive stop is recognized; the axis changes its direction of travel.

See also parameter description "[S-0-0086](#), Torque/force data scaling type"

S-0-0530 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: S-0-0086 / S-0-0086	Default value: 0,0

4.4.58 S-0-0531, Checksum of backup operation data

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function When this parameter is read, the checksum of the parameters listed in "S-0-0192, IDN-list of backup operation data" is generated via the active non-volatile memory.



In the list of parameter S-0-0192, the IDNs of those parameters are stored the values of which are axis-specific and for regular operation have to be loaded to the drive of the respective axis.

When an installation has been completely set up, the checksum for each drive can be read via parameter S-0-0531. These values can be stored by a control unit. It is thereby possible to compare the stored checksum to the new checksum which was read and find out whether operation-relevant data have changed.

S-0-0531 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.59 S-0-0532, Travel range limit parameter

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-0090					

Function This parameter serves to define the signal behavior of the travel range limit switch inputs and the behavior of the drive with regard to travel range exceedance.

See also Functional Description "Position limitation/travel range limit switches"

See also Functional Description "Digital inputs/outputs"

Structure

Bit	Designation/function	Comment
0	Signal behavior of travel range limit switch inputs 0: Not inverted, 24 V $\Rightarrow$ travel range exceeded 1: Inverted, 0 V $\Rightarrow$ travel range exceeded	
1	Activation of travel range limit switches 0: No 1: Yes Digital inputs must be assigned to bit 0 and bit 1 of parameter "P-0-0222". Otherwise, the bit cannot be written in the operating mode.	
2	Handling of travel range exceedance 0: As an error (according to error reaction) 1: As a fatal warning (deceleration)	

Tab. 4-54: Relevant bits of S-0-0532, Travel range limit parameter

S-0-0532 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0x0 / 0x7			Default value: 0x0	

4.4.60 S-0-0534, Maximum torque/force

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	ActualValue.ForceLimitMax					

Function

The maximum torque or the maximum force of the drive can be entered in this parameter.



The value of "S-0-0534, Maximum torque/force of motor" determines the maximum torque or maximum force for the simulation encoder (position simulation) and corresponds to the nominal force of torque/force scaling.

See also Functional Description "Torque/force control"

The drive firmware automatically adjusts the unit and decimal places to the type of construction (rotary or linear) entered in P-0-4014, Type of construction of motor/cylinder.

S-0-0534 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Nm	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

Input	min./max.	Default value
HDB:	--- / ---	100000,000
HDC:	--- / ---	100000,000
HDE:	--- / ---	100000,000
HDP:	--- / ---	100000,000
HDM:	--- / ---	100000,000
HDS:	--- / ---	100,000

4.4.61 S-0-0535, Active velocity feedback value

Allocation	Contained in 16VRS: «HDS»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC» «HDS»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»						
	Device parameter: axis-specific Property name: ActualValue.ActVel						
Function	The value of parameter "S-0-0535" always displays the current velocity of the encoder which is set in the active operation mode. Depending on the set operation mode, the active velocity feedback value can either correspond to parameter "S-0-0040, Velocity feedback value" or to parameter "S-0-0156, Velocity feedback value 2" or to a mixed value. See also Functional Description "Velocity Control"						
S-0-0535 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 S-0-0046	/
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value:	---	

4.4.62 S-0-0536, Active acceleration feedback value

Allocation	Contained in 16VRS: «HDS»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC» «HDS»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»						
	Device parameter: axis-specific Property name: ActualValue.ActAcc						
Function	The value of parameter "S-0-0536" always indicates the current acceleration of the encoder which is set in the active operation mode. Depending on the set operation mode, the active actual acceleration value may either correspond to parameter "S-0-0164, Actual acceleration value 1" or parameter "S-0-0195, Actual acceleration value 2" or a mixed value. See also Functional Description "Velocity control"						
S-0-0536 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0160	Extr. val. ch.:	--	Decim. pl.:	S-0-0161 S-0-0162	/
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value:	---	

4.4.63 S-0-0550, Torque/force command value, positive

Allocation	Contained in 16VRS: «-»						
	Contained in 17VRS: «-»						
	Contained in 18VRS: «-» «-» «-»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»						
	Device parameter: axis-specific Property name: ForceGenerator.ForceLimitPositive						
Function	Force command value for alternating control in positive direction of force.						
Use	The parameter is effective only in conjunction with "P-0-2854, Force controller changeover logic control word", bit 3 "alternating control allowed in positive direction of force".						
S-0-0550 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 S-0-0094	/
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	

HDx:	min./max.: --- / ---	Default value: 0,0

4.4.64 S-0-0551, Torque/force command value, negative

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
Property name:		ForceGenerator.ForceLimitNegative				
Function	Force command value for alternating control in negative direction of force.					
Use	The parameter is effective only in conjunction with “P-0-2854, Force controller changeover logic control word”, bit 4 "alternating control allowed in negative direction of force".					
S-0-0551 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0,0

4.4.65 S-0-0552, Torque/force feedback value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.ActForce					
Function	The respective current actual torque/force value is displayed. This may differ due to the measuring method and/or configuration of the axis.						
Use	In the case of differential pressure measurement, the current actual torque/force value is calculated using the following formula:						
$F = p_A * A_A - p_B * A_B$							
<i>Fig. 4-12: Calculation of the actual torque/force value</i> The actual pressure value can also be measured directly by means of a load cell. The measuring method can be selected via the "Force control parameter", P-0-2830.							
 The difference is updated in parameter S-0-0084. S-0-0084 can, however, only display values with 2 bytes. S-0-0084 is limited accordingly.							
S-0-0552 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	

HDx:	min./max.: --- / ---	Default value: ---

4.4.66 S-0-0553, Torque/force command value ramp

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Ramp slope for parameters "S-0-0550, Torque/force command value, positive" and "S-0-0551, Torque/force command value, negative".

Use When a new value is entered, the value can be cross-faded from "S-0-0550, Torque/force command value, positive" and from "S-0-0551, Torque/force command value, negative" with the help of a ramp.

With a ramp of "0", the change takes place abruptly.

S-0-0553 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0086 / S-0-0086 **Default value:** 0,0

4.4.67 S-0-0600.x.1, Encoder status

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	ENC-Profil
	Device parameter:	device-specific
	Alias idn:	P-0-2768, P-0-2771

Function This parameter contains the status information of the encoder.

Structure

Bit	Designation/function	Comment
0	Type of design 1: Linear 0: Rotary	
2/1	Reserved	
3	Direction of motion 1: Inverted 0: Not inverted	
4	Reserved	
5	Position status 1: Correctly initialized 0: Not correctly initialized	
6	Mark status 1: Reference mark position is valid 0: Reference mark position is invalid	
7	Mark signal 1: Reference mark detected ¹⁾ 0: No reference mark detected	
8	Mark detection 1: Active 0: Not active	
9	Cyclic mark detection 1: Active 0: Not active	

Bit	Designation/function	Comment
10	Reserved	
11	Reserved	
12	Encoder warning 1: Warning active 0: No warning active	
13	Encoder error 1: Error 0: No error	
15/14	Ready for operation 11: Ready for operation 10: Reserved 01: Reserved 00: Not ready for operation	
1) The associated mark position is entered in parameter S-0-0600.x.10		

Tab. 4-55: S-0-0600.000.001, Encoder status

Use



The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

[S-0-0600.0.1](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.68 S-0-0600.x.2, Position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	ENC-Profil
Device parameter:	device-specific	
	Alias idn: P-0-2770 , P-0-2773	
Function	This parameter contains the status position (unscaled) of the encoder as 32-bit value with the resolution defined in " S-0-0601.x.2 ".	



When exceeding the representable range of values, the position flows over (0xFFFF.FFFF <=> 0x0000.0000), if [S-0-0601.x.10](#) contains the value "0". Otherwise, the position flows over at the value defined in "[S-0-0601.x.10](#)".

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

[S-0-0600.0.2](#) - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.69 S-0-0600.x.10, Marker position

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	ENC-Profil				
Device parameter:	device-specific				
Alias idn:	P-0-2769 , P-0-2772				

Function

This parameter contains the position, which was saved at the reference mark, in increments with the resolution defined in "[S-0-0601.x.2](#)".

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

[S-0-0600.0.10](#) - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.70 S-0-0600.x.136, Extended diagnostic message

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	ENC-Profil					
	Device parameter:	device-specific					
	Alias idn:	P-0-3718, P-0-3719					

Function The parameter contains detailed diagnostics, if an error is detected in the evaluation.

Structure

Bit	Designation/function	Comment
0	Amplitude error 0: No error 1: Error	With analog encoder signals only
1	Encoder alarm 0: No error 1: Error	Internal encoder error, manufacturer-specific
2	Quadrant error 0: No error 1: Error	With analog encoder signals only
3	Telegram failure 0: No error 1: Error	2 telegram failures in succession
4	Telegram error 0: No error 1: Error	CRC or protocol checksum
5	Cable break 0: No error 1: Error	
6	Supply voltage encoder 0: No error 1: Error	
7-31	Reserved	

Tab. 4-56: S-0-0600.x.136, Extended diagnostic message

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0600.0.136 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.71 S-0-0601.x.1, Encoder data out configuration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	ENC-Profil	
Device parameter:	device-specific	

Function The user can set the output resolution in [S-0-0601.x.2](#) (in order to reduce the calculated resolution, for example). This has to be determined in parameter [S-0-0601.x.1](#): If bit 0 is set, the value entered in PM is used for the output resolution, otherwise, the resolution is calculated in the transition command PM-OM (any value entered before is then overwritten).

Bit	Designation/function	Comment
0	Configuration of output resolution 0: Calculate output resolution automatically 1: Use value entered	
15-1	Reserved	

Tab. 4-57: S-0-0601.x.1, Encoder data out configuration

Use

The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

S-0-0601.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

4.4.72 S-0-0601.x.2, Resolution of position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	ENC-Profil					
Device parameter:	device-specific					

Function This parameter specifies the position resolution of Basic encoder evaluation. The resolution is indicated according to the design variant (see "S-0-0602.x.2"):

- in incr./rev. for rotary measuring systems
- in nanometers/incr. for linear measuring systems



In standard cases, the resolution is calculated and set by firmware. If parameter "S-0-0601.x.1; bit 0" is set, the user can enter a value in "S-0-0601.x.2" in PM, which will be used as output resolution.

The resolution is defined so that the absolute encoder range can be represented within 32 bits. The absolute position range may possibly be reduced by any changes in resolution made by the user.

Use



The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

S-0-0601.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---				Default value: 0

4.4.73 S-0-0601.x.6, Absolute position range

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»					«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	ENC-Profil					
	Device parameter:	device-specific					

Function This parameter specifies the maximum absolutely evaluable travel range which is supported by (Basic) encoder evaluation.

The travel range is specified as follows:

- in revolutions for rotary measuring systems
- in millimeters for linear measuring systems

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0601.0.6 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

4.4.74 S-0-0601.x.7, Velocity limit

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	ENC-Profil
	Device parameter:	device-specific

Function This parameter defines the maximum allowed velocity of the encoder. If this velocity is exceeded, the signals of the encoder cannot be correctly processed.

The travel range is specified:

- in rpm for rotary measuring systems
- in mm/min for linear measuring systems

S-0-0601.0.7 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	rpm	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 30000

4.4.75 S-0-0601.x.10, Overflow threshold position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	ENC-Profil
	Device parameter:	device-specific

Function This parameter specifies the value in increments, at which the position of the Basic encoder evaluation jumps to 0. The value is determined and set by firmware.

Use

The structure index is used to define the interface.

Economy:

Structure index	Significance
1	X4 (preferred slot for encoder 1)

Basic:

Structure index	Significance
1	X4 (preferred slot for encoder 1 (for complex actuator motor encoders))
2	X8 (additional slot)

Advanced:

Structure index	Significance
1	X4 (preferred slot for encoder 1 (for complex actuator motor encoders))
2	X8 (additional slot)
3	Not permitted
4	X10 (additional slot)

Double-axis:

Structure index	Significance
1	X4.1 (preferred slot for encoder 1 axis 1 (for complex actuator motor encoders))
2	X4.2 (preferred slot for encoder 1 axis 2 (for complex actuator motor encoders))
3	X8 (additional slot)
4	Not permitted
5	Not permitted
6	X10 (additional slot)

Multi-axis:

Structure index	Significance
1	X4.1 (preferred slot for encoder 1 axis 1 (for complex actuator motor encoders))
2	X4.2 (preferred slot for encoder 1 axis 2 (for complex actuator motor encoders))
3	X4.3 (preferred slot for encoder 1 axis 3 (for complex actuator motor encoders))
4	X4.4 (preferred slot for encoder 1 axis 4 (for complex actuator motor encoders))
5	X8 (option 5) for encoder 2 only

S-0-0601.0.10 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

4.4.76 S-0-0601.x.11, Encoder available data out**Allocation**

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»

Hardware ENC-Profil
Device parameter: device-specific

Function This parameter specifies the available encoder output data of the Basic encoder evaluation.

Structure

Bit	Designation/function	Comment
15-14	Mark position 11: Both options available 10: Separate mark position available 1: No separate mark position available 00: No mark position available	
13	Acceleration: 1: Acceleration available as 32-bit value 0: No acceleration value available	
12	Velocity: 1: Velocity available as 32-bit value 0: No velocity value available	
11-10	Position: 11: Position available as 64-bit and 32-bit value 10: Position available as 64-bit value 01: Position available as 32-bit value 00: No position value available	
9-0	Reserved	

Tab. 4-58: S-0-0601.x.11, Encoder available data out

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0601.0.11 - Attributes

Function: Par	Editable: PM	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- **Default value:** 0x400

4.4.77 S-0-0601.x.12, Encoder refresh time data out

Allocation

Contained in 16VRS:	«-»
Contained in 17VRS:	«-»
Contained in 18VRS:	«-»
Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»

Hardware ENC-Profil
Device parameter: device-specific

Function This parameter specifies the time interval in microseconds after which the Basic encoder evaluation supplies new "encoder output data".

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0601.0.12 - Attributes

Function: Par	Editable: PM	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV
Unit: us	Extr. val. ch.: --	Decim. pl.: 3
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- **Default value:** 0,000

4.4.78 S-0-0602.x.1, Phys. encoder type

Allocation

Contained in 16VRS:	«-»
Contained in 17VRS:	«-»
Contained in 18VRS:	«-»
Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	ENC-Profil
Device parameter:	device-specific

Function

This parameter specifies the encoder type of the physical encoder.

Structure

Value	Encoder type	Comment
0	No encoder No encoder	Encoder evaluation deactivated
1	Encoder with sine signals (1 Vpp, 5 V supply)	
2	Encoders with square-wave signals (TTL, 5 V supply)	
101	Encoder with EnDat 2.2 interface (Heidenhain) 100 kHz ... 1 MHz, 5V supply)	
102	Encoders with SSI interface 80 kHz ... 1 MHz, 24 V supply)	

Tab. 4-59: S-0-0602.x.1, Phys. encoder type

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0602.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.4.79 S-0-0602.x.2, Phys. encoder properties

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	ENC-Profil	
Device parameter:	device-specific	

Function This parameter specifies the properties of the physical encoder.

Structure

Bit	Designation/function	Comment
0	Type of execution: 0: Rotary 1: Linear	
1	Definition of marks 0: Simple marks 1: Distance-coded marks	
2	Unit of absolute measuring system (S-0-0602.x.4): Rotary: Bit not active, unit is always incr/rev Linear: 0: mm 1: Incr/mm	Only active if bit 0 = 1 (linear)
3	Direction of motion: 0: Not inverted 1: Inverted	
4	Reserved	
5	Direction of counting of distance-coded marks: 0: Positive direction of counting (HH standard) 1: Negative direction of counting	
15-6	Reserved	

Tab. 4-60: S-0-0602.x.2, Phys. encoder properties

Use

The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

S-0-0602.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x1

4.4.80 S-0-0602.x.4, Phys. encoder resolution

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	ENC-Profil
	Device parameter:	device-specific

Function This parameter specifies the resolution of the encoder.

The resolution is specified as follows:

- **Rotary encoder:** Number of increments per shaft revolution (incr/rev)
- **Linear encoder:** Resolution in mm (mm/incr) or incr/mm (is defined by bit 2 in [S-0-0602.x.2](#)).

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0602.0.4 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 1000

4.4.81 S-0-0602.x.5, Phys. distance-coded reference offset A

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	ENC-Profil
	Device parameter:	device-specific

Function If a distance-coded incremental encoder is used, the greater distance (division period) of the distance-coded reference marks is entered in this parameter.

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0602.0.5 - Attributes

Function: Par	Editable: PM	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- **Default value:** ---

4.4.82 S-0-0602.x.6, Phys. distance-coded reference offset B

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	ENC-Profil
	Device parameter:	device-specific

Function If a distance-coded incremental encoder is used, the smaller distance (division period) of the distance-coded reference marks is entered in this parameter.

Use



The structure index is used to determine the interface.

Proportional and high-response valve IAC-2x:

Structure index	Meaning
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Meaning
1	Connector XG20
2	Connector XG21

S-0-0602.0.6 - Attributes

Function: Par	Editable: PM	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- **Default value:** ---

4.4.83 S-0-0602.x.7, Phys. encoder protocol configuration

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	ENC-Profil					
	Device parameter:	device-specific					
Function	This parameter serves to configure the encoder interface (transmission protocol) between the control section and the physical encoder.						
Structure	 The assignment is defined with regard to the specific interface in dependence on "S-0-0602.x.1, Phys. encoder type".						

EnDat 2.2 interface:

Bit	Designation/function	Comment
31-28	Reserved	
27-24	Baud rate: 0x7: 1000 kHz 0x6: 500 kHz 0x5: 400 kHz 0x4: 250 kHz 0x3: 200 kHz 0x2: 125 kHz 0x1: 100 kHz	
23-12	Reserved	
11-8	Number of position bits, multi-turn: 1111: 15 bits ... 1100: 12 bits ... 0001: 1 bit 0000: 0 bits	Set by the firmware!
7	Reserved	
6-0	Number of position bits: 1001000: 48 bits ... 0100000: 32 bits 0001100: 12 bits ... reserved 0000001: 1 bit 0000000: 0 bits	Rotary measuring systems: Number of single-turn position bits plus number of multi-turn position bits Linear measuring systems: Number of position bits Set by the firmware!

Tab. 4-61: S-0-0602.x.7, Phys. encoder protocol configuration for encoders with EnDat2.2 interface

SSI interface:

Standard parameters

Bit	Designation/function	Comment
31-28	Reserved	
27-24	Baud rate: 0x7: 1000 kHz 0x6: 500 kHz 0x5: 400 kHz 0x4: 250 kHz 0x3: 200 kHz 0x2: 125 kHz 0x1: 100 kHz 0x0: 80 kHz	
23-22	Telegram structure: 00: Telegram 1 01: Telegram 2	
21	Reserved	
20	Coding: 1: Binary code 0: Gray code	
19	Reserved	
18-16	Number of error bits: 111: 7 bits ... 001: 1 bit 000: 0 bits	
15	Reserved	
14-12	Number of protocol checksum bits: 111: 7 bits ... 001: 1 bit 000: 0 bits	
11-8	Number of position bits, multi-turn: 1111: 15 bits ... 1100: 12 bits ... 0001: 1 bit 0000: 0 bits	

Bit	Designation/function	Comment
7	Reserved	
6-0	Number of position bits 0011111: 31 bits ... 0001100: 12 bits ... 0000001: 1 bit 0000000: 0 bits	Rotary measuring systems: Number of single-turn position bits plus number of multi-turn position bits Linear measuring systems: Number of position bits

Tab. 4-62: S-0-0602.x.7, "Phys. encoder protocol configuration" for encoders with SSI interface

Use



The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

S-0-0602.0.7 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x4000018

4.4.84 S-0-0602.x.8, Phys. max. initialization speed

Allocation

Contained in 16VRS:	«-»
Contained in 17VRS:	«-»
Contained in 18VRS:	«-» «-»
Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	ENC-Profil
Device parameter:	device-specific

Function

In this parameter, the maximum initialization speed is entered.

The initialization speed is indicated according to the design variant (see [S-0-0602.x.2](#)):

- in rpm for rotary measuring systems
- in mm/mm/min for linear measuring systems

Use



The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

S-0-0602.0.8 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.85 S-0-0602.x.9, Phys. absolute position range

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	ENC-Profil					
Device parameter:	device-specific					

Function In this parameter, the physical maximum position range of the encoder is specified. Depending on the design type, see [S-0-0602.x.2](#), Phys. encoder properties, the traversing range is given in:

- Revolutions for rotary measuring systems
- In millimeters for linear measuring systems

The parameter value is read from the encoder memory. If, for linear encoders without encoder memory, no scale length was entered in [S-0-0602.x.9](#), Phys. absolute position range (default value 0 in the parameter), the maximum position range that can be displayed is calculated and shown on the basis of the maximum resolution physically possible according to [S-0-0601.x.2](#), Resolution of position.

Use

The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

S-0-0602.0.9 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

4.4.86 S-0-0602.x.136, Phys. encoder evaluation configuration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	ENC-Profil					
Device parameter:	device-specific					

Function The parameter serves to control initialization and evaluation functions. It can be used to activate/deactivate various initialization and monitoring functions in accordance with the specific encoder used.

Structure

Bit	Designation/function	Comment
0	Reserved	
1	reference mark Monitoring of reference marks Monitoring of the advancing position (incremental signals) via comparison with cyclic reference marks 0: Monitoring activated 1: Monitoring deactivated	
2-13	Reserved	
14	Encoder supply provided via 0: Drive 1: External supply	External supply also causes a deactivation of monitoring functions for supply voltages
15	Monitoring of encoder signals 0: Monitoring activated 1: Monitoring deactivated	

Tab. 4-63: S-0-0602.x.136, Phys. encoder resolution configuration

Use

The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

Control cabinet electronics HMC:

Structure index	Significance
1	Connector XG20
2	Connector XG21

S-0-0602.0.136 - Attributes

Function: Par	Editable: PM	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- **Default value:** 0x0

4.4.87 S-0-0603.x.3, Phys. encoder input signal A

Allocation

Contained in 16VRS:	«-»
Contained in 17VRS:	«-»
Contained in 18VRS:	«-» «-» «-»
Contained in 20VRS:	«HDB» «-» «-» «HDP» «-» «-»
Device parameter:	device-specific

Function

This parameter shows the current, analog/digital-converted voltage value, which is applied at the differential input of track A of the connected encoder.

Use



The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

S-0-0603.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.88 S-0-0603.x.4, Phys. encoder input signal B

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»		«-»		
Contained in 20VRS:	«HDB»	«-»	«-»	«HDP»	«-»	«-»
Device parameter:	device-specific					

Function

This parameter shows the current, analog/digital-converted voltage value, which is applied at the differential input of track B of the connected encoder.

Use



The interface is determined via the structure index.

Proportional and high-response valve IAC-2x:

Structure index	Significance
1	Connector X8M

S-0-0603.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.89 S-0-0610.x.1, Encoder status (input)

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»		«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					
Alias idn:	P-0-2786					

Function

This parameter contains the status information of the encoder.

Structure

Bit	Designation/function	Comment
0	Type of design 1: Linear 0: Rotary	
2	Mark detection (cyclic) 1: Active 0: Not active	

Bit	Designation/function	Comment
3	Mark status 1: Reference mark sensed correctly 0: Incorrect reference mark	
4	Mark signal 1: Reference mark recognized ¹⁾ 0: No reference mark detected	
5	Position status 1: Correctly initialized 0: Not correctly initialized	
12	Encoder warning 1: Error 0: No error	
13	Encoder error 1: Error 0: No error	
15/14	Ready for operation 11: Ready for operation 10: Reserved 01: Reserved 00: Not ready for operation	
¹⁾ The associated mark position is entered in parameter S-0-0600.x.10		

Tab. 4-64: S-0-0610.x.1, Encoder status (input)

Use



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-65: Determination of structure index

S-0-0610.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.90 S-0-0610.x.2, Position unscaled (input)

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					
Alias idn:	P-0-2788					

Function This parameter contains the status position (unscaled) of the encoder as 32-bit value with the resolution defined in "S-0-0611.x.2, Resolution position (input)".



When exceeding the representable range of values, the position flows over (0xFFFF.FFFF <=> 0x0000.0000), if "S-0-0611.x.10" contains the value "0". Otherwise, the position flows over at the value defined in "S-0-0611.x.10".

Use



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-66: Determination of structure index

S-0-0610.0.2 - Attributes

Function: Par	Editable: --	Data length: 4Byte
Memory: --	Validity ch.: --	Format: DEC_OV
Unit: Incr	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --
HDx:	min./max.: --- / ---	Default value: ---

4.4.91 S-0-0610.x.10, Marker position not scaled (input)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-2787

Function The parameter displays the mark position (32Bit), which is recognized when a reference mark is overrun while mark evaluation is activated. The mark position refers to the position generated in "S-0-610.0.2".

S-0-0610.0.10 - Attributes

Function: Par	Editable: --	Data length: 4Byte
Memory: --	Validity ch.: --	Format: DEC_OV
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --
HDx:	min./max.: --- / ---	Default value: ---

4.4.92 S-0-0611.x.1, Encoder data out configuration (input)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Structure This parameter specifies the setting of the encoder output data.

Bit	Designation/function	Comment
15-8	Reserved	
7-0	Standard telegrams: 0000 0000: Standard telegram 0	

Tab. 4-67: S-0-0611.0.1, Encoder data out configuration (input)

Structure of standard telegrams:

Bit	Designation
47-32	Status (16 bits)
31-0	Position (32 bits)

Tab. 4-68: Parameter content for standard telegram 0

Use



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-69: Determination of structure index

S-0-0611.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x0

4.4.93 S-0-0611.x.2, Resolution position (input)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter specifies the resolution of the position. The resolution is indicated according to the design variant (see S-0-0601.x.1):

- In incr./rev. for rotary measuring systems
- In nanometers/incr. for linear measuring systems

Use



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-70: Determination of structure index

S-0-0611.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

4.4.94 S-0-0611.x.6, Absolute position range (input)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter specifies the maximum, absolutely evaluable travel range which is supported by the encoder.

The travel range is specified as follows:

- Use
- In revolutions for rotary measuring systems,
 - In millimeters for linear measuring systems



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-71: Determination of structure index

S-0-0611.0.6 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

4.4.95 S-0-0611.x.10, Overflow threshold position (input)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter specifies the value in increments, at which the position of the Basic encoder evaluation jumps to 0.

Use



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-72: Determination of structure index

S-0-0611.0.10 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

4.4.96 S-0-0611.x.11, Encoder available data out (input)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter specifies the available encoder output data.

Structure	Bit	Designation/function	Comment
	15-14	Marker position 11: Both options available 10: Separate marker position available 01: No separate marker position available 00: No marker position available	
	13	Acceleration: 1: Acceleration available as 32-bit value 0: No acceleration value available	
	12	Velocity: 1: Velocity available as 32-bit value 0: No velocity value available	
	11-10	Position: 11: Position available as 64-bit and 32-bit value 10: Position available as 64-bit value 01: Position available as 32-bit value 00: No position value available	
	9-0	Reserved	

Tab. 4-73: S-0-0611.0.11, Encoder available data out (input)

Use



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-74: Determination of structure index

S-0-0611.0.11 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0x400

4.4.97 S-0-0611.x.12, Encoder refresh time data out (input)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter specifies the time interval in microseconds, after which the encoder supplies new encoder output data.

Use



The encoder function is determined via the structure index.

Structure index	Significance
1	Encoder 1
2	Encoder 2

Tab. 4-75: Determination of structure index

S-0-0611.0.12 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,000	

4.4.98 S-0-0800, Pressure command value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In the "pressure control" operation mode the command value is generated directly by the control unit and entered in this parameter.

Use A further value ([S-0-0801](#), Additive Pressure command value) can be added to the pressure command value ([S-0-0800](#)). Before the sum of both values is transmitted to the pressure controller, several limit values act on it. The unit of the parameter depends on the settings in parameter "[S-0-0806](#), Pressure data scaling type".

S-0-0800 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0806 / S-0-0806			Default value: ---	

4.4.99 S-0-0801, Pressure command value additive

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function By means of this parameter, the master can have a pressure value added in the controller depending on the process.

Use Before the sum of both values is transmitted to the pressure controller, several limit values act on it. The unit of the parameter depends on the settings in parameter "[S-0-0806](#), Pressure data scaling type".

S-0-0801 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0806 / S-0-0806			Default value: ---	

4.4.100 S-0-0802, Bipolar pressure limit value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter can be used to limit the pressure command value to allowed maximum values.

Use The parameter has a bipolar effect, i.e., positive and negative command values are limited to the entered value. The limitation acts on the sum of all pressure command values. The unit of "S-0-0802" depends on the scaling that has been set. If the actual pressure value is higher than the limit value, the message "Actual pressure value greater than pressure limit value" (S-0-0830) is issued.

S-0-0802 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0806 / S-0-0806			Default value: s. Text	

4.4.101 S-0-0803, Pressure feedback value A

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ActualValue.ActPressureA				

Function This parameter contains the current actual pressure value of chamber A. The unit for the values of this parameter depends on the scaling that has been set in "S-0-0806, Pressure data scaling type".

S-0-0803 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.102 S-0-0804, Pressure feedback value B

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ActualValue.ActPressureB				

Function This parameter contains the current actual pressure value of chamber B. The unit for the values of this parameter depends on the scaling that has been set in "S-0-0806, Pressure data scaling type".

S-0-0804 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.103 S-0-0805, Pressure polarity parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter can be used to invert the polarities of the specified pressure data. The polarities are switched over outside the controlled system, i.e. at the input and output of the controlled system.



The polarity of pressure must be determined during initial commissioning of an axis.

Structure

See also functional description "Scaling of physical data"

Bit	Designation/function	Comment
0	Pressure command value 0: Positive polarity 1: Negative polarity	
1	Additive pressure command value 0: Positive polarity 1: Negative polarity	
2	Pressure feedback value 0: Positive polarity 1: Negative polarity	

Tab. 4-76: S-0-0805, Pressure polarity parameter



Bits 1 and 2 are copies of bit 0. Only changes in bit 0 are effective. Different settings of the individual bits are not possible!



Switching over of the polarity does not affect the pressure parameters with absolute reference such as [S-0-0803](#), [S-0-0804](#), [S-0-0813](#), [S-0-0814](#), [S-0-0831](#), [S-0-0832](#).

S-0-0805 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0x0 / 0x7			Default value: 0x0	

4.4.104 S-0-0806, Pressure data scaling type

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function This parameter can be used to set the unit and the reference of the pressure data of a drive.

- Preferred scaling [bar, psi]
- Parameter scaling

Structure	Bit	Designation/function	Comment
	2-0	Scaling type 0 0 0: In percent 0 0 1: Pressure scaling	
	3	Scaling type 0: Preferred scaling 1: Parameter scaling	
	4	Unit for pressure data 0: bar 1: psi (pound force square inch)	
	15 - 5	Reserved	

Tab. 4-77: Structure

Use If preferred scaling is selected (bit 3 = 0), the following parameters are predefined and cannot be changed:

- [S-0-0807](#), Pressure data scaling factor
- [S-0-0808](#), Pressure data scaling exponent

If parameter scaling is selected, the desired parameter values must be entered for scaling. The permissible maximum value than can be entered for parameters with pressure scaling is determined by means of "[P-0-2875.0.4](#)".

S-0-0806 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: 0x41 / 0x41 Default value: 0x41

4.4.105 S-0-0807, Pressure data scaling factor

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter and parameter "[S-0-0808](#), Pressure data scaling exponent" are used to define the scaling factor and the decimal format (decimal place) of the pressure parameters when parameter scaling ([S-0-0806](#)) is used.

If preferred scaling is selected in "[S-0-0806](#), Pressure data scaling type", the drive sets the values in "[S-0-0807](#)" and "[S-0-0808](#)" automatically.

See also functional description "Scaling of physical data"

Use The following determinations are valid for preferred scaling:

- 1. Unit [bar] of preferred scaling = $1 \cdot 10^{-3}$ bar
[S-0-0807](#) = 1
[S-0-0808](#) = -3
- 2. Unit [psi] of preferred scaling = $1 \cdot 10^{-2}$ psi
[S-0-0807](#) = 1
[S-0-0808](#) = -2

S-0-0807 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 1 / 65535			Default value: 1	

4.4.106 S-0-0808, Pressure data scaling exponent

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				

Function This parameter and parameter "S-0-0807, Pressure data scaling factor" are used to define the scaling factor and the decimal format (decimal place) of the pressure data parameters when parameter scaling (S-0-0806) is used.

See also functional description "Scaling of physical data"

Use If preferred scaling is selected in "S-0-0806, Pressure data scaling type", the drive sets the values in "S-0-0807" and "S-0-0808" automatically.

- 1. Unit [bar] of preferred scaling = $1 \cdot 10^{-3}$ bar

S-0-0807 = 1

S-0-0808 = -3

- 2. Unit [psi] of preferred scaling = $1 \cdot 10^{-2}$ psi

S-0-0807 = 1

S-0-0808 = -2

S-0-0808 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -6 / 0			Default value: ---	

4.4.107 S-0-0809, Pressure feedback value

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				

Function Parameter displaying the currently effective pressure feedback value. The pressure feedback value is calculated from actual pressure value A and B. If actual pressure value B is the reference, the feedback pressure value (S-0-0809) has a negative sign.

The unit for the values of this parameter depends on the scaling that has been set (S-0-0806, Pressure data scaling type).

S-0-0809 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.108 S-0-0810, Pressure ramp time

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Device parameter:	axis-specific				

Function The pressure ramp time is the reference time for the pressure ramp. In the "pressure control" operation mode this parameter defines a slope for the pressure command value.

The ramp time can be entered in steps of 0.1 ms.

S-0-0810 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: --- / --- **Default value:** 0,0

4.4.109 S-0-0811, Pressure ramp reference

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In the "Pressure control" operation mode, the value of this parameter and the pressure ramp time (S-0-0810) are used to calculate the ramp for the pressure command value. The value of "S-0-0811" is scaled according to the scaling type for pressure data set in "S-0-0806, Pressure data scaling type".

S-0-0811 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: S-0-0806 / S-0-0806 **Default value:** 1000,0

4.4.110 S-0-0813, System pressure

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.ActSystemPressure

Function The parameter shows the current pressure of the hydraulic power unit. The unit of the parameter depends on the settings in parameter "S-0-0806, Pressure data scaling type".

S-0-0813 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0806 / S-0-0806 **Default value:** 0,0

4.4.111 S-0-0814, Tank pressure

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.ActTankPressure

Function The parameter shows the current pressure of the hydraulic tank.
The unit of the parameter depends on the settings in parameter "S-0-0806, Pressure data scaling type".

S-0-0814 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV

Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0,0	

4.4.112 S-0-0815, Pilot Pressure

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»
Hardware	Pilot Pressure					
Device parameter:	axis-specific					
Function	The parameter lists the pilot pressure. The pressure that is required to operate a pilot operated valve. The pilot pressure can be, but has not to be identical to the system pressure.					
Use	The pilot pressure can be monitored with the help of the pilot pressure monitoring function.					
S-0-0815 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0,0		

4.4.113 S-0-0819, Cylinder stroke

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ForceControl.CylinderStroke					
Function	The cylinder length is required to establish the normalization of force to velocity. This is represented in "P-0-2845.0.2".					
Use	If no force control is required, this parameter is not necessary. In case that the cylinder length is not known, but force control is required, this value may be estimated. Then you have to enter it in "P-0-2845.0.1".					
S-0-0819 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 1000,0000		

4.4.114 S-0-0820, Piston area A

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ActualValue.PistonAreaA					
Function	Piston area A of the hydraulic cylinder is the reference value for pressure feedback value A when the actual force value is calculated. The actual force value is calculated from the following parameters:					
	- S-0-0803, Pressure feedback value A - S-0-0804, Pressure feedback value B - S-0-0820, Piston area A					

- [S-0-0821](#), Piston area B

This piston area is also required for calculating "[P-0-2845.0.2](#)".

S-0-0820 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	mm ²	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,000 / 4000000,000	1000,000
HDC:	0,000 / 4000000,000	1000,000
HDE:	0,000 / 4000000,000	1000,000
HDP:	0,000 / 4000000,000	1000,000
HDM:	0,000 / 4000000,000	1000,000
HDS:	--- / ---	0,000

4.4.115 S-0-0821, Piston area B

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	ActualValue.PistonAreaB	

Function Piston area B of the hydraulic cylinder is the reference value for pressure feedback value B when the actual force value is calculated.

The actual force value is calculated from the following parameters:

- [S-0-0803](#), Pressure feedback value A
- [S-0-0804](#), Pressure feedback value B
- [S-0-0820](#), Piston area A
- [S-0-0821](#), Piston area B

S-0-0821 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	mm ²	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,000 / 4000000,000	1000,000
HDC:	0,000 / 4000000,000	1000,000
HDE:	0,000 / 4000000,000	1000,000
HDP:	0,000 / 4000000,000	1000,000
HDM:	0,000 / 4000000,000	1000,000
HDS:	--- / ---	0,000

4.4.116 S-0-0822, Torque/force ramp (2 bytes)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function With the torque/force ramp time ([S-0-0823](#)), the torque/force ramp defines a gradient for the torque/force command value ([S-0-0080](#)) in the torque/force control mode.



"[S-0-0822](#)" removes the previous filtering with the PT1 filter ([P-0-0176](#)).

See also parameter description "[S-0-0823](#), Torque/force ramp"

See also parameter description "[S-0-0824](#), Message torque/force command value reached"

See also Functional Description "Torque/Force Control"

Use The following graphic shows the mode of operation and function of [S-0-0822](#):

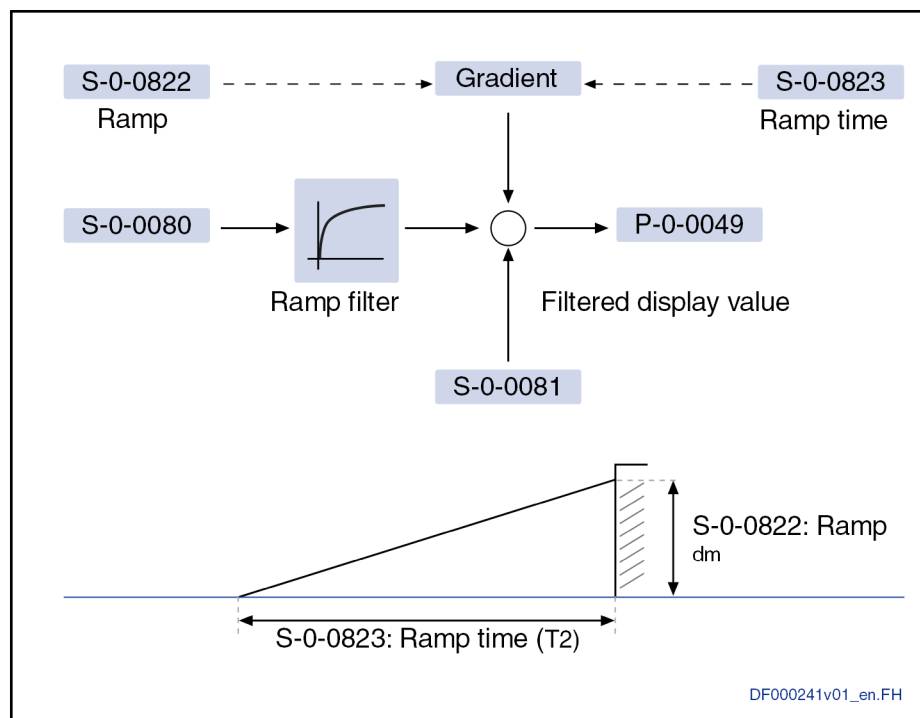


Fig. 4-13: Effect of S-0-0822 and S-0-0823



The filter effect is therefore achieved by defining a maximum permissible torque increase (dm/dt).

Parameterization

Observe the following during parameterization:

- The maximum change in the command value per cycle of the master communication is defined with the two values. A larger specification leads to a delay of the internal force command value to the specified value.
- The value in "S-0-0822" defines the torque/force difference that can be achieved within the ramp time.

S-0-0822 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0086 / S-0-0086			Default value: 0,0	

4.4.117 S-0-0823, Torque/force ramp time

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The torque/force ramp time (S-0-0823) is the reference time for the torque/force ramp. The parameter "S-0-0823" together with the torque/force ramp (S-0-0822) defines a gradient for the torque/force command value (S-0-0080) in torque/force control mode.

See also parameter description "S-0-0822, Torque/force ramp"

See also parameter description "S-0-0824, Message torque/force command value reached"

See also Functional Description "Torque/Force Control"

Use The following graphic shows the mode of operation and function of S-0-0823:

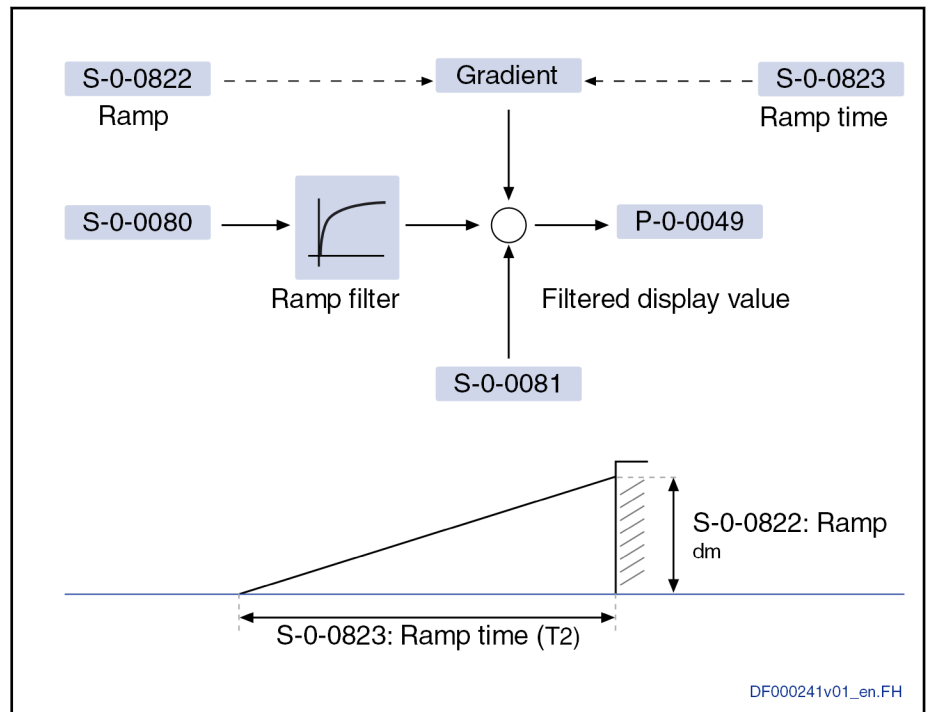


Fig. 4-14: Effect of S-0-0822 and S-0-0823



The filter effect is therefore achieved by defining a maximum permissible torque increase (dm/dt).

Observe the following during parameterization:

- The maximum change in the command value per cycle of the master communication is defined with the two values (S-0-0823, S-0-0822).
- The ramp time can be entered in steps of 0.1ms.
- A larger specification leads to a delay of the internal force command value to the specified value.

S-0-0823 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: --- / ---			Default value: 0,0	

4.4.118 S-0-0824, Status "Torque/force command value attained"

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The message "S-0-0824, Status Torque/force command value attained" indicates that the actual torque/force value is within a window (S-0-0826) around the torque/force command value (S-0-0080 + S-0-0081). The message is required in the torque/force operation mode, but is output in all other operation modes, too.

As of HDx20: In addition, this bit is also generated, if the actual torque/force value is within the window around the command value of alternating control (S-0-0550 or S-0-0551).

See also Functional Description "Operation modes"

Structure The parameter is structured as follows:

Bit	Designation/function	Comment
0	Up to HDx19: Message torque/force command value reached 1: $S-0-0080 + S-0-0081 - S-0-0084 \leq S-0-0826$ 0: $S-0-0080 + S-0-0081 - S-0-0084 > S-0-0826$ As of HDx20: Message torque/force command value reached 1: $S-0-0080 + S-0-0081 - S-0-0552 \leq S-0-0826$ 0: $S-0-0080 + S-0-0081 - S-0-0552 > S-0-0826$ or 1: $S-0-0550 - S-0-0552 \leq S-0-0826$ 0: $S-0-0551 - S-0-0552 > S-0-0826$	

See also parameter description: "S-0-0826, Torque/force window"

S-0-0824 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.119 S-0-0826, Torque/force window

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In this parameter the torque/force window is entered. The window refers to the torque/force command value (S-0-0080) in terms of amount.

As of HDx20: Additionally, this window is also active with alternating control, but in this case refers to S-0-0550 and S-0-0551.

Use When the torque/force feedback value (S-0-0084) is within the window around the command value ($S-0-0080 + S-0-0081$), the message "torque/force command value reached" (S-0-0824) is issued.

As of HDx20:

When the torque/force feedback value (S-0-0552) is within the window around the command value ($S-0-0080 + S-0-0081$), the message "torque/force command value reached" (S-0-0824) is issued.

The following is valid for alternating control: When the torque/force feedback value (S-0-0552) is within the window around the command value of alternating control (S-0-0550 or S-0-0551), the message "torque/force command value reached" (S-0-0824) is issued as well.

See also parameter description: "S-0-0824, Torque/force command value reached"

S-0-0826 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0086 / S-0-0086			Default value: 100,0	

4.4.120 S-0-0827, Pressure control deviation

S-0-0827 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific				
	Function	Parameter "S-0-0827" indicates the difference between pressure command value and pressure feedback value in the pressure control loop. The unit of the parameter depends on the settings in parameter "S-0-0806, Pressure data scaling type".				
	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.121 S-0-0828, Positive pressure limit value

S-0-0828 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific				
	Function	This parameter allows determining a pressure limit value for positive pressure command values of the pressure controller.				
	Use	The unit for the values of this parameter depends on the scaling that has been set (S-0-0806, Pressure data scaling type). - This limit value is unipolar. In addition, there is a bipolar limit value "S-0-0802, Bipolar pressure limit value". The lowest value in the above parameters is the active limit value. - If S-0-0828 = 0, only the bipolar limit value (S-0-0802) is effective as positive limit value! If the actual pressure value is higher than the limit value, the message "Actual pressure value greater than pressure limit value" (S-0-0830) is output.				
	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0,0	

4.4.122 S-0-0829, Negative pressure limit value

	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific				
	Function	This parameter allows determining a pressure limit value for negative command values of the pressure controller.				
	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0,0	

Use The unit for the values of this parameter depends on the scaling that has been set (S-0-0806, Pressure data scaling type).

- This limit value is unipolar. In addition, there is a bipolar limit value "S-0-0802, Bipolar pressure limit value". The lowest value in the above parameters is the active limit value.
- If S-0-0829 = 0, only the bipolar limit value (S-0-0802) is effective as negative limit value!

If the actual pressure value is higher than the limit value, the message "Actual pressure value greater than pressure limit value" (S-0-0830) is output.

S-0-0829 - Attributes

Function: Par	Editable: ++	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: --	Format: DEC_MV
Unit: S-0-0806	Extr. val. ch.: +	Decim. pl.: S-0-0807 / S-0-0808
Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 1
HDx:	min./max.: S-0-0806 / S-0-0806	Default value: 0,0

4.4.123 S-0-0830, Pressure status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The parameter contains status bits of the pressure controller, which are generated when the controller is enabled.

Use

Bit	Designation/function	Comment
0	Pressure is zero 0: Pressure feedback value, S-0-0809, is unequal to zero (outside the pressure zero window) 1: Pressure is zero (within the pressure zero window)	S-0-0831
1	Pressure command value reached 0: Pressure feedback value, S-0-0809 is outside window ($p_{\text{feedback}} - p_{\text{command}} > \text{S-0-0832}$) 1: Pressure feedback value, S-0-0809 is within the window ($p_{\text{feedback}} - p_{\text{comm}} \leq \text{S-0-0832}$)	S-0-0832
2	Actual pressure value greater than pressure limit value 0: Pressure feedback value, S-0-0809 is less than pressure limit value ($p_{\text{feedback}} < p_{\text{limit}}$) 1: The pressure feedback value, S-0-0809, exceeded the pressure limit value ($p_{\text{feedback}} > p_{\text{limit}}$)	S-0-0802 S-0-0828 S-0-0829
3	Pressure threshold exceeded 0: The absolute pressure feedback value, S-0-0809, is less than the pressure threshold value 1: The absolute pressure feedback value, S-0-0809, is greater than the pressure threshold value	S-0-0833
15–4	Reserved	

Tab. 4-78: Structure

S-0-0830 - Attributes

Function: Par	Editable: --	Data length: 2Byte
Memory: --	Validity ch.: --	Format: BIN

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.124 S-0-0831, Depressurized window

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
Function	In this parameter the pressure zero window is entered. The window refers to the pressure feedback value (S-0-0809) in terms of amount. If the pressure feedback value (S-0-0809) is within the window around the value “zero”, the zero pressure message (S-0-0830) is output.					
S-0-0831 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0806 / S-0-0806				Default value: 0,0

4.4.125 S-0-0832, Pressure Window

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	In this parameter the pressure window is entered. The window refers to the pressure command value (S-0-0800) in terms of amount.							
	If the pressure feedback value (S-0-0809) is within this window around the command value (S-0-0800 + S-0-0801), the message “Pressure command value attained” (S-0-0830) is output.							
S-0-0832 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV		
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1		
	HDx:	min./max.: S-0-0806 / S-0-0806				Default value: 0,0		

4.4.126 S-0-0840, Flow command value

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	In the "flow control" operation mode the command value is generated directly by the control unit and entered in this parameter.						
Use	A further value (S-0-0841, Flow command value additive) can be added to the flow command value (S-0-0840). In addition, several limit values act on the sum of the two values, before it is fed to the flow controller. The unit of the parameter depends on the settings in parameter "S-0-0845, Flow data scaling type".						
S-0-0840 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	

Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0845 / S-0-0845			Default value: ---	

4.4.127 S-0-0841, Flow command value additive

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific

Function This parameter can be used to add a flow value in the controller in dependence upon the process. In addition, several limit values act on the sum of the two values, before it is fed to the flow controller.

The unit of the parameter depends on the settings in parameter "S-0-0845, Flow data scaling type".

S-0-0841 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0845 / S-0-0845			Default value: ---	

4.4.128 S-0-0842, Flow feedback value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific

Function Parameter displaying the currently effective flow feedback value. The unit for the values of this parameter depends on the scaling that has been set (S-0-0845, Flow data scaling type).

S-0-0842 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.129 S-0-0843, Flow control deviation

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific

Function Parameter "S-0-0843" indicates the difference between the flow command value and the flow feedback value in the flow control loop. The unit of the parameter depends on the settings in parameter "S-0-0845, Flow data scaling type".

S-0-0843 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.130 S-0-0844, Flow zero window

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	In this parameter the flow zero window is entered. The window refers to the flow feedback value (S-0-0842) in terms of amount.						
	If the flow feedback value (S-0-0842) is within the window around the value “zero”, the zero flow message (S-0-0849) is output.						
S-0-0844 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: S-0-0845 / S-0-0845				Default value: 0,000	

4.4.131 S-0-0845, Flow data scaling type

Allocation

Contained in 16VRS: «-»

Contained in 17VRS: «HDB»

Contained in 18VRS: «HDB» «HDC» «-»

Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»

Device parameter: axis-specific

Function

This parameter can be used to set the unit and the reference of the flow data of a drive.

- Percentage-based scaling (% of reference value, see below)
- Preferred scaling [l/min, gal/min, l/s, gal/s)
- Parameter scaling

Structure

Bit	Designation/function	Comment
2-0	Scaling type 0 0 0: Percentage-based scaling 0 0 1: Flow scaling	
3	Scaling type 0: Preferred scaling 1: Parameter scaling	
4	Unit for flow 0: Liters (l) 1: Gallons (gal)	
5	Unit for time basis 0: Minutes (min) 1: Seconds (s)	
15-6	Reserved	

Tab. 4-79: Structure

Use If preferred scaling is selected (bit 3 = 0), the following parameters are predefined and cannot be changed:

- S-0-0846, Flow data scaling factor
- S-0-0847, Flow data scaling exponent

If parameter scaling is selected, the desired parameter values must be entered for scaling.

If percentage-based scaling is selected, a reference value (100 % value) is required for flow data. With a hydraulic drive, the reference value corresponds to parameter "P-0-2875.0.3, Maximum flow".

S-0-0845 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x1

4.4.132 S-0-0846, Flow data scaling factor

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter and parameter "S-0-0847, Flow data scaling exponent" are used to define the scaling factor and the decimal format (decimal place) of the flow data parameters when parameter scaling (S-0-0845) is used.

If preferred scaling is selected in "S-0-0845, Flow data scaling type", the drive sets the values in "S-0-0846" and "S-0-0847" automatically.

See also functional description "Scaling of physical data"

Use Example of representing flow data:

Physical flow equal to 50 l/min (liters/minute).

1. Selected scaling = preferred scaling (S-0-0846 = 1, S-0-0847 = -3). This results in a numerical value of 50000 for "S-0-842, Flow feedback value" (with unit l/min and 3 decimal places).
2. Selected scaling = parameter scaling (S-0-0846 = 2, S-0-847 = -3). This results in a numerical value of 25000 for "S-0-842, Flow feedback value" (with unit l/min and 3 decimal places).

The following determinations are valid for preferred scaling:

- 1. Unit [l/min] or [l/s] preferred scaling = $1 \cdot 10^{-3}$ l/min or l/s, respectively
S-0-0846 = 1
S-0-0847 = -3
- 2. Unit [gal/min] or [gal/s] preferred scaling = $1 \cdot 10^{-2}$ gal/min or gal/s, respectively
S-0-0846 = 1
S-0-0847 = -4

S-0-0846 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 1 / 65535 Default value: 1

4.4.133 S-0-0847, Flow data scaling exponent

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter and parameter "S-0-0846, Flow data scaling factor" are used to define the scaling factor and the decimal format (decimal place) of the flow data parameters when parameter scaling (see S-0-0845) is used.

See also functional description "Scaling of physical data"

Use If preferred scaling is selected in "S-0-0845, Flow data scaling type", the drive sets the values in "S-0-0846" and "S-0-0847" automatically.

See also example of "S-0-0846, Flow data scaling factor".

The following determinations are valid for preferred scaling:

- 1. Unit [l/min] or [l/s] preferred scaling = $1 \cdot 10^{-3}$ l/min or l/s, respectively
 S-0-0846 = 1
 S-0-0847 = -3
- 2. Unit [gal/min] or [gal/s] preferred scaling = $1 \cdot 10^{-4}$ gal/min or gal/s, respectively
 S-0-0846 = 1
 S-0-0847 = -4

S-0-0847 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: -9 / 0

Default value: ---

4.4.134 S-0-0848, Flow polarities

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function

This parameter can be used to invert the polarities of the specified flow data in accordance with the application. The polarities are switched over outside the controlled system, i.e. at the input and output of the controlled system.

See also functional description "Scaling of physical data"

Use

Bit	Designation/function	Comment
0	Flow command value 0: Positive polarity 1: Negative polarity	S-0-0840
1	Additive flow command value 0: Positive polarity 1: Negative polarity	S-0-0841
2	Flow feedback value 0: Positive polarity 1: Negative polarity	S-0-0842
15-3	Reserved	

Tab. 4-80: Structure

S-0-0848 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x7

Default value: 0x0

4.4.135 S-0-0849, Flow status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The parameter contains status bits of the flow controller, which are generated when the controller is enabled.

Use

Bit	Designation/function	Comment
0	Flow feedback value zero 0: The flow feedback value is outside the zero window 1: The flow feedback value is within the zero window	S-0-0844
1	Flow command value corresponds to the flow feedback value 0: The flow feedback value is outside the sum of all flow command values 1: The flow feedback value is within the sum of all flow command values	S-0-0853 S-0-0854
2	The flow feedback value is greater than the flow limit value 0: The flow feedback value is less than the flow limit value 1: The flow feedback value is less than or greater than the flow limit value	S-0-0850 S-0-0851 S-0-0852
3	The flow feedback value is outside the flow threshold 0: The flow feedback value is within the flow threshold 1: The flow feedback value is outside flow threshold	S-0-0857 P-0-2802 S-0-0842
15-4	Reserved	

Tab. 4-81: Structure

S-0-0849 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

4.4.136 S-0-0850, Bipolar flow limit value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter can be used to limit the flow command value to allowed maximum values.

Use The parameter is bipolar, i.e., positive and negative command values are limited to the entered value. The limitation acts on the sum of all flow command values. The unit of "S-0-0850" depends on the scaling that has been set.

S-0-0850 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: S-0-0845 / S-0-0845 Default value: s. Text

4.4.137 S-0-0851, Positive flow limit value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter allows determining a flow limit value for positive flow command values of the flow controller.

Use The unit for the values of this parameter depends on the scaling that has been set (S-0-0845, Flow data scaling type).

- This limit value is unipolar. In addition, there is a bipolar limit value "S-0-0850, Bipolar flow limit value". The lowest value in the above parameters is the active limit value.

If S-0-0851 = 0, only the bipolar limit value (S-0-0850) is effective as positive limit value!

S-0-0851 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:	min./max.: S-0-0845 / S-0-0845				Default value: 0,000

4.4.138 S-0-0852, Negative flow limit value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter allows determining a flow limit value for negative flow command values.

Use The unit for the values of this parameter depends on the scaling that has been set (S-0-0845, Flow data scaling type).

- This limit value is unipolar. In addition, there is a bipolar limit value "S-0-0850, Bipolar flow limit value". If the amount of this value is less than "S-0-0852, Negative flow limit value", the limit value from "S-0-0850" becomes effective.

If "S-0-0852" = 0, only the bipolar limit value (S-0-0850) is effective as negative limit value!

S-0-0852 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:	min./max.: S-0-0845 / S-0-0845				Default value: 0,000

4.4.139 S-0-0853, Flow window absolute

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In this parameter the flow window is entered. The window refers to the flow command value (S-0-0840) in terms of amount.

Use If the flow feedback value (S-0-0842) is within the window around the command value (S-0-0840 + S-0-0841), the message "flow command value reached" (S-0-0849) is output.

The total window is calculated as follows:

Window = | flow command value + flow command value additive| * flow window percentage (S-0-0854) + flow window (S-0-0853)

S-0-0853 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0845 / S-0-0845				Default value: 0,000

4.4.140 S-0-0854, Flow window percentage

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function In this parameter the percentage-based flow window is entered.

Use If the flow feedback value (S-0-0842) is within the window around the command value (S-0-0840 + S-0-0841), the message "flow command value reached" (S-0-0849) is output.

The total window is calculated as follows:

Window = | flow command value + flow command value additive| * flow window percentage (S-0-0854) + flow window (S-0-0853)

S-0-0854 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,000 / 100,000				Default value: 0,000

4.4.141 S-0-0855, Flow ramp reference

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function In the "flow control" operation mode, the value of this parameter and the flow ramp time (S-0-0856) are used to calculate the ramp for the flow command value. The value of "S-0-0855" is scaled according to the settings for flow data scaling "S-0-0845, Flow data scaling type".

S-0-0855 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0845 / S-0-0845				Default value: 0,001

4.4.142 S-0-0856, Flow ramp time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The flow ramp time is the reference time for the flow ramp. In the "flow control" operation mode this parameter defines a slope for the flow command value.

S-0-0856 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: 0,0 / 6553,5 **Default value:** 0,0

4.4.143 S-0-0857, Flow threshold

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The flow threshold is entered in this parameter.

See also parameter description "S-0-0849, Flow status word"

S-0-0857 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: S-0-0845 / S-0-0845 **Default value:** 0,000

4.4.144 S-0-0860, Spool command value

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	AnalogGenerator.SetValve				

Function In the "Valve control" operation mode, the command value is directly generated by the control and entered into this parameter.

Use You can add another value (S-0-0861, Additive valve command value) to the valve command value (S-0-0860). Several limit values act on the sum of both values before it is transmitted to the valve controller.

S-0-0860 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: -0,100 / 0,100 **Default value:** ---

4.4.145 S-0-0861, Spool command value additive

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	AnalogGenerator.SetValveActiveAdditive				

Function By means of this parameter, the master can have a valve command value added in the controller, depending on the process.

Use Several limit values act on the sum of both values before it is transmitted to the valve controller.

S-0-0861 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.146 S-0-0862, Spool feedback value

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.ValveFeedback

Function Display parameter for the currently effective actual valve value.

S-0-0862 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.147 S-0-0863, Spool control deviation

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.ValveDeviation

Function Parameter "S-0-0863" specifies the difference between valve command value and actual valve value in the valve control loop.

S-0-0863 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.148 S-0-0864, Bipolar spool limit value

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	OutputData.LimitationBipolar

Function By means of this parameter, the valve command value can be limited to admissible maximum values.

Use The parameter has a bipolar effect, i.e. positive and negative command values are limited to the entered value. The limitation has an effect on the total of all valve command values.

S-0-0864 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,000 / 100,000	100,000
HDC:	0,000 / 100,000	100,000
HDE:	0,000 / 100,000	100,000
HDP:	0,000 / 100,000	100,000
HDM:	0,000 / 100,000	100,000
HDS:	0,000 / 0,100	100,000

4.4.149 S-0-0865, Positive spool limit value

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»

Contained in 18VRS:	«HDB»	«HDC»				«HDS»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	OutputData.LimitationPositive					

Function This parameter allows determining a valve limit value for positive valve command values of the valve controller.

Use The unit for the values of this parameter is %.

- This limit value has a unipolar effect. In addition, there is a bipolar limit value "S-0-0864, Bipolar spool limit value. The lowest value in the above parameters is the active limit value.

If S-0-0865 = 0, only the bipolar limit value (S-0-0864) is effective as positive limit value!

S-0-0865 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,000 / 100,000	0,000
HDC:	0,000 / 100,000	0,000
HDE:	0,000 / 100,000	0,000
HDP:	0,000 / 100,000	0,000
HDM:	0,000 / 100,000	0,000
HDS:	0,000 / 0,100	100,000

4.4.150 S-0-0866, Negative spool limit value

Allocation	Contained in 16VRS:					«HDS»
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	OutputData.LimitationNegative				

Function This parameter allows determining a valve limit value for negative valve command values of the valve controller.

Use The unit for the values of this parameter is %.

- This limit value has a unipolar effect. In addition, there is a bipolar limit value "S-0-0864, Bipolar spool limit value. The lowest value in the above parameters is the active limit value.

If S-0-0866 = 0, only the bipolar limit value (S-0-0864) is effective as negative limit value!

S-0-0866 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	-100,000 / 0,000	0,000
HDC:	-100,000 / 0,000	0,000
HDE:	-100,000 / 0,000	0,000
HDP:	-100,000 / 0,000	0,000
HDM:	-100,000 / 0,000	0,000
HDS:	-0,100 / 0,000	---

4.4.151 S-0-0867, Spool status word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The parameter contains the valve controller status bits which are mapped with the controller enable.

Use	Bit	Designation/function	Comment
	0	"S-0-0863, Valve control deviation" inside/outside "S-0-0868, Spool window" 0: Valve control deviation outside the window 1: Valve control deviation inside the window	"S-0-0863" "S-0-0868"
	1	Bit 1: Reserved	
	2	Valve ramp active/inactive 0: Valve ramp active (running) 1: Valve ramp inactive	"S-0-0869"
	15-3	Bits 15 - 3: Reserved	

Tab. 4-82: Structure

S-0-0867 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.152 S-0-0868, Spool window

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The valve window is entered in this parameter. With regard to the absolute value, the window refers to the valve command value (S-0-0860).

Use If the actual valve value (S-0-0862) is within this window around the command value (S-0-0860 + S-0-0861), the valve command value reached (S-0-0867) message is issued.

See also Parameter Description: "S-0-0867, Valve command value reached".

S-0-0868 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,000 / 100,000			Default value: 100,000	

4.4.153 S-0-0869, Spool ramp time

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The valve ramp time is the reference time for the valve ramp. The parameter defines the slope for the valve command value in the "Direct valve control" operation mode.

The ramp time refers to a valve command value change of 100 %.

Use The ramp time can be entered in increments of 0.1 ms.

S-0-0869 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: --- / --- Default value: 0,0

4.4.154 S-0-0880, Swivel angle command value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	The swivel angle command value must be entered for the "Pump control" operation mode in this parameter.						
Use	Another value "S-0-0881, Swivel angle command value, additive" can be added to the "S-0-0880, Swivel angle command value". Even more limit values affect the total of the two values before it is fed to swivel angle command value processing.						



The effective swivel angle command value for the input of the swivel angle controller is displayed in parameter "P-0-2956, Effective swivel angle command value".

S-0-0880 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.155 S-0-0881, Swivel angle command value, additive

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function An additive command value can be entered for the "Pump control" operation mode in this parameter.



The effective swivel angle command value for the input of the swivel angle controller is displayed in parameter "P-0-2956, Effective swivel angle command value".

S-0-0881 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.156 S-0-0882, Swivel angle actual value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In the "Pump control" operation mode, the currently valid actual swivel angle value is displayed in the display parameter "S-0-0882".

S-0-0882 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.157 S-0-0883, Swivel angle controller control deviation

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The "S-0-0883, Swivel angle controller control deviation" parameter indicates the difference between the "P-0-2956, Effective swivel angle command value" and the current "S-0-0882, Swivel angle actual value" in the swivel angle control loop.

S-0-0883 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.158 S-0-0884, Swivel angle limit value, bipolar

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The swivel angle command value can be limited to the permitted maximum values by this parameter.

Use The parameter has a bipolar effect, i.e., positive and negative command values are limited to the entered value in the swivel range command value generator. The limitation is effective on the total of all swivel angle command values.

S-0-0884 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: -100,000 / 100,000 Default value: 100,000

4.4.159 S-0-0885, Swivel angle limit value, positive

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter allows for the definition of a swivel angle limit value for positive swivel angle command values.

Use This limit value has a unipolar effect. The bipolar effective limit value "S-0-0884, Swivel angle limit value" still exists. The lowest value in the above parameters is the active limit value.

If S-0-0885 = 0, only "S-0-0884, Swivel angle limit value, bipolar" acts as a positive limit value.

S-0-0885 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: -100,000 / 100,000 Default value: 0,000

4.4.160 S-0-0886, Swivel angle limit value, negative

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	This parameter allows for the definition of a swivel angle limit value for negative swivel angle command values.							
Use	This limit value has a unipolar effect. In addition, the limit value "S-0-0884, Swivel angle limit value, bipolar" with bipolar effect exists. The lowest value in terms of amount in the above parameters is the active limit value. If S-0-0886 = 0, only "S-0-0884, Swivel angle limit value, bipolar" acts as a negative limit value.							
S-0-0886 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1		
	HDx:	min./max.: -100,000 / 100,000				Default value: 0,000		

4.4.161 S-0-0887, Swivel angle status word

Allocation

Contained in 16VRS:

Contained in 17VRS:

Contained in 18VRS:

Contained in 20VRS:

Device parameter:

Function

Parameter "S-0-0887" contains the status bits of the swivel angle command value generator.

Structure

Bit	Designation/function	Comment
0	Swivel angle command value reached 0: The swivel angle feedback value is outside the window Swivel angle _{comm} - Swivel angle _{act} > S-0-0889 1: The swivel angle feedback value is within the window Swivel angle _{comm} - Swivel angle _{act} < S-0-0889	S-0-0889
1-15	Reserved	

S-0-0887 - Attributes

Function:

Memory:

Unit:

Cycl. tra.:

Par

--

--

AT

Editable:

Validity ch.:

Extr. val. ch.:

Comb. check:

--

--

--

--

Data length:

Format:

Decim. pl.:

Set-depend.:

2Byte

BIN

0

--

HDx:

min./max.:

Default value:

Tab. 4-83:

S-0-0887, Swivel angle status word

4.4.162 S-0-0888, Swivel angle ramp time

Allocation	Contained in 16VRS:							«-»	
	Contained in 17VRS:	«-»							
	Contained in 18VRS:	«HDB»		«HDC»				«-»	
	Contained in 20VRS:	«HDB»		«HDC»		«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific							
Function	Parameter "S-0-0888, Swivel angle ramp time" is the reference time for the swivel angle command value ramp. This parameter defines the slope for the swivel angle command ramp in the "Pump control" operation mode. The ramp time refers to a swivel angle change from 0 % to 100 %.								

S-0-0888 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: --- / ---			Default value: 0	

4.4.163 S-0-0889, Swivel angle window

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In this parameter the swivel angle window is entered. The window refers to the swivel angle command value (S-0-0880) in terms of amount.

Use If the swivel angle feedback value (S-0-0882) is within the window around the command value (S-0-0880 + S-0-0881), the message "swivel angle command value reached" (S-0-0887, bit 0) is issued.

See also parameter "Swivel angle command value reached".

S-0-0889 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -100,000 / 100,000			Default value: 5,000	

4.4.164 S-0-1000, Sercos: SCP Type & Version

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Sercos				
	Device parameter:	device-specific				

Function The identification of a bus slave takes place via this parameter. The parameter consists of a 16-bit list, with each element of the list indicating a package and its version. For the significance of the identifier, see SERCOS standard.

Structure	Bit	Designation/function	Comment
	3-0	Version: 0: Unstandardized version 1: SCP V1.1.x	
	15-8	Functional package/classes: 0x00: Reserved 0x01: SCP_FixCFG 0x02: SCP_VarCFG 0x03: SCP_Sync 0x04: SCP_WD 0x05: SCP_Diag 0x06: SCP_RTB 0x07: SCP_HP 0x08: SCP_SMP 0x09: SCP_MUX 0x0A: SCP_NRT 0x0B: SCP_SIG	

Tab. 4-84: S-0-1000, SERCOS III: SCP Type and Version

S-0-1000 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.165 S-0-1002, Sercos: Communication Cycle time (tScyc)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos					
Device parameter:	device-specific					

Function The communication cycle time of the SERCOS III interface defines the time intervals at which the cyclic data, i.e. the process data (MDT and AT), are transmitted.

See also Functional Description "SERCOS III"

Use Observe the following aspects for parameter setting:

- Entry is set to 250 us, 500 us, 1 ms, 2 ms, ... to 65 ms in increments of 1 ms.



The minimum cycle time of a SERCOS III slave in a CCD group is 500 us!

- The "SERCOS cycle time (TScyc)" has to be transmitted from the master to the slave in communication phase 2 and be activated in both master and slave in and after communication phase 3.

S-0-1002 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 250,000 / 65000,000 Default value: 2000,000

4.4.166 S-0-1003, Sercos: Allowed MST losses

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function Number of allowed MST failures (synchronization telegram) which may occur directly one after the other in phases 3 and 4, before the drive triggers an F4001 error.

See also Functional Description "SERCOS III"

S-0-1003 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text Default value: 1

4.4.167 S-0-1005, Sercos: Minimum feedback processing time (t5)

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function Time required in the drive between the start of feedback acquisition and the start of AT0.

See also Functional Description "SERCOS III"



In phase 2 the master reads this value to set the "feedback acquisition starting time (T4)" (S-0-1007) accordingly for all drives.

Use The drive has to set this value such that the current actual values are transmitted to the control unit in the next drive telegram (AT).

S-0-1005 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.168 S-0-1006, Sercos: AT0 transmission starting time (t1)

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function The AT transmission starting time determines when the master, related to the MST, transmits its drive telegram in communication phases 3 and 4.

See also Functional Description "SERCOS III"

S-0-1006 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,000 / 65000,000 Default value: 100,000

4.4.169 S-0-1007, Sercos: Feedback acquisition capture point (t4)

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					
Function	Feedback acquisition starting time set by the master, after the end of the master synchronization telegram. The master can therefore specify the same actual value acquisition starting time for all drives that operate in a co-ordinate mode. This guarantees the synchronization of actual value acquisition for the drives involved.						
							From communication phase 3 on the drive activates the feedback acquisition starting time.
See also Functional Description "SERCOS III"							
Use	The master must set the feedback acquisition starting time smaller than or equal to the difference of the "SERCOS cycle time" (S-0-1002) and the "minimum feedback acquisition time" (S-0-1005) which was queried.						
S-0-1007 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV	
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: --- / ---			Default value: 500,000	

4.4.170 S-0-1008, Sercos: Command value valid time (t3)

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					
Function	The "command value valid" time indicates the time after which the drive may access the new command values after the end of the master synchronization telegram. The master can therefore set the same "command value valid" time for all drives that operate in a co-ordinate mode.						
							For reasons of compatibility, this parameter still exists, but IndraDrive no longer uses and evaluates it.
See also Functional Description "SERCOS III"							
S-0-1008 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_OV	
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

4.4.171 S-0-1009, Sercos: Device Control (C-Dev) offset in MDT

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	axis-specific					
Function	The telegram assignment defines at which position (telegram offset) and in which MDT (telegram number) the Device Control (C-Dev) is.						

Structure

See also Functional Description "SERCOS III"

Bit	Designation/function	Comment
10-0	Telegram offset in bytes	
15-12	MDT telegram number 0: MDT0 1: MDT1 2: MDT2 3: MDT3	

Tab. 4-85: "S-0-1009: SERCOS III: Device Control (C-Dev) offset in MDT"

S-0-1009 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.172 S-0-1010, Sercos: Lengths of MDTs

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos					
Device parameter:	device-specific					

Function This list parameter contains the MDT lengths of all four possible master data telegrams.



The lengths are required for initializing SERCOS III communication.

See also Functional Description "SERCOS III"

Structure The list parameter has the following structure:

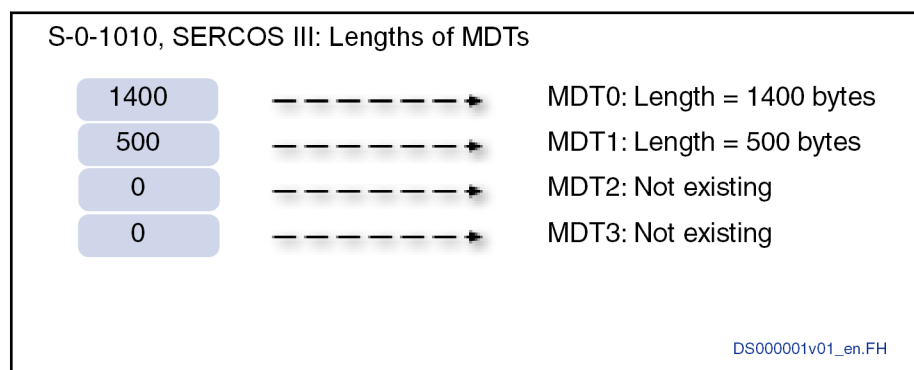


Fig. 4-15: "S-01010: SERCOS III: Lengths of MDTs"

Use Observe the following aspects for parameterization:

- Always preset all four lengths.
- Identify non-existing MDTs with length = 0.

S-0-1010 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.173 S-0-1011, Sercos: Device Status (S-Dev) offset in AT

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Sercos					
Device parameter:	axis-specific					

Function

The telegram assignment defines at which position (telegram offset) and in which AT (telegram number) the Device Status (S-Dev) is.

See also Functional Description "SERCOS III"

Structure

Bit	Designation/function	Comment
10...0	Telegram offset in bytes	
15-12	AT telegram number 0: AT0 1: AT1 2: AT2 3: AT3	

Tab. 4-86: "S-0-1011: SERCOS III: Device Status (S-Dev) offset in AT"

S-0-1011 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.174 S-0-1012, Sercos: Length of ATs

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Sercos						
Device parameter:	device-specific						

Function This parameter contains the AT lengths of all four possible drive telegrams.



The lengths are required for initializing SERCOS III communication.

See also Functional Description "SERCOS III"

Structure The list parameter has the following structure:

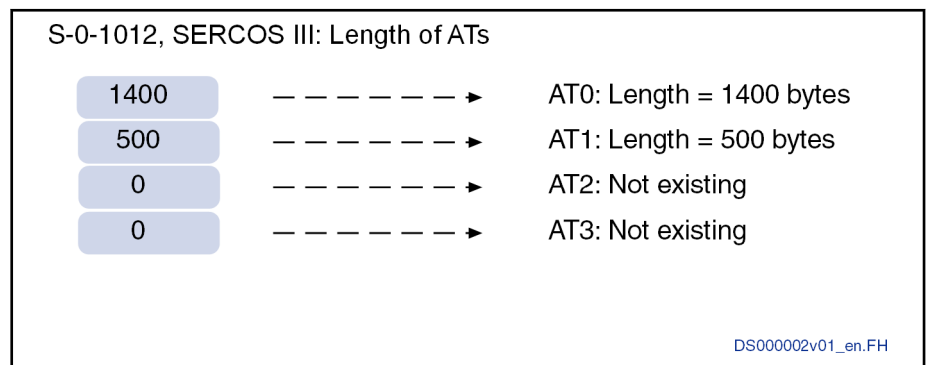


Fig. 4-16: "S-0-1012, SERCOS III: AT Lengths"

Use Observe the following aspects for parameterization:

- Always preset all four lengths.
- Identify non-existing ATs with length = 0.

S-0-1012 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.4.175 S-0-1013, Sercos: SVC offset in MDT

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Sercos	
Device parameter:	axis-specific	

Function The SVC offset in MDT indicates at which position and in which master data telegram the service channel for the drive is transmitted.

See also Functional Description "SERCOS III"

Structure

Bit	Designation/function	Comment
11-0	MDT SVC offset In bytes	
13/12	MDT telegram number 00: MDT0 01: MDT1	

Tab. 4-87: "S-0-1013: SERCOS III: SVC Offset in MDT"

S-0-1013 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x8

4.4.176 S-0-1014, Sercos: SVC offset in AT

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Sercos	
Device parameter:	axis-specific	

Function The SVC offset in AT indicates at which position and in which drive telegram (AT) the service channel for the drive is transmitted.

See also Functional Description "SERCOS III"

Structure

Bit	Designation/function	Comment
11-0	AT SVC offset In bytes	
13/12	AT number 00: AT0 01: AT1	

Tab. 4-88: "S-0-1014, SERCOS III: SVC Offset in AT"

S-0-1014 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x8	

4.4.177 S-0-1015, Sercos: Ring delay

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Sercos				
	Device parameter:	device-specific				

Function In phase 2 the master determines the ring delay time ([S-0-1015](#)) and assigns it to the slaves. With this delay, the slaves can determine their sync times for the P- and S-channels by means of their delay counters. For this purpose, the master must execute the command "[S-0-1024](#), C5300 SERCOS III: SYNC delay measuring procedure command".



The command "[S-0-1024](#), C5300 SERCOS III: SYNC delay measuring procedure command" must be executed in phase 2 before the command "[S-0-0127](#), C0100 Communication phase 3 transition check".

See also Functional Description "SERCOS III"

S-0-1015 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.178 S-0-1016, Sercos: Slave delay (P/S)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Sercos				
	Device parameter:	device-specific				

Function After the master transmitted the entire ring delay ([S-0-1015](#)) to the slaves, the slaves can determine the SYNCNT-P/S. With these two delay times (P in the first and S in the second element), the master determines the physical order of the slaves in the ring or line.

See also Functional Description "SERCOS III"

S-0-1016 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.179 S-0-1017, Sercos: NRT transmission time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Sercos				
	Device parameter:	device-specific				

Function Parameter "S-0-1017" serves to define the time window for the NRT channel for SERCOS III.

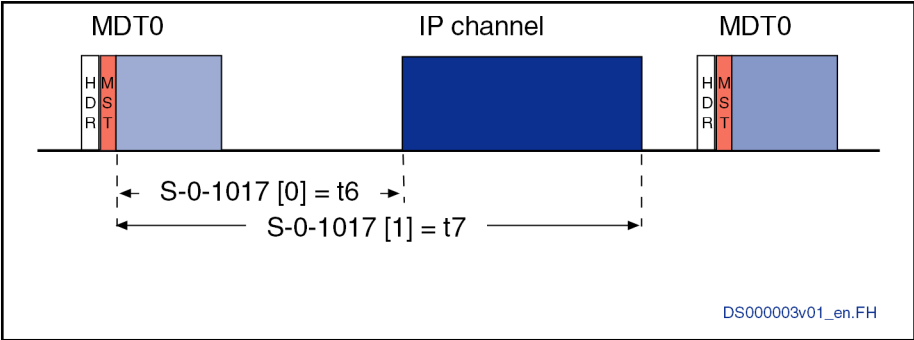


Fig. 4-17: "SERCOS III: NRT Transmission Time"

See also Functional Description "SERCOS III"

Structure The list parameter "S-0-1017" has the following structure:

- First element: Beginning (t6) of the NRT channel
- Second element: End (t7) of the NRT channel

Use Observe the following aspects for parameterization:

- $t7 - t6 \geq 125\mu s$, minimum length of the NRT channel
- $t6 = t7 = 0 \rightarrow$ NRT channel switched off

S-0-1017 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.180 S-0-1019, Master comm. engineering over IP: MAC address

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»					«HDC»
	Contained in 19VRS:						«-»
	Contained in 20VRS:	«HDB»					«HDC»
	Hardware	Real Engineering, Virtual Engineering					
	Device parameter:	device-specific					
Function	Parameter "S-0-1019" contains the MAC address of the master communication interface for engineering over IP which is required within the scope of Ethernet communication. The MAC address (Media Access Control) is used for unique identification in the network.						
	See also Functional Description "SERCOS III"						
Structure	The MAC address is a list parameter with the following structure:						

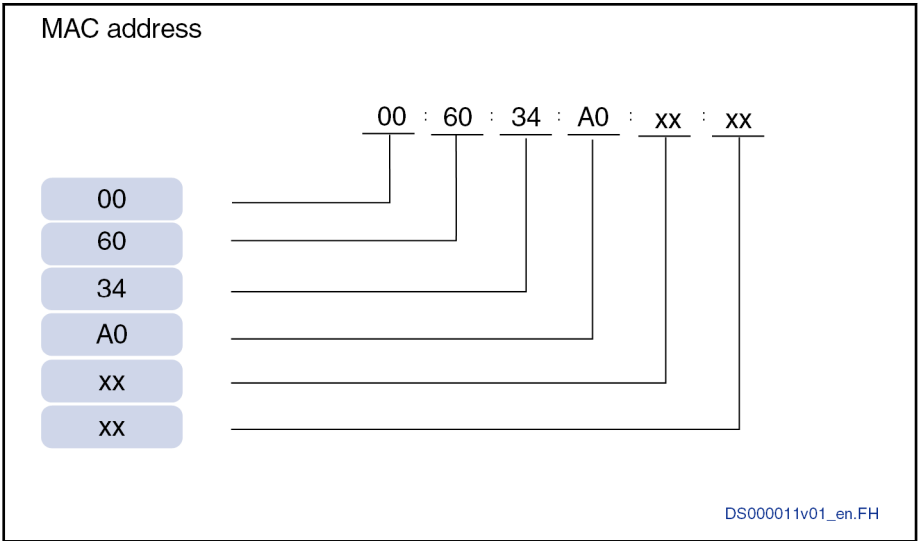


Fig. 4-18: S-0-1019, Master comm. engineering over IP: MAC address

Use



The MAC address has been permanently assigned to the hardware and cannot be modified!

S-0-1019 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.181 S-0-1020, Master comm. engineering over IP: IP address

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Virtual Engineering					
Device parameter:	device-specific					

Function Parameter "S-0-1020" contains the IP address of the master communication interface for engineering over IP. This address is required to ensure that the device can be reached via IP communication in the network.



- Changes in the parameter only become effective by:
- Switching on the 24 V supply of the drive again
 - Executing drive command "C6100 Command Activate IP settings"

See also functional description "sercos III"

Structure The IP address is a list parameter with the following structure:

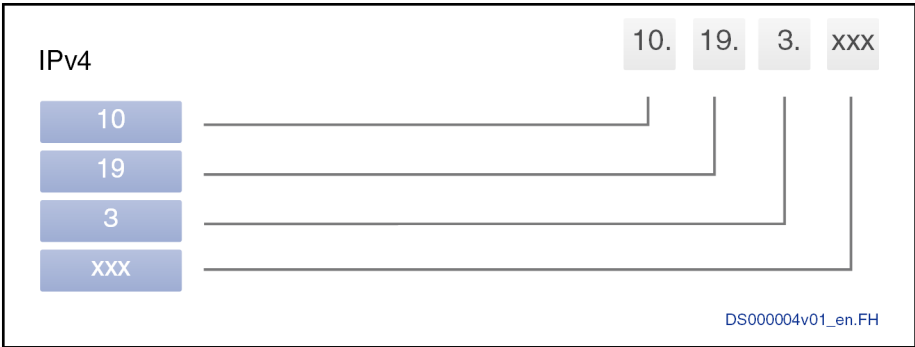


Fig. 4-19: S-0-1020, Master comm. engineering over IP: IP address

Use



The IP address must be set according to the specific application. It can be set via all communication interfaces or via the control panel.

See also parameter description:

"S-0-1021, Engineering over IP: Network mask"

"S-0-1022, Engineering over IP: Gateway address"

S-0-1020 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.182 S-0-1021, Master comm. engineering over IP: Network mask

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Virtual Engineering	
Device parameter:	device-specific	
Function	Parameter "S-0-1021" contains the network mask of the master communication interface for engineering over IP which is required within the scope of IP communication. Each IP address (Internet Protocol) consists of a network and a device part. The network mask is used to distinguish between the network and device parts.	
	Changes in the parameter only become effective by: - Switching on the 24 V supply of the drive again - Executing drive command "C6100 Command Activate IP settings"	

See also Functional Description "SERCOS III"

Structure

The network mask is a list parameter with the following structure:

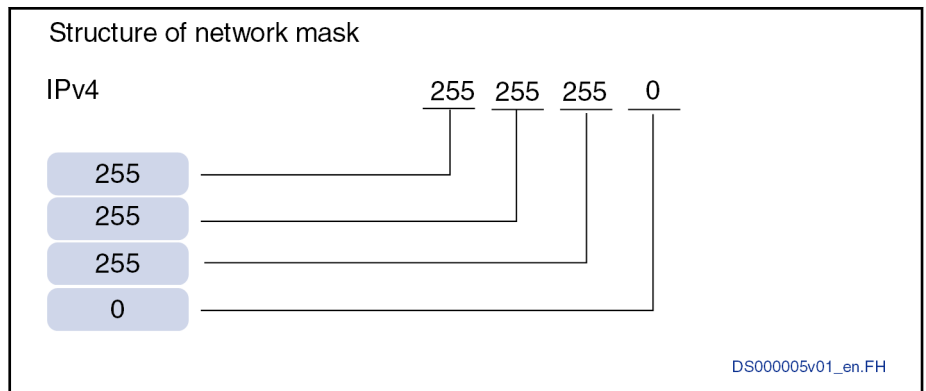


Fig. 4-20: S-0-1021, Master comm. engineering over IP: Network mask

Use

The network mask must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description:

"S-0-1020, Master comm. engineering over IP: IP address"

"S-0-1022, Master comm. engineering over IP: Gateway address"

S-0-1021 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	s. Text

4.4.183 S-0-1022, Master comm. engineering over IP: Gateway address

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Virtual Engineering					
Device parameter:	device-specific					

Function Parameter "S-0-1022" contains the gateway address of the IP node on the master communication interface for engineering over IP which is required within the scope of IP communication.

If the communication node wants to transmit an IP package (Internet Protocol), the network parts of the source IP address and the target IP address are compared. If they do not match, the IP package is transmitted to the gateway IP address.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing drive command "C6100 Command Activate IP settings"

See also Functional Description "SERCOS III"

Structure The gateway address is a list parameter with the following structure:

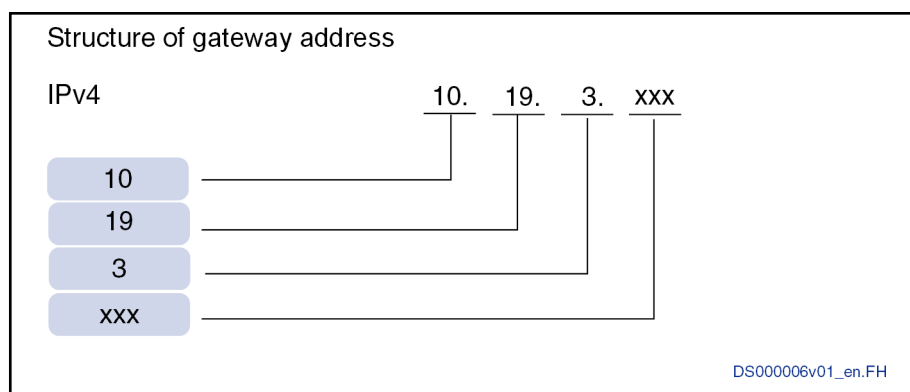


Fig. 4-21: S-0-1022, Master comm. engineering over IP: Gateway address

Use



The gateway address must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description:

"S-0-1020, Master comm. engineering over IP: IP address"

"S-0-1021, Master comm. engineering over IP: Network mask"

S-0-1022 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

4.4.184 S-0-1023, Sercos: SYNC jitter

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Sercos	
Device parameter:	device-specific	

Function The parameter S-0-1023 is used to set the maximum possible jitter of the control unit's synchronization clock.



This allows adjusting the monitoring functions in the SERCOS III slaves to the possibilities of the SERCOS III master.

See also Functional Description "SERCOS III"

S-0-1023 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,200 / 50,000 Default value: 1,000

4.4.185 S-0-1024, C5300 Sercos: SYNC delay measuring procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Sercos	
Device parameter:	axis-specific	

Function This command is required for measuring the delays between the two ports.

Before the start of the command, the slave needs an appropriate value for "S-0-1015, SERCOS III: Ring delay". The delay measurement is required for the synchronous operation in phases 3 and 4, and therefore must be carried out before the transition command "S-0-0127, C0100 Communication phase 3 transition check".

See also Functional Description "SERCOS III"

S-0-1024 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.186 S-0-1026, Sercos: Version of communication hardware

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					
Function	This parameter contains the SERCOS-III-specific hardware version in the form of a text (ASCII format): - FPGA version and revision - GPCC version and revision See also Functional Description "SERCOS III"						
Structure	Interpret the content of the parameter as follows:						

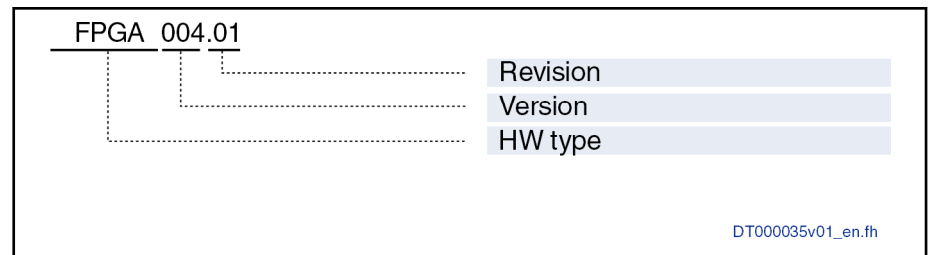


Fig. 4-22: Structure and Content of "S-0-1026, SERCOS III: Version of communication hardware"

S-0-1026 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.187 S-0-1028, Sercos: Error counter MST-P/S

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					
Function	The MST error counter counts all invalid MSTs in phases 3 and 4 and has a limit stop at 2 ¹⁶ -1.						



During heavily disturbed transmission the value 65535 will be reached after some time.

Interpretation of parameter content

You have to observe the following points for interpreting the error counter:

- The error counter is only incremented once per communication cycle, independent of the number of MSTs which failed.
- The error counter is cleared at the first MST in phase 3.

See also Functional Description "SERCOS III"

S-0-1028 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.188 S-0-1031, Sercos: Signal assignment TSx

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware Device parameter:	Sercos device-specific				

Function With this parameter, different measuring signal can be assigned to the test pins of the SERCOS FPGA. The parameter is only used for diagnostic purposes.

See also Functional Description "SERCOS III"

S-0-1031 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.189 S-0-1032, Sercos: Communication control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware Device parameter:	Sercos device-specific				

Function In this parameter, the master specifies or shows individual basic communication functions.

Structure

Bit	Designation/function	Comment
3	SWC function 0: sercos telegrams are transferred at the inactive port as they are. 1: The transfer of sercos telegrams at the inactive port is prevented (if the master activated this function in phase 0).	
4	Soft master function 0: All default standards apply. 1: Settings and limits (e.g. maximum value of S-0-1023 "SYNC jitter") are adjusted for soft master mode.	

Tab. 4-89: S-0-1032.0.0, sercos: Communication control

S-0-1032 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.190 S-0-1034, Sercos: PHY error counter Port1 and Port2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function This parameter shows the PHY errors signaled in relation to the ports.

Structure

Bit	Designation/function	Comment
0-15	Port 1: The parameter shows the "False Carrier" and "Data reception with errors" errors which the PHY signals at port 1 via the MII interface.	
16-31	Port 2: The parameter shows the "False Carrier" and "Data reception with errors" errors which the PHY signals at port 2 via the MII interface.	

Tab. 4-90: S-0-1034.0.0, sercos: PHY error counter Port1 and Port2

S-0-1034 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.191 S-0-1035, Sercos: Error counter Port1 & Port2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function This parameter is the image of a SERCOS FPGA register "SercosError-Count" in which all faulty telegrams (e.g., FCS error) are displayed in relation to the port.

The error counters end with a maximum of 65535. The error register in the FPGA is not automatically cleared; this is achieved only by writing to the parameter.

Structure

Bit	Designation/function	Comment
15-0	Error counter Port 1	
31-16	Error counter Port 2	

Tab. 4-91: S-0-1035, SERCOS III: Port 1 and Port 2 Error Counters

S-0-1035 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.192 S-0-1035.0.1, Sercos: Error counter P&S

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function This parameter is the image of a sercos FPGA register "SercosErrorCount" in which all faulty telegrams (e.g., FCS error) are displayed in relation to the telegram type.

The error counters end with a maximum of 65535. The error register in the FPGA is not automatically cleared; this is achieved only by writing to the parameter.

Structure

Bit	Designation/function	Comment
15-0	P-telegram error counter	
31-16	S-telegram error counter	

Tab. 4-92: S-0-1035.00.1, sercos: Error counter P&S

S-0-1035.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.193 S-0-1036, Sercos: Inter Frame Gap

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function SERCOS III needs this parameter to enable the slave to determine the end of the telegram blocks (MDT and AT blocks). The master determines the value in phase 2 and transfers it to the slaves.

S-0-1036 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 12 / 1000 Default value: ---

4.4.194 S-0-1037, Sercos: Slave Jitter

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function The master needs this parameter to determine parameter "S-0-1036, SERCOS III: Inter Frame Gap" and reads it in phase 2. The value depends on HW and FPGA and is 40 ns for the IndraDrive.

S-0-1037 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	ns	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.195 S-0-1039, Hostname

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Real Engineering, Virtual Engineering
	Device parameter:					device-specific
Function	The parameter contains a unique host name for a device. The device can be identified by this name. In case of "engineering over IP" and NRT, the host name is used for IP assignment over DHCP to identify the device uniquely.					
S-0-1039 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		HDx:	min./max.: --- / ---			Default value: s. Text

4.4.196 S-0-1040, Drive address of master communication

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Function	The address for the master communication (e.g. Sercos, Profibus...) can be set via this parameter. Except for the Sercos supplement, the parameter corresponds to the parameter "P-0-4025". The address is changed simultaneously in both parameters.					
		If an address selector is available (address not 0), the value set by the selector is shown in " S-0-1040 ". In this case, the parameter cannot be changed.				
		For the currently effective address, refer either to "S-0-0096, Slave ID (SLKN)" or to " P-0-4031 , Device address overview".				
The entered address is applied:						
• Sercos: Immediately • Field bus and analog/parallel: Upon the next operating mode (OM) change						
S-0-1040 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	FIX_IDN_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 1 / 250			Default value: s. Text	

4.4.197 S-0-1041, Sercos: AT Command value valid time (t9)

Allocation	Contained in 16VRS:						«-»		
	Contained in 17VRS:	«HDB»							
	Contained in 18VRS:	«HDB»		«HDC»			«-»		
	Contained in 20VRS:	«HDB»		«HDC»		«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos							
	Device parameter:	device-specific							
Function	The "AT command value valid" time indicates the time after which the drive may access the new command values after the end of the master synchronization telegram. The master can therefore set the same "command value valid" time for all drives that operate in a co-ordinate mode.								



For reasons of compatibility, this parameter still exists, but IndraDrive no longer uses and evaluates it.

S-0-1041 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.198 S-0-1042, Sercos: Topology index

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Sercos						
Device parameter:	axis-specific						

Function Structure This parameter represents the topology index (position).

Bit	Designation/function	Comment
15 - 0	Is only of relevance in case of devices with hot-plug ability (IndraDrive and HydraulicDrive = 0)	
30 - 16	Topology index SEQCNT. Bit 0-14 from communication phase 0	
31	Telegram type SEQCNT. Bit 15 from communication phase 0	

Tab. 4-93: S-0-1042.0.0, sercos: Topology index

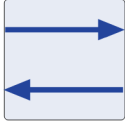
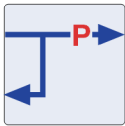
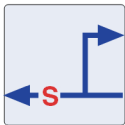
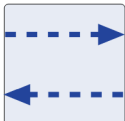
S-0-1042 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.199 S-0-1044, Sercos: Device Control (C-Dev)

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
Device parameter:	axis-specific						

Function This parameter serves to display the internal device status word. It is cyclically transferred by the master in SERCOS phase 1 and higher phases and can be read for diagnostic purposes.

Structure	Bit	Designation/function	Comment
	11	Status of physical topology (master view, for NRT function): 0: Physical ring interrupted 1: Physical ring closed	
	13-12	Command topology: 00: Fast forward at both ports Px  Py 01: Loopback and Forward for P-telegram Px  Py 10: Loopback and Forward for S-telegram Px  Py 11: Reserved (NRT) Px  Py DK000295.fh	
	14	Topology handshake of master: 0->1 or 1->0: Slave is to apply new command topology of bit 13-12.	
	15	Identification bit: Slave shows the state of this bit via LED or display. This function is used for remote address assignment.	

Tab. 4-94: S-0-1044, SERCOS III: Device Control (C-Dev)

S-0-1044 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

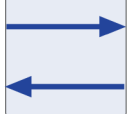
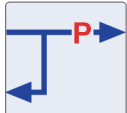
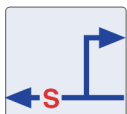
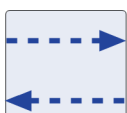
4.4.200 S-0-1045, Sercos: Device Status (S-Dev)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Hardware	Sercos	
Device parameter:	axis-specific	
Function	This parameter displays the internal device status word. It is cyclically transferred by the slave in sercos phase 1 and higher phases and can be read for diagnostic purposes.	

Standard parameters

Structure

Bit	Designation/function	Comment
1	Current error 0: Not clearable 1: Clearable	
4	Parameterization level: 1: Parameterization level 1 with active sub-device	
5	Change bit commands	
6	Sub-device/device warning (C2D): E.g.: Warning temperature of power section etc. The bit is reset automatically once the cause of the warning has been eliminated.	
7	Sub-device/device warning (C1D): E.g.: Switchover due to power section overtemperature etc. - Slave remains in current phase - Connection data is continued to be copied - Service channel possible - Deletion via S-0-0099	
8	Bit 8 Bus-Slave-Valid: 0: Data from sercos III telegrams is not processed by the slave 1: Data from sercos III telegrams is processed by the slave	
9	Err-Con (connection error): 1: Consumer signals an error in a connection	
11/10	Status at the inactive port (for Hotplug/redundancy): Bit 13/12 = 01 or 10: 00: "Fast forward" at either port 01: "Loopback and forward" for P-telegram 10: "Loopback and forward" for S-telegram 11: NRT mode Bit 13/12 = 00 or 11: Always 00	

Bit	Designation/function	Comment
13/12	Actual topology: 00: Fast forward at both ports Px  Py 01: Loopback and Forward for P-telegram Px  inactive port 10: Loopback and Forward for S-telegram inactive port  Py 11: NRT mode Px  Py DK000296.fh	
14	Topology handshake of the slave: 0->1 or 1->0: Slave has applied command topology. Result of application attempt is mapped in bit 13/12.	
15	Communication warning interface (Warn-IF): Number of allowed MST failures has exceeded value specified in "S-0-1003" by 50%.	

Tab. 4-95: S-0-1045, sercos III: Device Status (S-Dev)

S-0-1045 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.201 S-0-1046, Sercos: Slave addresses of the device

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Hardware: Sercos Device parameter: device-specific

Function This parameter shows all the addresses of a device from "S-0-1040, Drive address of master communication" in a list.

Thus, a single-axis device has one list element with one address, a double-axis device has two list elements with two addresses.

S-0-1046 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.202 S-0-1047, Sercos: Maximum Consumer Activation Time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	device-specific					

Function This parameter describes the maximum consumer data processing time. It describes the time having to elapse between the end of the MDT telegram block (in case of MS connections) or of the AT telegram block (in case of CC connections) and the activation moment "S-0-1007" in order to ensure that the values of the consumer connection are still processed in this cycle.

The parameter is the counterpart of parameter "S-0-1005, SERCOS III: Minimum feedback processing time (t5)" which displays this for producer connections.

See also Functional Description "SERCOS III"

S-0-1047 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.203 S-0-1048, C6100 Command Activate IP settings

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Real Engineering, Virtual Engineering					
	Device parameter:	device-specific					
	Alias idn:	P-0-1534					

Function This command can be used to activate the IP settings made by the user (IP address, network mask and standard gateway) for the devices available in the controller.

Function



Before the command is started, the settings effective before the change was made remain active, even if the IP settings were changed.

Use When the command is started, the communication of all devices (hardware, over which IP communication can take place, cf. network card in the PC), the settings of which were changed, is aborted. After the command was successfully executed, the IP communication is resumed with the new settings.

The command can be started from the operator panel.

S-0-1048 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.204 S-0-1050.x.1, Sercos Connection: Connection setup

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	axis-specific					

Function This parameter contains the configuration data of a connection.

Structure

Bit	Designation/function	Comment
1/0	Monitoring mechanism (consumer) 00: Clock-synchronous operation 01: Asynchronous operation (with watchdog) 10: Asynchronous operation (without watchdog) 11: Cyclic operation Only "00" possible As of FW 18VRS, "10" is also possible for safety connections As of FW 20VRS, "10" is possible for all connections	
2	Reserved	
3	Clock generation (producer) - up to FW 19VRS: 0: Synchronous 1: Asynchronous	Up to FW 19VRS As of FW 20VRS: reserved
5/4	Configuration type 00: Configuration list with EIDNs (SE-6 relevant) 01: Container without assigned contents (SE-5 relevant) 10: Telegram type parameter FSP drive (S-0-0015 relevant) 11: Reserved	Only "00" and "10" possible
13/12	Configuration source: 00: Bus master 01: Not bus master 10: Not bus master 11: Not bus master	
14	Connection type: 0: Consumer 1: Producer	
15	Configuration activation: 0: Slave does not need to evaluate configuration 1: Slave needs to evaluate configuration	

Tab. 4-96: S-0-1050.x.1, sercos Connection: Configuration

S-0-1050.0.1 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 0x0	

4.4.205 S-0-1050.x.2, Sercos Connection: Connection number

Allocation

Contained in 16VRS:	«-»		
Contained in 17VRS:	«HDB»		
Contained in 18VRS:	«HDB»	«HDC»	«-»

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Sercos					
Device parameter:	axis-specific					

Function This parameter is used to unequivocally identify a connection. A bus master needs this parameter to determine the telegram offset, for example.

Rules:

1. Producer and consumer of one connection have the same connection number.
2. A slave cannot have the same connection numbers for its connections.
3. MS-AT and MS-MDT in a slave have different connection numbers.

S-0-1050.0.2 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0 / 65535	Default value: 0

4.4.206 S-0-1050.x.3, Sercos Connection: Telegram assignment

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Sercos
	Device parameter:	axis-specific

Function The telegram assignment defines at which position (telegram offset) and in which telegram (MDT or AT, telegram number) the connection is. The telegram offset points to the connection control (C-Con) of this connection.

Structure

Bit	Designation/function	Comment
10-0	Telegram offset in bytes	
11	Telegram type 0: AT 1: MDT	
15-12	Telegram number 0: MDT0 / AT0 1: MDT1 / AT1 2: MDT2 / AT2 3: MDT3 / AT3	

Tab. 4-97: S-0-1050.x.3, SIII-Connection: Telegram assignment

S-0-1050.0.3 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0x0

4.4.207 S-0-1050.x.4, Sercos Connection: Max. length of connection

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Sercos
	Device parameter:	axis-specific

Function With this parameter, the slave shows the master how many bytes it allows for this connection. 2 bytes are included for the connection control C-Con.

S-0-1050.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

4.4.208 S-0-1050.x.5, Sercos Connection: Current length of connection

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Sercos				
	Device parameter:	axis-specific				

Function With this parameter, the slave shows the master how many bytes are currently required for this connection. 2 bytes are included for the connection control C-Con.

The datum of this parameter is made available by the slave for all configuration types which can be set (S-0-1050.0.1, sercos Connection: Connection setup) and is always updated after "S-0-1050.0. 6, sercos Connection: Configuration list" has been written.

S-0-1050.0.5 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

4.4.209 S-0-1050.x.6, Sercos Connection: Configuration list

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Sercos				
	Device parameter:	axis-specific				

Function This parameter contains the IDNs (4 bytes) which are cyclically transmitted in this connection.

The content only takes effect in configuration type

00: Configuration with EIDNs (S-0-1050.0.1, sercos Connection: Connection setup)

With this configuration type, the slave determines the parameter "S-0-1050.0.5, sercos Connection: Current length of connection" from the content of this parameter.

S-0-1050.0.6 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** s. Text

4.4.210 S-0-1050.x.7, Sercos Connection: Connection class

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Sercos				
	Device parameter:	axis-specific				

Function This parameter is used to assign a connection type (S-0-1060) to a connection.

See also Functional Description "SERCOS III"

Use Observe the following aspects for parameter setting:

- Assignment is achieved via the SI of parameter "S-0-1060.0.1".
- If the value of the parameter is "-1", there was no assignment made and the default settings are applicable.
- When the value is written, parameters "S-0-1050.x.1, sercos Connection: Connection setup" and "S-0-1050.0.4 sercos Connection: Max. length of connection" are adjusted to match the setting.
- When command "S-0-0127, C0100 Communication phase 3 transition check" is executed, it is checked whether the value of "S-0-1060.0.3, sercos Connectiontype: Max. quantity of conn. capability" is exceeded when all connections are selected. If the value is exceeded, error code "C0174 Connection configuration not allowed" is output. The appropriate parameter "S-0-1060.0.3" is then executed in parameter "S-0-0021, IDN-list of invalid operation data for CP2".

S-0-1050.0.7 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: -1 / 5	Default value: ---	

4.4.211 S-0-1050.x.8, SerCOS Connection: Connection control (C-Con)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Sercos				
	Device parameter:	axis-specific				

Function This parameter contains the image of the control word (C-Con) of the connection. This applies to producer and consumer connections.

Structure

Bit	Designation/function	Comment
0	ProducerReady: 0: Producer does not enter any valid process data yet. 1: Producer enters valid process data. Consumer can apply process data by toggling bit 1 or bit 12.	
1	NewData bit - Each toggling indicates that new process data are transferred. - In the clock-synchronous mode (S-0-1050.0.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.0.10). - Bit 12 and bit 1 are identical.	
2	CC DataFieldDelay: 1: CC producer data have a sercos cycle delay, because they were copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	The function is not supported

Bit	Designation/function	Comment
4	Flow control: 0: Producer and/or consumer are activated for this connection. Error monitoring is active. 1: Producer and/or consumer are deactivated for this connection. Errors are not monitored and do not cause any error reaction (e.g. F4002).	The function is not supported
6	Real-time bit 1 Assignment is made via S-0-1050.0.20 and S-0-1050.0.21	
7	Real-time bit 2 Assignment is made via S-0-1050.0.20 and S-0-1050.0.21	
15-12	Counter: - Each toggling indicates that new process data are transferred. - In the clock-synchronous mode (S-0-1050.0.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.0.10). - Bit 12 and bit 1 are identical.	The function is supported as of FW 18VRS

Tab. 4-98: S-0-1050.0.8, sercos Connection: Connection control C-Con

S-0-1050.0.8 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.212 S-0-1050.x.9, Sercos Connection: State

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Sercos	
Device parameter:	axis-specific	

Function The parameter always displays the current status of each single connection. The displayed value (state) of the connection state machine depends on the connection type (producer, consumer).

Structure

Value	Description	Comment
0	init	State is automatically reached on restart; connection error bit in S-Dev is deleted.
1	prepare	State of an active connection if the connection check in command " S-0-0127 " was without errors.
2	ready	Connection has been started - ProducerReady is sent with 1 - NewData does not yet toggle. Currently, the state cannot be detected in the IndraDrive.

Value	Description	Comment
3	producing	NewData toggles according to specification - valid process data are transferred.
4	stopping	Stop bit is set - state of remaining bits in C-Con and state of process data are as desired. Currently, this state is not implemented in the IndraDrive.

Tab. 4-99: S-0-1050.x.9, Value Code for Producer Connections

Value	Description	Comment
0	init	State is automatically reached on restart; connection error bit in S-Dev is deleted.
1	prepare	State of an active connection if the connection check in command "S-0-0127" was without errors.
2	waiting	Waiting for "NewData"; process data are not retrieved.
3	consuming	Process data are retrieved; connection monitoring is active.
4	stopped	Process data are not retrieved. Connection monitoring is not active. Currently, this state is not implemented in the IndraDrive.
5	warning	Process data are not retrieved. Connection monitoring is active.
7	error	Process data are not retrieved. Connection error bit is set in S-Dev. The state remains as it is until command "S-0-0127, C0100 Communication phase 3 transition check" is re-executed.

Tab. 4-100: S-0-1050.0.9, Value Code for Consumer Connections

S-0-1050.0.9 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.213 S-0-1050.x.10, Sercos Connection: Producer cycle time

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Sercos	
Device parameter:	axis-specific	

Function This parameter indicates the cycle time within which the producer updates the data of the cyclic connection. In addition, the NewData bit in the connection control is toggled. The consumer of the connection uses the time as a monitoring time to detect failures. The number of failures is displayed in "S-0-1050.0.12, sercos Connection: Error counter data losses".



The producer cycle time must be equal to "S-0-1002, sercos: Communication Cycle time (tScyc)".

For the MS-MDT connection, it may also be a multiple of the sercos cycle time (S-0-1002).

S-0-1050.0.10 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 1000,000	

4.4.214 S-0-1050.x.11, Sercos Connection: Allowed data losses

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	Sercos					
Device parameter:	axis-specific					

Function This parameter indicates the number of allowed losses of producer data, before a connection is considered to be broken, the consumer does not process data anymore and sets the Err-Con bit for the bus master in the device status (S-Dev, S-IF).

S-0-1050.0.11 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 1 / 65535			Default value: 2	

4.4.215 S-0-1050.x.12, Sercos Connection: Error counter data losses

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	Sercos					
Device parameter:	axis-specific					

Function This parameter indicates how many losses of producer data the consumer has already detected. This counter is without overflow and ends with 65535. The counter will be reset with the positive edge of ProducerReady in the connection control (C-Con).

S-0-1050.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.216 S-0-1050.x.20, Sercos Connection: IDN allocation of real-time bit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	Sercos					
Device parameter:	axis-specific					

Function This parameter contains the IDN assignment (4Byte) of the real-time bits in the connection control (C-Con). The list contains a maximum of 2 IDNs. The bit assignment is made in parameter "S-0-1050.0.21, sercos Connection: Bit allocation of real-time bits".

S-0-1050.0.20 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.217 S-0-1050.x.21, Sercos Connection: Bit allocation of real-time bit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Sercos				
Device parameter:		axis-specific				

Function This parameter contains the bit assignment of the real-time bits parameterized in "S-0-1050.0.20, sercos Connection: IDN allocation of real-time bit". The list contains a maximum of 2 bit offsets with values from 0... 31.

S-0-1050.0.21 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.218 S-0-1051, Sercos Connection: Image of connection setups

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Sercos				
Device parameter:		axis-specific				

Function This parameter contains the current setups of all connections. It consists of a list with "S-0-1050.0.1, sercos Connection: Connection setup" of all connections in ascending order. This gives the bus master (or configurator) an overview of the number of possible connections (= list length) and of the connections already assigned to the bus master or other configuration sources.

S-0-1051 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

4.4.219 S-0-1060.x.1, Sercos Connectiontype: Default configuration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Sercos				
Device parameter:		axis-specific				

Function This parameter contains the default configuration data of a connection. This default configuration data is automatically applied on assignment via parameter "S-0-1050.0.7, sercos Connection: Assigned connection capability". The following items are replaced:

- Connection type
- Configuration source
- Configuration type
- Clock generation (producer)
- Monitoring mechanism (consumer)

See also Functional Description "SERCOS III"

S-0-1060.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.220 S-0-1060.x.2, Sercos Connectiontype: Configuration mask

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	axis-specific					

Function This parameter contains the configuration mask of the bits which can be changed in parameter "S-0-1060.0.1, sercos Connectiontype: Default configuration" and in parameter "S-0-1050.0.1, sercos Connection: Connection setup" in deviation from the default configuration.

The significance of the individual bits can be found in the description of parameter "S-0-1050.x.1, sercos Connection: Connection setup".

See also Functional Description "SERCOS III"

S-0-1060.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.221 S-0-1060.x.3, Sercos Connectiontype: Max. quantity of conn. Capability

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	axis-specific					

Function This parameter indicates how often this connection type may be assigned to connections.

The assignment mechanisms and the error reaction are described in parameter "S-0-1050.0.7, sercos Connection: Assigned connection capability".

S-0-1060.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.222 S-0-1060.x.4, Sercos Connectiontype: Max. Length of Connection

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos					
	Device parameter:	axis-specific					

Function This parameter indicates the maximum connection length that is allowed for this connection type.

When the connection type is assigned to a connection, the value is automatically applied to parameter "S-0-1050.0.4, sercos Connection: Max. length of connection" of this connection via parameter "S-0-1050.0.7, sercos Connection: Assigned connection capability".

S-0-1060.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.223 S-0-1060.x.6, Sercos Connectiontype: Configurable IDNs

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos					
Device parameter:	axis-specific					

Function This parameter indicates all configurable ident numbers ([S-0-1050.x.6](#)) which can be parameterized in a connection if this connection type was selected via the connection type assignment function ([S-0-1050.x.7](#)).

The assignment mechanisms and the error reaction are described in parameter "[S-0-1050.x.7](#), SIII-Connection: Assigned connection capability".

S-0-1060.0.6 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.224 S-0-1060.x.7, Sercos Connectiontype: Min. processing time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos					
Device parameter:	axis-specific					

Function This parameter indicates the minimum processing time which a connection requires if this connection type was selected via the connection type assignment function ([S-0-1050.0.7](#)).

While parameters "[S-0-1005](#) sercos: Minimum feedback processing time (t5)" and "[S-0-1047](#), sercos: Maximum Consumer Activation Time" indicate the maximum values of the processing times of all connections, this parameter indicates the connection-type-specific value which is always less than or equal to these general values. The assignment mechanisms and the error reaction are described in parameter "[S-0-1050.0.7](#), sercos Connection: Assigned connection capability".

S-0-1060.0.7 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.225 S-0-1060.x.10, Sercos Connectiontype: Minimum producer cycle time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos					
Device parameter:	axis-specific					

Function This parameter indicates the shortest producer cycle time which is allowed in parameter "[S-0-1050.0.10](#), sercos Connection: Producer cycle time" in case of a connection of this connection type.

The assignment mechanisms and the error reaction are described in parameter "S-0-1050.0.7, sercos Connection: Assigned connection capability".

S-0-1060.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.226 S-0-1061, Sercos: Maximum ScycCnt

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos					
Device parameter:	device-specific					

Function This parameter indicates the maximum value of the counter in the MDT0 telegram with SERCOS III. The counter is evaluated by the HW and ensures that, if connections are synchronous, a synchronization time "S-0-1007, SERCOS III: Feedback acquisition capture point (t4)" greater than "S-0-1002, SERCOS III: Communication Cycle time (tScyc)" is also possible.

S-0-1061 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0 / 16383	Default value:	0

4.4.227 S-0-1099.0.1, Sercos: Test-IDN for Conformity purpose - configuration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos, SoE, SoV					
Device parameter:	axis-specific					
Alias idn:	P-0-3750					

Function This parameter is required for the SERCOS III conformity test and is intended for internal tests. Its function is defined by the SERCOS specification.

S-0-1099.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.228 S-0-1099.0.2, Sercos: Test-IDN for Conformity purpose

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Sercos, SoE, SoV					
Device parameter:	axis-specific					
Alias idn:	P-0-3751					

Function This parameter is required for the SERCOS III conformity test and is intended for internal tests. Its function is defined by the SERCOS specification.

S-0-1099.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.229 S-0-1300.0.1, Component Name

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter serves to identify the respective component of the sercos device, which is mapped in this instance of the electronic nameplate. It shows a general type designation of the component.

The name is given in English, irrespective of the set language selection.

Examples of contents are:

- Control Unit
- Power Unit
- Motor

The parameter is set switchable in the structure instances of the component "motor" (SI 20, 21, 22, and 23).

S-0-1300.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text

HDx:	min./max.: --- / ---	Default value: ---

4.4.230 S-0-1300.0.3, Vendor Code

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter contains the sercos-specific vendor code of the component that is assigned to the instance.



Bosch Rexroth components are identified by vendor code 100.

A sercos component is identified via:

- Vendor Code ([S-0-1300.0.3](#))
- Vendor Device ID ([S-0-1300.0.5](#))

The parameter is set switchable in the structure instances of the component "motor" (SI 20, 21, 22, and 23).

Use The vendor code is used while the system is running up to verify whether the offline configuration (made on the basis of a device description file) is "valid", i.e. based on the actual device properties.

S-0-1300.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text

HDx:	min./max.: --- / ---	Default value: ---

4.4.231 S-0-1300.0.4, Device Name

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»

S-0-1300.0.8 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text
HDx:	min./max.: --- / ---			Default value: ---	

4.4.234 S-0-1300.0.9, Software version

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter: device-specific					

Function This parameter contains the version of the drive's operating firmware, e.g., "FWA-INDRV*-MPB-18V02-D5-1-NNN-NN" (S-0-0030, Manufacturer version). It is used for display for diagnostic and service purposes.

The parameter is set switchable in the structure instances of the component "motor" (SI 20, 21, 22, and 23).

S-0-1300.0.9 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text
HDx:	min./max.: --- / ---			Default value: ---	

4.4.235 S-0-1300.0.11, Order Number

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter: device-specific					

Function This parameter is used to represent the material number of the component, e.g., "R911327662". The material number is used for service purposes.

The parameter is set switchable in the structure instances of the component "motor" (SI 20, 21, 22, and 23).

S-0-1300.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text
HDx:	min./max.: --- / ---			Default value: ---	

4.4.236 S-0-1300.0.12, Serial Number

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter: device-specific					
Alias idn: P-0-2584						

Function This parameter is used to represent the serial number of the component, e.g., "7260887123456". The serial number is used for diagnostic and service purposes.

The parameter is set switchable in the structure instances of the component "motor" (SI 20, 21, 22, and 23).

S-0-1300.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text

HDx:	min./max.: --- / ---	Default value: ---

4.4.237 S-0-1300.0.130, Type plate, compact

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Alias idn: [P-0-2578](#)

Function Summary of the structure elements of the type plate, compact ([S-0-1300.0.1](#) to [S-0-1300.0.20](#)).

In this parameter, the information about a component required for the engineering tool is provided in compact form for each instance.

[S-0-1300.0.130](#) - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.238 S-0-1301, List of GDP classes

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function This parameter indicates the implemented classes of the generic device functions of a sercos device. This parameter serves to find the sercos-defined functions that are available in the diagnosis, identification, initialization and parameter management areas.

[S-0-1301](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.239 S-0-1302.0.1, FSP Type

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function An instance for "S-0-1302.x.1" is specified for each resource in this parameter in a subdevice. It indicates in which FSP the resource is specified. Currently, only resource I/O and drive resources are specified in the Sercos FSPs. Currently, the I/Os in the drive are not implemented according to FSP I/O. That means that only the "Drive" is available as Sercos-specified resource.

[S-0-1302.0.1](#) - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

4.4.240 S-0-1302.0.3, Application type

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					

Contained in 16VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Contained in 17VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					
Alias idn:	S-0-0142					

Function Replacement parameter "S-0-0142" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

A descriptive name (text) for the drive and/or the axis (e.g. swivel axis) can be stored in this parameter.



This parameter does not have any effect on the function.

The following applies:

- The UTF-8 character set can be written to this parameter.
- Size in number of bytes: 40
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.

S-0-1302.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

4.4.241 S-0-1303.0.1, Diagnostic trace configuration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-2588

Function This list parameter contains the IDNs, the date value of which is included in list parameters "S-0-1303.0.12" to "S-0-1303.0.14" in the case of a change in the diagnostic message.

The content of list parameter "S-0-1303.0.12" corresponds to list element 0 of parameter "S-0-1303.0.1". The content of list parameter "S-0-1303.0.13" corresponds to "list element 1" of parameter "S-0-1303.0.1", and so forth.



In IndraDrive this parameter is firmly configured with parameters "S-0-0390.0.136", "S-0-1305.0.2" and "S-0-1305.0.3" and cannot be changed.

See also functional description "Diagnostic system"

S-0-1303.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.242 S-0-1303.0.2, Diagnostic trace control

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-2589

Function This parameter can be used to control recording of the diagnostic message memory.

Via the diagnostic message threshold it can be determined, from which diagnostic class on diagnostic messages are to be recorded.



To be able to consistently read out data from the diagnostic message memory, recording must be stopped.



This parameter is not stored, i.e. after switching on, the diagnostic message memory is running and all changes in diagnostic messages (diagnostic message threshold = 0) are recorded.

Structure

See also functional description "Diagnostic system"

Bit	Designation/function	Comment
0	Start/stop recording: 0: Start recording 1: Stop recording	
7-4	Diagnostic message threshold, from which on changes of diagnostic messages are recorded: A: Diagnostic status messages C: Diagnostic command messages E: Warnings F: Error	

Tab. 4-101: Control word of diagnostic message memory

S-0-1303.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

4.4.243 S-0-1303.0.3, Diagnostic trace state

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-2590

Function This parameter displays status information of the diagnostic message memory.

See also functional description "Diagnostic system"

Structure

Bit	Designation/function	Comment
0	Recording 0: Running 1: Stopped	
4	Status of internal buffer 0: Not full 1: Full	

Tab. 4-102: Status word of diagnostic message memory

S-0-1303.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.244 S-0-1303.0.10, Diagnostic trace main diagnostics

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-2591					

Function In the case of a change of diagnostic messages, the main diagnostic message is entered in the format of "S-0-0390".



This parameter is saved every 30 minutes. In the event of an error (diagnostic message = Fxxxx) saving is executed every 10 seconds.

See also functional description "Diagnostic system"

S-0-1303.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.245 S-0-1303.0.11, Diagnostic trace system time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In the case of a change of diagnostic messages, the system time (S-0-1305.0.1) is entered in this ring buffer.



This parameter is saved every 30 minutes. In the event of an error (diagnostic message = Fxxxx) saving is executed every 10 seconds.

See also functional description "Diagnostic system"

S-0-1303.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	8Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	TIME
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.246 S-0-1303.0.12, Diagnostic trace detailed diagnostics

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-2593					

Function In the case of a change of diagnostic messages, the system time (S-0-1305.0.1) is entered in this ring buffer.



This parameter is saved every 30 minutes. In the event of an error (diagnostic message = Fxxxx) saving is executed every 10 seconds.

See also functional description "Diagnostic system"

S-0-1303.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.247 S-0-1303.0.13, Diagnostic trace system time fine

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Alias idn:	P-0-2594					

Function The "system fine time" is entered in this ring buffer. When reading the parameter the system fine time is determined from the elements of parameter "S-0-1303.0.11".

See also functional description "Diagnostic system"

S-0-1303.0.13 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.248 S-0-1303.0.14, Diagnostic trace system time coarse

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Alias idn:	P-0-2595					

Function The "system coarse time" is entered in this ring buffer. When reading the parameter the system coarse time is determined from the elements of parameter S-0-1303.0.11.

See also functional description "Diagnostic system"

S-0-1303.0.14 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.249 S-0-1305.0.1, System time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	device-specific					

Function This 8-byte parameter contains the system time in the IEC 61588 format.

It is composed of the 4-byte individual parameters "S-0-1305.0.2, System time (fine)" and "S-0-1305.0.3, System time (coarse)". The lower 4 bytes contain the nanoseconds part (up to 999999999), and the upper 4 bytes the seconds part of the system time starting from 01/01/1970.

The content of this parameter is updated with each position acquisition. This corresponds to updating in the velocity controller clock cycle. When the device is switched off, the system time is stored in a non-volatile memory. Upon restarting, updating is continued at the switch-off time. If, while restarting, it is detected that the system time in the retain data memory is invalid, the time is initialized using the date 01/01/2014 (= 1,388,534,400 seconds).

The system time can be changed with the help of this parameter. A time is accepted with the next position acquisition.

The system time cannot be changed by means of this parameter, if the system time is cyclically transmitted via a sercos master communication. In this case, the system time in the slave is cyclically compared to that received from the master. Deviations up to 5 µs are ignored. If the deviation exceeds this threshold, the time is corrected in the slave.

With EtherCAT master communication, the slave can only receive the fine proportion of a cyclically transmitted system time and use it for synchronization. A coarse setting has to be made via the non-cyclic data channel.

If the system time in the slave is changed by more than 60 seconds, an entry is made in the Diagnostic Trace. In list "S-0-1303.0.12, Diagnostic trace buffer no3", this is indicated by value 0x000D7FFF.

In the Advanced device with sercos master the system time is transmitted to connected CCD slaves as cyclic communication starts.

S-0-1305.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	8Byte
Memory:	--	Validity ch.:	--	Format:	TIME
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.250 S-0-1305.0.2, System fine time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				
	Alias idn:	P-0-2755				

Function The fine proportion of the system time contained in this parameter is up to one second. The LSB (least significant bit) corresponds to a nanosecond.

The parameter maps the nanosecond hardware counter, which is latched with each position sensing cycle.

A write access to this parameter results in a change in the system time. At the same time, any value written to parameter S-0-1305.0.3 before for the coarse proportion is also accepted. The time is accepted with the next position sensing cycle.

The content of the parameter is stored in non-volatile form when the device is switched off. After a restart, updating is resumed at the time of switching off.

S-0-1305.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

4.4.251 S-0-1305.0.3, System coarse time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	device-specific					
Alias idn:	P-0-2756					

Function The coarse proportion of the system time included in this parameter contains the number of seconds starting from 01/01/1970. The LSB (least significant bit) corresponds to 1 second.

The parameter maps the seconds hardware counter, which is latched with each position sensing cycle. A write access to this parameter does not result in a direct change in the system time. Any value written is not accepted before the next write access to the fine proportion (S-0-1305.0.2).

The content of the parameter is stored in non-volatile form when the device is switched off. After a restart, updating is resumed at the time of switching off.

S-0-1305.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.252 S-0-1350, C6400 Reboot command

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:	«HDB»	
	Contained in 18VRS:	«HDB»	«HDC»
	Contained in 20VRS:	«HDB»	«HDC»
	Device parameter:	axis-specific	

Function This command is used to activate a drive restart.

While the command is executed, the parameters to be saved are stored. After a delay of two seconds, the drive is restarted.

See also Functional Description "SERCOS Interface"



The reboot command causes the drive firmware to jump to the boot kernel. Execution of the command has the same effect as activation and deactivation of the 24-V supply. This may result in errors on the module bus or in the master communication of neighboring drives.

Use The drive firmware comprises activities after which the drive must be switched off and on. This can be achieved with the reboot command.

A reboot command can be executed after the following activities:

- Function package switching
- Change of the master communication protocol
- Firmware download

After the above activities have been completed, the commissioning tool "IndraWorks Ds/D/MLD" provides the reboot command as a button.

S-0-1350 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

4.4.253 S-0-1601, List of FSP Drive classes

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:	«-»	

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function This parameter contains drive classes which the drive supports according to the functional package (open loop, closed loop). A drive class comprises a defined functionality with the associated parameters and bit combinations.

S-0-1601 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5 Product-specific parameters

5.1 P-0-0000 - P-0-0100

5.1.1 P-0-0003, Status of parameter buffering

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter provides status information about present storage processes of the drive. As long as one of these bits is set, parameter changes in the related memory area are not completed yet. If the drive is switched off in this state, parameters will be lost.

Structure

Bit	Designation/function	Comment
0	Data backup in PARAM_SP 0: Not active 1: Active	
1	Data backup in ON_BOARD_SP 0: Not active 1: Active	
2	Data backup in ON_BOARD_FIX 0: Not active 1: Active	
3	Data backup in PARAM_FIX 0: Not active 1: Active	
8	Storage in PARAM_SP 0: All data backups were without error 1: One of the data backups caused an error	
9	Storage in ON_BOARD_SP 0: All data backups were without error 1: One of the data backups caused an error	
10	Storage in ON_BOARD_FIX 0: All data backups were without error 1: One of the data backups caused an error	
11	Storage in PARAM_FIX 0: All data backups were without error 1: One of the data backups caused an error	

Tab. 5-1: P-0-0003, Status of parameter buffering

P-0-0003 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.2 P-0-0006, Diagnostic message configuration

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter can be used to switch the display of diagnostic messages in "S-0-0390" to the compatibility mode. Then, in "S-0-0390" only bits 19 to 0 are written, whereas bits 31 to 20 are always 0, like in firmware version 17VRS (and earlier versions).

Bit	Designation/function	Comment
0	32-bit diagnostic message (use of bits 31-20) 0: active - sercos-specific 32-bit diagnostic messages (default) 1: inactive - 20-bit diagnostic message (without "source type" and "specification")	

Tab. 5-2: Setup of diagnostic message configuration

P-0-0006 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x1 Default value: 0x0

5.1.3 P-0-0007, Display text of diagnostic message

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific					

Function The parameter contains the brief text that corresponds to S-0-0095.

Example: "AF" or "PL"

See also Functional Description "Coded Diagnostic Messages of the Drive"

P-0-0007 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.4 P-0-0008, Activation E-Stop function

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter is used for activating the E-Stop input and selecting a reaction for the shutdown of the drive.

See also Functional Description "E-Stop Function"

Structure

Bit	Designation/function	Comment
0	Activation of E-Stop 0: Inactive 1: Active	
1	Error class in the case of interpretation as an error (bit 2 = 0) 0: Best possible deceleration (P-0-0119) 1: Velocity command value set to zero	
2	Interpretation 0: As non-fatal error 1: Fatal warning	

Tab. 5-3: P-0-0008, Activation E-Stop function



The input is always "0-active", i.e. 0 V on the input means it is active! "[P-0-0223](#), E-Stop input" must have been assigned to a digital input via the [P-0-0300](#) and [P-0-0301](#) parameters.

P-0-0008 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x7 Default value: 0x0

5.1.5 P-0-0009, Error number

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
	Device parameter:	axis-specific

Function When the drive diagnoses a class 1 diagnostics error, a bit is set in parameter "[S-0-0011](#), Class 1 diagnostics". Bit 13 for "Error in class 1 diagnostics" is then set in the drive status word.

See also Functional Description "Error Memory (Power Section and Control Section)"

Use In order to allow a more detailed diagnosis

- the diagnostic number appears on the display and is stored in parameter "[S-0-0390](#), Diagnostic message number",
- the plain text diagnosis is stored in parameter "[S-0-0095](#), Diagnostic message"
- and the respective error number is stored in parameter "[P-0-0009](#), Error number".

When there isn't any error present, the value of parameter [P-0-0009](#), Error number equals 0.

Example for a diagnosis:

[S-0-0390](#): F8022 (hex)

[P-0-0009](#): 8022 (decimal)

[S-0-0095](#): F8022 Enc. 1: enc. signals incorr. (can be cleared in ph. 2)

P-0-0009 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.1.6 P-0-0010, Excessive position command value

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	PosGenerator.SetPosExcessive

Function In operation mode "cyclic position control"(e.g. [S-0-0032](#)... 35 = 0x0003, 0x0004, 0x000B or 0x000C) the NC provides position command values in equal intervals "[S-0-0001](#), NC cycle time (TNcyc)". Thereby, the drive monitors the difference among two sequently position command values on exceeding the parameter "[S-0-0091](#), Bipolar velocity limit value".

When exceeding, the failure "F2037 Excessive position command difference" is applied and the failure causing "excessive position command value" $X_{cmd}(k)$ is stored in the parameter "[P-0-0010](#)".

See also Functional Description "Position Control with Cyclic Command Value Input"

P-0-0010 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.1.7 P-0-0011, Last valid position command value

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	PosGenerator.SetPosLastValid

Function In operation mode "cyclic position control"(e.g. [S-0-0032](#)... 35 = 0x0003, 0x0004, 0x000B or 0x000C) the NC provides position command values in equal intervals "[S-0-0001](#), NC cycle time (TNcyc)". Thereby, the drive monitors the difference among two sequently position command values on exceeding the parameter "[S-0-0091](#), Bipolar velocity limit value".

When exceeding, the failure "F2037 Excessive position command difference" is applied and "latest valid position command value" $X_{cmd}(k-1)$ is stored in the parameter "[P-0-0011](#)".

See also Functional Description "Position Control with Cyclic Command Value Input"

P-0-0011 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.1.8 P-0-0013, List of all IDNs not corresponding to default value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function This parameter contains a list of the IDNs of those parameters the datum of which was changed with regard to the default value.

Criteria for inclusion in "P-0-0013":

- The parameter is a buffered application parameter.
- The parameter has a value <> than the default value or does not have a default value.
- Parameter P-0-4084 is always included, if it is available.

In the case of master communications, which cannot handle EIDNs (e.g. EtherCAT), the assigned instance parameter may be entered, if required.

See also Functional Description "Parameters, Basics"

P-0-0013 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.1.9 P-0-0014, C1400 Command Get marker position

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Command "P-0-0014" is used to check the reference mark recognition of an incremental measuring system.

See also functional description "Get marker position"

Use When the command is activated, the actual position value of the measuring system is saved in parameter "S-0-0173, Marker position A" when the reference mark is recognized and the command is signaled as completed.

P-0-0014 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.1.10 P-0-0019, Initial position value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In case of a non-homed drive (S-0-0403 = 0x0), the position feedback value of encoder 1 (S-0-0051) and, if available, the position feedback value of the optional encoder (S-0-0053), is set to the value of "P-0-0019" during the initialization process (transition command communication phase 3 to 4), if absolute encoder evaluation is not active.

See also parameter description "S-0-0277 / S-0-0115"



The default value of "P-0-0019" is zero.

See also functional description "Absolute measuring systems"

See also functional description "Shifting the position data reference for relative and absolute measuring systems"

P-0-0019 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.1.11 P-0-0020, Oscilloscope: Operation mode

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function Parameter "P-0-0020" can be used to activate special functions.



The parameter can only be changed when all oscilloscope functions of a device have been deactivated (P-0-0028, Oscilloscope: Control word").

Structure

Bit	Designation/function	Comment
0	Oscilloscope 0: Axis oscilloscope (one separate oscilloscope for each axis of a device) 1: Device oscilloscope (one common oscilloscope for all axes of a device)	
4	Mode 0: Standard mode: The shortest recording cycle is the position control cycle 1: Expert mode: The current or velocity control cycle can be selected as the shortest recording cycle. Recording in these cycles is not guaranteed. Subject to the work load of the control section, the recording cycle can therefore also be longer.	The bit is not remanent. After having been switched on, the device is always in standard mode.
5	Trend mode 0: Standard recording with trigger signal. Multiple device measurement is possible. 1: Recording is continuous without trigger signal. Measured values are provided via "P-0-0280" which can be read cyclically.	

Tab. 5-4: P-0-0020, Oscilloscope: Operation mode

See also Functional Description "Oscilloscope Function"

P-0-0020 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.1.12 P-0-0021, Oscilloscope: List of measured values 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The measured values of channel 1 of the oscilloscope function are stored in chronological order in parameter "P-0-0021, Oscilloscope: list of measured values 1". The oldest measured value is the first element of the list of measured values.

The recorded signal is the one identified by means of the IDN entered in "P-0-0023, Oscilloscope: signal selection 1".



Attribute, unit etc. are automatically adjusting to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0021 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.13 P-0-0022, Oscilloscope: List of measured values 2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The measured values of channel 2 of the oscilloscope function are stored in chronological order in parameter "P-0-0022, Oscilloscope: list of measured values 2". The oldest measured value is the first element of the list of measured values.

The recorded signal is the one identified by means of the IDN entered in "P-0-0024, Oscilloscope: signal selection 2".



Attribute, unit etc. are automatically adjusting to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0022 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.14 P-0-0023, Oscilloscope: Signal selection 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The IDN entered in "P-0-0023, Oscilloscope: Signal selection 1" defines the signal that is to be recorded by channel 1.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated with the input "0" or "S-0-0000".

When the recording is over, the recorded measured values are contained in parameter "P-0-0021, Oscilloscope: List of measured values 1".

See also Functional Description of firmware "Oscilloscope Function"

P-0-0023 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.1.15 P-0-0024, Oscilloscope: Signal selection 2

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The IDN entered in "P-0-0024, Oscilloscope: Signal selection 2" defines the signal that is to be recorded by channel 2.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated by entering "0" or using "S-0-0000".

After recording has been completed, the recorded measured values are contained in parameter "P-0-0022, Oscilloscope: List of measured values 2".

See also Functional Description "Oscilloscope Function"

P-0-0024 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.1.16 P-0-0025, Oscilloscope: Trigger mask

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function For trigger signals with the display format "Bin" and "Hex", it is possible by means of parameter "P-0-0025, Oscilloscope: trigger mask" to put an additional trigger mask over the trigger signal and trigger threshold before the comparison. On all other display formats of the trigger signal the parameter doesn't have any effect.

See also Functional Description "Oscilloscope Function"

P-0-0025 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0xFFFFFFFF

5.1.17 P-0-0026, Oscilloscope: Trigger signal selection

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter "P-0-0026, Oscilloscope: Trigger signal selection" determines, for the trigger unit, to which signal from "P-0-0149, Oscilloscope: Signal selection list" the trigger level (P-0-0027) is to be compared.



Selecting a trigger signal (cf. P-0-0026) also determines the unit and format for "P-0-0027, Oscilloscope: Trigger level".

See also Functional Description of firmware "Oscilloscope Function"

Use At the start of the recording (P-0-0036, bit 2 ↑ 1) the trigger error bit (P-0-0037, bit 7) is then set in the status word.

Changing the parameter is only possible when the oscilloscope has been deactivated (see also P-0-0028, Oscilloscope: Control word").



When S-0-0000 is preset as IDN, the trigger function is not active.

P-0-0026 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

5.1.18 P-0-0027, Oscilloscope: Trigger level

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter "P-0-0027, Oscilloscope: trigger level" is the comparative value for the trigger function.

See also Functional Description "Oscilloscope Function"

Use Depending on the selected trigger edge (P-0-0030), the bit for "internal trigger" (P-0-0037, bit 2) is set when the trigger condition has been reached.

Before that bit 8 and bit 9 in the status word (P-0-0029) indicate whether the value of the selected trigger source is above or below the trigger level or whether the value corresponds to the trigger level.



The parameter can only be changed when the recording has been started (see also "P-0-0028, Oscilloscope: control word"). Depending on the IDN selected in "P-0-0026, Oscilloscope: trigger signal selection", attribute and unit are adjusting to the selected signal.

P-0-0027 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.1.19 P-0-0028, Oscilloscope: Control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter "P-0-0028, Oscilloscope: Control word" contains (except for the operation mode) all settings for controlling the oscilloscope. These settings contain the selection for trigger offset measurement and the activation (start/stop) of the oscilloscope.

See also Functional Description "Oscilloscope Function"

Structure

Bit	Designation/function	Comment
0	Start of recording 0: Recording is stopped 1: Recording is started	
1	Kind of trigger 0: Internal trigger (without offset measurement) 1: External trigger (with offset measurement)	

Tab. 5-5: P-0-0028, Oscilloscope: Control word

P-0-0028 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.20 P-0-0029, Oscilloscope: Status word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter "P-0-0029, Oscilloscope: status word" displays the current status of the oscilloscope function.

See also Functional Description "Oscilloscope Function"

Structure

Bit	Designation/function	Comment
0	start of recording 0: Recording by P-0-0028, bit 0 stopped or completed. 1: Recording by P-0-0028, Bit 0 started. Change of some oscilloscope parameters locked.	
1	trigger start 0: trigger function completed 1: Trigger function started. Internal trigger not yet released. Comparison continues to run.	

Bit	Designation/function	Comment
2	internal trigger 0: Internal trigger not yet released. 1: Internal trigger released. Comparison successfully completed.	
3	trigger function completed 1: When triggering via external trigger signal, (P-0-0028, bit1 = 1) an external trigger signal was detected. When triggering via internal source only, this bit is set together with bit 2.	
4	delay function completed 0: delay function still active 1: Delay function completed. New measured values can be read. Bit 0 is cleared.	
7	trigger error 0: trigger function correctly initialized at start of recording (P-0-0028, bit 0) 1: Trigger function not correctly initialized at start of recording (P-0-0028, bit 0), e.g. incorrect trigger source (P-0-0026). Trigger function therefore cannot be executed.	
8/9	status trigger signal (comparison only takes place with active trigger function and until internal trigger bit2 has been reached) 00: no comparison 01: trigger signal > trigger threshold (P-0-0027) 10: trigger signal < trigger threshold (P-0-0027) 11: trigger signal = trigger threshold (P-0-0027)	

Tab. 5-6: P-0-0029, Oscilloscope: status word

See also Parameter Description "P-0-0028, Oscilloscope: control word"

P-0-0029 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.21 P-0-0030, Oscilloscope: Trigger edge

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function The parameter "P-0-0030, Oscilloscope: Trigger edge" determines the edge at which the "internal trigger" (P-0-0029, bit 2) is triggered.
See also the functional description: "Oscilloscope Function"

Structure	Bit	Designation/function	Comment
	0	Trigger edge positive 1: Internal trigger is triggered at positive edge	
	1	Trigger edge negative 1: Internal trigger is triggered at negative edge	
	2	Trigger equal 1: Internal trigger is triggered when trigger level and value of trigger source are equal	

Tab. 5-7: P-0-0030, Oscilloscope: Trigger edge

Use In addition, it is possible to check the equality of trigger level and trigger source. Combinations of several conditions (e.g.) are possible.

The parameter can also be changed when the recording has been started (see also "P-0-0028, Oscilloscope: Control word"). This however can cause the "internal trigger" to be triggered accidentally.

P-0-0030 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 1 / 4			Default value: 3	

5.1.22 P-0-0031, Oscilloscope: Time resolution

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The time resolution of the oscilloscope function (i.e. the sampling rate) can be defined by means of parameter "P-0-0031, Oscilloscope: Time resolution". This allows the signals to be recorded maximally (= highest sampling rate) in the position controller clock cycle (Advanced: 250 µs, Basic: 500 µs, Low Performance: 1 ms).

The following is valid for parameterizing "P-0-0031":

- The input range of "P-0-0031" depends on the hardware and firmware used (and the performance set in "P-0-0556")
- When new values are entered, they are automatically substituted by multiples of the minimum value



"P-0-0031" can only be changed, if the oscilloscope was deactivated (P-0-0028, Oscilloscope: Control word).

See also Functional Description "Oscilloscope function"

P-0-0031 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 1000 / 8000000			Default value: 1000	

5.1.23 P-0-0032, Oscilloscope: Size of memory

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The size of memory defines the number of measured values to be recorded per measurement. A maximum of 8192 measured values can be recorded per channel. By means of the size of memory and the time resolution ("P-0-0031, Oscilloscope: time resolution") you can determine the recording time.



The minimum recording duration is one position clock!

In general, the following applies:

$$\text{recording time} = \text{time resolution} \cdot \text{size of memory} [\mu\text{s}]$$

Fig. 5-1: Recording time

With the size of memory the master can adjust the size of the lists of measured values to its requirements (e.g. available memory). The parameter can only be changed when the oscilloscope has been deactivated (see also "P-0-0028, Oscilloscope: control word").

See also Functional Description "Oscilloscope Function"

P-0-0032 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 1 / 8192	Default value:	4096

5.1.24 P-0-0033, Oscilloscope: Number of measured values after trigger event

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter "P-0-0033, Oscilloscope: number of measured values after trigger event" determines the number of measured values that will still be recorded after the trigger event ("P-0-0029", bit 3 = 1) has occurred (delay function).

See also the functional description: "Oscilloscope Function"

Use After these measured values have been recorded, the bit "delay function completed" (P-0-0029, bit 4) is set in "P-0-0029, Oscilloscope: status word". The entire recording then is completed and the lists of measured values can be read.

P-0-0033 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0 / 8192	Default value:	0

5.1.25 P-0-0035, Oscilloscope: Trigger control offset

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function With the selection "trigger offset measurement" (P-0-0028, bit 1 = 1), the parameter "P-0-0035, Oscilloscope: control offset" contains the number of measured values that were recorded between the occurrence of the "internal trigger" (P-0-0029, bit 2) and the occurrence of the "external trigger for trigger offset measurement" (P-0-0036, bit 0). The parameter indicates the offset between these two trigger sources and can be used for synchronizing the lists of measured values of several drives via the master.

See also Functional Description "Oscilloscope Function"

See also Parameter Description "P-0-0028, Oscilloscope: control word"

P-0-0035 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.1.26 P-0-0035.0.1, Oscilloscope: Trigger time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Parameter "P-0-0035.0.1" contains the current system time at the point in time, when the oscilloscope function of the drive was triggered. The parameter contains the trigger time with a resolution of 100 ns. It is filled with the content of parameter "P-0-00197" when the drive oscilloscope is triggered.

Structure Parameter "P-0-0035.0.1" is a 64-bit value with a structure in the form of a list with two elements having a length of 4 bytes.

Element		Content
1	Low word	Trigger time (fine)
2	High word	Trigger time (coarse)

Tab. 5-8: Structure of P-0-0035.0.1

Use Parameter "P-0-0035.0.1" is used for synchronizing measurements that are to be taken simultaneously on the PC and in the drive. To this end, the system time of the drive has to be synchronized before with the system time of the PC connected via IndraWorks. This synchronization can also be carried out via a bus master. In this case, measurements can be synchronized on several drives.

P-0-0035.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.1.27 P-0-0036, Oscilloscope: External trigger signal

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function The parameter "P-0-0036" is a real time control bit capable parameter and can be parameterized in the real time channel of the interface and as hardware input.

See also Parameter Description "P-0-0028, Oscilloscope: control word"

See also Parameter Description "P-0-0136, Oscilloscope: manual trigger signal"

See also Functional Description "Oscilloscope Function"

Structure

Bit	Designation/function	Comment
0	external trigger signal 0: External trigger signal = Low 1: External trigger signal = High	

Tab. 5-9: P-0-0020, Oscilloscope: external trigger signal

P-0-0036 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.28 P-0-0037, Oscilloscope: Internal trigger signal

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific

Function The parameter "P-0-0037, Oscilloscope: internal trigger signal" contains the status of the internal trigger. It is a real-time status bit capable parameter and can be parameterized both in the real-time channel of the interface and as hardware output.

See also the functional description: "Oscilloscope Function"

Structure

Bit	Designation/function	Comment
0	internal trigger 0: Internal trigger not yet triggered. Comparison still active. 1: Internal trigger triggered. Comparison successfully completed.	

Tab. 5-10: P-0-0037: Oscilloscope: internal trigger signal

P-0-0037 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.1.29 P-0-0040, Velocity feedforward

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific
	Property name:	PosControl.VelFeedForward

Function By means of the velocity feedforward control, which can be freely set via "P-0-0040, Velocity feedforward evaluation", it is possible to set the following distance at constant velocity to a desired percentage value. A minimum (ideally = 0) is obtained at 100 %. The degree of feedforward control can be set within the range of 0 %...120 %.



The activation of lagless operation (cf. "S-0-0032", "S-0-0033", "S-0-0034", "S-0-0035") causes a feedforward variable (= velocity command value), which is determined from the position command value, is fed forward as additive to the position controller output.

P-0-0040 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
HDB:	0,00 / 120,00	100,00
HDC:	0,00 / 120,00	100,00
HDE:	0,00 / 120,00	100,00
HDP:	0,00 / 120,00	100,00
HDM:	0,00 / 120,00	100,00
HDS:	0,00 / 1,20	0,00

5.1.30 P-0-0041, Position command average value filter time constant

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function Parameter "P-0-0041" allows the position command values to be filtered at the input of the position controller using a moving average filter. This can be used to smooth the position command value profile and to reduce acceleration or jerk, which is required for some mechanical systems to prevent the excitation of machine resonances caused by the command value course.



As of firmware version 08VRS the average value filter (P-0-0041) can only be changed in the operation mode of cyclic position control with "drive control" in the drive state "AF"!

See also Functional Description "Closed-loop position control with cyclic command value provision"

Use "P-0-0041" is used only with cyclic position control for parameterizing the jerk.

In this context, the following aspects have to be taken into account:

- The effective filter order M is always shown in "P-0-0042, Current position command average value filter order" ($P-0-0042 = P-0-0041/TN_{cyc}$)
- The NC cycle time TN_{cyc} (S-0-0001) and the position controller cycle depend on the performance

See also Functional Description "Performance data"

Extended basics

With this filter type, the changes at the output with constant input variable are always the same:

$$\Delta Y = \frac{X}{M}$$

Fig. 5-2: Position command value as filter output

With a constant input variable X, filter output Y increases in a linear form and reaches its final value at the filter output after time:

$$t = M \cdot T_A$$

Fig. 5-3: Time base of the average value filter



This filter type therefore does not show the typical "creeping behavior" (filter output rises and falls after an e-function) of common VZ1 and VZ2 filters used otherwise.

P-0-0041 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: 0 / s. Text			Default value: 0	

5.1.31 P-0-0042, Current position command average value filter order

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The parameter indicates the effective filter order M of the position command value filter, which is designed as moving average filter.



The user cannot change [P-0-0042](#) directly!

See also Functional Description

- "Position control with cyclic command value input"
- "Positioning block mode"
- "Drive-controlled positioning"
- "Drive-internal interpolation"

Use The effective filter order M depends on the active operation mode and the performance.

See also Functional Description "Performance data"

We distinguish the following cases:

- **External position command value input** (position control with cyclic command value input):

[P-0-0042](#) = [P-0-0041](#)/TNcyc

→ Parameterization of [P-0-0041](#)! (max. filter order M = 64)

- **Drive-internal command value generation**

– Interpolation operation (drive-internal interpolation, drive-controlled positioning)

[P-0-0042](#) = min ([S-0-0260](#); [S-0-0359](#)) / [S-0-0193](#) / TNcyc

→ Parameterization of [S-0-0260](#), [S-0-0359](#), [S-0-0193](#)!

- Positioning block mode:

$P-0-0042 = \min(P-0-4008; P-0-4063) / P-0-4009 / TN_{cyc}$

→ Parameterization of [P-0-4008](#), [P-0-4063](#), [P-0-4009](#)!



In the case of operation modes with drive-internal position command value generation, the calculated filter order is limited. The maximum value is **M = 512**.



As an alternative to the calculation of the filter order from acceleration and jerk, the filter order can also be determined by directly entering a filter time, "[P-0-0641](#), Interpolation cmd value average value filter time constant".



The filter properties as well as their parameterization are contained in the description of "[P-0-0041](#), Position command average value filter time constant".

[P-0-0042](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.1.32 [P-0-0047](#), Position command value of control

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	PosGenerator.CtrlSetPos					

Function In the "position control" mode the control unit by means of "[S-0-0047](#)" and in the clock of its interpolation cycle time writes the cyclic position command values to the drive.

If required, these position command values coming directly from the control unit can be read via "[P-0-0047](#), Position command value control"!



The interpolation cycle time of the control unit (cf. "[S-0-0001](#)") can be a multiple of the communication cycle time (cf. "[S-0-0002](#)") so that "[P-0-0047](#)" is also updated on the same time base!

See also Functional Description "Position Control with Cyclic Command Value Input"

[P-0-0047](#) - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.1.33 [P-0-0048](#), Velocity command value of controller

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»

	Device parameter: axis-specific	
	Property name: OpModeSwitchingLogic.SetVelCtrlActive	
Function	This parameter can be used to display the effective velocity command value.	
	 The actual velocity value is subtracted from the effective velocity command value. The result of this calculation (control difference) is fed to the velocity controller.	
P-0-0048 - Attributes	See also functional description "Velocity controller"	
	Function: Par Memory: -- Unit: S-0-0044 Cycl. tra.: AT HDx:	Editable: -- Validity ch.: -- Extr. val. ch.: -- Comb. check: -- min./max.: --- / --- Default value: ---
	Data length: 4Byte Format: DEC_MV Decim. pl.: S-0-0045 / S-0-0046 Set-depend.: --	

5.1.34 P-0-0049, Torque/force command value of controller (2 Byte)

Allocation	Contained in 16VRS: «HDS»	
	Contained in 17VRS: «HDB»	
	Contained in 18VRS: «HDB» «HDC»	«HDS»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM»	«-»
	Device parameter: axis-specific	
	Property name: ForceGenerator.SetForceActive	
Function	This parameter displays the current torque/force command value for the force controller.	
	See functional description "Force control"	
Use	If the force controller is used for limiting the force in position control (alternating control), direction-dependent limit values are assigned to the command value. Otherwise, this assignment is made by the generator function of torque control. If the force controller is used in the operation mode "torque/force control / direct valve control", the sign of the current torque/force command value is adjusted to that of the valve command value.	
	 As of HDx20 instead of parameter P-0-0049, parameter P-0-0069 is used. It features an extended range of numbers. In P-0-0049 the same value is shown as in P-0-0069, but only up to the number range limit. Parameter S-0-0049 is no longer used for MLC-H. The property name was transferred to parameter P-0-0069.	
P-0-0049 - Attributes	Function: Par Memory: -- Unit: S-0-0086 Cycl. tra.: AT HDx:	
	Editable: -- Validity ch.: -- Extr. val. ch.: -- Comb. check: -- min./max.: --- / --- Default value: ---	Data length: 2Byte Format: DEC_MV Decim. pl.: S-0-0093 / S-0-0094 Set-depend.: --

5.1.35 P-0-0055, Return distance

Allocation	Contained in 16VRS: «-»	
	Contained in 17VRS: «HDB»	
	Contained in 18VRS: «HDB» «HDC»	«-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM»	«-»
	Device parameter: axis-specific	
Function	In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive gener-	

ates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. The return distance is entered in parameter [P-0-0055](#). A positive return distance will cause positive motion with reference to the selected coordinate system. The [P-0-0055](#), Return distance parameter can be transmitted in the cyclic telegram (MDT).

See also Functional Description "Best Possible Deceleration"

P-0-0055 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.1.36 P-0-0056, Return velocity

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:		axis-specific				

Function In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive generates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. The return velocity is entered in parameter [P-0-0056](#).

See also Functional Description "Best Possible Deceleration"

P-0-0056 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: S-0-0044 / S-0-0044			Default value: 10,0000	

5.1.37 P-0-0057, Return acceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:		axis-specific				

Function In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive generates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. The return acceleration is entered in parameter [P-0-0057](#).

See also Functional Description "Best Possible Deceleration"

P-0-0057 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: S-0-0160 / S-0-0160			Default value: 1000,000	

5.1.38 P-0-0058, Return jerk

Allocation	Contained in 16VRS: «-»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC» «-»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»						
	Device parameter: axis-specific						
Function	In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive generates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. In addition, the position command values can be smoothed by a position command value average filter. The return jerk is entered in parameter P-0-0058. It affects the effect of the position command value average filter. See also Functional Description "Best Possible Deceleration"						
P-0-0058 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: S-0-0160 / S-0-0160				Default value: 1000,000	

5.1.39 P-0-0059, Additive position command value, controller

Allocation	Contained in 16VRS: «HDS»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»						
	Device parameter: axis-specific						
	Property name: PosGenerator.SetPosActiveAdditive						
Function	This parameter serves to add an additional (additive) position command value to the position command value generated by command value adjustment. This additional command value is not subject to any limitation or change. This is why the user has to make sure that absolute value, characteristic and the derived variables are within their allowed ranges of values! See also Functional Description "Position Control With Cyclic Command Value Input", "Drive-Internal Interpolation", "Drive-Controlled Positioning" and "Positioning Block Mode".						
Use	Feedforward values (velocity feedforward, acceleration feedforward) are derived from the position command value characteristic. In "P0-0556, Config word of axis controller", you can set whether the values of "P0-0059, Additive position command value, controller" are included in the generation of the feedforward values or whether they are afterwards added to the position command value generated by command value adjustment. Parameter "P-0-0059, Additive position command value, controller" is overwritten with "0" if there is an internal error reaction in the drive.						



If the values of "[P-0-0059](#)" have been used for generating the feedforward values, the time at which the additive position command value takes effect is delayed by 1 position clock!

"[P-0-0059](#)" can only be used in position-controlled operation modes, such as cyclic position control, drive-internal interpolation, drive-internal positioning and positioning block mode.



The actually effective position command value (addition of position command value from command value adjustment of current operation mode and "additive position command value, controller") is displayed in parameter "P0-0434, Position command value of controller".

This parameter is used, for example, by the drive firmware to set command values from the firmware-internal command value generator without limitation and deformation (noise generator for control loop analysis). It can, for example, also be used by the control master for adding feedforward values!

P-0-0059 - Attributes

Function:	Par	Editable:	OM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: ---	

5.1.40 P-0-0069, Torque/force command value of controller

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ForceGenerator.SetForceActive				

Function This parameter displays the current torque/force command value for the force controller.

See functional description "Force control"

Use If the force controller is used for limiting the force in position control (alternating control), direction-dependent limit values are assigned to the command value; otherwise, this assignment is made by the generator function of torque control.

If the force controller is used in the operation mode "torque/force control / direct valve control", the sign of the current torque/force command value is adjusted to that of the valve command value.



The value is also used in parameter [P-0-0049](#). [P-0-0049](#) can, however, only display 2-byte values. [P-0-0049](#) is limited accordingly.

P-0-0069 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.1.41 P-0-0070, Effective additive torque/force command value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»	«-»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific				

Function This parameter displays the additive torque/force command value effective in the drive.

The value of the parameter is applied from the torque/force command value in an additive way ([S-0-0081](#)). Usually, this is done without any delay. If the

external acceleration feedforward control function is used, however, application of the value from parameter "Delay of add. command values" (P-0-0458) is delayed.

See also Functional Description "Velocity Loop"

P-0-0070 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.1.42 P-0-0074, Encoder type 1

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB» «HDC»				
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
Device parameter:	axis-specific					
Property name:	ActualValue.Enc1Select					

Function This parameter is used to inform the controller about the encoder type which is to be evaluated as a position encoder.

Structure Supported encoder types:

Number	Designation/function
0	No encoder selected
1	Simulation encoder
2	Encoder type SSI
3	Encoder type 1Vss
4	Encoder type EnDat 2.2

Tab. 5-11: P-0-0074, Encoder type 1

Use The activatability of the listed encoder types is hardware-dependent.

P-0-0074 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

Input	min./max.	Default value
HDB:	0 / 16	s. Text
HDC:	0 / 16	s. Text
HDE:	0 / 16	s. Text
HDP:	0 / 16	s. Text
HDM:	0 / 16	s. Text
HDS:	0 / 16	2

5.1.43 P-0-0075, Encoder type 2 (optional encoder)

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
Device parameter:	axis-specific					
Property name:	ActualValue.Enc2Select					

Function This parameter is used to inform the controller, which encoder type is to be evaluated as optional position encoder.

Structure Encoder types supported:

Number	Designation/function	Comment
0	No encoder selected	Enabled by FW
1	Reserved	Enabled by FW
2	SSI encoder	
3	Reserved	
4	Reserved	

Tab. 5-12: P-0-0075, Encoder type 2 (optional encoder)

P-0-0075 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / 18			Default value: 0	

5.1.44 P-0-0077, Assignment of encoder 1->interface

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter is used to determine, which interface is to be used for the encoder 1 function.

High-response valve IAC-2X:

P-0-0077	Interface for encoder 1
0	None
1	Connector X8M
20	Master communication
21	Simulation encoder
22	Analog encoder

Tab. 5-13: Determination of interface for encoder 1 for high-response valve IAC-2X

Control cabinet electronics HMC:

P-0-0077	Interface for encoder 1
0	None
1	Connector XG20
2	Connector XG21
20	Master communication
21	Simulation encoder
22	Analog encoder
24	Synchronization (HDM only)

Tab. 5-14: Determination of interface for encoder 1 for control cabinet electronics HMC

P-0-0077 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
HDx:	min./max.: s. Text / s. Text			Default value: s. Text	

5.1.45 P-0-0090, Travel range limit parameter

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«-» «-» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	Replacement parameter of "S-0-0532" for compatible access.						
P-0-0090 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: 0x0 / 0x7			Default value: 0x0	

5.1.46 P-0-0098, Max. deviation

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
Function	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:		axis-specific				
Property name:		PosControl.MaxModelError				

In operation modes with drive-internal position control, the position control loop is also monitored in the drive. For this purpose, in the "model monitoring" mode (P-0-2820, bit 1 = 0) a "model feedback position value" is calculated in the drive and compared to the real position feedback value (S-0-0051 and S-0-0053). In the "following distance monitoring" mode (P-0-2820, bit 1 = 1) the "position command value of controller, delayed" (P-0-2831.0.6) is compared to the actual position value. The maximum value of the deviation is stored in "P-0-0098" and helps define the value of the monitoring window (S-0-0159).



Before the "test run" for an axis is started, P-0-0098 must be set to "0".

See also functional description "Position controller (with respective feedforward functions and actual value adjustment)"

Use Two cases have to be distinguished with regard to the "model position feedback value":

- **Position control (or interpolation) with following distance**

The model feedback position value is the difference between the position command value and the time derivative of the position command value curve, divided by the position controller Kv factor (if an additive velocity command value (S-0-0037) is added, it is also divided by the position controller Kv factor and subtracted from the position command value).

- **Position control (or interpolation) lagless**

In this case, the model position feedback value corresponds to the position command value (if an additive velocity command value (S-0-0037) is added, it is also divided by the position controller Kv factor and subtracted from the position command value).

See also: DE_FAQ_IndraDrive_Lageregelung_Überwachung/
Anzeige_Schleppabstand

P-0-0098 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: ---	

5.1.47 P-0-0099, Position command smoothing time constant

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
	Device parameter:	axis-specific			

Function The position command smoothing time constant determines the maximum jerk possible in the case of operation modes with position control.

The maximum jerk is calculated from:

$$\text{max.jerk} = \frac{2^{\text{nd}} \text{ derivation of the position command values}}{\text{P-0-0099, Pos. command smoothing time constant}}$$

Fig. 5-4: Maximum jerk



The parameter "P-0-0099, Position command smoothing time constant" is only effective with the linear fine interpolator having been activated (P-0-0187 = 0). The filter is deactivated by writing the value 0 to this parameter.

See also Functional Description "Command Value Processing in Position Control"

P-0-0099 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,00 / 655,35			Default value: 0,00	

5.1.48 P-0-0100, Position command value extension

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
	Device parameter:	axis-specific			

Function The parameter "P-0-0100, Position command value extension" extends the parameter "S-0-0047" by 16 bits to 48 bits. This increases the resolution by 4 decimal places.

See also Parameter Description "S-0-0047, Position command value"

P-0-0100 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.2 P-0-0101 - P-0-0200

5.2.1 P-0-0105, Time stamp for list of diagnostic message numbers

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific					

Function This parameter contains a list of the points of time at which the diagnostic drive message was changed. At each change of "S-0-0390 Diagnostic message number", the respective point of time (value from "P-0-0190, Operating hours control section") is recorded. The last point of time at which the diagnostic message was changed is entered in the first line of the list. All entries already existing are moved down by one line. The list is full after 50 entries, each other entry causes the oldest value to get lost.



The list from "S-0-0375, Diagnostic numbers list" corresponds with the parameter P-0-0105. These parameters in the same line contain the diagnostic message number corresponding to the respective point of time.



The numbers of the diagnostic error messages and the respective points of time of the error events are only applied in S-0-0375 and P-0-0105 by clearing the error message!

P-0-0105 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.2.2 P-0-0115, Device control: Status word

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function This parameter can be used to read the drive status (device control) independently of the master communication used.

See also Functional Description "Operation modes"

See also Functional Description "Master communication"

See also Functional Description "Drive Halt"

Structure The individual bits have the following significance:

Bit	Designation/function	Comment
0	Drive ready for operation 0: Drive not ready for operation 1: Drive ready for operation	
1	Ready signal 1: Drive ready (ready for power output)	
2	Drive warning 1: Warning (class 2 diagnostics) is present	

Bit	Designation/function	Comment
3	Status of ext. command value processing (primary op. mode+secondary op. mode1-7) 0: Drive ignores (ext.) command value input 1: Drive follows (ext.) command value input	
4	Drive Halt acknowledgment 1: Drive Halt is active and axis is in standstill	
5	Command change bit 0: No change in command status 1: Command status has changed	
6	Status of int. cmd val. processing (secondary op. modes 8-15 of PLC) 0: Drive ignores (int.) command value input of PLC 1: Drive follows (int.) command value input of PLC	
7	Operation mode initialized 1: Primary op. mode or secondary op. mode active and initialization completed, otherwise 0	
11/10/ 9/8	Actual operation mode 0000: Primary operation mode is active 0001: Secondary operation mode 1 is active 0111: Secondary operation mode 7 is active 1000: Internal secondary operation mode 1 is active 1111: Internal secondary operation mode 8 is active	
12	Command value reached 1: Drive has reached command value input (The generation of the bit depending on the active operation mode is described below.)	
13	Drive error 0: No error 1: Drive error	
15/14	Ready for operation 00: Control section/power section not ready for operation (e.g., drive error or phase 2) 01: Control section ready for operation (bb) 10: Control section and power section ready for operation (Ab) 11: Drive with torque (AF)	

Tab. 5-15: Device control: Status word

Use Detailed information regarding command value processing (bit 3, 6)

Secondary operation modes 4 - 7 can only be used via the "Sercos interface", and secondary operation modes 8 - 15 (internal secondary modes of operation 1...8) only in conjunction with the internal PLC (IndraMotion MLD-S with temporary control) and in the easy startup mode!

By combining bit 6 and bit 3, the following cases can be unequivocally distinguished:

Bit 6	Bit 3	Status	Comment
0	0	Drive carries out internal deceleration	Fault
0	1	Drive follows command value of external control unit in active operation mode	Normal operating state
1	0	Internal PLC controls drive via an MC function block	
1	1		Not possible

Tab. 5-16: Cases to be distinguished for bit 3 and bit 6



In the easy startup mode, bit "6 = 0" and "bit 3 = 1" are set, too, as the drive follows the command value input!

Detailed information regarding bit 12 "command value reached"

As described in the table, bit 12 "command value reached" is generated depending on the active operation mode:

Active operation mode:	Bit 12 "command value reached"
None	0
Torque control	No message
Velocity control	n_feedback = n_command (S-0-0330)
Cycl. position control	IN_POSITION (S-0-0336)
Drive-internal interpolation	IN_TARGET_POSITION (S-0-0437; bit 1)
Drive-controlled positioning	IN_TARGET_POSITION (S-0-0338 or S-0-0437; bit 2: ITP)
Positioning block mode	End position reached (P-0-4061; bit 4) S-0-0338 "in target position" && no sequential block
Position and velocity synchronization	In synchronization (P-0-0089; bit 8)

P-0-0115 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.2.3 P-0-0116, Device control: Control word

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific

Function This parameter shows the effective input of the drive control word. The value written to this parameter is the respective drive control word of the active master communication of easy startup mode or the MLD.

Analog interface, parallel interface: P-0-4028

Profibus, CANopen, DeviceNet and Interbus: P-0-4077 and P-0-4068

PROFINET, EtherNet IP: [P-0-4077](#) and [P-0-4068](#)

sercos and EtherCAT: [S-0-0134](#)

Easy startup mode: [P-0-0120](#)

or by the drive-internal MLD

Structure

Bit	Designation/function	Comment
12/11/ 9/8	Command operation mode 0000: Primary operation mode 0001: Secondary operation mode 1 0010: Secondary operation mode 2, etc. 0111: Secondary operation mode 7 1000: Internal secondary operation mode 8 ... 1111: Internal secondary operation mode 15 Bit 12 activates the internal secondary operation modes 8 to 15. which are used by the MLD and in easy startup mode.	
13	Drive Halt 0: Drive Halt active. The drive was decelerated while observing maximum acceleration (S-0-0138) if bits 14 and 15 were → "1" with 1 → "0". 1: Drive Halt inactive	
14	Drive enable 0: Drive enable inactive; the driving torque was switched off without delay if the drive was active with 1 → 0. 1: Drive enable active	
15	Drive ON 0: Drive ON inactive; the drive was decelerated in the best possible manner, if bit 14 was → "1" with 1 → "0". 1: Drive ON active	

Tab. 5-17: Relevant bits of P-0-0116

Use The control bits in parameter "[P-0-0116](#)" are also contained in the control words that are dependent on master communication ([S-0-0134](#), [P-0-4077](#), [P-0-4068](#) and [P-0-4028](#)) and can consequently also be handled in these control words.

[P-0-0116](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

5.2.4 P-0-0117, Activation of control unit reaction on error

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific
Function	This parameter allows activating an error reaction controlled by the control unit. When error reaction controlled by the control unit is active, the control

unit (external control/NC or local MLD) still can input command values for the drive for 30 s. This allows realizing an error reaction coordinated by the control unit in the case of an error.



After 30 seconds, the error reaction set in "P-0-0119, Best possible deceleration" is carried out.

See also Functional Description "NC reaction on Error"

Structure

Bit	Designation/function	Comment
0	NC error reaction 0: Deactivated 1: Activated	
1	MLD error reaction 0: Deactivated 1: Activated	

Tab. 5-18: P-0-0117, Activation of NC reaction on error

Use

Observe the following aspects for using the function:

- Using the NC error reaction is only possible when non-fatal errors (F2xxx, F3xxx) occurred.
- Using the MLD error reaction is only possible when non-fatal errors (F2xxx, F3xxx) or interface errors occurred.
- The MLD error reaction is only possible at active function package ("ML") via IndraMotion MLD (drive-PLC). If a fatal error occurs, the error reaction can be done from an external control unit, too.
- A selection of NC error reaction and MLD error reaction at the same time is impossible.



The MLD error reaction is only done at active function package ("ML").

P-0-0117 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.2.5 P-0-0119, Best possible deceleration

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function

This parameter determines the way the drive is decelerated.

Structure

Bit	Parameterization and description of the error reaction	
3-0	Parameterizable best possible deceleration as error reaction to - Non-fatal errors F2xxx - Interface errors F4xxx - Deactivating the drive enable 0_{hex}: Emergency stop The valve control variable is ramped to the standstill value. After "P-0-2928.0.8" has elapsed, the standstill value is output. 1_{hex}: Impossible 2_{hex}: Quick stop In the event of an error, the closed-loop-controlled drive is shut down in velocity control or the open-loop-controlled drive is shut down using a command value ramp, which is determined by "S-0-0372" and the jerk limit value "S-0-0349". If the value of "S-0-0372" = "0", the value in "S-0-0138" is effective. 3_{hex}: Return motion The drive generates a position command value profile for moving along the desired path of travel. During the return motion, model monitoring is deactivated! In the event of an error, a relative travel block is therefore activated, which is defined by the following parameters: "P-0-0055" Return distance "P-0-0056" Return velocity "P-0-0057" Return acceleration "P-0-0058" Return jerk	The return motion is only available in connection with the expansion package "SRV" ("Enabling of functional packages")!
7-4	Parameterizable best possible deceleration as error reaction to Travel range error F6xxx 0_{hex}: Emergency stop The valve control variable is ramped to the standstill value. After "P-0-2928.0.8" has elapsed, the standstill value is output. 1_{hex}: Immediate shutdown In the event of an error, the output stage or the output to the valve is switched off. It must be noted that a valve without failsafe position could output an undefined control variable. 2_{hex}: Impossible 3_{hex}: Impossible	

Tab. 5-19: Setting the way the drive is decelerated with the above criteria

P-0-0119 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.2.6 P-0-0120, Control word easy startup

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function In the "easy startup" mode, this parameter is used for controlling the drive.



Bits 14 and 13 do not need to be configured; initially, they are set. When starting the "easy startup" mode command, bit 12 is set automatically. If bit 12 is cleared in the "easy startup" mode, operation modes 0-8 can be addressed.

See also Functional Description "Overview of master communication"

See also Functional Description "Setting-up mode (Easy Startup Mode)"

See also Functional Description "Operation modes"

Structure

Bit	Designation/function	Comment
12/11/9/8	Set operation mode Depending on the device or functional package, various operation modes can be selected. See also the tables below.	Bit 12 is set when the easy startup mode is activated.
13	Drive Halt 0: Drive Halt active. The drive was shut down adhering to the maximum acceleration (S-0-0372), if at 1->0, bits 14 and 15 were "1". 1: Drive Halt inactive	
14	Drive enable 0: Drive enable inactive; the drive torque was switched off without delay, if at 1->0 the drive was active. 1: Drive enable active	
15	Drive ON 0: Drive ON inactive; drive was decelerated with best possible deceleration, if at 1 -> 0, bit 14 was "1". 1: Drive ON active.	

Tab. 5-20: Relevant bits of the easy startup control word

Depending on the device or functional package, various operation modes can be selected:

Selectable operation modes

Device / functional package	Bit	List of operation modes that can be selected in easy startup
Axis controller, closed loop	12/11/9/8	Set operation mode 10x00: Closed-loop velocity control 10x01: Closed-loop torque/force control 10x11: Drive-controlled positioning, lagless 11x01: Direct valve control 11x10: Positioning block mode 11x11: Closed-loop pressure control / direct valve control (p/Q)

Axis controller, open loop	12/11/9/8	Set operation mode 10x01: Closed-loop torque/force control 11x01: Direct valve control 11x11: Closed-loop pressure control / direct valve control (p/Q)
p/Q	12/11/9/8	Set operation mode 11x00: Closed-loop flow control 11x01: Direct valve control 11x10: Closed-loop pressure/flow control (pFlow) 11x11: Closed-loop pressure control / direct valve control (p/Q)
Pump control (DFE)	12/11/9/8	Set operation mode 11x01: Direct valve control 11x10: Closed-loop pressure/swivel angle control 11x11: Closed-loop pressure/flow control

Tab. 5-21: Operation modes that can be selected in the easy startup mode depending on the device and functional package

P-0-0120 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: --	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --
HDx:	min./max.: --- / ---	Default value: ---

5.2.7

P-0-0121, Encoder 1 gearbox revolutions, mechanical side

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In special cases, a mechanical gear can be provided between encoder 1 and the actuator.

The **gear ratio** is defined as follows:

$$\frac{\text{P-0-0122, Geber-1-Getriebeumdrehungen, geberseitig}}{\text{P-0-0121, Geber-1-Getriebeumdrehungen, mechanikseitig}}$$

Fig. 5-5: Gear ratio of encoder 1 gear

Example:

5 motor revolutions result in 2 encoder revolutions

→ **P-0-0121:** 5

→ **P-0-0122:** 2

See also functional description "Motor, mechanical axis system, measuring systems"

P-0-0121 - Attributes

Function: Par	Editable: PM	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV
Unit: Rev	Extr. val. ch.: +	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 5

HDx:	min./max.: 1 / 65535	Default value: 1

5.2.8 P-0-0122, Encoder 1 gearbox revolutions, encoder side

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»					
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In special cases, a mechanical gear can be provided between encoder 1 and the actuator.

The **gear ratio** is defined as follows:

P-0-0122, Geber-1-Getriebeumdrehungen, geberseitig P-0-0121, Geber-1-Getriebeumdrehungen, mechanikseitig

Fig. 5-6: Gear ratio of encoder 1 gear

Example:

5 motor revolutions result in 2 encoder revolutions

→ P-0-0121: 5

→ P-0-0122: 2

P-0-0122 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

HDx:	min./max.: 1 / 65535	Default value: 1

5.2.9 P-0-0139, Analog output 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Analog-Out 1					
	Device parameter:	device-specific					

Function This parameter indicates the value (voltage or current), which is output via analog output 1 of the drive controller.

This depends on the setting in parameter [P-0-2918.0.1](#) (HDB) or [P-0-2918.0.2](#) (HDC), Hardware control word of analog inputs and outputs.

Limit values for voltage: Min. -10 V, max. +10 V

Limit values for current: Min. 0 mA, max. 20 mA

See also functional description "Analog inputs/outputs"

P-0-0139 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: s. Text / s. Text	Default value: 0,000

5.2.10 P-0-0140, Analog output 2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Analog-Out 2					
	Device parameter:	device-specific					

- Function** This parameter indicates the value (voltage or current), which is output via analog output 2 of the drive controller.
- This depends on the setting in parameter [P-0-2918.0.1](#) (HDB) or [P-0-2918.0.2](#) (HDC), Hardware control word of analog inputs and outputs.
- Limit values for voltage: Min. -10 V, max. +10 V
- Limit values for current: Min. 0 mA, max. 20 mA
- See also functional description "Analog inputs/outputs"

P-0-0140 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text Default value: 0,000

5.2.11 P-0-0142, Synchronization acceleration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

- Function** This parameter contains the value of the acceleration or deceleration with which the synchronous velocity is reached during dynamic synchronization (velocity adjustment).

It is used in the synchronization modes and in the operation mode "position control drive-controlled".

See also Functional Description "Synchronization Modes"

See also Functional Description "Position Control With Cyclic Command Value Input"

P-0-0142 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: [S-0-0160](#) / [S-0-0160](#) Default value: 100,000

5.2.12 P-0-0143, Synchronization velocity

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

- Function** This parameter contains the value of the positioning velocity with which, during dynamic synchronization, the distance to absolute synchronization is traveled (position adjustment).

It is used in the synchronization modes and in the operation mode "position control drive-controlled".

See also Functional Description "Synchronization Modes"

See also Functional Description "Position Control With Cyclic Command Value Input"

P-0-0143 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0044 / S-0-0044 Default value: 10,0000

5.2.13 P-0-0145, Oscilloscope: List of measured values 3

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The measured values of channel 3 of the oscilloscope function are stored in chronological order in parameter "P-0-0145, Oscilloscope: list of measured values 3". The oldest measured value is the first element of the list of measured values.

The recorded signal is the one identified by means of the IDN entered in "P-0-0147, Oscilloscope: signal selection 3".



Attribute, unit etc. are automatically adjusting to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0145 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.2.14 P-0-0146, Oscilloscope: List of measured values 4

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The measured values of channel 4 of the oscilloscope function are stored in chronological order in parameter "P-0-0146, Oscilloscope: list of measured values 4". The oldest measured value is the first element of the list of measured values.

The recorded signal is the one identified by means of the IDN entered in "P-0-0148, Oscilloscope: signal selection 4".



Attribute, unit etc. are automatically adjusting to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0146 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.2.15 P-0-0147, Oscilloscope: Signal selection 3

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The IDN entered in "P-0-0147" defines the signal that is to be recorded by channel 3.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated by entering "0" or using "S-0-0000".

After recording has been completed, the recorded measured values are contained in parameter "P-0-0145, Oscilloscope: List of measured values 3".

See also Functional Description "Oscilloscope Function"

P-0-0147 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.2.16 P-0-0148, Oscilloscope: Signal selection 4

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The IDN entered in "P-0-0148" defines the signal that is to be recorded by channel 4.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated by entering "0" or using "S-0-0000".

After recording has been completed, the recorded measured values are contained in parameter "P-0-0146, Oscilloscope: List of measured values 4".

See also Functional Description "Oscilloscope Function"

P-0-0148 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.2.17 P-0-0149, Oscilloscope: Signal selection list

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The parameter "P-0-0149, Oscilloscope: Signal selection list" contains all parameters that are suitable as trigger signal (P-0-0026) or measuring signal (P-0-0023, P-0-0024, P-0-0147, P-0-0148).

See also Functional Description "Oscilloscope Function"

P-0-0149 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.2.18 P-0-0150, Oscilloscope: Number of valid measured values

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC» «-»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:							axis-specific
Function	When the oscilloscope feature has been activated, the signal to be recorded is continuously transmitted to a measured values memory. When the trigger event occurs, the recording is stopped and the list of measured values can be read. The oldest measured value is the first element of this list, the latest measured value is the last element.							
	If the trigger event occurs before this measured value memory is completely filled, a number of measured values at the beginning of the list is invalid. The number of valid measured values before the trigger event is made available in the "P-0-0150, Oscilloscope: number of valid measured values" parameter.							
	See also Functional Description "Oscilloscope Function"							
P-0-0150 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_OV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: ---		

5.2.19 P-0-0151, Synchronization window for modulo format

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB»		«HDC»		«-»	
	Contained in 20VRS: «HDB»		«HDC»		«HDE»	«HDP» «HDM» «-»
	Device parameter: axis-specific					
Function	In the second step of dynamic synchronization (position adjustment), a distance is determined that has to be traveled for transition to absolute synchronization. If the position difference is greater than the "synchronization window for modulo format" (P-0-0151), the direction of synchronization is determined by parameter "P-0-0154, Synchronization direction". If the position difference is smaller than the value of parameter P-0-0151, synchronization takes place over the shortest distance.					
	See also Functional Description for the operation mode "Phase Synchronization With Real/Virtual Master Axis"					
	See also Functional Description "Synchronization Modes"					
P-0-0151 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 10,0000	

5.2.20 P-0-0152, Synchronization completed

Allocation	Contained in 16VRS: «-»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC» «-»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»						
	Device parameter: axis-specific						
Function	In the case of the NC-controlled or drive-controlled change of operation modes, the parameter "P-0-0152, Synchronization completed" confirms that the drive is controlled by the cyclic position command value again.						

In the case of the operation modes "phase synchronization" and "cam", bit 0 is set to "1" after the first synchronization when the distance up to absolute or relative synchronization was traveled. Once bit 0 has been set, it depends on parameter P-0-0155 (bit 0) whether the bit is cleared, in case parameter "S-0-0048, Additive position command value" is changed, until the position difference resulting from it was traveled. If bit 0 is set to "1" in parameter "P-0-0155, Synchronization mode", bit 0 remains set to "1".

See also Functional Description "Synchronization Modes"

See also Functional Description "Phase Synchronization With Real/Virtual Master Axis"

P-0-0152 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

5.2.21 P-0-0153, Optimum distance home switch-reference mark

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function While the command for "Homing" is being executed, the distance between switch edge or blocking identifier (positive stop) and reference marks is monitored when reference switches, travel range limit switches or positive stop (ancillary equipment for homing on the axis side) and evaluation of encoder reference marks are monitored. In the case of reference marks with identical distances, half the reference mark distance is regarded as optimum distance. The optimum distance must be entered in the parameter "P-0-0153, Optimum distance home switch-reference mark" according to the table below.

See also functional description "Establishing the dimensional reference"

Structure

Encoder	P-0-0153	Function
Rotary	0	The distance is being monitored. The optimum distance is calculated internally and amounts to 1/2 encoder turn in the case of incremental rotary encoders.
Rotary	(Value)	The distance is being monitored. In "P-0-0153, Optimum distance home switch-reference mark" half the reference mark distance must be entered.
Linear	0	The distance is not being monitored. The linear encoder has no reference marks with a regular distance to each other. It must be made certain that the actual distance between the switch edge or blocking identifier and reference mark is sufficiently great to ensure a clear recognition of the same reference mark edge.
Linear	(Value)	The distance is being monitored. In "P-0-0153, Optimum distance home switch-reference mark" half the reference mark distance must be entered.

Tab. 5-22: Determination of the value for "P-0-0153"

P-0-0153 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0076 / S-0-0076 Default value: 0,0000

5.2.22 P-0-0154, Synchronization direction

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In the second step of dynamic synchronization (position adjustment) a distance is determined that has to be traveled for transition to absolute synchronization.

In the case of modulo axes, the drive can move in positive or negative direction. The synchronization direction determines in which direction the drive is to move.

See also Functional Description "Synchronization Modes"

Structure

P-0-0154	Function
0	shortest distance
1	positive direction
2	negative direction

Tab. 5-23: Synchronization Direction

Use If the shortest distance to absolute synchronization, however, is smaller than "P-0-0151, Synchronization init window for modulo format", the shortest distance is traveled and the preset synchronization direction is ignored.

P-0-0154 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x2 Default value: 0x0

5.2.23 P-0-0162, C1800 Axis optimization procedure command

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter is used to start the command for automatic measurement. To this end, the drive enable has to be present and the axis must have been homed.

The drive now changes to a drive-internal operation mode and automatically traverses the axis within the set end positions. In doing so, the "maximum velocity, P-0-0171" and the "maximum acceleration, S-0-0138" are not exceeded.



If S-0-0138 is equal to 0, a maximum acceleration of 3000 mm/s² is assumed internally.

The sequence of the command is divided into 2 steps: Coarse measurement and fine measurement.

The coarse measurement is carried out to detect any inflection points and thus to achieve a more precise result in the fine measurement.

While the measurements are taken, the axis is traversed at various velocity levels between the end positions entered. The existing output adjustment is

utilized. The active parameter set for valve standard velocity and direction-dependent gain is taken into account. Any valve characteristic curves or a valve overlap are not considered.

After the valve characteristic curve was measured, the valve standard velocity (negative/positive), direction-dependent gain and valve offset are overwritten by the values established. The characteristic curve type is switched to "asymmetric", and the characteristic curve points are entered.

The current axis optimization progress is signaled by means of own command diagnostic messages. After the measurement was completed, the axis returns to the position, at which the automatic measurement was started.

Structure

Bit	Designation/function	Comment
0	Command in drive 0: Clear 1: Set	
1	Command execution 0: Interrupt 1: Execute	

Tab. 5-24: P-0-0162, C1800 Command Drive optimization / command value box

P-0-0162 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.2.24 P-0-0165, Axis optimization, control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter is used to activate the various procedures of axis optimization.

Structure

Bit	Designation/function	Comment
0-2	Reserved	
3	Establishing the valve standard velocity/velocities 0: Not active 1: Active	Determine valve standard velocity/velocities / determine direction-dependent gain as of HDx20V12
4	Determine valve characteristic curve 0: Not active 1: Active	Determine valve characteristic curve / standard velocity/velocities / direction-dependent gain

Bit	Designation/function	Comment
5-14	Reserved	
15	Parameter set to be taken into account 0: Only the current parameter set is taken into account 1: The selected parameter sets are taken into account (preselection range according to P-0-2217)	as of HDx20V12

Tab. 5-25: Relevant bits of axis optimization, control word

Use Since the function “establish valve characteristic curve” also determines the valve standard velocity/velocities, either bit 3 or bit 4 should be set. If both bits are set at the same time, the function “establish valve characteristic curve” is executed. If reserved bits are set, command error C1810 is triggered.

P-0-0165 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x10

5.2.25 P-0-0166, Optimization of axis, end position negative

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Lower limit position; during the measuring process the axis traverses on its own between this position and the positive end position, [P-0-0167](#).



It may happen that the limit positions are slightly overrun during the measuring process. It is therefore recommended that a safe distance to the actual limit stop be maintained. Moreover, travel range monitoring can be activated additionally.

P-0-0166 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: [S-0-0076](#) / [S-0-0076](#) Default value: 0,0000

5.2.26 P-0-0167, Optimization of axis, end position positive

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Upper limit position; during the measuring process, the axis traverses on its own between this position and the end negative position, [P-0-0166](#).



It may happen that the limit positions are slightly overrun during the measuring process. It is therefore recommended that a safe distance to the actual limit stop be maintained. Moreover, travel range monitoring can be activated additionally.

P-0-0167 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.2.27 P-0-0170, Drive optimization, acceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In this parameter, the maximum acceleration is set, at which the axis may traverse during drive optimization.

P-0-0170 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 10,000	

5.2.28 P-0-0171, Optimization of axis, maximum velocity

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In this parameter, the maximum velocity is set, at which the axis may traverse during drive optimization.

P-0-0171 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.2.29 P-0-0177, Encoder 1, absolute encoder buffer

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ActualValue.AbsEncBuffer1				

Function In the case of absolute position encoders, current encoders are saved when the position data reference is being established. The data saved are shown in this parameter. They are used for position re-initialization and for position monitoring when the drive is switched on the next time. The data saved are shown in a list and cannot be interpreted by the customer. They serve for special diagnostic purposes for service and development personnel.

P-0-0177 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.2.30 P-0-0178, Encoder 2, absolute encoder buffer

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
	Device parameter:	axis-specific				

Property name: ActualValue.AbsEncBuffer2

Function In the case of absolute encoder 2, the current encoder data are saved when the drive is switched off. The data saved are shown in this parameter. They are used for position re-initialization and for position monitoring when the drive is switched on the next time.

The data saved are shown in a list and cannot be interpreted by the customer. They serve for diagnostic purposes for service and development personnel.

See also functional description "Monitoring the measuring systems"

P-0-0178 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.2.31 P-0-0180, Acceleration feedforward smoothing time constant

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Property name: VelControl.AccFeedforwardFilterTime

Function The parameter allows filtering of

- the twofold differentiated position command value (cyclic position control loop),
- the differentiated velocity command value (velocity control loop),

using a 1st order low-pass filter in order to achieve an acceleration feedforward control which does not result in any impermissibly high excitation of the system even if the position and/or velocity resolution is poor. Depending on the command value input the twofold differentiation may result in a very noisy feedforward control value.

See also functional description "Axis control (closed-loop operation)"

P-0-0180 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: 0 / 10000			Default value: 0	

5.2.32 P-0-0187, Position command processing mode

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	PosGenerator.SetPosProcessingMode					

Function For jerk-free motion in the "Position control" operation mode, the position command values transmitted via the command value channel are fine interpolated.

Parameter "P-0-0187" can be used to select the following types of interpolation:

- Linear fine interpolation P-0-0187 = 0
- Cubic approximation P-0-0187 = 1
- Cubic fine interpolation according to contour P-0-0187 = 2

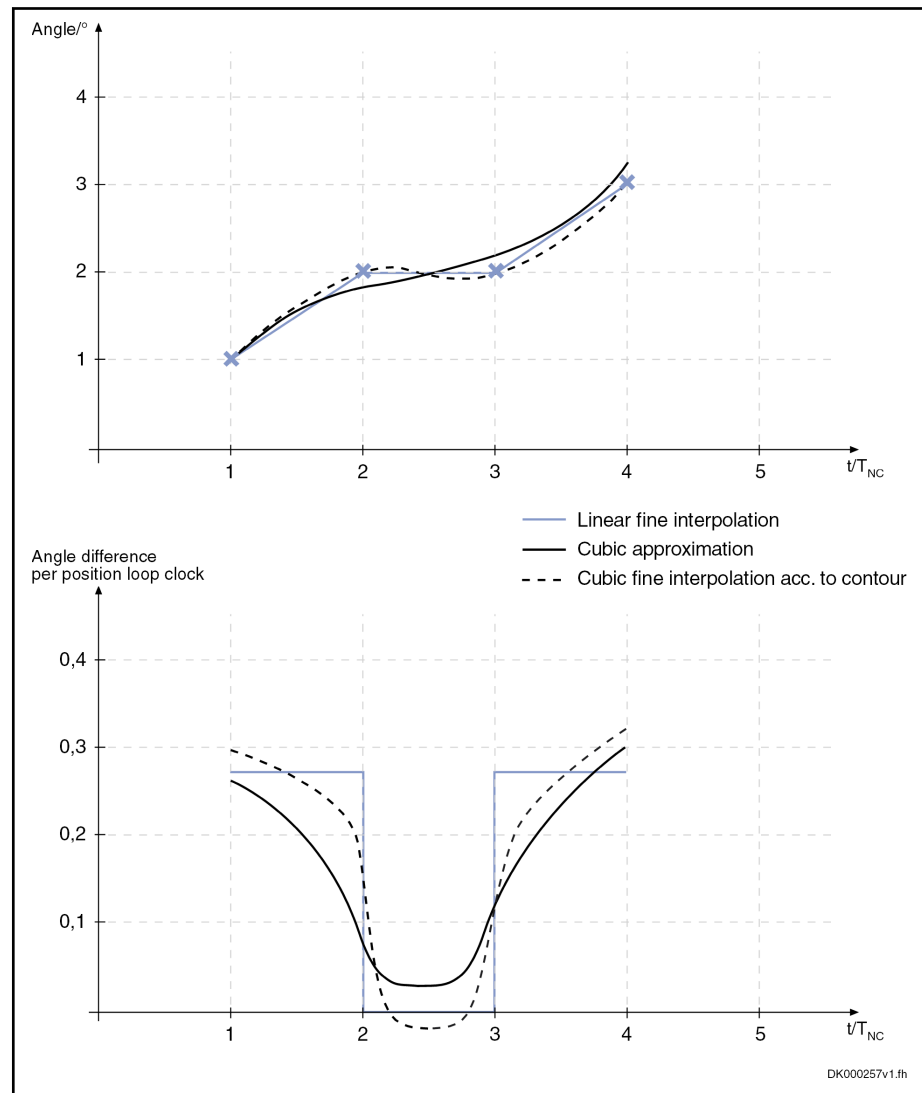


Fig. 5-7: Differences Between the Types of Interpolation

Linear fine interpolation P-0-0187 = 0

The cyclically transmitted position command values (S-0-0047) are interpreted as being connected straight.



In case of this type of interpolation, the cyclically set position command value only takes effect one command value cycle after it was set at the position controller input. The downstream position command value filter (P-0-0099) only takes effect in case of linear interpolation!

Cubic approximation P-0-0187 = 1 (default setting)

The cyclically transmitted position command values (S-0-0047) are connected by a jerk-optimized polynomial. This can cause slight path deviations, because the main purpose of this type of interpolation is jerk limitation.

Cubic fine interpolation according to contour P-0-0187 = 2

The cyclically transmitted position command values (S-0-0047) are connected by a polynomial according to the contour. In this case, it is impossible to generate a jerk-optimized path, because the main purpose is interpolation according to contour. This means the fine-interpolated position command value curve runs exactly through the cyclically transmitted position command values (interpolation points).



With "cubic approximation" and "cubic fine interpolation according to contour", only defined values are allowed for the clock ratio.

$$\text{Clock ratio} = \text{NC\_cycle time} / T_{a\_position}$$

Clock ratio (interpolation cycle to position clock)

Clock ratio	Position clock 1000 µs	Position clock 2000 µs
1 to 8 - in steps of one	1 ms to 8 ms	2 ms to 16 ms
10 to 16 - in steps of two	10 ms to 16 ms	20 ms to 32 ms
20 to 32 - in steps of four	20 ms to 32 ms	40 ms to 64 ms

Tab. 5-26: Clock Ratios (Interpolation Cycle to Position Clock)

Example of 1000 µs:

Clock ratio	Position clock 1000 µs
1 to 8 - in steps of one (1, 2, 3, 4, 5, 6, 7, 8)	1000 µs, 2000 µs, 3000 µs, 4000 µs, 5000 µs, 6000 µs, 7000 µs, 8000 µs
10 to 16 - in steps of two (10, 12, 14, 16)	10000 µs, 12000 µs, 14000 µs, 16000 µs
20 to 32 - in steps of four (20, 24, 28, 32)	20000 µs, 24000 µs, 28000 µs, 32000 µs

Tab. 5-27: Position Clock

P-0-0187 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0x0 / 0x2	0x1
HDC:	0x0 / 0x2	0x1
HDE:	0x0 / 0x2	0x1
HDP:	0x0 / 0x2	0x1
HDM:	0x0 / 0x2	0x1
HDS:	--- / ---	0x0

5.2.33 P-0-0187.0.1, Maximum allowed command value failures

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter determines the allowed maximum number of command value failures for the operation mode of cyclic position control and master axis operation

In the case of a permitted command value failure, the command value is extrapolated.

If the command value failures in succession exceed the permitted number, error F4038 is triggered.

The function is effective additionally for telegram failure monitoring in master communication

Use The function prevents uncontrolled command values (extrapolation) in the case of a longer telegram of master communication.

P-0-0187.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 1 / 8	Default value: 2

5.2.34 P-0-0188, Encoder 1 control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Structure In this parameter, basic settings are made with regard to encoder 1.

Bit	Designation/function	Comment
0	Place of mounting of encoder 1 0: Encoder 1 is mounted on the actuator side. 1: Encoder 1 is mounted on the load side.	
1	Immediate reference with absolute measuring systems 0: Immediate reference is deactivated. 1: Immediate reference with absolute measuring systems, if these can be evaluated absolutely.	
2..15	Reserved	

Tab. 5-28: P-0-0188, Encoder 1 control word

P-0-0188 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0x2

5.2.35 P-0-0190, Operating hours control section

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	device-specific					

Function This parameter displays the operating time of the drive's control section. By means of this parameter it is possible to display the total duty cycle of the control electronics since the delivery of the device. If a class 1 diagnostics error occurs, the content of this parameter at this point of time is stored at the first place in the "P-0-0193, Error memory operating hours of control section" parameter.



The value is displayed in seconds and is stored on the control section!

See also Functional Description "Operating Hours Counter"

P-0-0190 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	RETAIN_GER-AET	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---				Default value: ---

5.2.36 P-0-0192, Error memory of diagnostic numbers

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function When the drive diagnoses a class 1 diagnostics error, a bit is set in parameter "S-0-0011, Class 1 diagnostics". Bit 13 for "Error in class 1 diagnostics" is then set in the drive status word.

See also Functional Description "Error Memory (Power Section and Control Section)"

Use In order to allow a more detailed diagnosis

- the diagnostic number appears on the display and is stored in parameter "S-0-0390, Diagnostic message number",
- the plain text of diagnosis is stored in parameter "S-0-0095, Diagnostic message",
- the respective error number is stored in parameter "P-0-0009, Error number".

The diagnostic number that belongs to the error and is displayed in "S-0-0390, Diagnostic message number" is also stored in the "P-0-0192, Diagnostic numbers of error memory" parameter. In the form of a stack, this parameter contains, in chronological order, the diagnostic numbers of the last 50 errors occurred. The last error occurred is entered at the top.

The count of the "P-0-0190, Operating hours control section" parameter at the time the error is detected is stored in the "P-0-0193, Error memory operating hours of control section" parameter in the same order.



The parameter is stored on the control section.

P-0-0192 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	ON_BOARD_S	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.2.37 P-0-0193, Error memory operating hours of control section

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function When the drive diagnoses a class 1 diagnostics error, a bit is set in parameter "S-0-0011, Class 1 diagnostics". Bit 13 for "Error in class 1 diagnostics" is then set in the drive status word.

See also Functional Description "Error Memory (Power Section and Control Section)"

Use In order to allow a more detailed diagnosis

- the diagnostic number appears on the display and is stored in parameter "S-0-0390, Diagnostic message number",
- the plain text of diagnosis is stored in parameter "S-0-0095, Diagnostic message",
- the respective error number is stored in parameter "P-0-0009, Error number".

The count of the "P-0-0190, Operating hours control section" parameter at the time the error is detected is stored in the "P-0-0193, Error memory operating hours of control section" parameter. In the form of a stack, this parameter contains, in chronological order, the hours-run meter counts of the last 50 errors occurred. The count of the last error occurred is entered at the top.

The diagnostic number belonging to the error in accordance with "S-0-0390, Diagnostic message number" is stored in the "P-0-0192, Diagnostic numbers of error memory" parameter in the same order.



The parameter is stored on the control section.

P-0-0193 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	ON_BOARD_S	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.2.38 P-0-0195, IDN list of retain data (replacement of devices)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In this list, the IDNs of those parameters are stored the values of which are required for replacement of devices.

The parameter values of the IDNs listed in "P-0-0195":

- are only allowed to be loaded after a defective controller has been replaced and
- had to be saved directly before the device was replaced!

Otherwise the current parameter values of target position, absolute encoder, etc. are overwritten with old values which can cause incorrect drive behavior!

NOTICE

Property damage caused by errors when controlling motors and moving parts!

After having loaded the parameter values according to the IDN list of retain data ([P-0-0195](#)), check the actual position values and the current target position!

See also Functional Description "Notes on How to Replace the Devices"

P-0-0195 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.2.39 P-0-0196, Additional information of control section firmware

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:	device-specific					

Function The build date and build time of the drive firmware can be read from this parameter as a text.

See also Functional Description "System Overview"

P-0-0196 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.2.40 P-0-0197, System time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:	device-specific					

Function This parameter contains the system time in Windows file time format (elapsed time in 100ns increments since 1601-01-01).

This way, the system time is offered in a second format besides the format according to IEC 61588 (parameter [S-0-1305.0.1](#)).

Structure Parameter "[P-0-0197](#)" is a 64-bit value with a structure in the form of a list with two elements having a length of 4 bytes.

Element		Content
1	Low word	System time (fine)
2	High word	System time (coarse)

Tab. 5-29: Structure of P-0-0197, System time

Use Observe the following for parameterizing or interpreting the parameter:

- The system time counter is activated when the second element of "[P-0-0197](#)" is written.
- If a time is written via this parameter, it is converted to the format according to IEC 61588. Times prior to 1970-01-01 cannot be displayed.

- The system time counter for this parameter is updated every 2 milliseconds.

P-0-0197 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.2.41 P-0-0198, System time error memory

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
	Device parameter:	axis-specific

Function The state of the parameter "P-0-0197, System time" is stored in the parameter "P-0-0198" when the error is detected. It can be used in conjunction with the parameters "P-0-0197" and "P-0-0199" to establish an axis-comprehensive time reference in the case of error.

See Functional Description "Handling, Diagnostic and Service Functions"

Structure This parameter is built in the form of a stack and contains the system meter reading of the latest 50 errors in chronologically continuous order. First you see the meter reading of the latest occurred error. The unit of the recorded times is [10² ns].



Hereby, 2 elements of a parameter result in a time stamp, as the system time is displayed with 64 bit (8 byte)!

Element		Content	Notes
1	Low Word	system time (fine)	Time for error (k)
2	High Word	system time (coarse)	
3	Low Word	system time (fine)	Time for error (k1)
4	High Word	system time (coarse)	
5	Low Word	system time (fine)	Time for error (k2)
6	High Word	system time (coarse)	
...	...	...	...
99	Low Word	system time (fine)	Time for error (k49)
100	High Word	system time (coarse)	

Tab. 5-30: Construction of P-0-0198, System Time Error Memory

P-0-0198 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	ON_BOARD_S	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.2.42 P-0-0199, System time error code

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific					

Function The parameter "P-0-0199" contains the error number consistent to "P-0-0197, System time". It can be used in conjunction with the parameters "P-0-0197" and "P-0-0198" to establish an axis-comprehensive time reference in the case of error.



Therewith, via extracting the parameters from the old device and bringing in the parameters to the replaced device, the error history can remain on the installation when the device must be changed.

See Functional Description "Handling, Diagnostic and Service Functions"

P-0-0199 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	ON_BOARD_S	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3 P-0-0201 - P-0-0500

5.3.1 P-0-0208, Analog input 5

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware Device parameter:	Analog-In 5 device-specific					

Function This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type) currently applied to analog input 5.

See also functional description "Analog interface"

See also functional description "Analog inputs/outputs"

Use For example, the parameter content can be

- transferred cyclically to the control,
- or
- assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y") (e.g. for pressure measurement).

P-0-0208 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.2 P-0-0209, Analog input 6

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»

	Hardware	Analog-In 6		
	Device parameter:	device-specific		
Function	This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type) currently applied to analog input 6.			
	See also functional description "Analog interface"			
	See also functional description "Analog inputs/outputs"			
Use	For example, the parameter content can be			
	transferred cyclically to the control, or			
	assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y") (e.g. for pressure measurement).			
P-0-0209 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	V	Extr. val. ch.:	--
	Cycl. tra.:	AT	Comb. check:	--
			Data length:	2Byte
			Format:	DEC_MV
			Decim. pl.:	3
			Set-depend.:	--
	HDx:	min./max.: --- / ---		Default value: ---

5.3.3 P-0-0210, Analog input 1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Analog-In 1				
	Device parameter:	device-specific				
Function	This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type and as supported by the electronics) currently applied to analog input 1.					
	See also functional description "Analog interface"					
	See also functional description "Analog inputs/outputs"					
Use	For example, the parameter content can be					
	• directly processed in the drive PLC, • transferred cyclically to the control, • or assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y").					
P-0-0210 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.4 P-0-0211, Analog input 2

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Analog-In 2					
	Device parameter:	device-specific					
Function	This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type and as supported by the electronics) currently applied to analog input 2.						
	See also functional description "Analog interface"						
	See also functional description "Analog inputs/outputs"						

- Use** For example, the parameter content can be
- directly processed in the drive PLC,
 - transferred cyclically to the control,
 - or assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y").

P-0-0211 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.5 P-0-0212, Analog input, list of assignable parameters

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware Device parameter:	Analog-In x axis-specific				

- Function** This list parameter contains the IDNs of the parameters which can be entered in "P-0-2900.x.2, Analog encoder input, assignment, target parameters". These parameters are available for assigning an analog input value.

See also functional description of firmware "Analog interface"

See also functional description of firmware "Analog inputs/outputs"

P-0-0212 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.6 P-0-0221, Analog input 7

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware Device parameter:	Analog-In 7 device-specific				

- Function** This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type) currently applied to analog input 7.

See also functional description "Analog interface"

See also functional description "Analog inputs/outputs"

- Use** For example, the parameter content can be
- transferred cyclically to the control,
- or
- assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y") (e.g. for pressure measurement).

P-0-0221 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.7 P-0-0222, Travel range limit switch inputs

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In this parameter the signals of the travel range limit switch inputs are displayed. It is used to diagnose the travel range limit switch inputs.

See also Functional Description "Position Limitation/Travel Range Limit Switch"

Structure

Bit	Designation/function	Comment
0	signal "limit switch +" 0: 0 V 1: +24 V	
1	signal "limit switch -" 0: 0 V 1: +24 V	

Tab. 5-31: Relevant bits of P-0-0222, Travel range limit inputs



When the travel range limit switches are activated, the respective digital inputs at the control section must already have been assigned to the respective bits of P-0-0222 via P-0-0300 and P-0-0301. This was realized as the default setting!

P-0-0222 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.8 P-0-0223, E-Stop input

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The state of the E-stop input is mapped in this parameter. The parameter can be used to check the "E-stop input" or for visualization by means of a commissioning program.

See also Functional Description "E-Stop Function"

Structure

Bit	Designation/function	Comment
0	E-stop input state 0: Activated (0 V) 1: Not activated (+24 V)	

Tab. 5-32: Structure of Parameter "P-0-0223, E-Stop input"

Use 24 V must be applied to the hardware input to allow normal operation of the drive. If the "E-Stop function" is activated, "bit 0" of this parameter must be assigned to a digital input. The assignment to a digital input is made via the I/O configuration in parameter "P-0-0300, Digital inputs, assignment list".

P-0-0223 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.9 P-0-0228, Analog input 3

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Analog-In 3				

Device parameter: device-specific

Function This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type and as supported by the electronics) currently applied to analog input 3.

See also functional description "Analog interface"

See also functional description "Analog inputs/outputs"

Use For example, the parameter content can be

- directly processed in the drive PLC,
- transferred cyclically to the control,
- or assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y").

P-0-0228 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.10 P-0-0229, Analog input 4

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Hardware	Analog-In 4				

Device parameter: device-specific

Function This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type) currently applied to analog input 4.

See also functional description "Analog interface"

See also functional description "Analog inputs/outputs"

Use For example, the parameter content can be

- transferred cyclically to the control,

or

- assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y") (e.g. for pressure measurement).

P-0-0229 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.11 P-0-0250, System identification

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Parameter for entering the system identification for mechatronic systems. The parameter is not used by the drive for operation and can be used by a higher-level control as desired.

- The parameter can be written with the UTF-8 character set.
- Size in number of bytes: 64
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.
- When default values are being loaded, the parameter is cleared (actual length = 0).

P-0-0250 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.12 P-0-0250.0.1, System data

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Parameter for entering the system identification at mechatronic systems. The parameter is not used by the drive for operation and can be used by a higher-order control as desired.

- The parameter can receive 40 elements of 32-bit size.

P-0-0250.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.13 P-0-0250.0.10, IndraWorks view manager

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter is used to store the set IndraWorks view on the drive.

Use The basic settings are defined via list element 0:

- **0:** No view
- **1:** Expert mode
- **x:** Version of the IndraWorks view manager

List elements 1 to 5 serve to store IndraWorks data.

P-0-0250.0.10 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.14 P-0-0256, Analog input 8

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«-»	«HDP»	«HDM»
Hardware	Analog-In 8					
Device parameter:	device-specific					

Function This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected input type) currently applied to analog input 8.

See also functional description "Analog interface"

See also functional description "Analog inputs/outputs"

Use For example, the parameter content can be

- transferred cyclically to the control,
- or
- assigned to an internal drive parameter (see assignment parameter "P-0-2900.x.y") (e.g. for pressure measurement).

P-0-0256 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.15 P-0-0260, C99 Service function command

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
Device parameter:	axis-specific					

Function The command is used by the manufacturer service department to execute specific functions for debugging and setting the devices.

P-0-0260 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.16 P-0-0269, Oscilloscope: Channel number setting

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function The available memory can be divided for an oscilloscope recording. The more channels that are selected, the less is the recording depth per channel.



This parameter cannot be changed during a recording.

P-0-0269 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: 4 / 8		Default value: 8	

5.3.17 P-0-0270, Oscilloscope: Signal selection 5

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The IDN entered in "P-0-0270, Oscilloscope: Signal selection 5" defines the signal that is to be recorded by channel 5.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated with the input "0" or "S-0-0000".

When the recording is over, the recorded measured values are contained in parameter "P-0-0274, Oscilloscope: List of measured values 5".

See also Functional Description of Firmware "Oscilloscope Function"

P-0-0270 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 0	

5.3.18 P-0-0271, Oscilloscope: Signal selection 6

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The IDN entered in "P-0-0271, Oscilloscope: Signal selection 6" defines the signal that is to be recorded by channel 6.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated with the input "0" or "S-0-0000".

When the recording is over, the recorded measured values are contained in parameter "P-0-0275, Oscilloscope: List of measured values 6".

See also Functional Description of Firmware "Oscilloscope Function"

P-0-0271 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 0	

5.3.19 P-0-0272, Oscilloscope: Signal selection 7

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function The IDN entered in "P-0-0272, Oscilloscope: signal selection 7" defines the signal that is to be recorded by channel 7.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated with the input "0" or "S-0-0000".

After recording has been completed, the recorded measured values are contained in parameter "P-0-0276, Oscilloscope: List of measured values 7".

See also Functional Description of Firmware "Oscilloscope Function"

P-0-0272 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0

5.3.20 P-0-0273, Oscilloscope: Signal selection 8

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The IDN entered in "P-0-0273, Oscilloscope: signal selection 8" defines the signal that is to be recorded by channel 8.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated by entering "0" or using "S-0-0000".

After recording has been completed, the recorded measured values are contained in parameter "P-0-0277, Oscilloscope: List of measured values 8".

See also Functional Description of Firmware "Oscilloscope Function"

P-0-0273 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0

5.3.21 P-0-0274, Oscilloscope: List of measured values 5

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In parameter "P-0-0274, Oscilloscope: List of measured values 5" the measured values of channel 5 of the oscilloscope function are stored in chronological order. The oldest measured value is the first element of the list of measured values.

The signal that is defined by the IDN entered in "P-0-0270, Oscilloscope: signal selection 5" is recorded.



The attribute, unit, etc. automatically adjust to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0274 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.22 P-0-0275, Oscilloscope: List of measured values 6

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In parameter "P-0-0275, Oscilloscope: List of measured values 6" the measured values of channel 6 of the oscilloscope function are stored in chronological order. The oldest measured value is the first element of the list of measured values.

The signal that is defined by the IDN entered in "P-0-0271, Oscilloscope: signal selection 6" is recorded.



The attribute, unit, etc. automatically adjust to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0275 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.23 P-0-0276, Oscilloscope: List of measured values 7

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In parameter "P-0-0276, Oscilloscope: List of measured values 7" the measured values of channel 7 of the oscilloscope function are stored in chronological order. The oldest measured value is the first element of the list of measured values.

The signal that is defined by the IDN entered in "P-0-0272, Oscilloscope: signal selection 7" is recorded.



The attribute, unit, etc. automatically adjust to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0276 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.24 P-0-0277, Oscilloscope: List of measured values 8

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In parameter "P-0-0277, Oscilloscope: List of measured values 8" the measured values of channel 8 of the oscilloscope function are stored in chronological order. The oldest measured value is the first element of the list of measured values.

The signal that is defined by the IDN entered in "P-0-0273, Oscilloscope: signal selection 8" is recorded.



The attribute, unit, etc. automatically adjust to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0277 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.3.25 P-0-0279, Oscilloscope: Trend mode, time resolution

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The time resolution (sampling rate) defines the time in which the trend records its data.

See also Functional Description "Oscilloscope Function"

Use This setting also defines the time in which data must be retrieved. Since the buffer has only limited recording capacity, the buffer must be read more frequently when the time is short than when it is long.

P-0-0279 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 2 / 65535	Default value:	8

5.3.26 P-0-0280, Oscilloscope: Trend mode, list of measured values

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The list of measured values contains the current trend data. Here, it must be noted that the trend can only be recorded until the list is full. Once the list is full, recording stops.

While reading is in progress, the data are written to a second buffer in the background; thereafter, the buffer is switched. This double buffer mechanism ensures that no data get lost by the reading process.



Only one program is allowed to evaluate the trend because the buffer is switched after each reading process and older data are no longer accessible.

See also Functional Description "Oscilloscope Function"

Structure The trend is a list parameter having the following structure:

Element	Contents
0	Currently, the version information uses only the low word The low byte contains the version of the trend data (currently 1) The high byte contains the number of channels (4 in this example)
1	Time stamp of P-0-0197 (low word) for the first data record
2	Time stamp of P-0-0197 (high word)
3	Data of signal selection 1
4	Data of signal selection 2
5	Data of signal selection 3
6	Data of signal selection 4
7	Time stamp of P-0-0197 (low word) for the second data record
8	Time stamp of P-0-0197 (high word)
9..12	Dates of the signals
13	Time stamp of P-0-0197 (low word) for the next data record
..	
n	Data of signal selection 4 - of the last data record

Tab. 5-33: Structure of List of Measured Values



If a signal selection is not used, the corresponding entry is set to zero.

These data can, e.g., be stored on a PC and used for long-term recording or continuous display. Any potential data loss can be recognized by a greater distance between two time stamps.

P-0-0280 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.27 P-0-0300, Digital inputs, assignment list

Allocation	Contained in 16VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Contained in 17VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Contained in 18VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function "P-0-0300" is a list of parameter IDNs.

"P-0-0300" is used to parameterize to which parameter the respective input is assigned. The status of digital input 1 (bit 0 in parameter "P-0-0303"), for ex-

ample, is assigned to the first parameter of list "P-0-0300". To which bit it is assigned, is determined by parameter "P-0-0301".

Use Selection lists

The IDNs allowed for the configuration are contained in the following list parameters

- **Output signals:** "S-0-0398, IDN list of configurable data in signal status word"
- **Input signals:** "S-0-0399, IDN list of configurable data in signal control word"

P-0-0300 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: s. Text	

5.3.28 P-0-0301, Digital inputs, bit numbers

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter is used to configure the assignment of the control section's digital inputs.

"P-0-0301" is used to determine to which bit of the parameter defined in "P-0-0300, Digital inputs, assignment list" the corresponding input status is assigned. Every list entry correlates to the relevant entry in the list "P-0-0300".

P-0-0301 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: s. Text	

5.3.29 P-0-0303, Digital inputs, input image of device

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This parameter shows the levels present at digital inputs of the HydraulicDrive. The state of the digital inputs is updated within the position controller clock cycle.

"1" means that a "high" level is present, "0" means "low" level.

This write-protected parameter is used to display the externally applied levels.

How many digital inputs are available on the HydraulicDrive depends on the device type. See also functional description "Configurable digital I/O"

Structure

Bit	Designation/function	
0	Digital input 1	0: "low" level is present 1: "high" level is present
1	Digital input 2	0: "low" level is present 1: "high" level is present
2	Digital input 3	0: "low" level is present 1: "high" level is present
3	Digital input 4	0: "low" level is present 1: "high" level is present
4	Digital input 5	0: "low" level is present 1: "high" level is present
5	Digital input 6	0: "low" level is present 1: "high" level is present
6	Digital input 7	0: "low" level is present 1: "high" level is present
7	Digital input 8	0: "low" level is present 1: "high" level is present
8 to 31	Reserved	

Tab. 5-34: P-0-0303. Digital inputs, input image of device

P-0-0303 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.30 P-0-0304, Digital outputs, output image of device

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function "P-0-0304" shows the status to be issued for the digital switching output. Bit 0 correlates to the topmost element of "P-0-0310" and "P-0-0311".

It is possible to write "P-0-0304" as parameter from a secondary source, e.g. a control system, in order to operate the digital output in this way. To this end it is necessary to write "S-0-0000" to the correlating entry in "P-0-0310" in order that "P-0-0304" is not overwritten internally by the assignment. The value in "P-0-0304" is written to the digital output within the position controller cycle.

P-0-0304 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.31 P-0-0310, Digital outputs, assignment list

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	"P-0-0310" is a list of parameter IDNs. With "P-0-0310", you can parameterize which parameter (which bit, see P-0-0311) is transmitted to which output bit (P-0-0304). The IDN of the parameter to be output is entered in "P-0-0310". The list length corresponds to the number of digital outputs of the device. The default value for all list entries is S-0-0000.					
P-0-0310 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.32 P-0-0311, Digital outputs, bit numbers

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter is used to configure the assignment of the digital outputs of the control section. "P-0-0311" determines, which bit of the parameter defined in "P-0-0310" is mapped to the relevant digital output. The first element of this list relates to the first element of the parameter list "P-0-0310". The selected bit of the parameter chosen in "P-0-0310" is transferred to "P-0-0304". The list length corresponds to the number of digital outputs of the device. The default value for all list entries is 0.					
P-0-0311 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.33 P-0-0322, Task load

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: device-specific					
Function	The performance load display shows the averaged percentage task runtime in relation to the total runtime. This parameter can be used to draw conclusions about the CPU load of the drive controller. The higher the value displayed, the higher the load of the interrupt/task system of the drive controller.					
P-0-0322 - Attributes	 If the load rises to a value above approx. 90%, communication and command processing may be slower. See also Parameter Description "P-0-0322.0.1, Performance load config"					
	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.3.34 P-0-0322.0.1, Task load config

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter can be used to configure P-0-0322.0.0, Performance load config.



The functional principle of the parameter is documented only internally, or evaluations are reserved to customer support.

P-0-0322.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.35 P-0-0322.0.2, Prewarning threshold - performance utilization

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-2790					

Function During operation the averaged CPU load is calculated (P-0-0322). With the help of "P-0-0322.0.2" you can parameterize the prewarning threshold for the critical load of the CPU. The parameterized value becomes effective when the parameter mode is exited for the first time. When the prewarning threshold is exceeded, warning E2004 is generated.

Notes on parameterization:

- The prewarning threshold can be switched off with P-0-0322.0.2 = 100 %
- We recommend a value < 90%. Please note that a loading > 90 % can result in slower reactions to acyclic communication requests, reduced MLD computer assignments and increased processing times for commands. In the case of loading > 95 % trouble-free operation can no longer be ensured (F9003 watchdog).



If the loading is very high, values greater than 100 % may be displayed, because internal evaluation functions are no longer called in time.

P-0-0322.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,00 / 100,00 Default value: 90,00

5.3.36 P-0-0322.x.4, Task Trace

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter has been implemented for internal diagnostic messages.



The functional principle of the parameter is documented only internally, or evaluations are reserved to customer support.

P-0-0322.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.37 P-0-0391, Actual position value difference encoder1 - encoder2

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
	Device parameter:	axis-specific				
	Property name:	ActualValue.EncDiffWindow				

Function This parameter indicates the difference of the actual position values of encoder 1 and encoder 2. The value is updated every 2 msec.

$$P-0-0391 = S-0-0051 - S-0-0053$$

P-0-0391 Actual position value difference encoder1 - encoder2
S-0-0051 Actual position value encoder 1
S-0-0053 Actual position value encoder 2

Fig. 5-8: Definition of actual position value difference P-0-0391

See also Functional Description "Monitoring the Measuring Systems"

P-0-0391 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: ---	

5.3.38 P-0-0393, IDN groups: Control word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This parameter determines which IDN group is output in "P-0-0394, IDN groups: List".

P-0-0393 IDN groups: Control word	P-0-0394 IDN groups: List
0000H	No selection
0001H	All parameters with scaling-dependent attributes (aren't changed any more in phase 4).
0002H	All parameters the attributes of which can still change in phase 4.
0010H	All parameters with position scaling (S-0-0076).
0011H	All parameters with speed scaling (S-0-0044).

0012H	All parameters with acceleration scaling (S-0-0160).
0013H	All parameters with torque scaling (S-0-0086).

Use In the case of new control units it is aimed at relieving the non-cyclical data channel of unnecessary or iterative requests. This primarily implies repeated collection of the attributes. This is also done if the attributes cannot change online in the drive. As there are attributes that are changing online (due to scaling-dependence of the parameter or free assignment of signals as, for example, in the case of the oscilloscope), it is necessary to give the control unit a possibility to recognize the different characteristics of the attributes. Up to now SERCOS hasn't provided any procedure for this purpose. An aggravating fact is that the existing parameters are depending on the firmware version.

An online procedure was therefore realized with which the control unit can read via an IDN list which parameters are pertaining to the individual attribute variants.



The current enabling of functional packages is taken into account for determination by means of the list.

P-0-0393 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.39 P-0-0394, IDN groups: List

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function This parameter contains the IDN group selected in the parameter "P-0-0393, IDN groups: Control word".

See also Parameter Description "P-0-0393, IDN groups: Control word"

P-0-0394 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.40 P-0-0395, Average value filter for display: Signal selection

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This list parameter is used for configuring the signals which are to be filtered by means of average value filter for display. It has exactly 2 elements (IDNs) for the two filters:

- Element 1: Signal selection for display filter 1
- Element 2: Signal selection for display filter 2



The two filters are independent of each other and can be separately activated or deactivated. The average value filter for display is calculated in the position clock ($T_{A,position}$)!

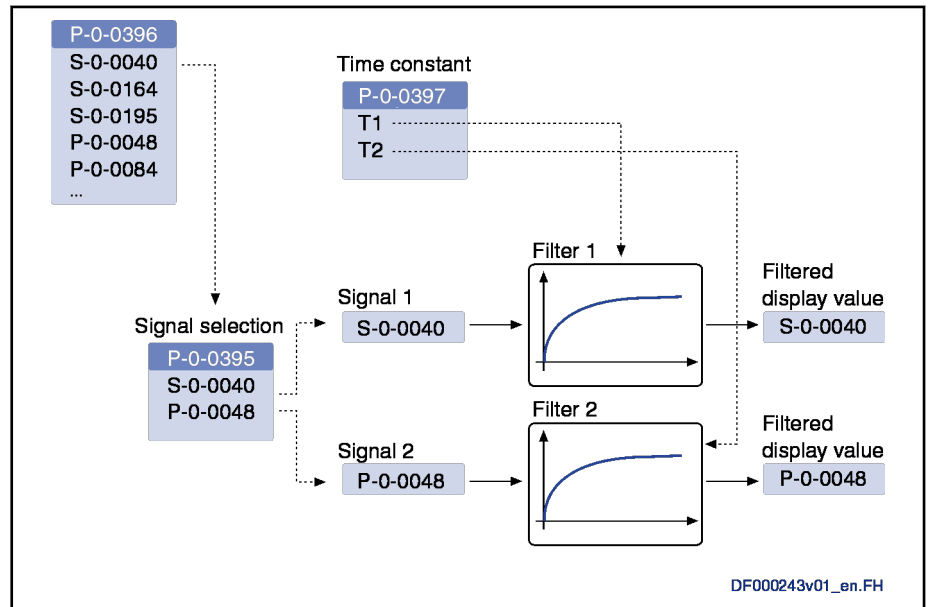


Fig. 5-9: Function - Average Value Filter for Display

Use Observe the following aspects for signal selection:

- It is only possible to select signals from the parameter "P-0-0396, Average value filter for display: Signal selection list".
- The filter function is deactivated, when the signal "S-0-0000" has been selected.

Observe the following aspects in conjunction with the recording of the signals in the oscilloscope function or the output at the analog outputs:

- The order of parameterization must be observed!
 - If first the signal for the average value filter for display is set and then the same signal is selected as measuring signal in the oscilloscope, the filtered value is recorded in the oscilloscope.
 - If the order is inverse, the non-filtered value is recorded.
- If the signal for the average value for display is changed or cleared, automatic switching does not take place with the oscilloscope function. The signal has to be selected again as measuring signal.

See also Parameter Description "P-0-0396, Average value filter for display: Signal selection list"

See also Parameter Description "P-0-0397, Average value filter for display: Time constant"

P-0-0395 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.3.41 P-0-0396, Average value filter for display: Signal selection list

Allocation

Contained in 16VRS:
Contained in 17VRS: «HDB»

«-»

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function The parameter S-0-0396 contains all parameters (IDNs) which can be used as signals for the average value filter for display (cf. [P-0-0395](#)).

See also Parameter Description "[P-0-0397](#), Average value filter for display: Time constant"

Structure The following parameters are contained in the signal list:

- [S-0-0040](#), Velocity feedback value
- [S-0-0084](#), Torque/force feedback value
- [S-0-0164](#), Acceleration feedback value 1
- S-0-0195, Acceleration feedback value 2
- [S-0-0347](#), Velocity error
- S-0-0380, DC bus voltage
- S-0-0382, DC bus power
- P-0-0038, Torque-generating current, command value
- P-0-0039, Flux-generating current, command value
- P-0-0043, Torque-generating current, actual value
- P-0-0044, Flux-generating current, actual value
- [P-0-0048](#), Effective velocity command value
- [P-0-0049](#), Effective torque/force command value
- P-0-0141, Thermal drive load
- P-0-0440, Actual output current value (absolute value)
- P-0-0442, Actual value torque limit positive (stationary)
- P-0-0443, Actual value torque limit negative (stationary)
- P-0-0444, Actual value peak torque limit
- P-0-4046, Effective peak current
- ...



As the content of the list can be permanently extended, it is recommended to read the list at the respective drive to get the current list content.

[P-0-0396](#) - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.42 [P-0-0397](#), Average value filter for display: Time constant

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»
	Device parameter:	axis-specific

Function The parameter "[P-0-0397](#)" is used to parameterize the filter effect (= time constant of the PT1 filter) of the average value filters for display. It has exactly 2 elements (IDNs) for the two display filters:

- Element 1: Time constant for display filter 1

- Element 2: Time constant for display filter 2



The two filters are independent of each other and can be separately activated or deactivated. The average value filter for display is calculated in the position clock ($T_{A,position}$)!

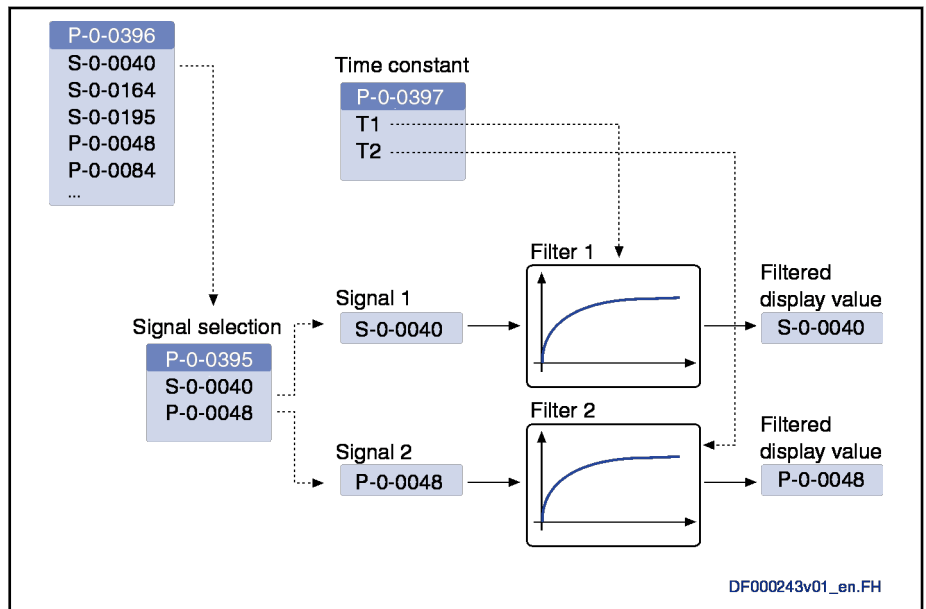


Fig. 5-10: Function - Average Value Filter for Display

Use Observe the following during parameterization:

- With "0" the filter function is inactive in spite of signal input.
- Inputs on a time base of 0.5 ms (max. position loop clock) are accepted.

P-0-0397 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,0 / 2000,0 **Default value:** s. Text

5.3.43 P-0-0400, Axis correction external correction value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Via this parameter the control master can cyclically send a position correction value to the drive.

See also Functional Description "Axis Error Correction"

Use Thereby, on the control side, correct errors in the actual position value of the drive. The control-side correction is activated when P-0-0400 has been included in the master data telegram. The values for P-0-0400 must have position scaling according to "S-0-0076, Position data scaling type". The control-side correction is contained in the "servo" expansion package and is only available after functional package has been enabled.

See also Parameter Description "S-0-0076, Position data scaling type"

P-0-0400 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV

Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.3.44 P-0-0401, Axis correction active correction value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter displays the currently effective correction value for the actual position value.



The actual position value system to be corrected is selected via the respective bit of "P-0-0413, Axis correction control word".

See also Functional Description "Axis Error Correction"

See also Parameter Description "S-0-0076, Position data scaling type"

P-0-0401 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.45 P-0-0408, Axis correction start position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The start position of the correction range for the precision axis error correction is determined in this parameter. The correction range is between P-0-0408 and "P-0-0409, Axis correction end position".



The actual position value system to be corrected is selected via the respective bit of "P-0-0413, Axis correction control word".

See also Functional Description "Axis Error Correction"

P-0-0408 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.3.46 P-0-0409, Axis correction end position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The end position of the correction range for the precision axis error correction is displayed in this parameter. The correction range is between "P-0-0408, Axis correction start position" and P-0-0409.



The actual position value system to be corrected is selected via the respective bit of "P-0-0413, Axis correction control word".

See also Functional Description "Axis Error Correction"

P-0-0409 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.47 P-0-0410, Axis correction support point distance

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function The support point distance for the correction range of the precision axis error correction is determined by means of this parameter. The correction values entered in "P-0-0411/P-0-0412, Axis correction, correction table positive/negative" refer to the support points of the correction range.



With the value "0" in P-0-0410, the precision axis error correction is deactivated, if the value is greater than "0" it is activated!

See also Functional Description "Axis Error Correction".

Use The correction range is between "P-0-0408, Axis correction start position" and "P-0-0409, Axis correction end position" and has a number of support points which corresponds to the maximum number of rows from "P-0-0411" or "P-0-0412". The value of P-0-0410 is the distance between the neighboring support points.

P-0-0410 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: s. Text	

5.3.48 P-0-0411, Axis correction, correction table positive

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function For precision axis error correction the position correction values for the support points of the correction range are to be entered in the table lines of this list parameter. The correction values for P-0-0411 have to be established in the positive direction of movement, since they only become effective in the drive in the positive direction of movement.

The maximum number of allowed support points has to be read from the parameter. In the following, the maximum number is briefly referred to as "n".

See also Functional Description: "Axis error correction"

Use In the first and the last table line used, the value "0" has to be written, since otherwise, a step-like change of the actual position values occurs at the start and at the end position of the correction range!

Table line index	P-0-0411 (positive direction)
0	0 (correction value at start position P-0-0408)
1	Correction value at support point 1
2	Correction value at support point 2
3	Correction value at support point 3
4	Correction value at support point 4
5	Correction value at support point 5
....	
n - 2	Correction value at support point (n - 2)
n - 1	0 (correction value at end position P-0-0409)

Tab. 5-35: Assignment of support point correction values to the table line index of correction tables P-0-0411, with a utilization of n support points



The number of correction values can range between 6 and n, otherwise the error "Data not correct" is signaled when this parameter is written!

P-0-0411 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: s. Text	

5.3.49 P-0-0412, Axis correction, correction table negative

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function For precision axis error correction you have to enter position correction values for the support points of the correction range in the table lines of this list parameter. The correction values for P-0-0412 have to be established in the negative direction of movement, since they only become effective in the drive in the negative direction of movement.

The maximum number of allowed support points has to be read from the parameter. In the following, the maximum number is briefly referred to as "n".

See also Functional Description: "Axis error correction"

Use In the first and the last table line used, the value "0" has to be written, since otherwise, a step-like change of the actual position values occurs at the start and at the end position of the correction range!

Table line index	P-0-0412 (negative direction)
0	0 (correction value at start position P-0-0408)
1	Correction value at support point 1
2	Correction value at support point 2
3	Correction value at support point 3
4	Correction value at support point 4

Table line index	P-0-0412 (negative direction)
5	Correction value at support point 5
....	
n - 2	Correction value at support point (n - 2)
n - 1	0 (correction value at end position P-0-0409)

Tab. 5-36: Assignment of support point correction values to the table line index of correction tables P-0-0412, with a utilization of n support points



The number of correction values can range between 6 and n, otherwise the error "Data not correct" is signaled when this parameter is written!

P-0-0412 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: s. Text	

5.3.50 P-0-0413, Axis correction control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Axis error correction is used to correct systematic errors of mechanical systems and the measuring systems in the actual position value system.

See also Functional Description "Axis error correction"

Structure

Bit	Designation/function	Comment
0	Actual position value correction of encoder 1 0: No 1: Yes	
1 to 15	Reserved	

Tab. 5-37: Relevant bits of P-0-0413

P-0-0413 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0x0 / 0x1			Default value: 0x0	

5.3.51 P-0-0414, Analog output 3

Allocation	Contained in 16VRS:						«-»		
	Contained in 17VRS:	«-»							
	Contained in 18VRS:	«-»	«HDC»						«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»		
	Hardware	Analog-Out 3							
Device parameter:	device-specific								

Function This parameter indicates the value (voltage or current), which is output via analog output 3 of the drive controller.

This depends on the setting in parameter [P-0-2918.0.2](#), Hardware control word of analog inputs and outputs.

Limit values for voltage: Min. -10 V, max. +10 V

Limit values for current: Min. 0 mA, max. 20 mA

See also functional description "Analog inputs/outputs"

P-0-0414 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text Default value: 0,000

5.3.52 P-0-0415, Analog output 4

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «-» «HDM» «-»
Hardware	Analog-Out 4	
Device parameter:	device-specific	

Function This parameter indicates the value (voltage or current), which is output via analog output 4 of the drive controller.

This depends on the setting in parameter [P-0-2918.0.2](#), Hardware control word of analog inputs and outputs.

Limit values for voltage: Min. -10 V, max. +10 V

Limit values for current: Min. 0 mA, max. 20 mA

See also functional description "Analog inputs/outputs"

P-0-0415 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text Default value: 0,000

5.3.53 P-0-0418, Analog output, assignment A, signal value at 0V

Allocation	Contained in 16VRS:	«HDB»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
Hardware	Analog-Out	
Device parameter:	axis-specific	

Function In this parameter, the reference definition of the analog output for assignment A (value in case of output 0 V or 0 mA) is made. The unit is determined by the parameter assigned in "[P-0-0420](#), Analog output, assignment A, signal selection".

In case of assignment of parameters with the display attribute "binary", the parameter is not active.

See also Functional Description "Analog outputs"

P-0-0418 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.3.54 P-0-0419, Analog output, assignment B, signal value at 0V

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«-» «-» «-»
	Contained in 20VRS:					«-» «-» «-» «-» «-» «-»
	Hardware					Analog-Out
Device parameter:						axis-specific
Function	In this parameter the reference of the analog output of assignment B (value with an output of 0 V) is defined. The unit is determined by the parameter assigned in "P-0-0423, Analog output, assignment B, signal selection".					
	When assigning parameters with the "binary" display attribute, the parameter is not active.					
	See also Functional Description "Analog Outputs"					
P-0-0419 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:					
			min./max.: --- / ---		Default value: 0	

5.3.55 P-0-0420, Analog output, assignment A, signal selection

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«-» «-» «-»
	Contained in 20VRS:					«-» «-» «-» «-» «-» «-»
	Hardware					Analog-Out
	Device parameter:					axis-specific
Function	This parameter can be used to assign a parameter IDN to the analog output 1 of the drive controller. The current parameter value is output as voltage at the analog output if the mode of the analog output in "P-0-0427, Control parameter of analog output" is set to putting out assignment A. The output voltage can, for example, be made visible by means of an oscilloscope.					
	Only such IDNs can be assigned that are listed in "P-0-0426, Analog output, IDN list of assignable parameters".					
	See also Functional Description "Analog outputs"					
P-0-0420 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					
	min./max.: --- / ---				Default value: s. Text	

5.3.56 P-0-0422, Analog output, assignment A, scaling [1/V]

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«-» «-» «-»
	Contained in 20VRS:						«-» «-» «-» «-» «-» «-»
	Hardware						Analog-Out
	Device parameter:						axis-specific
Function	This parameter is used to scale the voltage or current signal output by analog output 1. The unit is determined by the parameter assigned in "P-0-0420, Analog output, assignment A, signal selection".						
	In case of assignment of parameters with the display attribute "binary", the number of the bit which is to be output at the analog output is defined in this parameter. If the corresponding bit is not set, the output voltage is 0 V. If it is set, 1 V is output.						
	See also Functional Description "Analog outputs"						

P-0-0422 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: -10000 / 10000			Default value: 1000	

5.3.57 P-0-0423, Analog output, assignment B, signal selection

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Hardware	Analog-Out				
	Device parameter:	axis-specific				

Function This parameter can be used to assign a parameter IDN to the analog output 2 of the drive controller. The current parameter value is output as voltage at the analog output if the mode of the analog output in "P-0-0427, Control parameter of analog output" is set to putting out assignment B. The output voltage can, for example, be made visible by means of an oscilloscope.

Only such IDNs can be assigned that are listed in "P-0-0426, Analog output, IDN list of assignable parameters".

See also Functional Description "Analog outputs"

P-0-0423 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.58 P-0-0425, Analog output, assignment B, scaling [1/V]

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Hardware	Analog-Out				
	Device parameter:	axis-specific				

Function This parameter is used to scale the voltage output by analog output 2. The unit is determined by the parameter assigned in "P0-0423, Analog output, assignment B, signal selection".

In case of assignment of parameters with the display attribute "binary", the number of the bit which is to be output at the analog output is defined in this parameter. If the corresponding bit is not set, the output voltage is 0 V. If it is set, 1 V is output.

See also Functional Description "Analog outputs"

P-0-0425 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: -10000 / 10000			Default value: 1000	

5.3.59 P-0-0426, Analog output IDN list of assignable parameters

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Analog-Out 1, Analog-Out 2, Analog-Out 3, Analog-Out 4				
	Device parameter:	axis-specific				

Function This parameter contains the parameter IDN list of all state variables and signals of the axis, which can be output to an analog output by assignment.

See also Functional Description "Analog Inputs and Outputs"

P-0-0426 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.60 P-0-0427, Control parameter of analog output

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
Hardware	Device parameter:	Analog-Out axis-specific

Function The control parameter serves to define the signal source and restrictions for the analog outputs:

See also Functional Description "Analog outputs"

Structure

Bit	Designation/function	Comment
0	Assignment A, limitation 0: Overflow 1: Limitation	
2	Analog output 1, signal source 0: Direct output of voltage signals via P-0-0139 1: Output of parameter values via "Analog output: Assignment A"	

Tab. 5-38: Relevant bits of P-0-0427, Control parameter of analog output



For the control of a hydraulic valve, the analog output may only be operated in "Limitation" mode. The "Overflow" mode is used for diagnostic purposes and allows for the output of internal parameter values across a large value range.

P-0-0427 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.3.61 P-0-0432, Correction value: position controller quadrant correction

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function This parameter displays the current proportion of quadrant correction.

Use This parameter can be used to display the proportion of quadrant correction of the control signal or of the position controller output "[P-0-2831.0.4](#)" separately.

P-0-0432 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.62 P-0-0434, Position command value of controller

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosGenerator.SetPosActive					

Function This parameter is used to display the position command value effective at the position loop input. Depending on the active operation mode, this position command value can be

- the position command value generated and filtered by the drive itself (e.g., in the case of interpolation modes)
- the position command value cyclically set by a control unit, and filtered and fine-interpolated in the drive.



The internal position command value "P-0-0434, Position command value controller" is generated in the position loop clock (cf. P-0-0556)!

See also Functional Description "Cyclic Position Control"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Synchronization Modes"

P-0-0434 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.63 P-0-0435, Control word of position controller

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In this parameter it is possible to activate additional functions of the position loop.

Structure

Bit	Designation/function	Comment
0	quadrant error correction 0: inactive 1: active	

Tab. 5-39: Relevant bits of P-0-0435

P-0-0435 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x1 Default value: 0x0

5.3.64 P-0-0436, Reference radius for quadrant error correction

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
Function	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Use	Device parameter:	axis-specific					
P-0-0436 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: S-0-0076 / S-0-0076				Default value: 100,0000	

5.3.65 P-0-0437, Velocity time range for quadrant error correction

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
Function	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:		axis-specific					
P-0-0437 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: S-0-0044 / S-0-0044				Default value: 0,0000	



If value "0" is set, quadrant error correction is deactivated.

See also Functional Description "Quadrant Error Correction"

5.3.66 P-0-0438, Table of path velocities for quadrant error correction

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
Function	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:		axis-specific					
P-0-0438 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	

HDx: min./max.: S-0-0044 / S-0-0044 Default value: s. Text

5.3.67 P-0-0439, Table of velocity pulse for quadrant error correction

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter corresponds to "P-0-0438, Table of path velocities for quadrant error correction".

In the lines of this list parameter a maximum of 20 velocity pulse amplitudes can be entered in ascending order. The values are assigned to the path velocities of the corresponding lines of P-0-0438.

See also Functional Description "Quadrant Error Correction"

P-0-0439 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0044 / S-0-0044 Default value: s. Text

5.3.68 P-0-0454, Velocity feedforward actual value

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	PosControl.CtrlActVelFFPart

Function This parameter displays the current velocity feedforward control value.

The parameter is related to "S-0-0044, Velocity data scaling type".

Use With lagless operation modes, the velocity feedforward control is calculated in the position controller on the basis of the position command values and added to the velocity command value in dependence on "P-0-0040 Velocity feedforward evaluation".

P-0-0454 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.69 P-0-0456, Position command value delay

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter is used to set the position command value delay, it specifies the number of position clocks to be delayed.

The position command value generator (P-0-0457) is the input value of the command value delay function, the output value is the position command value of controller (P-0-0434). The output value can be delayed by up to 32 position clocks. The default setting is "0", that is to say the position command value delay function is not active.

P-0-0456 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / 32			Default value: 0	

5.3.70 P-0-0457, Position command value generator

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

- Function** This parameter displays the position command value without delay. Depending on the active operation mode, this position command value can be
- the position command value generated, filtered and fine interpolated by the drive itself (e.g., in the case of interpolation modes) or
 - the position command value cyclically set by a control unit, filtered and fine interpolated in the drive.

The position command value generator is the input value of the command value delay function, the output value is the position command value of controller (P-0-0434). The output value can be delayed by up to 32 position clocks, the number of clocks is set with the position command value delay (P-0-0456).



The internal position command value "P-0-0457, Position command value generator" is generated in the position loop clock (cf. P-0-0556)!

See also Functional Description "Position Control With Cyclic Command Value Input"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

P-0-0457 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.71 P-0-0458, Delay of add. command values

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific				

- Function** This parameter delays the efficiency of "S-0-0081, Additive torque/force command value" and therefore supports the external acceleration feedforward control. The control cyclically delivers the value of the acceleration feedforward control to the drive as additive torque/force command value. The delay ensures that "P-0-0070, Effective additive torque/force command value" becomes active simultaneously with "P-0-0434, Position command value of controller". To achieve this, the effective torque/force command value can be delayed by a maximum of 64 position clocks.

If the value is set higher than zero, the function is activated. This also activates an average value filter (P-0-0041) and a linear fine interpolator (control clock in position clock) according to position command value acceptance.

The function is also activated if value "-1" is set. In this context, the active delay is calculated internally according to the formula presented in the note below (max. 64 clock pulses).



The necessary number of delay clocks depends on (P-0-0456, Position command value delay) and the type of fine interpolation (P-0-0187).

Linear fine interpolation: $P-0-0458 = P-0-0456 + 1$

"Cubic approximation" and "cubic fine interpolation": $P-0-0458 = P-0-0456 + (NC \text{ clock/position clock} - 1) + 1$ (the term is no longer applicable with a clock ratio of 1/1)

P-0-0458 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -1 / 64			Default value: 0	

5.3.72 P-0-0470, Block patch: Block selection

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function This parameter, along with parameter "P-0-0471", is intended for extended diagnostic purposes.

P-0-0470 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.73 P-0-0471, Block patch: Block data

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function This parameter, along with parameter "P-0-0470", is intended for extended diagnostic purposes.

P-0-0471 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.74 P-0-0478, Logbook event

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
Device parameter:	device-specific	

Function This parameter displays a code which allows the drive development staff to diagnose drive-internal states.

Use The entries in this parameter are realized automatically by the controller subject to internal states. The entry time is retained in "P-0-0479, Logbook time stamp".



The value displayed in this parameter can only be interpreted with internal knowledge of the firmware! Therefore, the user cannot utilize this parameter! It is write-protected and cannot be changed!

P-0-0478 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	ON_BOARD_S	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

5.3.75 P-0-0479, Logbook time stamp

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	device-specific				

Function This parameter shows the time of entry in "P-0-0478, Logbook event". The value of "P-0-0190, Operating hours control section" is recorded in parameter "P-0-0478" at the corresponding time.



For this reason, this parameter cannot be used by the user. It is read-only and cannot be edited.

P-0-0479 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	ON_BOARD_S	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

5.3.76 P-0-0480, Patch function 1, source pointer

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter allows selecting a controller-internal memory cell. This memory cell can be read or written by means of the patch function 1.

See also Functional Description



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function! Therefore, only the development staff know the values of this parameter (memory addresses)!

See also Functional Description "Patch Function"

P-0-0480 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.77 P-0-0481, Patch function 1, attribute

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter is used to configure the access and the output to the controller-internal memory address selected in "P-0-0480, Patch function 1, source pointer".

See also Functional Description "Patch Function"

Structure

Bit	Designation/function	Comment
2/1/0	Source data type 0: INT4 1: INT2 2: INT1 3: FLOAT8 4: FLOAT4	
6/5/4	Source data output format 0: BIN 1: DEC w sign 2: DEC w/o sign 3: HEX 4: FLOAT 5: BOOL	
11-7	Reserved	
15-12	Address target system 0000: IndraDrive control section 0001: Host CPU of channel 1 of Safe Motion 0010: Host CPU of channel 2 of Safe Motion 0011: Co-CPU of channel 1 of Safe Motion 0101: Co-CPU of channel 2 of Safe Motion	Default IndraDrive control section
	0101: Host CPU of channel 1 and channel 2 of Safe Motion 0111: Co-CPU of channel 1 and channel 2 of Safe Motion	*

* The two codifications may only be set if the master password (P-0-4064 = 4) is set. This mode only supports write accesses. It does not support simultaneous read accesses.

Tab. 5-40: Relevant Bits of P-0-0481



The patch function is reserved for development personnel for diagnosing internal signal states and/or internal data and cannot be used by the customer.

P-0-0481 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: 0x30	

5.3.78 P-0-0482, Patch function 1, bit mask

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter defines a bit mask that acts on the output of the value of the controller-internal memory cell selected by "P-0-0480, Patch function 1, source pointer". This parameter acts subject to "P-0-0481, Patch function 1, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose firm-ware-internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

P-0-0482 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0xFFFFFFFF
HDC:	--- / ---	0xFFFFFFFF
HDE:	--- / ---	0xFFFFFFFF
HDP:	--- / ---	0xFFFFFFFF
HDM:	--- / ---	0xFFFFFFFF
HDS:	--- / ---	0x0

5.3.79 P-0-0483, Patch function 1, exponent

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter defines an exponent that acts on the output of the value of the controller-internal memory cell selected by "P-0-0480, Patch function 1, source pointer". This parameter acts subject to "P-0-0481, Patch function 1, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

P-0-0483 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: -32 / 32	Default value: 0

5.3.80 P-0-0485, Patch function 1, display

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function By means of this parameter it is possible to read or write a value to the content of a controller-internal memory cell. Further specifications and configurations are made in the other parameters relevant to the patch function (for details please see the Functional Description).



The patch function allows the development staff to diagnose firm-ware-internal signal states and data; customers cannot use this function! As unqualified writing to this parameter can interfere with the drive function, this parameter is write-protected!

See also Functional Description "Patch Function"

P-0-0485 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0x0 / 0xFFFFFFFF	Default value:	---

5.3.81 P-0-0486, Patch function 2, source pointer

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter allows selecting a controller-internal memory cell. This memory cell can be read or written by means of the patch function 2.

See also Functional Description



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function! Therefore, only the development staff know the values of this parameter (memory addresses)!

See also Functional Description "Patch Function"

P-0-0486 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	s. Text

5.3.82 P-0-0487, Patch function 2, attribute

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter is used to configure the access and the output to the controller-internal memory address selected in "P-0-0486, Patch function 2, source pointer".

See also Functional Description "Patch Function"

Structure

Bit	Designation/function	Comment
2/1/0	Source data type 0: INT4 1: INT2 2: INT1 3: FLOAT8 4: FLOAT4	
6/5/4	Source data output format 0: BIN 1: DEC w sign 2: DEC w/o sign 3: HEX 4: FLOAT 5: BOOL	
11-7	Reserved	
15-12	Address target system 0000: IndraDrive control section 0001: Host CPU of channel 1 of Safe Motion 0010: Host CPU of channel 2 of Safe Motion 0011: Co-CPU of channel 1 of Safe Motion 0101: Co-CPU of channel 2 of Safe Motion	Default IndraDrive control section
	0101: Host CPU of channel 1 and channel 2 of Safe Motion 0111: Co-CPU of channel 1 and channel 2 of Safe Motion	*

* The two codifications may only be set if the master password (P-0-4064 = 4) is set. This mode only supports write accesses. It does not support simultaneous read accesses.

Tab. 5-41: Relevant Bits of P-0-0487



The patch function is reserved for development personnel for diagnosing internal signal states and/or internal data and cannot be used by the customer.

P-0-0487 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x30	

5.3.83 P-0-0488, Patch function 2, bit mask

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter defines a bit mask that acts on the output of the value of the controller-internal memory cell selected by "P-0-0486, Patch function 2,

source pointer". This parameter acts subject to "P-0-0487, Patch function 2, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

P-0-0488 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0xFFFFFFFF	

5.3.84 P-0-0489, Patch function 2, exponent

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function This parameter defines an exponent that acts on the output of the value of the controller-internal memory cell selected by "P-0-0486, Patch function 2, source pointer". This parameter acts subject to "P-0-0487, Patch function 2, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose firm-ware-internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

P-0-0489 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -32 / 32			Default value: 0	

5.3.85 P-0-0491, Patch function 2, display

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function By means of this parameter it is possible to read or write a value to the content of a controller-internal memory cell. Further specifications and configurations are made in the other parameters relevant to the patch function.



The patch function allows the development staff to diagnose firm-ware-internal signal states and data; customers cannot use this function! As unqualified writing to this parameter can interfere with the drive function, this parameter is write-protected!

See also Functional Description "Patch Function"

P-0-0491 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0x0 / 0xFFFFFFFF			Default value: ---	

5.3.86 P-0-0492, Symbol-based patch function 1, data source

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter:	device-specific					

Function This parameter is used for selecting a variable of the PLC. This variable can be read out via the "symbol-based patch function 1, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

«Up to firmware version 17VRS: This parameter is used for selecting a memory cell of the PLC. This memory cell can be read out via "PLC patch function 1, display". The address is selected via "range/offset" from the symbol file of the PLC. The data type (sign, number of bytes) and the display format can be affixed as string to the address selection, separated by a comma. »

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch function"

P-0-0492 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.3.87 P-0-0493, Symbol-based patch function 1, display

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

P-0-0493 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.88 P-0-0494, Symbol-based patch function 2, data source

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter is used for selecting a variable of the PLC. This variable can be read out via the "symbol-based patch function 2, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

«As of firmware version 17VRS: This parameter is used for selecting a memory cell of the PLC. This memory cell can be read out via "PLC patch function 2, display". The address is selected via "range/offset" from the symbol file of the PLC. The data type (sign, number of bytes) and the display format can be affixed as string to the address selection, separated by a comma. »

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign

INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch function"

P-0-0494 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.3.89 P-0-0495, Symbol-based patch function 2, display

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

P-0-0495 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.3.90 P-0-0496, Symbol-based patch function 3, data source

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function This parameter is used for selecting a variable of the PLC. This variable can be read out via the "symbol-based patch function 3, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

«Up to firmware version 17VRS: This parameter is used for selecting a memory cell of the PLC. This memory cell can be read out via "PLC patch function 3, display". The address is selected via "range/offset" from the symbol file of

the PLC. The data type (sign, number of bytes) and the display format can be affixed as string to the address selection, separated by a comma. »

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch function"

P-0-0496 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.3.91 P-0-0497, Symbol-based patch function 3, display

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

P-0-0497 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.3.92 P-0-0498, Symbol-based patch function 4, data source

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	device-specific					

Function This parameter is used for selecting a variable of the PLC. This variable can be read out via the "symbol-based patch function 4, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

«As of firmware version 17VRS: This parameter is used for selecting a memory cell of the PLC. This memory cell can be read out via "PLC patch function 4, display". The address is selected via "range/offset" from the symbol file of the PLC. The data type (sign, number of bytes) and the display format can be affixed as string to the address selection, separated by a comma. »

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch function"

P-0-0498 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** s. Text

5.3.93 P-0-0499, Symbol-based patch function 4, display

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

P-0-0499 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.4 P-0-0501 - P-0-0689

5.4.1 P-0-0501, Dynamic alias mapping, mapping EIDN

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter is required for internal use only.

P-0-0501 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.4.2 P-0-0502, Dynamic alias mapping, mapping EIDN content

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					

Function This parameter is required for internal use only.

P-0-0502 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.4.3 P-0-0503, EIDN-list of invalid data for parameterization levels

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter is required for internal use only.

P-0-0503 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.4.4 P-0-0555, Axis controller messages

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:	«HDB»	
	Contained in 18VRS:	«HDB»	«HDC»
	Contained in 20VRS:	«HDB»	«HDC»
	Device parameter:	axis-specific	

Function The following status information (messages) regarding axis control are contained in this parameter in the form of individual status bits:

- Velocity messages
- Limits that have been reached, i.e., information regarding an active limitation

See also functional description "Limitations"

See also functional description "Axis control (closed-loop operation)"

Structure The individual bits have the following significance:

Bit	Designation/function	Comment
0	1: If n_feedback = n_command (S-0-0330)	
1	1: If n_feedback < nx (S-0-0332)	
2	1: If n_feedback = 0 (S-0-0331)	
3	1: If n_command > n_limit (S-0-0335)	
4	1: If T >= Tx (S-0-0333)	
5	1: If T >= Tlimit (S-0-0334)	
6	1: If T = T_cmd (S-0-0824)	
8	1: If velocity limitation active	
10	1: If acceleration limitation is active	
11	1: If positive force limitation is active	
12	1: If negative limitation is active	
14	1: If position feedback value is in Inpos window (S-0-0336)	
15	1: If position feedback value is in Inpos coarse window (S-0-0341)	

Tab. 5-42: Message bits of the velocity control loop



Bits 11 and 12 are set if the output variable of the velocity controller is limited in positive or negative direction by alternating control.

P-0-0555 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.:	--- / ---	Default value:	---

5.4.5 P-0-0556, Config word of axis controller

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:	«HDB»	
	Contained in 18VRS:	«HDB»	«HDC»
	Contained in 20VRS:	«HDB»	«HDC»

Device parameter: axis-specific
Property name: PosGenerator.CtrlAxisSettingWord

Function The parameter is used for configuring axis control-specific functions and for determining the control performance. Bits not written are reserved and must not be set.

See also Functional Description "Axis control (closed-loop operation)"

See also Functional Description "Performance data"

Structure The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
2 and 5	Performance level selection The controller cycle time can be set 0xx0xx: Position controller cycle 0.5 ms 0xx1xx: Settable position controller cycle 1xx0xx: Position controller cycle 1 ms 1xx1xx: Position controller cycle 2 ms	For clocking the control loops, see bit 15 HDB: Position controller cycle 0.5 ms allowed only with 1:1 timing (bit 15) and only in Open Loop HDC: Position controller clock cycle 0.5 ms allowed only with 1:1 timing (bit 15) HDM: The setting must be identical for all axes (also bit 15) As of FW 20VRS, the settable position controller clock cycle can be used. See note below.
8	Command/actual values as starting values 0: Starting value is actual value (compatibility mode) 1: Starting value is command value (optimized change of operation modes)	Valid only as of FW 20V16
9	Point of taking effect of "P-0-0059, Position command value additive, controller" 0: No effect on feedforward 1: Effect on feedforward	

Bit	Designation/function	Comment
10	Range of values for unipolar torque limitation ("S-0-0082, Torque/force limit value positive" and "S-0-0083, Torque/force limit value negative") 0: Standard value range (default): "S-0-0082", can take only positive values, "S-0-0083", can take only negative values (negative sign required). 1: Extended value range: The value of "S-0-0082" has to be greater than "S-0-0083" (signed). Both values can be entered with a positive or a negative sign.	As of FW 20VRS, this bit is no longer necessary.
15	Activation of 1:1 timing 0: The timing is based on a ratio of 1:2. This means that the force controller calculates twice as frequently as, for example, the position controller. This is important, if, for instance, fast force monitoring is to be realized. 1: All controllers run at the same clock cycle (1:1 timing). This should be used, if measuring systems cannot furnish useful values for reasons of resolution or sampling time.	Valid only as of FW 18V04

Tab. 5-43: Relevant bits of P-0-0556



Settable position controller clock cycle: As of firmware version 20, this setting can be selected to use 400 µs. Other times are not provided at present. The base clock cycle can be set in parameter "P-0-2811".

P-0-0556 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0x120
HDC:	--- / ---	0x120
HDE:	--- / ---	0x120
HDP:	--- / ---	0x120
HDM:	--- / ---	0x120
HDS:	--- / ---	0x0

5.4.6 P-0-0560, Configuration of actuator

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.ActuatorConfiguration

Function This parameter is used for configuring the actuator.
As of HDx-20V06

Structure The actuator is selected via the parameter value:

Parameter value	Function	Comment
0 .. 1	Reserved	
2	Hydraulic cylinder	
3	Hydraulic motor	

P-0-0560 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	2

5.4.7 P-0-0641, Interpolation cmd value average value filter time constant

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The parameter [P-0-0641](#) takes effect on the filtering of the position command values with a moving average filter (see also command value adjustment of the interpolation modes). As an alternative to the calculation of the filter order from acceleration and jerk, the filter order can also be determined by entering a filter time.

With the average filter, the position command value profile can be smoothed after command value generation, and the acceleration and jerk can be reduced. This can be required for some mechanical systems to avoid excitation of machine resonances by the command value characteristic.

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

Use The parameter [P-0-0641](#) is used for the interpolation modes "drive-internal interpolation", "drive-controlled positioning" and "positioning block mode" to smooth the command value profile.

The following aspects have to be taken into account:

- By entering the filter time (value $\geq T_{Ncyc}$), the calculation of the filter order from acceleration and jerk is switched off.
- The filter time preset in the parameter is applied during the initialization of the operation mode or when a new position is set.
- The effective filter order M is always displayed in "P-0-0042, Current position command average value filter order" ($P-0-0042 = P-0-0641/T_{Ncyc}$)
- The NC cycle time T_{Ncyc} is derived from the parameter [S-0-0001](#).



The function constant filter order is switched off by default ($P-0-0641 = 0$), the filter order is therewith calculated from acceleration and jerk.

P-0-0641 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1

HDx:	min./max.: 0 / s. Text	Default value:	0

5.4.8 P-0-0660, C6300 Generate type plate command

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»					«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	In the device, pre-defined parameterizations can be stored in the form of a "nameplate". This parameter can be used to execute a command for creating a nameplate.						
	See also Functional Description "Create nameplate"						
Use	At present, only one variant of nameplate data can be generated in the device.						
	Configurable default values, buffered in the control section, displayed in "P-0-0660.0.1".						
Which nameplates are possible in a device can be read out from parameter "P-0-0660.0.2".							
P-0-0660 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.4.9 P-0-0660.x.1, Configurable factory default values

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-2660
Function	Replacement parameter "P-0-2660" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
	This parameter contains information about the configurable factory settings.						
	The content of the parameter should not be changed.						
P-0-0660.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.	
	Memory:	FIX_IDN_SP	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: --- / ---			Default value: s. Text	

5.4.10 P-0-0660.0.2, Generate type plate, IDN list of type plates

Allocation	Contained in 16VRS:						«-»					
	Contained in 17VRS:						«-»					
	Contained in 18VRS:						«-»					
	Contained in 20VRS:						«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:						axis-specific					
Alias idn:						P-0-2730						
Function	Predefined parameterizations can be stored in the drive in the form of a "nameplate". Not all of the nameplates are possible in all devices. Which nameplates are possible with the device at hand can be read here.											
Structure	The parameter is structured as list parameter and contains the IDNs of the nameplates possible in the device.											

Element	Designation/function	Comment
1 to 3	P-0-3071; P-0-3072; P-0-0073	Nameplate "motor data with encoder memory version 7" is possible.
4	P-0-3075	Nameplate "application data with encoder memory version 7" is possible.
5	P-0-660.0.1	Nameplate "configurable factory default values" is possible.
6	P-0-3000	Nameplate "motor data with encoder memory 4" is possible.

Tab. 5-44: P-0-0660.0.2, Generate nameplate generation, IDN list of nameplates

P-0-0660.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.11 P-0-0660.0.3, Generate type plate, configuration list

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	
Alias idn:	P-0-2738	

Function Predefined parameterizations can be generated in the drive in the form of a "nameplate". This parameter is used to define the content of the nameplates to be generated.

See also functional description "Generating a nameplate".

Structure The parameter is structured as list parameter and is basically structured as follows:

Element	Designation/function	Comment
1	Ident number of nameplate X to be defined.	
2	Ident number of a parameter, which is to be stored in nameplate X.	
...	Ident number of further parameters, which are to be stored in nameplate X.	

Tab. 5-45: P-0-0660.0.3, Generate nameplate, configuration list

P-0-0660.0.3 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.12 P-0-0660.0.129, Instance parameter diagnostics

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	
Alias idn:	P-0-2412	

Function



The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.

P-0-0660.0.129 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.13 P-0-0664, C6800 Control command device data archiving

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«-»		
Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
Device parameter:	device-specific				

Function

Command "C6800" is used to determine the device data archiving status. The status is stored in parameter "P-0-0669, Device data archiving, status" and can be read from this parameter after the command has been executed.



The comparative data of the device are read. To determine the status, these data are compared with the data stored in the machine archive.



The command cannot be executed if another device data archiving command (C6500, C6600 or C6700) is active.

P-0-0664 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.14 P-0-0665, C6500 Command Archive device data

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«-»		
Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
Device parameter:	device-specific				

Function

Command "C6500" is used to transfer the "device data to be backed up" from the active non-volatile memory (flash) to a machine archive. Device data are all data required for restoring a drive configuration (operating data, incl. MLD application and firmware). The machine archive is filed to "Backup\Axis.." in a structured form in several files on the SD card. The device data are restored manually using command C6600.

To simplify access to the machine archive, the data are archived additionally in a structured form in a "Backup\Archive\Backup.zip" file.

The sequence of the command is stored in the file "Backup\Backup.log". Should command errors occur, further notes on the source of error can be found in this file.



Since the firmware has to be read out during archiving, executing the command might take several minutes.



While the command is active, write accesses to the device data to be backed up should be avoided. The user should stop running PLC programs during the runtime of the command. The command does not stop running PLC programs.



Command C6500 can call command C2200. If a connection has been established with IndraWorks, the indication of the active command there changes automatically from "C6500" to "C2200", as long as this command is active. If necessary, the call of command C2200 can be deactivated in "P-0-0668".

P-0-0665 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.15 P-0-0666, C6600 Command Restore device data

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-» «-»					
	Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-»					
	Device parameter: device-specific					

Function Command "C6600" is used to restore the device data to be backed up from the machine archive. Device data are all data required for restoring a drive configuration (operating data, incl. MLD application and firmware). This requires that a machine archive has been generated at least once by using command C6500. The machine archive is then filed to several files under "Backup\Axis.." on the SD card.

To simplify access to the machine archive, the data are archived additionally in a structured form in a "Backup\Archive\Backup.zip" file.

This command fails if no machine archive is available.

The sequence of the command is stored in the file "Backup\Backup.log". Should command errors occur, further notes on the source of error can be found in this file.



The drive retain data (parameters listed in "P-0-0195" excluding "P-0-1359") are always ignored while restoring data, since the up-to-dateness of the data (e.g. absolute encoder position) cannot be ensured. However, in case of servicing, the relevant par files can be taken from the backup data and transferred manually via a tool. The decision of whether these data are current lies with the user.



If the firmware on the device is not identical with the firmware from the machine archive, it will be restored. In this case, the execution of the command might take several minutes.



The user should stop running PLC programs before starting the command. Otherwise, they cannot be restored. The command does not stop running PLC programs.



Command C6600 is executed in two variants: "device replacement" and "device data restoration". "P-0-0669" indicates the variant which is executed.



Command C6600 can call command C2200. If a connection has been established with IndraWorks, the indication of the active command there changes automatically from "C6600" to "C2200", as long as this command is active. If necessary, the call of command C2200 can be deactivated in "P-0-0668".

P-0-0666 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.16 P-0-0667, C6700 Command update of device data

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				

Function Command "C6700" is used to update the device data to be backed up. Device data are all data required for restoring a drive configuration (operating data, incl. MLD application and firmware).

The user provides the update on the SD card:

1. As update archive in the "User\Update\Archiv" directory. An update archive is a machine archive, which contains all device data or only a partial quantity of a machine archive. The update archive must be of data type "*.zip".
2. As individual device data files in the "User\Update\Axis..." directory. In this case, a device data file is a file that has been unpacked from a machine archive. Since the content is not checked, it is also possible to make parameter and firmware files available from other sources. Merely the structure of the files (directory and file names) have to be observed. Individual files are only considered, if no update archive has been provided.

The sequence of the command is stored in the file "User\Update\Update.log". Should command errors occur, further notes on the source of error can be found in this file.



To prevent the retain data of the MLD from becoming invalid when an MLD boot project is being updated, the update is only loaded to the program memory, if update data are also available for the retain data. The user must make them available in the form of a "Retain_MLD?.par" file. It is the user's responsibility to ensure that the retain data match the MLD boot project.



If the firmware on the device is not identical with the firmware from the update archive or the update files, it will be restored. In this case, the execution of the command might take several minutes.



The user should stop running PLC programs before starting the command. Otherwise, the PLC programs cannot be updated. The command does not stop running PLC programs.



Command C6700 can call command C2200. If a connection has been established with IndraWorks, the indication of the active command there changes automatically from "C6700" to "C2200", as long as this command is active. If necessary, the call of command C2200 can be deactivated in "P-0-0668".

P-0-0667 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.17 P-0-0668, Device data archiving, configuration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»				
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Device parameter:	device-specific				

Function This parameter is used to configure device data archiving.

Using command C6500, device data archiving allows filing the "device data to be backed up" from the active non-volatile memory (flash) to a machine archive. Device data are all data required for restoring a drive configuration (operating data, incl. MLD application and firmware). The machine archive is filed to "Backup\Axis.." in a structured form in several files on the SD card. The device data are restored manually using command C6600.

To simplify access to the machine archive, the data are archived additionally in a structured form in a "Backup\Archive\Backup.zip" file.

Structure

Bit	Designation/function	Comment
0	Machine archive monitoring 0: Tolerant mode: The machine archive is not monitored. 1: Strict mode: The machine archive is monitored for being updated. If the machine archive has not been updated, switching error C6704 is triggered.	
15	Transfer to operating data memory 0: Active 1: Command C2200 is not executed within commands C6500, C6600 and C6700.	

Tab. 5-46: Device data archiving configuration

P-0-0668 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: 0x0 / s. Text			Default value: 0x0	

5.4.18 P-0-0669, Device data archiving, status

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					
Function	This parameter shows the current device data archiving status.						
	Using command C6500, device data archiving allows filing the "device data to be backed up" from the active non-volatile memory (flash) to a machine archive. Device data are all data required for restoring a drive configuration (operating data, incl. MLD application and firmware). The machine archive is filed to "Backup\Axis.." in a structured form in several files on the SD card. The device data are restored manually using command C6600.						
	To simplify access to the machine archive, the data are archived additionally in a structured form in a "Backup\Archive\Backup.zip" file.						
Structure							
		The status is updated internally during initialization (booting) and by executing a device data archiving command. To update only the status, command C6800 has to be executed.					
		Command C6600 is executed in two variants: "device replacement" and "device data restoration". "Device replacement" comprises the restoration of all device data with the exception of drive retain data (parameters listed in "P-0-0195" excluding "P-0-1359").					
		The comparison value indicates the variant that is executed on starting command C6600.					

Value	Designation	Comment
3-0	Comparison value: The status provides information on whether the machine archive has been updated. 0x0: The machine archive has been updated 0x1: The machine archive does not match the device data to be backed up 0x2: New device detected 0x3: An update has not been confirmed yet (E2667)	
7-4	Activity: The status value is not suitable for controlling the commands. 0x0: No active command 0x1: C6500: Machine archive is created 0x2: C6600: Machine archive is restored 0x3: C6700: Update of device data 0x4: C6800: Control command is executed	
15-8	Error: While accessing the machine archive or while accessing the device data in the active non-volatile memory (flash). 0x0: Without error 0x1: SD card access error 0x2: Machine archive access error 0x3: Not possible 0x4: Drive controller access error	

Tab. 5-47: P-0-0669, Device data archiving, status

P-0-0669 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.4.19 P-0-0669.0.1, Device data update files date

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«-» «HDC» «-» «-» «HDM» «-»
	Device parameter:	device-specific

Function This parameter is only required for internal use.

P-0-0669.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.5 P-0-0690 - P-0-0899

5.5.1 P-0-0792, Symbol-based patch function 5, data source

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	device-specific					

Function This parameter selects a variable of the PLC. This variable can be read out via "symbol-based patch function 5, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters to be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also functional description "Patch function"

P-0-0792 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: s. Text

5.5.2 P-0-0793, Symbol-based patch function 5, display

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter shows the content of the variable selected via PLC patch function 5.

See also functional description "Patch function"

P-0-0793 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.5.3 P-0-0794, Symbol-based patch function 6, data source

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter selects a variable of the PLC. This variable can be read out via "symbol-based patch function 6, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also functional description "Patch function"

P-0-0794 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.5.4 P-0-0795, Symbol-based patch function 6, display

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						device-specific
Function	This parameter shows the content of the variable selected via "PLC patch function 6".						
	See also functional description "Patch function"						
P-0-0795 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

5.5.5 P-0-0796, Symbol-based patch function 7, data source

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
Function	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function This parameter selects a variable of the PLC. This variable can be read out via the "symbol-based patch function 7, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.
- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign

DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also functional description "Patch function"

P-0-0796 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.5.6 P-0-0797, Symbol-based patch function 7, display

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter shows the content of the variable selected via "PLC patch function 7".

See also functional description "Patch function"

P-0-0797 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.5.7 P-0-0798, Symbol-based patch function 8, data source

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter selects a variable of the PLC. This variable can be read out via the "symbol-based patch function 8, display".

The variable is accessed via the symbol name, which has the following syntax:

<Application name>.<POU name>.<Variable name>

The display format can be affixed as string to the symbol name, separated by a comma.

Example of entering a symbol name:

Application.GVL.dwCounter,16# (data type is known, display format hexadecimal)

Observe the following when entering the name:

- The parameter can be written with the UTF-8 character set.
- Maximum size: 256 bytes
- A UTF-8 character can have 1 to 3 bytes.

- Depending on the UTF-8 characters used, the number of characters that can be entered is reduced.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also functional description "Patch function"

P-0-0798 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.5.8 P-0-0799, Symbol-based patch function 8, display

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter shows the content of the variable selected via "PLC patch function 8".

See also functional description "Patch function"

P-0-0799 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.5.9 P-0-0861, Power supply status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «-» «HDM» «-»
	Device parameter:	device-specific

Function The parameter is used to indicate the status of the power supply.

Structure	Bit	Designation/Function	Comment
	0	Drive ready 0: no 1: yes	
	1-15	Reserved	

Tab. 5-48: Power supply status word

P-0-0861 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.6 P-0-0900 - P-0-0999

5.6.1 P-0-0910, SSI control parameter

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «HDS»
	Device parameter:	device-specific
	Property name:	ActualValue.SSI1ControlWord

Function This parameter serves to configure the hardware of the SSI encoder input.

Structure The following bits are defined:

Bit	Designation/function	Comment
3-0	Baud rate: 0x0: 80 kHz 0x1: 100 kHz 0x2: 125 kHz 0x3: 200 kHz 0x4: 250 kHz 0x5: 400 kHz	HDS: These bits are configured in the hardware module (e.g. R-ILB S3 AI12 AO4 SSI-IN4) and are not used by the axis controller.
4	Coding: 0: Gray coding	Only Gray coding possible HDS: This bit is configured in the hardware module (e.g. R-ILB S3 AI12 AO4 SSI-IN4) and is not used by the axis controller.
7-5	Error bits: 000: No error bit evaluation	Error bit evaluation is not supported.

Bit	Designation/function	Comment
13-8	SSI data format (bit 8... 13) => number of transmitted bits e.g. single turn (13 bits = 0x0dxx) Multi-turn (25 bits = 0x19xx) Linear encoder depending on data format	
15	Encoder monitoring: 0: Encoder monitoring deactivated 1: Encoder monitoring activated	HDS: These bits are configured in the hardware module (e.g. R-ILB S3 AI12 AO4 SSI-IN4) and are not used by the axis controller.

Tab. 5-49: P-0-0910, SSI control parameter

Use The following aspects have to be observed for use:

- The maximum cable length is directly linked with the baud rate.
- For the data to be set, please refer to the encoder manufacturer's appropriate data sheet.

P-0-0910 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0xD804
HDC:	--- / ---	0xD804
HDE:	--- / ---	0xD804
HDP:	--- / ---	0xD804
HDM:	--- / ---	0xD804
HDS:	--- / ---	0x1800

5.7 P-0-1000 - P-0-1099

5.7.1 P-0-1044, Master comm. engineering over IP: Status IP communication

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Virtual Engineering	
Device parameter:	device-specific	

Function Via parameter [P-0-1044](#), the status information on the current state of IP communication with engineering over IP can be read at the master communication interface of the device. The parameter contains general information on IP communication and device-dependent information.

Structure The general status information of IP communication is contained in parameter [P-0-1044](#), preferably in the first 8 bits. The bits 8 to 31 contain the device-dependent information.

The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
1/0	State of internal memory TCP/IP stack 00: No problem with internal memory 01: Internal memory space full 10: Internal memory space intermittently filled	
3/2	Reserved	
6/4	Default gateway information 000: Not set 001: From master comm. engineering over IP (S-0-1022) 010: From SERCOS III master (CCD) (P-0-1643) 100: From engineering (P-0-1533)	
7	Reserved	
9/8	Setting of device gateway information 00: No gateway information set 01: Active gateway information manually set 10: Active gateway information automatically generated	
11/10	Status of device gateway information 00: Gateway information not used 01: Gateway address which was read is active 10: Gateway address which was read has not been activated up to now	
12	Status of device network mask 0: Network mask which was read is active 1: Network mask which was read has not been activated up to now	
15/13	Reserved	
17/16	Setting of device IP address 00: No IP address set 01: Active IP address manually set 10: Active IP address automatically set	
20/18	Status of IP address 000: No IP address available for activation 001: IP address which was read is active 010: IP address which was read has not been activated up to now 100: "Duplicate IP Address", address not active	
21	Reserved	
22	Validity of device IP settings 0: IP settings valid 1: Invalid IP settings (address and gateway in different networks)	

Bit	Designation/function	Comment
23	Status of IP communication 0: IP communication possible 1: No IP communication possible (resources missing)	
25/24	Status of FPGA Rx Buffer Port1 00: FPGA Rx Buffer Port1 able to receive data 01: FPGA Rx Buffer Port1 temporarily busy 10: FPGA Rx Buffer Port1 permanently busy	
27/26	Status of FPGA Rx Buffer Port2 00: FPGA Rx Buffer Port2 able to receive data 01: FPGA Rx Buffer Port2 temporarily busy 10: FPGA Rx Buffer Port2 permanently busy	
29/28	Status of FPGA Tx Buffer Port1 00: FPGA Tx Buffer Port1 able to receive data 01: FPGA Tx Buffer Port1 temporarily busy 10: FPGA Tx Buffer Port1 permanently busy	
31/30	Status of FPGA Tx Buffer Port2 00: FPGA Tx Buffer Port2 able to receive data 01: FPGA Tx Buffer Port2 temporarily busy 10: FPGA Tx Buffer Port2 permanently busy	

Tab. 5-50: P-0-1044, Status information IP Communication, Master Comm. Engineering Over IP

P-0-1044 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.8 P-0-1100 - P-0-1269

5.8.1 P-0-1150, Command value generator output

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter shows the basic value of the command value generator. The basic value is displayed in the format of the assigned parameter.

P-0-1150 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.8.2 P-0-1151, Command value generator, list of possible target parameters

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»

Contained in 16VRS:	«HDB»	«HDC»	«-»			
Contained in 17VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function This list parameter contains the IDNs of the parameters which can be entered in "P-0-1152, Command value generator, target parameter assignment". The command value generator can act on the following parameters:

- S-0-0037, Additive velocity command value
- S-0-0081, Additive torque/force command value
- P-0-0039, Flux-generating current, command value
- P-0-0059, Additive position command value, controller

P-0-1151 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.8.3 P-0-1152, Command value generator, target parameter assignment

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In this parameter, enter the IDN of the parameter to which the result of the command value generator is to be written.

Use By selecting the target parameter, the display (unit and scaling) of these parameters are set to the target parameter.

- P-0-1150, Command value generator output
- P-0-1154, Command value generator, offset
- P-0-1155, Command value generator, amplitude

P-0-1152 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0

5.8.4 P-0-1153, Command value generator, control word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The parameter is used for configuring the integrated command value generator.

See also Functional Description "Drive-internal command value generator"

Structure

Bit	Designation/function	Comment
3-0	Signal selection (selection of signal of command value generator) 0001: Noise signal 0010: Sine signal 0011: Square-wave signal 0100: Modified sine signal 0101: Reserved 0110: Sine sweep	
4	Enable 0: Locked The command value generator is stopped and command value "0" is output. 1: Enable: The command value generator is enabled and the command value was output to the target parameter.	
5	Periodic signal 0: Non-recurring sequence 1: Periodic signal generation Note: For the noise signal, the periodic time is firmly set to 4095 cycles!	
6	Shutdown delayed For the generation of mean value-free signals the shut-down of signal generation can be delayed until a complete signal period has been issued. 0: Immediate disabling 1: Shutdown delayed until period has been completed	
7	Amplitude of noise generator The noise signal can be generated with constant amplitude (square wave impulse with different periodic times) or with a continuous amplitude. 0: Amplitude as square wave signal 1: Amplitude as factor	
8	Resetting the enable The command value generator can be reset automatically after a drive error. 0: The enable is maintained, i.e. after a drive error was cleared and the drive was enabled the command value becomes effective. 1: Command value generator needs to be re-enabled after a drive error was cleared.	

Bit	Designation/function	Comment
9	Switching of sine or cosine signal If "sine signal" is selected in the signal selection and the output of the command value generator was not assigned to a target parameter (P-0-1152 = S-0-0000), the signal waveform can be switched over. 0: Sine signal 1: Cosine signal	Can only be configured by means of the parameter
10	Reserved	

Tab. 5-51: P-0-1153, command value generator, control word



Only bit 4 in can be configured in the signal control word in "P-0-1153".

P-0-1153 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.8.5 P-0-1154, Command value generator, offset

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter is used for setting the direct component (offset) for the selected signal (sine, square-wave, noise). The display, i.e. unit and scaling of the parameter, are set according to the assigned parameter.

P-0-1154 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -214748,3648 / 214748,3647			Default value: 0,0000	

5.8.6 P-0-1155, Command value generator, amplitude

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter is used for setting the amplitude (double crest value, peak-to-peak value). The range of values of the selected signal shape (sine, square-wave, noise) is between half the plus/minus amplitude. The display, i.e. unit and scaling of the parameter, are set according to the assigned parameter.

P-0-1155 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,0001 / 214748,3647			Default value: 0,1000	

5.8.7 P-0-1156, Command value generator, duration 1

Allocation	Contained in 16VRS: «-»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC» «-»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»						
	Device parameter: axis-specific						
Function	This parameter is used for setting the square-wave signal. For the duration "P-0-1156, Command value generator, duration 1" the command value generator output "P-0-1150, Command value generator, command value" is set to half the positive amplitude "P-0-1155, Command value generator, amplitude" plus offset "P-0-1154, Command value generator, offset".						
	When the duration 1 is over, the output of the command value generator is set to half the negative amplitude "P-0-1155, Command value generator, amplitude" plus offset "P-0-1154, Command value generator, offset". Duration 2 starts as of this point of time.						
P-0-1156 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: 0,000 / 4294967,295			Default value: 0,000		

5.8.8 P-0-1157, Command value generator, duration 2

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB»		«HDC»		«-»	
	Contained in 20VRS: «HDB»		«HDC»		«HDE»	«HDP» «HDM» «-»
	Device parameter: axis-specific					
Function	This parameter is used for setting the square-wave signal for command value generator.					
	When duration 1 is over, duration 2 starts. For this duration "P-0-1157, Command value generator, duration 2" the command value generator output "P-0-1150, Command value generator, command value" is set to half the negative amplitude "P-0-1155, Command value generator, amplitude" plus offset "P-0-1154, Command value generator, offset". When duration 2 is over, the output signal is set to the offset "P-0-1154, Command value generator, offset" until the periodic time has been reached.					
P-0-1157 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: 0,000 / 4294967,295			Default value: 0,000	

5.8.9 P-0-1158, Command value generator, periodic time

Allocation	Contained in 16VRS: «-»						
	Contained in 17VRS: «HDB»						
	Contained in 18VRS: «HDB» «HDC» «-»						
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»						
	Device parameter: axis-specific						
Function	This parameter is used to set the square-wave signal and the sine signal for the command value generator. After the periodic time has elapsed, signal output is repeated.						
	When the command value generator is in sine sweep mode, this parameter is used to set the duration of the sweep. The time is entered in seconds and refers to the complete sweep, i.e., the up and down sweep.						

P-0-1158 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0,001 / 4294967,295			Default value: 10,000	

5.8.10 P-0-1159, Command value generator, sine sweep start frequency

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter specifies the frequency at which the sine sweep generator starts to wobble.



The firmware does not take a change in this parameter into account before the enable bit is set in "P-0-1153, Command value generator, control word".

See also Functional Description "Drive-Integrated Command Value Generator"

P-0-1159 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Hz	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0,1 / 2000,0			Default value: ---	

5.8.11 P-0-1160, Command value generator, sine sweep end frequency

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter specifies the frequency up to which wobbling can be effected using the sine sweep generator.



The firmware does not take a change in this parameter into account before the enable bit is set in "P-0-1153, Command value generator, control word".

See also Functional Description "Drive-Integrated Command Value Generator"

P-0-1160 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Hz	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0,1 / 2000,0			Default value: ---	

5.8.12 P-0-1200, Control word 1 velocity control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function In the velocity control mode, "P-0-1200" is used for controlling or configuring the following functions:

- Channel for velocity command value provision (ROM or [S-0-0036](#))
- Behavior of the ramp generator (run-up stop)
- Command value generator

See also Functional Description "Velocity control"

Structure

Bit	Designation/function	Comment
4-0	Activation of command value P-0-1206 00000: Command value " S-0-0036 " active xxxxx: Command value P-0-1206 [i]	P-0-1214 , bit 8 0: Direct selection 1: Binary-coded selection
7-5	Run-up stop 000: Deactivated xx1: Unconditionally active 010: If command value limitation active 100: If torque limitation active 110: If command value limitation or torque limitation active	
9/8	Reserved	
10	Inversion of the velocity command value 0: Not active 1: Active	

Tab. 5-52: *P-0-1200, Control word 1 velocity control*

Use

Observe the following aspects for parameter setting:

- **Bit 4-0: Activation of command value [P-0-1206](#):**
 If one of bits 0 to 4 in "[P-0-1200](#)" is set, it is not the velocity command value "[S-0-0036](#)", which is used, but a list element from command value memory "[P-0-1206](#)". For this, in parameter "[P-0-1214](#), Control word 2 velocity control" the selection method can be selected and the current command value activated or deactivated.

Selection mode:

- Direct selection (maximum of 5 command values)
- Binary coding (up to 31 command values)
- **Bit 7-5: Run-up stop:** The run-up stop function interrupts an acceleration process of the ramp generator, i.e. the output of the ramp generator is frozen. The ramp generator can still carry out deceleration processes, i.e. the drive can be slowed down at any time.

The run-up stop function can be realized in the following ways:

- External selection by the user (bit 5 = 1)
- Warnings of command value limitation active (bit 6 = 1)
- Torque limitation active (bit 7 = 1)

[P-0-1200](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x400 Default value: ---

5.8.13 P-0-1201, Ramp 1 pitch

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The acceleration entered in "P-0-1201" only takes effect in the "velocity control" mode.

Use With the acceleration entered in this parameter, the acceleration takes place from the last effective command value to the new preset command value, as long as the velocity at the ramp output is smaller than the value entered in "P-0-1202, Final speed ramp 1".



The value of parameter "P01201, Ramp 1 pitch" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise the warning "E2070 Acceleration limit active" is output. When the value "0" is input in the parameter and with values greater than "S-0-0138", parameter "S-0-0138" takes effect.

P-0-1201 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:		min./max.: S-0-0160 / S-0-0160		Default value: 0,000	

5.8.14 P-0-1202, Final speed ramp 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter "P-0-1202, Final speed ramp 1" takes effect in the "velocity control" mode during acceleration and deceleration.

When exceeding (acceleration) or falling below (deceleration) the velocity indicated in "P-0-1202, Final speed ramp 1", the pitch of the drive-internal speed command value ramp changes as follows:

- from the value indicated in "P-0-1201, Ramp 1 pitch" to the value indicated in "P-0-1203, Ramp 2 pitch" (acceleration)
- or from the value indicated in "P-0-1211, Deceleration ramp 1" to the value indicated in "P-0-1213, Deceleration ramp 2" (deceleration)

See also Functional Description "Velocity Command Value Reset With Filter and Ramp"

P-0-1202 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:		min./max.: S-0-0044 / S-0-0044		Default value: 0,0000	

5.8.15 P-0-1203, Ramp 2 pitch

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	The acceleration entered in "P-0-1203" only takes effect in the "velocity control" mode. With the acceleration entered in this parameter, the acceleration takes place from the last effective command value to the new preset command value, as soon as the velocity at the ramp output is greater than the value entered in "P-0-1202, Final speed ramp 1".					
Use	 The value of parameter "P-0-1203, Ramp 2 pitch" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise the warning "E2070 Acceleration limit active" is output. When the value "0" is input in the parameter and with values greater than "S-0-0138", parameter "S-0-0138" takes effect.					
P-0-1203 - Attributes	Function: Par	Editable: ++	Data length: 4Byte			
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_MV			
	Unit: S-0-0160	Extr. val. ch.: +	Decim. pl.: S-0-0161 / S-0-0162			
	Cycl. tra.: MDT	Comb. check: --	Set-depend.: Grp. 1			
	HDx:	min./max.: S-0-0160 / S-0-0160	Default value: 0,000			

5.8.16 P-0-1206, Memory of velocity command values

Allocation

Contained in 16VRS:

Contained in 17VRS:

Contained in 18VRS:

Contained in 20VRS:

Device parameter:

«-»

«-»

«-»

«HDB»

«HDC»

«HDE»

«HDP»

«HDM»

«-»

axis-specific

Function

The list parameter serves as command value memory for velocity command values. The individual values can be selected via the control word "P-0-1200".

The selection is made with binary coding via "P-0-1200"!

See also Functional Description "Velocity control"

See also parameter description "P-0-1200, Control word 1 velocity control"

Structure

The parameter is structured as a list, with the following assignment being valid:

P-0-1206	Significance	Comment
Element 1-31	Command value 1 -31	

Use

Observe the following aspects when using these command values:

- The function for selecting command values "P-0-1206" is effective only in the operation mode of "velocity control"
- In contrast to "S-0-0036", "P-0-1206" cannot be cyclically changed
- The value range and the unit of the parameter elements in "P-0-1206" correspond to those of the velocity command value "S-0-0036"
- With the selection of "P-0-1200" = 0, no "fixed" command value, but "S-0-0036" becomes active

P-0-1206 - Attributes

Function:

Par

Editable:

++

Data length:

4Byte var.

Memory:

PARAM SP

Validity ch.:

PM->OM

Format:

DEC MV

Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 S-0-0046	/
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: s. Text		

5.8.17 P-0-1210, Status word of velocity control mode

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:		axis-specific					

Function Parameter "P-0-1210" provides information about the current state of the ramp generator and the current command value for velocity control mode.



Parameter "P-0-1210" can be configured in the cyclic actual value channel (e.g., AT with SERCOS) in "S-0-0144, Signal status word" and assigned to the digital outputs.

Structure See also Functional Description "Velocity Loop"

Bit	Designation/function	Comment
0	Command value reached The output of the ramp generator and the jerk filter corresponds exactly to the applied velocity command value.	
1	Run-up stop active The run-up stop function has been activated either directly or via cmd value limitation or torque limitation. The ramp generator keeps the output frozen as long as there is no cmd value applied that is higher than the current ramp output. The jerk filter is not affected.	
2	Deceleration active The ramp generator is in the deceleration state.	
3	Acceleration active The ramp generator is in the acceleration state.	
4	Command value within mask window Command value specification hits a velocity mask window. Therefore the active command value is affected.	
5	V-ramp within mask window The ramp generator is in acceleration or deceleration state. An acceleration factor from "P-0-1209" is active because the current value is within a velocity mask window.	

Tab. 5-53: P-0-1210, Status Word of Velocity Control Mode



All status displays of "P-0-1210" are only active in "velocity control" mode.

P-0-1210 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.8.18 P-0-1211, Deceleration ramp 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	The deceleration entered in "P-0-1211, Deceleration ramp 1" only takes effect in the "velocity control" mode.						
	With the deceleration rate entered in this parameter, decelerating takes place from the last effective velocity command value to the new velocity command value as soon as the velocity at the ramp output is smaller than the value in "P-0-1202, Final speed ramp 1".						
	See also functional description "Velocity command value reset with filter and ramp (quick stop)"						
Use	 The value of parameter "P-0-1211, Deceleration ramp 1" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise the warning "E2070 Acceleration limit active" is output. When the value "0" is entered in the parameter and with values greater than "S-0-0138", parameter "S-0-0138" takes effect.						

P-0-1211 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

5.8.19 P-0-1213, Deceleration ramp 2

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
Function	The deceleration entered in "P-0-1213, Deceleration ramp 2" only takes effect in the "velocity control" mode.					
	With the deceleration entered in this parameter, the deceleration takes place from the last effective velocity command value to the new velocity command value, as long as the velocity at the ramp output is greater than the value in parameter "P-0-1202, Final speed ramp 1".					
- Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

5.8.20 P-0-1214, Control word 2 velocity control

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter can be used for executing a velocity control mode in the operating mode.

See also Functional Description "Velocity control"

Structure The following settings can be made in the parameter:

Bit	Designation/function	Comment
0	Reserved	
2/1	Initial value after controller enable 00: Start with command value 0 01: Old command value is used again 10: Velocity feedback value S-0-0040 is maintained 11: Not permitted	
3-7	Reserved	
8	Selection mode of active command value memory 0: Direct selection by P-0-1200 bit 0-4 1: Binary-coded selection by P-0-1200 bit 0-4	

Tab. 5-54: Control word 2 velocity control operation mode



In contrast to "P-0-1200", "P-0-1214" is stored in the drive in a non-volatile memory!

Use The following has to be taken into account for parameterizing:

- **Bit 8: Selection of the fixed command value memory**
 - **0: Direct selection:** Every bit in "P-0-1200" selects exactly one element of the command value memory. If more than one bit of bit group 0...4 is set, the least significant bit determines the command value selection. Bit 0 has highest priority.
 - **1: Binary coding:** The binary numerical value of "P-0-1200", bit 4..0, selects an element of the command value memory.

P-0-1214 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --
HDx:	min./max.: --- / ---	Default value: 0x0

5.8.21 P-0-1222, Velocity command filter

Allocation	Contained in 16VRS: «HDS» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «HDS» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: VelGenerator.FilterTime

Function This parameters serves to smooth acceleration jumps in the velocity command value characteristic in order to achieve gentle starting and stopping of the drive in velocity control mode.

See also Functional Description "Velocity Command Value Reset With Ramp and Filter"

Use In "velocity control" mode, the time constant entered in parameter "P-0-1222" is used to filter (PT1 filter) the velocity command value (cf. S-0-0036) de-

formed via the ramp function (cf. [P-0-1201](#), [P-0-1202](#), [P-0-1203](#), [P-0-1211](#), [P-0-01213](#)).

The effective velocity command value (cf. [P-0-0048](#)) at the controller input results from the sum of

- the ramped and filtered value in "[S-0-0036](#), Velocity command value" and
- the direct value in "[S-0-0037](#), Additive velocity command value".

[P-0-1222](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
HDx:	min./max.: 0 / 10000			Default value: 0	

5.9 P-0-1270 - P-0-1499

5.9.1 P-0-1270, PLC Global Register A0

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function Access via "parameters for general purpose" (global registers) can be used for data exchange between the MLD and a neighboring drive or a higher-level control unit or an external operator terminal (e.g., BTV).



The global registers (G0... G31 or A0... A31), respectively, do not have any direct influence on the drive, but only take effect in conjunction with MLD.

Use Observe the following aspects for using the parameter:

- The display format for this parameter can be individually adjusted with "[P-0-1386](#), PLC display format Global Register".
- The content of this parameter is lost in case the control voltage fails. Therefore, the parameter can be used for cyclic communication with external devices (similar to the process image (PII, POI)).
- In contrast to the PII/POI, global registers are not automatically accessed at the beginning or the end of the task, but by accessing specific parameters as required (e.g., by means of MX_ReadParam).
- In addition to "[P-0-1270](#)", other available global registers are the following:
 - **G0... G15:** [P-0-1370](#) - [P-0-1385](#)
 - **G16... G31:** [P-0-1316](#) - [P-0-1331](#)
 - **A1... A31:** [P-0-1271](#) - [P-0-1301](#)

See also Application Manual "Rexroth IndraMotion"

[P-0-1270](#) - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.2 P-0-1271, PLC Global Register A1

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «-»
	Contained in 20VRS:					«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1271 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.9.3 P-0-1272, PLC Global Register A2

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «-»
	Contained in 20VRS:					«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1272 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:					
	min./max.: --- / ---					
Default value: ---						

5.9.4 P-0-1273, PLC Global Register A3

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «-»
	Contained in 20VRS:					«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1273 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.9.5 P-0-1274, PLC Global Register A4

Allocation	Contained in 16VRS:				«-»
	Contained in 17VRS:				«-»
	Contained in 18VRS:				«-» «HDC» «-»
	Contained in 20VRS:				«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:				device-specific
Function	See also "P-0-1270, PLC Global Register A0"				
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"				
	See also Application Manual "Rexroth IndraMotion MLD"				

P-0-1274 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.6 P-0-1275, PLC Global Register A5

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1275 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.7 P-0-1276, PLC Global Register A6

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1276 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.8 P-0-1277, PLC Global Register A7

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1277 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.9 P-0-1278, PLC Global Register A8

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				

Contained in 18VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
Device parameter:	device-specific					

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1278 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --

HDx:	min./max.: --- / ---	Default value: ---

5.9.10 P-0-1279, PLC Global Register A9

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1279 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --

HDx:	min./max.: --- / ---	Default value: ---

5.9.11 P-0-1280, PLC Global Register A10

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1280 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --

HDx:	min./max.: --- / ---	Default value: ---

5.9.12 P-0-1281, PLC Global Register A11

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1281 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: --	Validity ch.: --	Format: DEC_MV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.13 P-0-1282, PLC Global Register A12

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
Function	Contained in 18VRS:	«-»	«HDC»	«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP» «HDM» «-»
Device parameter: device-specific					
See also "P-0-1270, PLC Global Register A0"					
See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1282 - Attributes	Function:	Par	Editable:	++	Data length: 4Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
Function	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:
HDx: min./max.: --- / --- Default value: ---					

5.9.14 P-0-1283, PLC Global Register A13

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
Function	Contained in 18VRS:	«-»	«HDC»	«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP» «HDM» «-»
Device parameter: device-specific					
See also "P-0-1270, PLC Global Register A0"					
See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1283 - Attributes	Function:	Par	Editable:	++	Data length: 4Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
Function	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:
HDx: min./max.: --- / --- Default value: ---					

5.9.15 P-0-1284, PLC Global Register A14

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
Function	Contained in 18VRS:	«-»	«HDC»	«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP» «HDM» «-»
Device parameter: device-specific					
See also "P-0-1270, PLC Global Register A0"					
See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1284 - Attributes	Function:	Par	Editable:	++	Data length: 4Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
Function	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:
HDx: min./max.: --- / --- Default value: ---					

5.9.16 P-0-1285, PLC Global Register A15

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
Function	Contained in 18VRS:	«-»	«HDC»	«-»	

	Contained in 20VRS: «-» «HDC» «-» «HDP» «HDM» «-»					
	Device parameter: device-specific					
Function	See also "P-0-1270, PLC Global Register A0" See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)" See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1285 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: ---	

5.9.17 P-0-1286, PLC Global Register A16

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1286 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.9.18 P-0-1287, PLC Global Register A17

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1287 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.9.19 P-0-1288, PLC Global Register A18

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1288 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.20 P-0-1289, PLC Global Register A19

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1289 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
			HDx:		min./max.: --- / ---	Default value: ---

5.9.21 P-0-1290, PLC Global Register A20

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1290 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
			HDx:		min./max.: --- / ---	Default value: ---

5.9.22 P-0-1291, PLC Global Register A21

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1291 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
			HDx:		min./max.: --- / ---	Default value: ---

5.9.23 P-0-1292, PLC Global Register A22

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1270, PLC Global Register A0"					

See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1292 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.24 P-0-1293, PLC Global Register A23

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»		«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"

See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1293 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.25 P-0-1294, PLC Global Register A24

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»		«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"

See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1294 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.26 P-0-1295, PLC Global Register A25

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»		«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"

See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1295 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.27 P-0-1296, PLC Global Register A26

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Device parameter:						device-specific
Function	See also "P-0-1270, PLC Global Register A0"						
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						
P-0-1296 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: --- / ---			Default value: ---		

5.9.28 P-0-1297, PLC Global Register A27

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «HDC» «-»
	Contained in 20VRS:						«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:						device-specific
Function	See also "P-0-1270, PLC Global Register A0"						
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						
P-0-1297 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

5.9.29 P-0-1298, PLC Global Register A28

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «HDC» «-»
	Contained in 20VRS:						«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:						device-specific
Function	See also "P-0-1270, PLC Global Register A0"						
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						
P-0-1298 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

5.9.30 P-0-1299, PLC Global Register A29

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Device parameter:						device-specific
Function	See also "P-0-1270, PLC Global Register A0"						
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						

P-0-1299 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.31 P-0-1300, PLC Global Register A30

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1300 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.32 P-0-1301, PLC Global Register A31

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1270, PLC Global Register A0"
 See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1301 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.33 P-0-1311, PLC Global Register GL1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function The parameter is a list register with 1024 elements (of 4 bytes each) and used for data exchange between the integrated PLC and the drive or a higher-level PLC or control unit.

The display format for this parameter can be individually adjusted with parameter "P-0-1386, PLC display format Global Register".

When default values are being loaded, the parameter is cleared (actual length = 0).



The data length of "P-0-1311" is firmly set to 4 bytes and cannot be changed. The content of "P-0-1311" is buffered in the event of a control voltage failure.

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also application manual "Rexroth IndraMotion MLD"

P-0-1311 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.9.34 P-0-1312, PLC Global Register GL2

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function The parameter is a list register with 1024 elements (of 4 bytes each) and used for data exchange between the integrated PLC and the drive or an external higher-level PLC or control unit.

The display format for this parameter can be individually adjusted with parameter "P-0-1386, PLC display format Global Register".

When default values are being loaded, the parameter is cleared (actual length = 0).



The data length of "P-0-1312" is firmly set to 4 bytes and cannot be changed. The content of "P-0-1312" is buffered in the event of a control voltage failure.

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also application manual "Rexroth IndraMotion MLD"

P-0-1312 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.9.35 P-0-1316, PLC Global Register G16

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1316 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.36 P-0-1317, PLC Global Register G17

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1317 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.37 P-0-1318, PLC Global Register G18

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1318 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.38 P-0-1319, PLC Global Register G19

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1319 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.39 P-0-1320, PLC Global Register G20

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1320 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.40 P-0-1321, PLC Global Register G21

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «-»
	Contained in 20VRS:					«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:					device-specific
Function	See also "P-0-1370, PLC Global Register G0"					
	See also "Rexroth IndraMotion MLD (Drive PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1321 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: 0	

5.9.41 P-0-1322, PLC Global Register G22

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «HDC» «-»
	Contained in 20VRS:						«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:						device-specific
Function	See also "P-0-1370, PLC Global Register G0"						
	See also "Rexroth IndraMotion MLD (Drive PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						
P-0-1322 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: --- / ---			Default value: 0		

5.9.42 P-0-1323, PLC Global Register G23

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «HDC» «-»
	Contained in 20VRS:						«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:						device-specific
Function	See also "P-0-1370, PLC Global Register G0"						
	See also "Rexroth IndraMotion MLD (Drive PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						
P-0-1323 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: --- / ---			Default value: 0		

5.9.43 P-0-1324, PLC Global Register G24

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«HDC»				«-»	
	Contained in 20VRS:	«-»	«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific						
Function	See also "P-0-1370, PLC Global Register G0"							
	See also "Rexroth IndraMotion MLD (Drive PLC)"							
	See also Application Manual "Rexroth IndraMotion MLD"							

P-0-1324 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.44 P-0-1325, PLC Global Register G25

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1370, PLC Global Register G0"
 See also "Rexroth IndraMotion MLD (Drive PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1325 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.45 P-0-1326, PLC Global Register G26

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1370, PLC Global Register G0"
 See also "Rexroth IndraMotion MLD (Drive PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1326 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.46 P-0-1327, PLC Global Register G27

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1370, PLC Global Register G0"
 See also "Rexroth IndraMotion MLD (Drive PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1327 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.47 P-0-1328, PLC Global Register G28

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				

Contained in 18VRS:	«-»	«HDC»			«-»
Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
Device parameter:	device-specific				

Function See also "P-0-1370, PLC Global Register G0"
 See also "Rexroth IndraMotion MLD (Drive PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1328 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_MV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --

HDx:	min./max.: --- / ---	Default value: 0

5.9.48 P-0-1329, PLC Global Register G29

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"
 See also "Rexroth IndraMotion MLD (Drive PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1329 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_MV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --

HDx:	min./max.: --- / ---	Default value: 0

5.9.49 P-0-1330, PLC Global Register G30

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"
 See also "Rexroth IndraMotion MLD (Drive PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1330 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_MV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --

HDx:	min./max.: --- / ---	Default value: 0

5.9.50 P-0-1331, PLC Global Register G31

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM»
	Device parameter:	device-specific

Function See also "P-0-1370, PLC Global Register G0"
 See also "Rexroth IndraMotion MLD (Drive PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1331 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_MV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.9.51 P-0-1349.0.1, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
Device parameter:	device-specific					
Alias idn:	P-0-3752					

Function This parameter contains the first 2032 bytes of the PLC user program.

The parameter is used for loading the PLC user program to the flash memory. Writing to parameter "P-0-1349.0.1" starts loading of the PLC user program.

In order that the PLC user program is written to the flash, "P-0-1349.0.1", all parameters of "P-0-1349.x.2" and parameter "P-0-1352" have to be loaded.

P-0-1349.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.52 P-0-1349.x.2, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
Device parameter:	device-specific					
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,					
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,					
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,					
Alias idn:	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,					
	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,					
	P-0-3783, P-0-3784					

Function This parameter contains up to 65520 bytes of the PLC user program.

The number of pertinent parameters depends on the control and the possible maximum size of the PLC user program.

IAC-2x: P-0-1349.0.1, P-0-1349.0.2 ... P-0-1349.7.2 for 512-kByte PLC program

HMC: P-0-1349.0.1, P-0-1349.0.2 ... P-0-1349.31.2 for 2-Mbyte PLC program

The parameter can only be read. By loading parameter P-0-1349.0.1 it can temporarily be written in PM.

The parameter is used for loading the PLC user program to the flash memory. Writing to parameter "P-0-1349.0.1" starts loading of the PLC user program.

In order that the PLC user program is written to the flash, "P-0-1349.0.1", all parameters of "P-0-1349.x.2" and parameter "P-0-1352" have to be loaded.

P-0-1349.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.53 P-0-1350, PLC control word

Allocation	Contained in 16VRS:	«-»																													
	Contained in 17VRS:	«-»																													
	Contained in 18VRS:	«-» «HDC» «-»																													
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»																													
	Device parameter:	device-specific																													
Function	16-bit status parameters for controlling the drive-internal PLC (MLD).																														
	The bits activate the relevant process by means of a positive edge.																														
	The acknowledgement bits in "P-0-1351" indicate, in which status the action currently is (active/done/error).																														
Structure	See also Application Manual "Rexroth IndraMotion MLD"																														
	<table border="1"> <thead> <tr> <th>Bit</th><th>Designation/function</th><th>Comment</th></tr> </thead> <tbody> <tr> <td>0</td><td>RUN: The PLC is set to the RUN state. This is only possible, when a project has been loaded.</td><td></td></tr> <tr> <td>1</td><td>STOP: The PLC is stopped and goes to the STOP state. The tasks are no longer started after their current run. Attention: Tasks still running may be interrupted after their cycle time with a hard interrupt. The PLC immediately signals STOP.</td><td></td></tr> <tr> <td>2</td><td>Not used</td><td></td></tr> <tr> <td>3</td><td>Not used</td><td></td></tr> <tr> <td>4</td><td>RESET Warm: The PLC is reset without initializing the retain variables. The status goes to STOP.</td><td></td></tr> <tr> <td>5</td><td>RESET Cold: The PLC is reset and the retain variables are initialized. The status goes to STOP.</td><td></td></tr> <tr> <td>6</td><td>RESET Hard: All data of the PLC are deleted. The boot project is therefore cleared as well.</td><td></td></tr> <tr> <td>7</td><td>Reload boot project: The boot project is loaded. The PLC remains in STOP.</td><td></td></tr> <tr> <td>15-8</td><td>Not used</td><td></td></tr> </tbody> </table>		Bit	Designation/function	Comment	0	RUN: The PLC is set to the RUN state. This is only possible, when a project has been loaded.		1	STOP: The PLC is stopped and goes to the STOP state. The tasks are no longer started after their current run. Attention: Tasks still running may be interrupted after their cycle time with a hard interrupt. The PLC immediately signals STOP.		2	Not used		3	Not used		4	RESET Warm: The PLC is reset without initializing the retain variables. The status goes to STOP.		5	RESET Cold: The PLC is reset and the retain variables are initialized. The status goes to STOP.		6	RESET Hard: All data of the PLC are deleted. The boot project is therefore cleared as well.		7	Reload boot project: The boot project is loaded. The PLC remains in STOP.		15-8	Not used
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6	RESET Hard: All data of the PLC are deleted. The boot project is therefore cleared as well.																														
7	Reload boot project: The boot project is loaded. The PLC remains in STOP.																														
15-8	Not used																														

Tab. 5-55: PLC control word

P-0-1350 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.54 P-0-1351, PLC status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific
Function	This parameter can only be read.	
	16-bit status parameter of the drive-internal PLC (MLD).	
	See also Application Manual "Rexroth IndraMotion MLD"	

Structure

Bit	Designation/function	Comment
0	RUN: The PLC is in state RUN.	
1	The PLC is at a break point (in RUN state).	As of FW 20VRS
2	Reserved	
3	Runtime error: The PLC has a runtime error, e.g. watchdog, division by "0", etc.	
4	Project loaded: A project has been loaded (in the RAM).	
7	Reserved	
8	Indicates whether the PLC currently has temporary control	
10	Acknowledgement bit active: The command is being processed	
11	Acknowledgement bit done: Processing has been successfully completed	
12	Acknowledgement bit error: Processing has been completed with an error	
15-13	Reserved	

Tab. 5-56: PLC status word

Use **Bit 10/11/12:** The acknowledgement bits show, which status the action currently has, which was started by "P-0-1350". After a control bit was set, "active" indicates that the command is being processed. As soon as the command was processed, "active" is reset and "done" or "error" is set. The bits "done" and "error" are reset by a falling edge of the control signal. Only one action should be started at a time.

Notes on processing:

- It is possible that a command is processed immediately and that instead of "active", "done" or "error" is set directly.
- If the user resets the control bit before the command has been processed, the "done/error" bit is present only briefly and might not be visible.
- If the user sets a further bit during processing or several control bits in parallel, all commands are processed one after the other, and the acknowledgement bits are reset when all control bits are cleared. In this case, it cannot clearly be recognized, which command had which status.

P-0-1351 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.55 P-0-1352, PLC user program administration data

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function Several system files of the PLC are stored in this parameter.

The parameter is administrated by the system and mustn't be changed by the user.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1352 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.9.56 P-0-1359, PLC retain data

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function If a PLC program with retain data is used, the retain data can be saved via this list parameter and transmitted to other drives.

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

Use The following aspects have to be taken into account:

- The structure of the individual retain data cannot be seen from this parameter.
- Reading out or writing data from/to "P-0-1359" must not take place while the PLC is running, because the data are directly written to or read from the working memory of the PLC. This would lead to inconsistent data.
- The retain data are initialized whenever the drive detects a changed boot project. If a new boot project is to be loaded together with "P-0-1359", any other project that may have been loaded before must be deleted (MLD basic parameter or P-0-1350).
- The parameter is not included in the list "S-0-0192 IDN-list of all backup operation data", since otherwise reloading of a drive parameter backup would overwrite the PLC retain data.

P-0-1359 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.57 P-0-1360, PLC program identifier

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function List parameter with two elements

Element	Significance
#0	Date: Program compilation time (time_t) If no program has been loaded, this value is 0. After a HARD reset, there will still be the old date.
#1	PID: Unique program identification If no program has been loaded, this value is 0.

Tab. 5-57: PLC Project Identification

P-0-1360 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.58 P-0-1361, PLC program name

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function This parameter displays the filename of the current MLD project. The name is assigned to the MLD project during compilation from the project name in IndraLogic.

After a HARD reset, the name of the previously opened MLD project is still displayed.

P-0-1361 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.59 P-0-1363, PLC project info

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function This parameter is only used for diagnostic purposes and contains information regarding the PLC project currently loaded in the memory; the information is automatically generated and entered by the drive when

- the drive is started or
- when the boot project is loaded with IndraLogic.

Reading the parameter allows clearly identifying the currently loaded PLC project.



Maximum and actual length of the list parameter always are 322 elements with 4 bytes each! The space for strings is completely filled with 0-characters.

Use

Element	Significance
0	time stamp of PLC project in time_t format (seconds since 1970-01-01); 0 = no project existing
1	Project ID The length is always constant and the space for strings is completely filled with 0-characters (1).
2..17	project name (file name)
18..33	project designation
34..49	project version
50..65	author
66..321	Data writing (multiple-line) - max. 1024 characters incl. 0-character.

Tab. 5-58: PLC project info



If no PLC project is existing, all elements contain "0".

P-0-1363 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.60 P-0-1364, PLC idle time

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter displays the last available part of the PLC time slice.
See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"
See also Application Manual "Rexroth IndraMotion MLD"

P-0-1364 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.61 P-0-1365, PLC error message

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function As of **firmware version 18VRS:**
This parameter displays the current error state of the PLC runtime system for diagnostic purposes. If a runtime error occurs in the PLC, the error text is entered here. The error is cleared after a PLC reset.
If the cause of error is not clear, more detailed information can be read out via the logger of the MLD (MLD Application Manual).

Product-specific parameters

Error text in the parameter	Cause	Remedy
EXCEPTION Watchdog application '<app>' task '<task>'	Runtime error in PLC program. Runtime monitor (watchdog) for a task has been activated. In this task, processing was not completed in the preset time.	Eliminate the error by modifying the program. (correct any endless loop) ...
EXCEPTION ArrayBounds application '<app>' task '<task>'	1. Exceedance of array limits 2. Upward/downward violation of a lower limit range	Re 1.: Modify PLC program: Check and correct array accesses Re 2.: Modify PLC program: Eliminate incorrect assignment
EXCEPTION FPU DivisionByZero application '<app>' task '<task>'	Division by "0"	Modify PLC program: Remove division by "0"
EXCEPTION FPU Error application '<app>' task '<task>'	Incorrect call of one of the following mathematical functions (tan, ln, log, sqrt, exp).	Modify PLC program: Check and correct transfer values
EXCEPTION AccessViolation application '<app>' task '<task>'	1. Invalid access with a pointer in PLC program. Accesses outside PLC data ranges cause this error 2. Error in system event	Re 1.: Modify PLC program: Eliminate incorrect assignment. Re 2.: Modify PLC program: Modify incorrect use or programming. See instructions in the task configuration
EXCEPTION Misalignment application '<app>' task '<task>'	Invalid access with a pointer in PLC program. Accesses outside PLC data ranges cause this error	Modify PLC program: Eliminate incorrect assignment
MLD-ERROR Boot project could not be loaded - check device version	Wrong project version or project defective	More information in logger. Load project with correct version. Contact support if version is correct.
MLD-ERROR PLC retain data corrupt - reset by 'reset cold/hard' - please contact support	Corrupt retain data; maybe hardware defect	Save "P-0-1359" again and reload project. If error occurs repeatedly, replace control panel.
MLD-ERROR Only one position loop event task is allowed task '{task}'	Only one PositionLoop task is allowed.	Use only one PositionLoop task
MLD-ERROR Only one motion task is allowed task '{task}'	Only one motion task is allowed	Use only one motion task
MLD-ERROR The motion task cycle time does not match nc cycle time task {task}	The motion task cannot run with the current NC cycle time	Adjust the NC cycle time of the motion task
MLD-ERROR The motion task cycle time does not match ccd cycle time task {task}	The motion task cannot run with the current CCD cycle time	Adjust the CCD cycle time of the motion task
MLD-ERROR A ccd synchronized motion task is not allowed (MLD - M system mode) task '{task}'	A motion task in synchronism with CCD is not allowed (MLD-M system mode)	Select other task type
MLD-ERROR Internal: Resource is not available '{info}'	Internal error - resource not available (task, event, ...)	Modify PLC program: Eliminate incorrect access to resources mentioned
MLD-ERROR Memory card for boot project is missing	Boot project was parameterized as file on memory card, but no memory card available.	Install memory card or set boot project in parameters (P-0-1367).

Tab. 5-59: PLC error message

As of firmware version 20V14:

Error while loading PLC program via parameters

Error text in the parameter	Cause	Remedy
PARALOAD-ERROR Error reading sps program in flash	Error while reading P-0-1349.0.1 or P-0-1349.x.2 , invalid access to flash	Firmware or hardware error The error can be cleared by means of a cold reset.
PARALOAD-ERROR Loading parameters P-0-1349 in progress	Parameters are being loaded or copied from the PLCCode to flash. Parameters P-0-1349.0.1 and P-0-1349.x.2 cannot be read at present. Command currently not executable.	Wait until loading of parameters and copying is completed. Copying is completed when bit 8 of P-0-1350 is again 0. The error can be cleared by means of a cold reset.
PARALOAD-ERROR P-0-1349.0.1 loaded in wrong order	Error while loading parameter P-0-1349.0.1 : Either the 1st element of parameter P-0-1349.0.1 was not recognized or a parameter P-0-1349.x.2 was loaded before parameter P-0-1349.0.1 .	Parameter P-0-1349.0.1 can be loaded again no earlier than 30 seconds after loading of the last parameter P-0-1349.x.2 . The error can be cleared by means of a cold reset.
PARALOAD-ERROR Actual length of P-0-1349.0.1 is wrong	Error while loading parameter P-0-1349.0.1 : Current length of parameter P-0-1349.0.1 is incorrect. The length is either 40 bytes without PLC program or 2032 bytes with PLC program.	A new parameter backup has to be made. The error can be cleared by means of a cold reset.
PARALOAD-ERROR Timeout while waiting for tasks destroyed	Error while loading parameter P-0-1349.0.1 : A hard reset is executed when the first element of parameter P-0-1349.0.1 is loaded. Before the flash range is cleared, the system waits for the PLC tasks to be stopped and cleared. In this case, the timeout of 3 seconds was exceeded. Possible cause: An event in the PLC program calls a callback function that takes too long.	Stop loaded program and re-load the parameters. The error can be cleared by means of a cold reset.
PARALOAD-ERROR Parameters P-0-1349.x.2 loaded in wrong order	Error while loading parameter P-0-1349.x.2 : A parameter other than expected was loaded. A parameter is probably missing in the backup.	There is a fixed order, in which the parameters have to be loaded. P-0-1349.0.1 , P-0-1349.0.2 , P-0-1349.1.2 , ..., P-0-1352 . The error can be cleared by means of a cold reset.
PARALOAD-ERROR Out of memory - sps program too large	Error while loading parameters: The PLC program is too large and does not fit into the flash range. The program length is given in brackets.	By executing menu item "Create" -> "Clean" and creating the PLC program again, the PLC program may become smaller. Then, a new parameter backup has to be made. The error can be cleared by means of a cold reset.
PARALOAD-ERROR Some parameters of P-0-1349 were not loaded	Not all parameters P-0-1349.x.2 were loaded, before parameter P-0-1352 was loaded. The loading status, in which the error occurred is given in brackets. SI value of the parameter last loaded = loading status -2.	The parameter backup has to contain all 8 or 32 of the P-0-1349.x.2 parameters and precede parameter P-0-1352 . The error can be cleared by means of a cold reset.

Product-specific parameters

PARALOAD-ERROR One parameter of P-0-1349 has wrong length	While loading parameter P-0-1352 it was found that the length of a parameter does not correspond to the length of the PLC program. The program length is contained in the 2nd element of parameter P-0-1349.0.1 . The SI value of the parameter is given in brackets. Example: SI=7 means that P-0-1349.7.1 has an invalid length.	Try to load the backup or make a new backup. The error can be cleared by means of a cold reset.
PARALOAD-ERROR Timeout while loading parameters	Loading of parameter P-0-1349.x.2 was not followed by parameter P-0-1352 or loading of the parameter was interrupted, i.e. not all parameters of P-0-1349.x.2 were loaded, and P-0-1352 was not loaded, too.	You may try the following: Load parameters again Make a new parameter backup The error can be cleared by means of a cold reset.
PARALOAD-ERROR App file not closed	Before copying the parameter contents with the boot application to the flash, it was recognized that the file handle to the boot application has not been closed.	This is a firmware error. The error can only be cleared by means of a hard reset.
PARALOAD-ERROR The boot application has not been deleted.	Before copying the parameter contents with the boot application to the flash, it was recognized that the PLC program has not yet been deleted.	The PLC program should have been deleted while loading P-0-1349.0.1 . The error can only be cleared by means of a hard reset.
PARALOAD-ERROR Error while writing P-0-1352	Before copying the parameter contents with the boot application to the flash, an error occurred while restoring parameter P-0-1352 .	Repeat loading of the parameters or restart the firmware. The error can only be cleared by means of a hard reset.
PARALOAD-ERROR Error deleting flash	Error while deleting the PLC program. It may have been impossible to request the flash driver or invalid access to flash.	This is a hardware fault. The error can only be cleared by means of a hard reset.
PARALOAD-ERROR Error Act-Len P_0_1349.0.1 = 0	Error while copying the parameter contents with the boot application to the flash: Parameter P-0-1349.0.1 only contains the header. Therefore, it could not be written to the flash.	This is a firmware error. The error can only be cleared by means of a hard reset.
PARALOAD-ERROR Out of memory [2]	Error while copying the parameter contents with the boot application to the flash: The PLC program is too large and no further bytes can be added to the flash range. This error should be detected when parameter P-0-1352 is being loaded.	This is a firmware error. The error can only be cleared by means of a hard reset.

PARALOAD-ERROR Error while loading parameters into flash	An error occurred while copying the parameter contents with the boot application to the flash. The flash range may not have been cleared.	Delete the application by means of a hard reset
PARALOAD-ERROR Error while writing file header into flash	Error while copying the parameter contents with the boot application to the flash: An error occurred while writing the file header in the flash. This range may not have been cleared.	Delete the application by means of a hard reset

Tab. 5-60: PLC error message

P-0-1365 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.62 P-0-1367, PLC configuration

Allocation	Contained in 16VRS: «-»	
	Contained in 17VRS: «-»	
	Contained in 18VRS: «-» «HDC»	«-»
	Contained in 20VRS: «-» «HDC» «-» «HDP» «HDM»	«-»
	Device parameter:	device-specific
Function	Parameter for configuring the general behavior of the MLD (drive-integrated PLC).	
	See also Application Manual "Rexroth IndraMotion MLD"	

Structure

Bit	Designation/function	Comment
1/0	Start behavior of the PLC 00: Default start behavior: The PLC starts during booting, if it was in "RUN" when powered off. Otherwise it remains in STOP. 01: Start when booting The PLC starts when booting, independently of the last state (goes to RUN). 10: Stop: The PLC remains in STOP state. 11: Start in operating mode: The PLC starts automatically during the transition to the operating mode. Attention: The PLC no longer starts automatically when switching to the operating mode, if a new program was loaded or a start/stop or a reset is carried out before (in the parameter mode).	
3/2	Reserved	
4	Permanent control 0: PLC has no control 1: PLC has permanent control over the drive. (ON, HALT, operation mode selection) Attention: The primary operation mode and the secondary operation modes 1-6 are configured automatically. If a field bus is used, the profile 0x0000 (no profile) has to be set in parameter P-0-4084 , and the parameters of operation modes, which are written by PLC motion blocks, must not be cyclically configured in the field bus.	
5	Reserved	

Bit	Designation/function	Comment
6	Activation AxisData The global structure AxisData is supported. Attention: The structure is always available, but data are only transmitted, if this bit is 1.	
7	Reaction to FB error Behavior when calling motion function blocks, which lead to an error (e.g. call of MC_MoveAbsolute while an MC_Stop is active). 0: An F2150 axis error is generated. 1: No axis error is generated.	
8	Storage location of boot project This bit defines, where the boot project is stored. 0: Storage in an internal flash area 1: Storage on the external memory card, which is plugged in slot XG30 of the VT-HMC or VT-HPC. A change in the storage location of the boot project only becomes active after rebooting. Then, the boot project needs to be re-loaded, since boot projects are not automatically re-copied from one place of storage to another.	
31... 9	Reserved	

Tab. 5-61: P-0-1367, PLC configuration

P-0-1367 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	0x81

5.9.63 P-0-1368, PLC Global Register AL0

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter is a list register with 8192 elements (4 bytes each) and is used for data exchange of the integrated PLC with the drive or a higher-level external PLC or control unit.

Use The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register".



The data length of P-0-1368 is 4 bytes and cannot be changed. The content of P-0-1368 is not backed up in case control voltage fails. For non-volatile data use P-0-1389!

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1368 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.64 P-0-1370, PLC Global Register G0

Allocation	<table border="0" style="width: 100%;"> <tr> <td style="width: 60%;">Contained in 16VRS:</td><td style="width: 40%; text-align: right;">«-»</td></tr> <tr> <td>Contained in 17VRS:</td><td style="text-align: right;">«-»</td></tr> <tr> <td>Contained in 18VRS:</td><td style="text-align: right;">«-» «HDC» «HDS»</td></tr> <tr> <td>Contained in 20VRS:</td><td style="text-align: right;">«-» «HDC» «-» «HDP» «HDM» «HDS»</td></tr> <tr> <td>Device parameter:</td><td style="text-align: right;">device-specific</td></tr> </table>	Contained in 16VRS:	«-»	Contained in 17VRS:	«-»	Contained in 18VRS:	«-» «HDC» «HDS»	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «HDS»	Device parameter:	device-specific
Contained in 16VRS:	«-»										
Contained in 17VRS:	«-»										
Contained in 18VRS:	«-» «HDC» «HDS»										
Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «HDS»										
Device parameter:	device-specific										
Function	Access via "parameters for general purpose" (global registers) can be used for data exchange between the MLD and a neighboring drive or a higher-level control unit or an external operator terminal (e.g., BTV). See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)" See also Application Manual "Rexroth IndraMotion MLD"										
Use	Single parameter / register with 4 bytes (32 bits) Observe the following aspects for using the parameter: • The global registers (G0... G32; A0... A31 and AT0, AT1) do not have any direct influence on the drive, but only take effect in conjunction with the MLD. • The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". • The content of this parameter is buffered in the event of a control voltage failure. For this reason, non-cyclic settings should be made using the global registers. Cyclic data to external devices is usually executed with the process image (PII, POI). • In contrast to the PII/POI, global registers are not automatically accessed at the beginning or the end of the task, but by accessing specific parameters as required (e.g., by means of MX_ReadParam). • In addition to "P-0-1370", other available global registers are the following: – G1... G15: P-0-1371 - P-0-1385 – G16... G31: P-0-1316 - P-0-1331 – A0... A31: P-0-1270 - P-0-1301										

P-0-1370 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

5.9.65 P-0-1371, PLC Global Register G1

Allocation	<table border="0" style="width: 100%;"> <tr> <td style="width: 60%;">Contained in 16VRS:</td><td style="width: 40%; text-align: right;">«-»</td></tr> <tr> <td>Contained in 17VRS:</td><td style="text-align: right;">«-»</td></tr> <tr> <td>Contained in 18VRS:</td><td style="text-align: right;">«-» «HDC» «HDS»</td></tr> <tr> <td>Contained in 20VRS:</td><td style="text-align: right;">«-» «HDC» «-» «HDP» «HDM» «HDS»</td></tr> <tr> <td>Device parameter:</td><td style="text-align: right;">device-specific</td></tr> </table>	Contained in 16VRS:	«-»	Contained in 17VRS:	«-»	Contained in 18VRS:	«-» «HDC» «HDS»	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «HDS»	Device parameter:	device-specific
Contained in 16VRS:	«-»										
Contained in 17VRS:	«-»										
Contained in 18VRS:	«-» «HDC» «HDS»										
Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «HDS»										
Device parameter:	device-specific										
Function	This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit. The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails. See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)" See also Application Manual "Rexroth IndraMotion MLD"										

P-0-1371 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.66 P-0-1372, PLC Global Register G2

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«HDS»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit. The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1372 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.67 P-0-1373, PLC Global Register G3

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«HDS»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit. The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1373 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.68 P-0-1374, PLC Global Register G4

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«HDS»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit.

The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1374 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.69 P-0-1375, PLC Global Register G5

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «HDS»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «HDS»
Device parameter:	device-specific	

Function See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1375 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.70 P-0-1376, PLC Global Register G6

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «HDS»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «HDS»
Device parameter:	device-specific	

Function See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1376 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.9.71 P-0-1377, PLC Global Register G7

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «HDS»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «HDS»
Device parameter:	device-specific	

Function See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1377 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

5.9.72 P-0-1378, PLC Global Register G8

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «HDC» «HDS»					
	Contained in 20VRS: «-» «HDC» «-» «HDP» «HDM» «HDS»					
	Device parameter: device-specific					

Function See also "P-0-1370, PLC Global Register G0"
See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1378 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

5.9.73 P-0-1379, PLC Global Register G9

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «HDC» «HDS»					
	Contained in 20VRS: «-» «HDC» «-» «HDP» «HDM» «HDS»					
	Device parameter: device-specific					

Function See also "P-0-1370, PLC Global Register G0"
See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1379 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

5.9.74 P-0-1380, PLC Global Register G10

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «HDC» «HDS»					
	Contained in 20VRS: «-» «HDC» «-» «HDP» «HDM» «HDS»					
	Device parameter: device-specific					

Function See also "P-0-1370, PLC Global Register G0"
See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1380 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

5.9.75 P-0-1381, PLC Global Register G11

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «HDC» «HDS»					

	Contained in 20VRS: «-» «HDC» «-» «HDP» «HDM» «HDS»					
	Device parameter: device-specific					
Function	See also "P-0-1370, PLC Global Register G0" See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)" See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1381 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: 0	

5.9.76 P-0-1382, PLC Global Register G12

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «HDC» «HDS»
	Contained in 20VRS:						«-» «HDC» «-» «HDP» «HDM» «HDS»
	Device parameter:						device-specific
Function	See also "P-0-1370, PLC Global Register G0"						
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						
P-0-1382 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: 0	

5.9.77 P-0-1383, PLC Global Register G13

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «HDS»
	Contained in 20VRS:					«-» «HDC» «-» «HDP» «HDM» «HDS»
	Device parameter:					device-specific
Function	See also "P-0-1370, PLC Global Register G0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1383 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0	

5.9.78 P-0-1384, PLC Global Register G14

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «HDC» «HDS»
	Contained in 20VRS:						«-» «HDC» «-» «HDP» «HDM» «HDS»
	Device parameter:						device-specific
Function	See also "P-0-1370, PLC Global Register G0"						
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						

P-0-1384 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.79 P-0-1385, PLC Global Register G15

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«HDS»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1385 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.9.80 P-0-1386, PLC display format Global Register

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This list parameter serves to adjust the display format for the "PLC Global Registers".

Structure Each element in the list has the following structure:

Bit	Designation/function	Comment
3-0	Reserved	
7-4	Display format 0: BIN 1: DEC w sign 2: DEC w/o sign 3: HEX 4: FLOAT	
11-8	Number of decimal places 0 to 7 decimal places	

Tab. 5-62: P-0-1386, PLC display format Global Register

To ensure that the change in format also becomes effective in AxisData (if the relevant parameter is configured in AxisData), the mode must be switched from PM to OM.

- The actual length of the parameter must always be 68 elements.
- When loading default values, each list element is set to = 0x0010 (DEC w sign, 0 decimal places).

The elements have the following relation to the register parameters:

Element no.	Influenced parameter
0... 15	P-0-1370... P-0-1385, PLC Global Register G0... G15
16	P-0-1389, PLC Global Register GL0
17	P-0-1368, PLC Global Register AL0
18... 33	P-0-1316... P-0-1331, PLC Global Register G16... G31
34... 65	P-0-1270... P-0-1301, PLC Global Register A0...A31
66... 67	P-0-1311... P-0-1312, PLC Global Register GL1...GL2

Tab. 5-63: P-0-1386, PLC display format Global Register

P-0-1386 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.9.81 P-0-1387, PLC Global Register AT0

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function Freely usable text parameter with a maximum of 255 characters plus terminating zero character. It is used for data exchange between the integrated PLC and the drive or a higher-level PLC or control unit.

The following applies:

- The UTF-8 character set can be written to this parameter.
- Size in number of bytes: 256
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.



The content of this parameter is not buffered in the event of a control voltage failure.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1387 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.82 P-0-1388, PLC Global Register AT1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function Freely usable text parameter with a maximum of 255 characters plus terminating zero character. It is used for data exchange between the integrated PLC and the drive or a higher-level PLC or control unit.

The following applies:

- The UTF-8 character set can be written to this parameter.
- Size in number of bytes: 256
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.



The content of this parameter is not buffered in the event of a control voltage failure.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1388 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.9.83 P-0-1389, PLC Global Register GL0

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function The parameter is a list register with 1024 elements (of 4 bytes each) and used for data exchange between the integrated PLC and the drive or an external higher-level PLC or control unit.

The display format for this parameter can be individually adjusted with parameter "P-0-1386, PLC display format Global Register".



The data length is firmly set to 4 bytes and cannot be changed.
The content is buffered in the event of a control voltage failure.

When default values are being loaded, the parameter is cleared (actual length = 0).

See also functional description "Rexroth IndraMotion MLD (Drive PLC)"

See also application manual "Rexroth IndraMotion MLD"

P-0-1389 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.9.84 P-0-1390, PLC input WORD0 AT %IB0

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter belongs to the I/O channel (process image) which is the contact of MLD to external devices, since it allows digital and analog inputs/outputs to be evaluated and addressed. In this context, this parameter is used for displaying and transporting the inputs to the process image of the inputs (PII) in MLD.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

Use

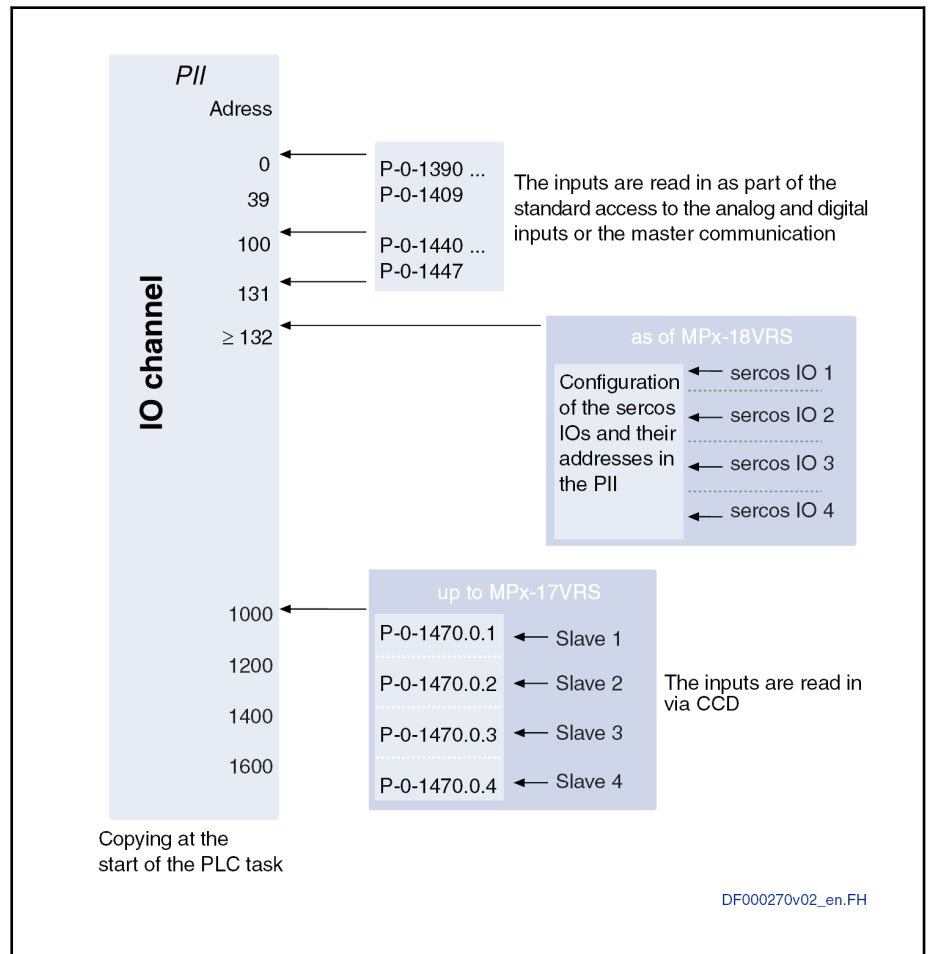


Fig. 5-11: PII - PLC Inputs

The following aspects have to be observed for use:

- This parameter contains the process image of a PLC input (PII) and therefore is not buffered, which means that its content gets lost in case voltage fails.
- It contains 16 bits and is assigned to the hardware via the IO mapper (e.g., X31/32).
- At the beginning of the task, the PLC (IndraMotion MLD) reads the values of the hardware to the parameter (the PII).
- To connect the input, the corresponding assignment of the IDN (e.g., P-0-1390) to a digital input of "X31/32" is required.
- In addition to "P-0-1390", other available input registers are the following:
 - 32 bits: P-0-1440 - P-0-1447
 - 16 bits: P-0-1391 - P-0-1397, P-0-1398 - P-0-1409

P-0-1390 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.85 P-0-1391, PLC input WORD1 AT %IB2

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «-»
	Contained in 20VRS:					«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:					device-specific
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1391 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.9.86 P-0-1392, PLC input WORD2 AT %IB4

Allocation	Contained in 16VRS:				«-»					
	Contained in 17VRS:				«-»					
	Contained in 18VRS:				«-»		«HDC»		«-»	
	Contained in 20VRS:				«-»		«HDC»		«-»	
	Device parameter:				device-specific					
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"									
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"									
	See also Application Manual "Rexroth IndraMotion MLD"									
P-0-1392 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte				
	Memory:	--	Validity ch.:	--	Format:	DEC_MV				
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0				
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--				
	HDx:		min./max.: --- / ---			Default value: ---				

5.9.87 P-0-1393, PLC input WORD3 AT %IB6

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»		«HDC»		«-»	
	Contained in 20VRS:					«-»		«HDC»		«-»	
	Device parameter:					device-specific					
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"										
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"										
	See also Application Manual "Rexroth IndraMotion MLD"										
P-0-1393 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte					
	Memory:	--	Validity ch.:	--	Format:	DEC_MV					
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0					
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--					
	HDx:		min./max.: --- / ---			Default value: ---					

5.9.88 P-0-1394, PLC input WORD4 AT %IB8

Allocation	Contained in 16VRS:				«-»			
	Contained in 17VRS:				«-»			
	Contained in 18VRS:				«-» «HDC» «-»			
	Contained in 20VRS:				«-» «HDC» «-» «HDP» «HDM» «-»			
	Device parameter:				device-specific			

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1394 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.9.89 P-0-1395, PLC input WORD5 AT %IB10

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1395 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.9.90 P-0-1396, PLC input WORD6 AT %IB12

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1396 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.9.91 P-0-1397, PLC input WORD7 AT %IB14

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1397 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.92 P-0-1398, PLC input WORD8 AT %IB16

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1398 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.93 P-0-1399, PLC input WORD9 AT %IB18

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1399 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.94 P-0-1400, PLC input WORD10 AT %IB20

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1400 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.95 P-0-1401, PLC input WORD11 AT %IB22

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«HDC»					«-»
	Contained in 20VRS:	«-»	«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific						

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1401 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.96 P-0-1402, PLC input WORD12 AT %IB24

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«HDC»				«-»	
	Contained in 20VRS:	«-»	«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific						

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1402 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.97 P-0-1403, PLC input WORD13 AT %IB26

Allocation	Contained in 16VRS:	«-»						
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«HDC»		«-»			
	Contained in 20VRS:	«-»	«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific						

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1403 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.98 P-0-1404, PLC input WORD14 AT %IB28

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1404 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.99 P-0-1405, PLC input WORD15 AT %IB30

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1405 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.100 P-0-1406, PLC input WORD16 AT %IB32

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1406 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.101 P-0-1407, PLC input WORD17 AT %IB34

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1407 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.102 P-0-1408, PLC input WORD18 AT %IB36

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1408 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.103 P-0-1409, PLC input WORD19 AT %IB38

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1409 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.104 P-0-1410, PLC output WORD0 AT %QB0

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function The parameter belongs to the I/O channel (process image) which is the contact of MLD to external devices, since it allows digital and analog inputs/outputs to be evaluated and addressed. The parameter serves to display and transport data from the process image to the outputs (POI).

See also Application Manual "Rexroth IndraMotion MLD"

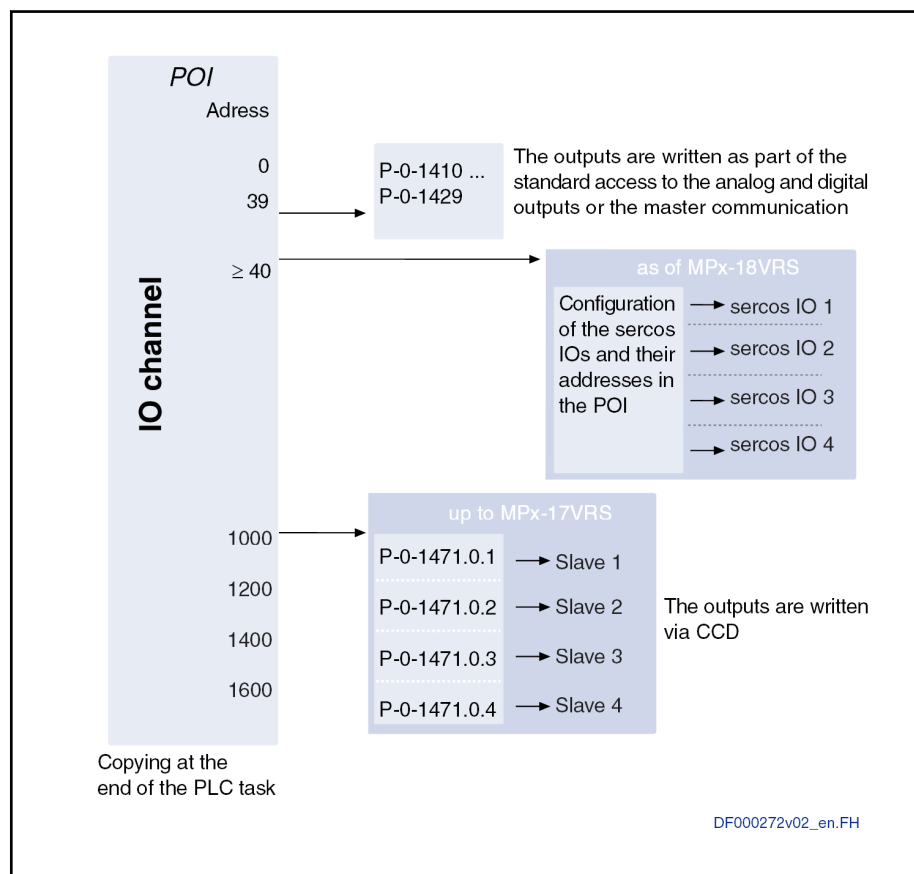
Use

Fig. 5-12: POI - PLC outputs

Observe the following aspects for their usage:

- The parameter contains the process image of a PLC output (POI) and is not buffered, i.e. its content is lost after a power failure.
- It contains 16 bits and is assigned to hardware via the IO mapper (e.g. X31/32), or read directly by the master communication (possibly via the serial interface).
- The PLC (IndraMotion MLD) writes the values from the POI to hardware at the end of the task.

- To connect the output, the IDN (e.g. [P-0-1410](#)) has to be assigned to a digital output of "X31/32".
- Apart from "[P-0-1410](#)" the following input registers are available:
 - 16 bits: [P-0-1411](#) - [P-0-1417](#)

[P-0-1418](#) - [P-0-1429](#)

[P-0-1410](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.9.105 [P-0-1411](#), PLC output WORD1 AT %QB2

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "[P-0-1410](#), PLC output WORD0 AT %QB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

[P-0-1411](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.9.106 [P-0-1412](#), PLC output WORD2 AT %QB4

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "[P-0-1410](#), PLC output WORD0 AT %QB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

[P-0-1412](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.9.107 [P-0-1413](#), PLC output WORD3 AT %QB6

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "[P-0-1410](#), PLC output WORD0 AT %QB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1413 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.108 P-0-1414, PLC output WORD4 AT %QB8

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1410, PLC output WORD0 AT %QB0"
 See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1414 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.109 P-0-1415, PLC output WORD5 AT %QB10

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1410, PLC output WORD0 AT %QB0"
 See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1415 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.110 P-0-1416, PLC output WORD6 AT %QB12

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function See also "P-0-1410, PLC output WORD0 AT %QB0"
 See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"
 See also Application Manual "Rexroth IndraMotion MLD"

P-0-1416 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.111 P-0-1417, PLC output WORD7 AT %QB14

Allocation	Contained in 16VRS:		«-»			
	Contained in 17VRS:		«-»			
	Contained in 18VRS:		«HDC»		«-»	
	Contained in 20VRS:		«HDC»		«-»	
	Device parameter:		device-specific			
Function	See also "P-0-1410, PLC output WORD0 AT %QB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1417 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.112 P-0-1418, PLC output WORD8 AT %QB16

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
Function	See also "P-0-1410, PLC Output WORD0 AT %QB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1418 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.113 P-0-1419, PLC output WORD9 AT %QB18

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»		«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				
Function	The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.					
	See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1419 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.114 P-0-1420, PLC output WORD10 AT %QB20

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»		«-»	

5.9.117 P-0-1423, PLC output WORD13 AT %QB26

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				
Function	The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.					
	See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
	P-0-1423 - Attributes					
Function:	Par	Editable:	--	Data length:	2Byte	
Memory:	--	Validity ch.:	--	Format:	DEC_MV	
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
HDx:	min./max.: --- / ---			Default value: ---		

5.9.118 P-0-1424, PLC output WORD14 AT %QB28

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «-»
	Contained in 20VRS:					«-» «HDC» «-» «HDP» «HDM» «-»
	Device parameter:					device-specific
Function	The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.					
	See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1424 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.119 P-0-1425, PLC output WORD15 AT %QB30

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-»		«HDC»		«-»	
	Contained in 20VRS: «-»		«HDC»		«-»	«HDP» «HDM» «-»
	Device parameter: device-specific					
Function	The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter. See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)" See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1425 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.120 P-0-1426, PLC output WORD16 AT %QB32

Allocation	Contained in 16VRS:						«-»		
	Contained in 17VRS:	«-»							
	Contained in 18VRS:	«-»		«HDC»			«-»		
	Contained in 20VRS:	«-»		«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific							

Function The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1426 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.121 P-0-1427, PLC output WORD17 AT %QB34

Allocation	Contained in 16VRS:	«-»						
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«HDC»		«-»			
	Contained in 20VRS:	«-»	«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific						

Function The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1427 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.9.122 P-0-1428, PLC output WORD18 AT %QB36

Allocation	Contained in 16VRS:						«-»		
	Contained in 17VRS:	«-»							
	Contained in 18VRS:	«-»		«HDC»		«-»			
	Contained in 20VRS:	«-»		«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific							

Function The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1428 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.123 P-0-1429, PLC output WORD19 AT %QB38

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1429 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.124 P-0-1440, PLC input DWORD25 AT %IB100

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This parameter belongs to the I/O channel (process image) which is the contact of MLD to external devices, since it allows digital and analog inputs/outputs to be evaluated and addressed. In this context, this parameter is used for displaying the inputs and accessing the process image of the inputs (PII) in MLD.

See also Application Manual "Rexroth IndraMotion MLD"

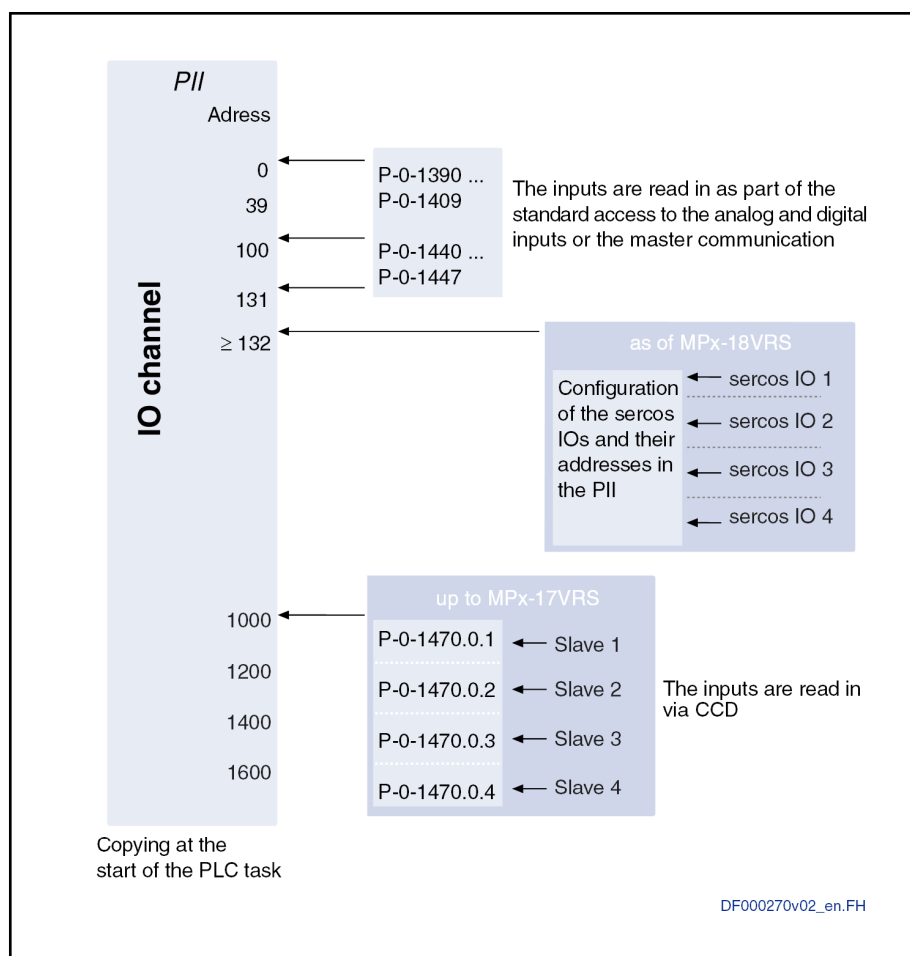


Fig. 5-13: PII - PLC Inputs

Use The following aspects have to be observed for use:

- This parameter contains the process image of a PLC input (PII) and is not buffered, which means that its content gets lost in case voltage fails.
- It contains 32 bits and is assigned via the IO mapper (e.g., "X31/32").
- At the beginning of the task, the PLC (IndraMotion MLD) reads the values to the PII.
- To write to the input, the corresponding assignment of the IDN (e.g., P-0-1390 to a digital output of X31/32) is required.
- In addition to "P-0-1440", other available input registers are the following:
 - 32 bits: P-0-1441 - P-0-1447
 - 16 bits: P-0-1390 - P-0-1397, P-0-1398 - P-0-1409

P-0-1440 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.125 P-0-1441, PLC input DWORD26 AT %IB104

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»

P-0-1444 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.129 P-0-1445, PLC input DWORD30 AT %IB120

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»			«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
Function	See also "P-0-1440, PLC input DWORD25 AT %IB100"						
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						

P-0-1445 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.130 P-0-1446, PLC input DWORD31 AT %IB124

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»			«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
Function	See also "P-0-1440, PLC input DWORD25 AT %IB100"						
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						

P-0-1446 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.131 P-0-1447, PLC input DWORD32 AT %IB128

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»			«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
Function	See also "P-0-1440, PLC input DWORD25 AT %IB100"						
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"						
	See also Application Manual "Rexroth IndraMotion MLD"						

P-0-1447 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.132 P-0-1449, C4900 PLC command

Allocation	Contained in 16VRS:					«-»											
	Contained in 17VRS:					«-»											
	Contained in 18VRS:					«-»		«HDC»		«-»							
	Contained in 20VRS:					«-»		«HDC»		«-»		«HDP»		«HDM»		«-»	
	Device parameter:					axis-specific											
Function	This parameter can be used to control a PLC program via the standardized command mechanisms.																
	See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"																
	See also Application Manual "Rexroth IndraMotion MLD"																
P-0-1449 - Attributes	Function:	Cmd			Editable:	++			Data length:	2Byte							
	Memory:	--			Validity ch.:	--			Format:	BIN							
	Unit:	--			Extr. val. ch.:	--			Decim. pl.:	0							
	Cycl. tra.:	--			Comb. check:	--			Set-depend.:	--							
	HDx:		min./max.: --- / ---										Default value: ---				

5.9.133 P-0-1450, PLC/setting-up mode Positioning command value

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC» «-»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:							axis-specific
Function	This parameter is used to input a positioning command value for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.							
	 To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".							
Use	See also Functional Description "Drive-Controlled Positioning"							
	See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"							
	The function of "P-0-1450" complies with "S-0-0282, Positioning command value ", its effectiveness is explained in the Functional Description.							
	See Functional Description "Rexroth IndraMotion MLD"							
P-0-1450 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: ---		

5.9.134 P-0-1451, PLC/setting-up mode, positioning velocity

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	This parameter is used to input a positioning velocity for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.						
 To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".							

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

Use The function of "P-0-1451" complies with "S-0-0259, Positioning velocity ", its effectiveness is explained in the Functional Description.

See Functional Description "Rexroth IndraMotion MLD"

P-0-1451 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	0,0000

5.9.135 P-0-1452, PLC/setting-up mode, positioning acceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used to input a positioning acceleration for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.



To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

Use The function of "P-0-1452" complies with "S-0-0260, Positioning acceleration ", its effectiveness is explained in the Functional Description.

See Application Manual "Rexroth IndraMotion MLD"

P-0-1452 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	--	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	0,000

5.9.136 P-0-1453, PLC/setting-up mode, positioning deceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used to input a positioning deceleration for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.



To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

Use The function of "P--0--1453" complies with "S-0-0359, Positioning deceleration", its effectiveness is explained in the Functional Description.
See Application Manual "Rexroth IndraMotion MLD"

P-0-1453 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	--	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,000	

5.9.137 P-0-1454, PLC/setting-up mode, positioning command value acceptance

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function

This parameter is used to control the positioning process (e.g., start of positioning) for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.



To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

Use The function of "P-0-1454" complies with "S-0-0346, Positioning control word", its effectiveness is explained in the Functional Description.
See Functional Description "Rexroth IndraMotion MLD"

P-0-1454 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.9.138 P-0-1455, PLC/setting-up mode, positioning command value acknowledge

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function

This parameter is used for internal analysis of the positioning process for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.



To use positioning with the setting-up mode, the operation mode must first be preselected with "P0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

Use Regarding its function, parameter "P-0-1455" corresponds to parameter "S-0-0419, Positioning command acknowledge" the operating principle of which is explained in detail in the Functional Description.

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1455 - Attributes	Function: Par	Editable: --	Data length: 2Byte
	Memory: --	Validity ch.: --	Format: BIN
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: AT	Comb. check: --	Set-depend.: --
HDx:		min./max.: --- / ---	Default value: ---

5.9.139 P-0-1460, PLC/setting-up mode, velocity command value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used to input a velocity command value in velocity control via IndraMotion MLD with temporary control or via the setting-up mode.

See also Functional Description "Velocity Control"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

Use The function of "P-0-1460" complies with "S-0-0036, Velocity command value", its effectiveness is explained in the Functional Description.

See Application Manual "Rexroth IndraMotion MLD"

P-0-1460 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: S-0-0044	Extr. val. ch.: --	Decim. pl.: S-0-0045 / S-0-0046
	Cycl. tra.: AT	Comb. check: --	Set-depend.: --
HDx:		min./max.: --- / ---	Default value: ---

5.9.140 P-0-1461, PLC/setting-up mode Ramp pitch

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used to set a ramp in velocity control via IndraMotion MLD with temporary control or via the setting-up mode.

See also Functional Description "Velocity Control"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

Use The function of "P-0-1461" complies with "P-0-1203, Ramp 2 pitch", its effectiveness is explained in the Functional Description.

See Application Manual "Rexroth IndraMotion MLD"

P-0-1461 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_MV
	Unit: S-0-0160	Extr. val. ch.: --	Decim. pl.: S-0-0161 / S-0-0162
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --
HDx:		min./max.: --- / ---	Default value: 0,000

5.9.141 P-0-1463, PLC/setting-up mode Deceleration ramp

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		

	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter:					
	axis-specific					
Function	This parameter is used to set a deceleration in velocity control via IndraMotion MLD with temporary control or via the setting-up mode. See also Functional Description "Velocity Control" See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"					
Use	The function of "P-0-1463" complies with "P-0-1213, Deceleration ramp 2 ", its effectiveness is explained in the Functional Description. See Functional Description "Rexroth IndraMotion MLD"					
P-0-1463 - Attributes	Function: Par	Editable: ++	Data length: 4Byte			
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_MV			
	Unit: S-0-0160	Extr. val. ch.: --	Decim. pl.: S-0-0161 / S-0-0162			
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --			
	HDx:		min./max.: --- / ---	Default value: 0,000		

5.9.142 P-0-1465, PLC/setting-up mode Torque/force command value

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	This parameter is used to input a torque/force command value in torque control via IndraMotion MLD-S with temporary control or via the setting-up mode.						
 To use torque/force control with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy startup".							
See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"							
Use	The function of "P-0-1465" complies with "S-0-0080, Torque/force command value ", its effectiveness is explained in the Functional Description.						
See Functional Description "Rexroth IndraMotion MLD"							
P-0-1465 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.9.143 P-0-1466, PLC Torque/force ramp

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«-»
	Contained in 18VRS:							«HDB» «HDC» «-»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:							axis-specific
Function	Using the torque/force ramp time (P-0-1467), the PLC torque/force ramp defines a pitch for the PLC torque/force command value (P-0-1465) in torque/fore control PLC operation mode under temporary control or in set-up mode.							
	In its function, parameter P-0-1466 corresponds to parameter S-0-0822, Torque/force ramp, whose operating principle is explained in detail in the functional description.							
	See also Functional Description "Torque/Force Control"							

P-0-1466 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.9.144 P-0-1467, PLC/setting-up mode, torque/force ramp time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function Using the torque/force ramp (P-0-1466), the PLC torque/force ramp time defines a pitch for the PLC torque/force command value (P-0-1465) in torque/force control operation mode via the drive-internal PLC under temporary control or in set-up mode.

In its function, parameter P-0-1467 corresponds to parameter S-0-0823, Torque/force ramp time, whose operating principle is explained in detail in the functional description.

See also Functional Description "Torque/Force Control"

P-0-1467 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.9.145 P-0-1468, PLC/setting-up mode, valve command value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used to provide a valve command value in direct valve control via the drive-internal PLC in temporary control or via the setting-up mode.



To be able to use direct valve control in the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy startup".

See also functional description "IndraMotion MLD (drive-integrated PLC)"

Use Regarding its function, parameter "P-0-1468" corresponds to parameter "S-0-0860, Valve command value", the operating principle of which is explained in detail in the functional description.

See also functional description "Direct valve control"

P-0-1468 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.9.146 P-0-1469, PLC/setting-up mode, valve ramp time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	The "PLC/setting-up mode, valve ramp time" defines a slope for the "PLC/setting-up, valve command value", "P-0-1468" in the direct valve control mode via the drive-internal PLC in temporary control or via the setting-up mode.					
	The ramp refers to a 100 % change in the valve command value.					
Use	Regarding its function, parameter "P-0-1469" corresponds to parameter "S-0-0869, Spool ramp time", the operating principle of which is explained in detail in the functional description.					
	See also functional description "Direct valve control"					
P-0-1469 - Attributes	Function: Par	Editable: ++	Data length: 2Byte			
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV			
	Unit: ms	Extr. val. ch.: --	Decim. pl.: 1			
	Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --			
	HDx:	min./max.: --- / ---	Default value: 0,0			

5.10 P-0-1500 - P-0-1599

5.10.1 P-0-1520, Control section type

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: device-specific					
Function	This parameter indicates the type designation of the control section.					
	The firmware identifies existing hardware of the controller and generates from this the type designation.					
	The type designation of the control section also reflects the firmware interdependencies.					
P-0-1520 - Attributes	Function: Par	Editable: --	Data length: 1Byte var.			
	Memory: --	Validity ch.: --	Format: ASCII			
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0			
	Cycl. tra.: --	Comb. check: --	Set-depend.: --			
	HDx:	min./max.: --- / ---	Default value: ---			

5.10.2 P-0-1534, C6100 Command Activate IP settings

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Hardware Real Engineering, Virtual Engineering					
	Device parameter: device-specific					
Function	As of firmware version 20: Replacement parameter of "S-0-1048" for compatible access.					
	With this command, the IP settings made by the user (IP address, network mask and standard gateway) on the devices available in the controller are activated.					
	 Even if the IP settings are changed, the settings made before these changes remain active until the command is started.					
Use	When the command is started, the communication of all devices (hardware, which can be used for IP communication, cf. network card in the PC), on					

which settings were changed, is interrupted. After successful completion of the command, the IP communication can be resumed with the new settings.

P-0-1534 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.10.3 P-0-1535, Setting of IP communication

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Real Engineering, Virtual Engineering
	Device parameter:	device-specific

Function This parameter can be used to make basic settings for IP communication of the drive.



Changed settings only become active after a restart of the drive.



The shutdown of IP servers is an aspect of IT security.

To protect the settings made, the customer password should therefore be set in order that the parameter is protected against unauthorized changes.

Structure The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
0	Proxy-ARP 0: Active 1: Not active Proxy-ARP is a mechanism, in which a device (router) replies to ARP requests for hosts from the other known IP networks.	
1	IP routing 0: Active 1: Not active	
2	ARP probe 0: Active 1: Not active ARP probe is a mechanism for detecting IP address conflicts. In the drive, it is only executed when the IP configuration or the LINK status is changed.	
7-3	Reserved	
8	Telnet server 0: Active 1: Not active TCP port: 23	

Bit	Designation/function	Comment
9	SIS server 0: Active 1: Not active TCP port: 5002	
10	TFTP server 0: Active 1: Not active UDP port: 69	
11	FTP server 0: Active 1: Not active TCP port: 20/21	
12	ComServer (BRWS) 0: Active 1: Not active TCP port: 6042	
13	WebServer (http) 0: Active 1: Not active TCP port: 80	
15-14	Reserved	

Tab. 5-64: Relevant bits of P-0-1535

P-0-1535 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: 0x4	

5.11 P-0-1600 - P-0-1999

5.11.1 P-0-1804.x.130, Assignment signal status/control word, compact

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»			«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
	Hardware	Controller A-CC, MLD				
Device parameter:		device-specific				
Alias idn:		P-0-2406, P-0-2407				

Function Summary of the structure elements for assigning CCD signal status/control word (P-0-1804.0.1 to P-0-1804.0.4).

In this parameter, the information about a component required for the engineering tool is provided in compact form for each instance.

P-0-1804.0.130 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.11.2 P-0-1805.x.130, Configuration master/slave command/actual values, compact

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«-» «HDC» «-» «HDP» «HDM» «-»
Hardware	Controller A-CC, MLD	
Device parameter:	device-specific	
Alias idn:	P-0-2560, P-0-2561	

Function Summary of the structure elements for configuration of CCD master/slave command/actual values (P-0-1805.0.1 to P-0-1805.0.4).

In this parameter, the information about a component required for the engineering tool is provided in compact form for each instance.

P-0-1805.0.130 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.11.3 P-0-1901.0.1, CiA402: Controlword

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x6040 "Control word" for profile "CiA402". The description of the object can be found in specification "CiA 402 CANopen device profile for drives and motion control".

Via parameter "P-0-1901.0.1" the Drive State Machine can be controlled in accordance with "CiA402".

See also functional description "Profile types"

Structure

Bit	Designation/function	Comment
0	Switch on	
1	Enable voltage	
2	Quick stop	
3	Enable operation	
4... 6	Operation mode-specific	
7	Fault reset	
8	Halt	
9	Operation mode-specific	

Tab. 5-65: CiA402: Control word

P-0-1901.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.11.4 P-0-1901.0.2, CiA402: Statusword

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
Device parameter:		axis-specific					

Function The parameter realizes the object 0x6041 "status word" for the profile "CiA402".

Parameter "P-0-1901.0.2" can be used to indicate the status of the drive state machine according to "CiA402".

See also Functional Description "Profile types"

Structure

Bit	Designation/function	Comment
0	Ready to switch on	
1	Switched on	
2	Operation enabled	
3	Fault	
4	Voltage enabled	
5	Quick stop	
6	Switch on disabled	
7	Warning	
8/9	Reserved	
10	Target reached	
11	Internal limit active	
12/13	Operation mode-specific	
14/15	Reserved	

Tab. 5-66: CiA402: Status word

Bit 13	Bit 12	Bit 10	Mode	
0	0	0	Homing mode	Homing procedure is in progress
0	0	1		Homing procedure is interrupted or not started
0	1	0		Homing is attained, but target is not reached
0	1	1		Homing procedure is completed successfully
1	0	1		Homing error occurred, velocity is 0
X	1	X	Other modes	Drive follows the command value
1	X	X	Only in cyclic position mode	Following error

Tab. 5-67: Bit 13/12/10:

P-0-1901.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.11.5 P-0-1901.0.3, CiA402: Abort connection option code

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CiA402				

Device parameter: axis-specific

Function The parameter realizes the object 0x6007 "Abort connection option code" for profile "CiA402".

Via parameter "P-0-1901.0.3" the reaction to a communication error of the drive state machine can be set in accordance with "CiA402".

- 0 = In the case of a communication error, only a warning is issued
- 1 = In the case of a communication error, an error message is issued

See also functional description "Profile types"

P-0-1901.0.3 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0 / 1			Default value: 1	

5.11.6 P-0-1901.0.4, CiA402: Quick stop option code

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CiA402				

Device parameter: axis-specific

Function The parameter realizes object 0x605A "Quick stop option code" for profile "CiA402".

Via parameter "P-0-1901.0.4" the deceleration ramp and reaction during the transition to the state "quick stop" of the drive state machine can be set in accordance with "CiA402".

- 0 = Disable drive function (torque enable)
- 2 = Deceleration with 0x6085 "Quick stop deceleration" and subsequent transition to "Switch on disable"
- 6 = Deceleration with 0x6085 "Quick stop deceleration" (S-0-0372) and maintaining in "Quick Stop"

See also functional description "Profile types"

P-0-1901.0.4 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0 / 6			Default value: 2	

5.11.7 P-0-1901.0.5, CiA402: Shutdown option code

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		

	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					
Function	The parameter realizes object 0x605B "Shutdown option code" for profile "CiA402".						
	Via parameter "P-0-1901.0.5" the deceleration ramp can be set for the input "Shutdown" of the drive state machine in accordance with "CiA402".						
	0 = Disable drive function (torque enable)						
	See also functional description "Profile types"						
P-0-1901.0.5 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: 0 / 0				Default value: 0	

5.11.8 P-0-1901.0.6, CiA402: Disable operation option code

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					
Function	The parameter realizes object "0x605C Disable operation option code" for profile "CiA402".						
	Via parameter "P-0-1901.0.6" the deceleration ramp can be set for the input "Disable operation" of the drive state machine in accordance with "CiA402".						
	0 = Disable drive function (torque enable) - 1 = Deceleration with selection from "P-0-0119" (0x3077)						
	See also functional description "Profile types"						
P-0-1901.0.6 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: -1 / 0				Default value: ---	

5.11.9 P-0-1901.0.7, CiA402: Halt option code

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					
Function	The parameter realizes object 0x605D "Halt option code" for profile "CiA402".						
	Via parameter "P-0-1901.0.7" the deceleration ramp can be set for the input "Halt" of the drive state machine in accordance with "CiA402".						
	1 = Deceleration with the deceleration ramp defined for the active operation mode (not possible in all operation modes, otherwise like *2) 2 = Deceleration with 0x6085 "Quick stop deceleration" (S-0-0372)						
	See also functional description "Profile types"						
P-0-1901.0.7 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	

HDx: min./max.: 1 / 2 Default value: 2

5.11.10 P-0-1901.0.8, CiA402: Fault reaction option code

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Hardware CiA402					
	Device parameter: axis-specific					

Function The parameter realizes object 0x605E "Fault reaction option code" for profile "CiA402".

Via parameter "P-0-1901.0.8" the deceleration ramp can be set for the drive state machine's switching to "Fault" in accordance with "CiA402".

- 0 = Disable drive function (torque enable)
- -1 = Deceleration with selection from P-0-0119 (0x3077)

See also functional description "Profile types"

P-0-1901.0.8 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: -1 / 0 Default value: ---

5.11.11 P-0-1901.0.9, CiA402: Modes of operation

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Hardware CiA402					
	Device parameter: axis-specific					

Function The parameter realizes the object 0x6060 "Modes of operation" for profile "CiA402".

The operation mode can be set via parameter "P-0-1901.0.9".

See also functional description "Profile types"

Structure The following values are permissible:

Value	Designation/function	Comment
0	No change / no mode selected	
6	Homing mode	
8	Cyclic synchronous position mode	
9	Cyclic synchronous velocity mode	
10	Cyclic synchronous torque mode	
	Manufacturer-specific (operation) modes	
-1	Drive-internal interpolation	
-2	Drive-controlled positioning	
-3	Positioning block mode	
-4	Velocity synchronization	
-5	Phase synchronization	

Value	Designation/function	Comment
-6	Electronic cam	
-7	Electronic motion profile	

Tab. 5-68: CiA402: Modes of operation

P-0-1901.0.9 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.11.12 P-0-1901.0.10, CiA402: Modes of operation display

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «-»
	Contained in 18VRS: «-» «-» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402
Device parameter:	axis-specific
Function	The parameter realizes the object 0x6061 "Modes of operation display" for profile "CiA402". Via parameter "P-0-1901.0.10" the active mode (of operation) is displayed. See also functional description "Profile types"

P-0-1901.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.11.13 P-0-1901.0.11, CiA402: Supported drive modes

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «-»
	Contained in 18VRS: «-» «-» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402
Device parameter:	axis-specific
Function	The parameter realizes the object 0x6502 "Supported drive modes" for profile "CiA402". Via parameter "P-0-1901.0.11" the possible modes (of operation) are displayed. See also functional description "Profile types"

P-0-1901.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.11.14 P-0-1901.0.12, CiA402: Error Code

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «-»
	Contained in 18VRS: «-» «-» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402
Device parameter:	axis-specific
Function	The parameter realizes the object 0x603F "Error Code" for profile "CiA402". Via parameter "P-0-1901.0.12" the active "CiA402 Error Code" is displayed.

See also functional description "Profile types"

P-0-1901.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.11.15 P-0-1901.0.21, CiA402: Position encoder resolution

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x608F 00 "Position encoder resolution" for profile "CiA402".

Via parameter "P-0-1901.0.21" the number of subindices (2) is displayed for this object.

See also functional description "Profile types"

P-0-1901.0.21 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.11.16 P-0-1901.0.22, CiA402: Position encoder resolution, Encoder increments

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes object 0x608F 01 "Position encoder resolution, encoder increments" for profile "CiA402".

Via parameter "P-0-1901.0.22" the resolution of encoder 1 can be set.

See also functional description "Profile types"

P-0-1901.0.22 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.11.17 P-0-1901.0.23, CiA402: Position encoder resolution, Motor revolutions

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x608F 02 "Position encoder resolution, motor revolutions" for profile "CiA402".

Only the value "1" can be written to parameter "P-0-1901.0.23". Thus, the setting from "P-0-1901.0.22" (0x608F 01) refers to one motor revolution.

See also functional description "Profile types"

P-0-1901.0.23 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 1 / 1	Default value:	1

5.11.18 P-0-1901.0.24, CiA402: Gear ratio

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x6091 00 "Gear Ratio" for profile "CiA402".

Via parameter "P-0-1901.0.24" the number of subindices (2) is displayed for these objects.

The gear ratio is set by means of parameters "S-0-0121" (0x6091 01 "Gear ratio, motor shaft revolutions") and "S-0-0122" (0x6091 02 "Gear ratio, driving shaft revolutions").

See also functional description "Profile types"

P-0-1901.0.24 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.11.19 P-0-1901.0.25, CiA402: Feed constant

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x6092 00 "Feed Constant" for profile "CiA402".

Via parameter "P-0-1901.0.25" the number of subindices (2) is displayed for this object.

The feed constant is set via parameters P-0-1901.0.26 (0x6092 01 "Feed constant, feed") and P-0-1901.0.27 (0x6092 02 "Feed constant, shaft revolutions").

See also functional description "Profile types"

P-0-1901.0.25 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.11.20 P-0-1901.0.26, CiA402: Feed constant, feed

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»

Function	Hardware		CiA402			
	Device parameter:		axis-specific			
	The parameter realizes the object 0x6092 01 "Feed Constant, Feed" for profile "CiA402". Via parameter " P-0-1901.0.26 " the feed is entered in the set position scaling. See also functional description "Profile types"					
P-0-1901.0.26 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					min./max.: S-0-0076 / S-0-0076
						Default value: 10,0000

5.11.21 P-0-1901.0.27, CiA402: Feed constant, shaft revolutions

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Hardware					CiA402
	Device parameter:					axis-specific
Function	The parameter realizes the object 0x6092 02 "Feed Constant, shaft revolutions" for profile "CiA402".					
	Only the value "1" can be written to parameter "P-0-1901.0.27", which means that the setting from "P-0-1901.0.26" (0x6092 01) refers to one motor revolution.					
	See also functional description "Profile types"					
P-0-1901.0.27 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 1 / 1			Default value: 1	

5.11.22 P-0-1901.0.28, CiA402: Velocity factor

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»				
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware		CiA402					
	Device parameter:		axis-specific					
Function	The parameter realizes the object 0x6096 00 "Velocity factor" for profile "CiA402".							
	Via parameter "P-0-1901.0.28" the number of subindices (2) is displayed for this object.							
	The "velocity factor" is set via the parameters "P-0-1901.0.29" and "P-0-1901.0.30".							
	See also functional description "Profile types"							
P-0-1901.0.28 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte / 1Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_OV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: ---		

5.11.23 P-0-1901.0.29, CiA402: Velocity factor, numerator

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:						«-»	
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»	
	Hardware						CiA402	
	Device parameter:						axis-specific	
Function	The parameter realizes the object 0x6096 01 "Velocity factor, numerator" for profile "CiA402".							
	Via parameter "P-0-1901.0.29" the numerator of the "Velocity factor" can be entered.							
	See also functional description "Profile types"							
P-0-1901.0.29 - Attributes								
Function:		Par	Editable:		PM	Data length:		4Byte
Memory:		PARAM_SP	Validity ch.:		PM->OM	Format:		DEC_OV
Unit:		--	Extr. val. ch.:		--	Decim. pl.:		0
Cycl. tra.:		--	Comb. check:		--	Set-depend.:		--
HDx:			min./max.: --- / ---			Default value: 1		

5.11.24 P-0-1901.0.30, CiA402: Velocity factor, divisor

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:						«-»	
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»	
	Hardware						CiA402	
Device parameter:							axis-specific	
Function	The parameter realizes the object 0x6096 02 "Velocity factor, divisor" for profile "CiA402".							
	Only the value "1" can be written to parameter "P-0-1901.0.30". For this reason, the nominator of the "velocity factor" is always "1".							
	See also functional description "Profile types"							
P-0-1901.0.30 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV		
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:							min./max.: 1 / 1

5.11.25 P-0-1901.0.31, CiA402: Acceleration factor

Allocation	Contained in 16VRS: «-»						
	Contained in 17VRS: «-»						
	Contained in 18VRS: «-»		«-»		«-»		
	Contained in 20VRS: «HDB»		«HDC»	«HDE»	«HDP»	«HDM»	
	Hardware		CiA402				
	Device parameter:		axis-specific				
Function	The parameter realizes the object 0x6097 00 "Acceleration factor" for profile CiA402.						
	Via parameter "P-0-1901.0.31" the number of subindices (2) is displayed for these objects ("2" in this case).						
	The "Acceleration factor" is set via the parameters "P-0-1901.0.32" (0x6097 01 "Acceleration factor, numerator") and "P-0-1901.0.33" (0x6097 02 "Acceleration factor, divisor").						
	See also functional description "Profile types"						
P-0-1901.0.31 - Attributes							
Function:	Par	Editable:	--	Data length:	2Byte / 1Byte		
Memory:	--	Validity ch.:	--	Format:	DEC_OV		
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		

HDx: min./max.: --- / --- Default value: ---

5.11.26 P-0-1901.0.32, CiA402: Acceleration factor, numerator

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					

Function The parameter realizes the object 0x6097 01 "Acceleration factor, numerator" for profile "CiA402".

Via parameter "P-0-1901.0.32" the numerator of the "Acceleration factor" can be entered.

See also functional description "Profile types"

P-0-1901.0.32 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 1

5.11.27 P-0-1901.0.33, CiA402: Acceleration factor, divisor

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					

Function The parameter realizes the object 0x6097 02 "Acceleration factor, divisor" for profile "CiA402".

Only the value "1" can be written to parameter "P-0-1901.0.33". For this reason, the nominator of the "Acceleration factor" is always "1".

See also functional description "Profile types"

P-0-1901.0.33 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 1 / 1 Default value: 1

5.11.28 P-0-1901.0.34, CiA402: Polarity

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					

Function The parameter realizes the object 0x607E "Polarity" for profile "CiA402".

Via parameter "P-0-1901.0.34" the polarity of position and velocity data can be set.

See also functional description "Profile types"

Structure	Bit	Designation/function	Comment
	6	Velocity polarity 0: Positive 1: Negative	
	7	Position polarity 0: Positive 1: Negative	

Tab. 5-69: *Polarity***P-0-1901.0.34 - Attributes**

Function:	Par	Editable:	PM	Data length:	2Byte / 1Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x0

5.11.29 P-0-1901.0.35, CiA402: SI unit position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CiA402
	Device parameter:	axis-specific

Function The parameter realizes the object 0x60A8 "SI unit position" for profile "CiA402".

Via parameter "P-0-1901.0.35" the unit (scaling) of position data can be set.

See also functional description "Profile types"

Structure

Bit	Designation/function	Comment
15 - 0	Reserved	
23 - 16	Position unit 41: Degrees (rotary scaling) 01: m (linear scaling)	
31 - 24	Exponent -6... 0: With unit "degrees" -9... 0: With unit "m"	

Tab. 5-70: *SI unit position***P-0-1901.0.35 - Attributes**

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0xFC010000

5.11.30 P-0-1901.0.36, CiA402: SI unit velocity

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CiA402
	Device parameter:	axis-specific

Function The parameter realizes the object 0x60A9 "SI unit velocity" for profile "CiA402".

Via parameter "[P-0-1901.0.36](#)" the unit (scaling) of velocity data can be set.
See also functional description "Profile types"

Structure

Bit	Designation/function	Comment
7 - 0	Reserved	
18 - 8	Time unit 47: min 03: sec	
23 - 16	Velocity unit B4: Revolutions (rotary scaling) 01: m (linear scaling)	
31 - 24	Exponent -6 ... 0: With unit "revolutions" -9 ... 0: With unit "m"	

Tab. 5-71: SI unit Velocity

P-0-1901.0.36 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0xFC014700	

5.11.31 P-0-1901.0.37, CiA402:SI unit acceleration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x60AA "SI unit acceleration" for profile "CiA402".

Via parameter "[P-0-1901.0.37](#)" the unit (scaling) of acceleration data can be set.

See also functional description "Profile types"

Structure

Bit	Designation/function	Comment
7 - 0	Reserved	
15 - 8	Time unit 57: "sec ² "	
23 - 16	Acceleration unit 10: "rad" (rotary scaling) 01: "m" (linear scaling)	
31 - 24	Exponent -6... 0: With unit "rad" -9... 0: With unit "m"	

Tab. 5-72: SI unit acceleration

P-0-1901.0.37 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0xFD015700	

5.11.32 P-0-1901.0.41, CiA402: Target Position

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CiA402				
Device parameter:		axis-specific				

Function The parameter realizes the object 0x607A "Target Position" for profile "CiA402".

Via parameter "P-0-1901.0.41" the position command value can be provided in the (operation) mode "Cyclic synchronous position mode".

See also functional description "Profile types"

P-0-1901.0.41 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: S-0-0076 / S-0-0076	Default value:	---

5.11.33 P-0-1901.0.42, CiA402: Interpolation time period

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CiA402				
Device parameter:		axis-specific				

Function The parameter realizes the object 0x60C2 00 "Interpolation time period" for profile "CiA402".

Via parameter "P-0-1901.0.42" the number of subindices (2) is displayed for this object.

The "interpolation time" is set via parameters "P-0-1901.0.43" (0x60C2 01 "interpolation time period, value") and "P-0-1901.0.44" (0x60C2 02 "Interpolation time period, index").

See also functional description "Profile types"

P-0-1901.0.42 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.11.34 P-0-1901.0.43, CiA402: Interpolation time period value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CiA402				
Device parameter:		axis-specific				

Function The parameter realizes the object 0x60C2 01 "Interpolation time period, value" for profile "CiA402".

Via parameters "P-0-1901.0.43" and "P-0-1901.0.44" the time can be entered, over which the command value from "P-0-1901.0.41" (0x607A) is to be interpolated.

The interpolation time in "s" results from $P-0-1901.0.43 \cdot 10^{P-0-1901.0.44}$.

See also functional description "Profile types"

P-0-1901.0.43 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte / 1Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0 / 255	Default value:	2

5.11.35 P-0-1901.0.44, CiA402: Interpolation time index

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	CiA402					
Device parameter:	axis-specific					

Function The parameter realizes the object 0x60C2 02 "Interpolation time period, index" for profile "CiA402".

The description of the object can be found in specification "CiA402 CANopen device profile for drives and motion control".

Via parameters "P-0-1901.0.43" and "P-0-1901.0.44" the time can be entered, over which the command value from "P-0-1901.0.41" (0x607A) is to be interpolated.

The interpolation time in "s" results from $P-0-1901.0.43 \cdot 10^{P-0-1901.0.44}$.

See also functional description "Profile types"

P-0-1901.0.44 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte / 1Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: -6 / -2	Default value:	---

5.11.36 P-0-1901.0.45, CiA402: Position Range Limit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	CiA402					
Device parameter:	axis-specific					

Function The parameter realizes the object 0x607B 00 "Position Range Limit" for profile "CiA402".

Via parameter "P-0-1901.0.45" the number of subindices (2) is displayed for this object.

The "position range" is set via parameters "P-0-1901.0.46" (0x607B 01 "Min position: Range Limit") and "P-0-1901.0.47" (0x607B 02 "Max position: Range Limit"). Only the value "0" can be written to parameter "P-0-1901.0.46". Modulo scaling in IndraDrive is activated by a value unequal to "0" in "P-0-1901.0.47" (0x607B 02 "Max position Range Limit").

See also functional description "Profile types"

P-0-1901.0.45 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.11.37 P-0-1901.0.46, CiA402: Min position range limit

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					

Function The parameter realizes the object 0x607B 01 "Min position Range Limit" for profile "CiA402".

The description of the object can be found in specification "CiA 402 CANopen device profile for drives and motion control".

The "position range" is set via parameters "P-0-1901.0.46" (0x607B 01 "Min position Range Limit") and "P-0-1901.0.47" (0x607B 02 "Max position Range Limit"). Only the value "0" can be written to parameter "P-0-1901.0.46". Modulo scaling is activated in IndraDrive by a value unequal to "0" in "P-0-1901.0.47" (0x607B 02 Max position Range Limit).

See also functional description "Profile types"

P-0-1901.0.46 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0076 / S-0-0076 Default value: 0,0000

5.11.38 P-0-1901.0.47, CiA402: Max position range limit

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					

Function The parameter realizes the object 0x607B 02 "Max position Range Limit" for profile CiA402.

The "position range" is set via parameters "P-0-1901.0.46" (0x607B 01 Min position: Range Limit) and "P-0-1901.0.47" (0x607B 02 Max position: Range Limit). Only the value "0" can be written to parameter "P-0-1901.0.46". Modulo scaling is activated in IndraDrive by a value unequal to "0" in "P-0-1901.0.47" (0x607B 02 Max position Range Limit).

See also functional description "Profile types"

P-0-1901.0.47 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0076 / S-0-0076 Default value: 0,0000

5.11.39 P-0-1901.0.48, CiA402: Software Position Limit

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CiA402					
	Device parameter:	axis-specific					

Function The parameter realizes the object 0x607D "00 Software Position Limit" for profile "CiA402".

Via parameter "[P-0-1901.0.48](#)" the number of subindices (2) is displayed for this object.

The position limits and the activation of position limit monitoring are set via parameters "[P-0-1901.0.49](#)" (0x607D 01 Min position limit) and "[P-0-1901.0.50](#)" (0x607D 02 Max position limit).



If both parameters (objects) have the value "0", monitoring of the position limits is switched off!

See also functional description "Profile types"

[P-0-1901.0.48](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.11.40 [P-0-1901.0.49](#), CiA402: Min position limit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	CiA402					
Device parameter:	axis-specific					

Function The parameter realizes the object 0x607D 01 "Min position limit" for profile "CiA402".

The position limits and the activation of position limit monitoring are set via parameters "[P-0-1901.0.49](#)" (0x607D 01 Min position limit) and "[P-0-1901.0.50](#)" (0x607D 02 Max position limit).

If both parameters (objects) have the value "0", monitoring of the position limits is switched off.

See also functional description "Profile types"

[P-0-1901.0.49](#) - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.11.41 [P-0-1901.0.50](#), CiA402: Max position limit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	CiA402					
Device parameter:	axis-specific					

Function The parameter realizes the object 0x607D 02 "Max position limit" for profile "CiA402".

The description of the object can be found in specification "CiA402 CANopen device profile for drives and motion control".

The position limits and the activation of position limit monitoring are set via parameters "[P-0-1901.0.49](#)" (0x607D 01 Min position limit) and "[P-0-1901.0.50](#)" (0x607D 02 Max position limit).

If both parameters (objects) have the value "0", monitoring of the position limits is switched off.

See also functional description "Profile types"

P-0-1901.0.50 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.11.42 P-0-1901.0.51, CiA402:Position actual internal value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x6063 "Position actual internal value" for profile "CiA402".

Via parameter "P-0-1901.0.51" the current value of the motor measuring system can be displayed in the internal processing unit.

See also functional description "Profile types"

P-0-1901.0.51 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.11.43 P-0-1901.0.52, CiA402:Position demand internal value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x60FC "Position demand internal value" for profile CiA402.

The description of the object can be found in specification "CiA402 CANopen device profile for drives and motion control".

Via parameter "P-0-1901.0.52" the internal input value of the position controller can be displayed in the unit of internal processing.

See also functional description "Profile types"

P-0-1901.0.52 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.11.44 P-0-1901.0.53, CiA402:Homing method

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA402	
Device parameter:	axis-specific	

Function The parameter realizes the object 0x6098 "Homing method" for profile CiA402.

Via parameter "P-0-1901.0.53" the homing method can be selected for the "homing mode".

See also functional description "Profile types"

Structure

Value	Designation/function	Comment
1	Homing with negative limit switch and zero pulse	
2	Homing with positive limit switch and zero pulse	
3	Homing with negative edge of the homing switch and zero pulse in negative direction	
4	Homing with positive edge of the homing switch and zero pulse in positive direction	
5	Homing with negative edge of the homing switch and zero pulse in positive direction	
6	Homing with positive edge of the homing switch and zero pulse in negative direction	
17	Homing with negative limit switch without zero pulse	
18	Homing with positive limit switch without zero pulse	
19	Homing with negative edge of the homing switch without zero pulse in negative direction	
20	Homing with positive edge of the homing switch without zero pulse in positive direction	
21	Homing with negative edge of the homing switch without zero pulse in positive direction	
22	Homing with positive edge of the homing switch without zero pulse in positive direction	
33	Homing to the zero pulse without homing switch in negative direction	
34	Homing to the zero pulse without homing switch in positive direction	
37	Current position is reference	

Tab. 5-73: Homing method

P-0-1901.0.53 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 37

5.11.45 P-0-1901.0.54, CiA402: Homing speeds

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CiA402
	Device parameter:	axis-specific

Function The parameter realizes the object 0x6099 00 "Homing speeds" for profile "CiA402".

Via parameter "P-0-1901.0.54" the number of subindices (2) is displayed for this object.

The homing speed is set via parameter "[S-0-0041](#)" (0x6099 01 Speed during search for switch) and (0x6099 02 Speed during search for zero). It is not possible to make different settings for the speed for searching for the mark and for the switch.

See also functional description "Profile types"

[P-0-1901.0.54](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.12 P-0-2000 - P-0-2799

5.12.1 P-0-2002, Oper. hours of contr. sect. at change of functional packages

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function This parameter is used in conjunction with the enabling of functional packages.

In parameter "[P-0-2002](#)" the count of the operating hours counter of the control section, at the time of a change in the functional package selection in "[P-0-2003](#), Selection of functional packages", is stored.



The value is stored on the control section and therefore gets lost when the device is replaced. Parameter [P-0-2002](#) cannot be changed but only be read.

See also Functional Description "Enabling of Functional Packages"

See also Functional Description "Functional Packages"

[P-0-2002](#) - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	ON_BOARD_S	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.12.2 P-0-2003, Selection of functional packages

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In conjunction with functional package enabling, "[P-0-2003](#)" is used to select the desired and licensed functional packages. There may be cases where functional packages are enabled which must not be used simultaneously, but only alternatively. The effective alternative package is selected through "[P-0-2003](#)".

See also Functional Description "Enabling of functional packages"

See also Functional Description "Functional packages"

See also Functional Description "Changing the active functional package selection"

Use

Bit no.	Name of package (Bit = 1 → package is selected)	Rules for selection via P-0-2003
0	Base package "open-loop"	- As an alternative to bit 1
1	Base package "closed-loop"	- As an alternative to bit 0
3 - 2	Reserved	--
4	Extension package "servo function" (SRV)	- As an alternative to bit 5 - Not in conjunction with "Open Loop" - Only in conjunction with "axis controller"
5	Extension package "synchronization" (SNC)	- As an alternative to bit 4 - Not in conjunction with "Open Loop" - Only in conjunction with "axis controller"
8 - 6	Reserved	--
9	Additional package "IndraMotion MLD" ML ¹⁾	--
15 - 10	Reserved	--
16	Valve (IFB)	- Alternatively to bit 17, bit 18, bit 19, and bit 20 - Only in conjunction with "Open Loop"
17	- Closed-loop pressure/flow control (p_Q)	- Alternatively to bit 16, bit 18, bit 19, and bit 20 - Only in conjunction with "Open Loop"
18	Pump control (DFE)	- Alternatively to bit 16, bit 17, bit 19, and bit 20 - Only in conjunction with "Open Loop"
19	Axis controller (AXR)	- Alternatively to bit 16, bit 17, bit 18, and bit 20
20	Synchronization control (SYN)	- Alternatively to bit 16, bit 17, bit 18, and bit 19 - Only in conjunction with "Closed Loop"
31 - 21	Reserved	--

Tab. 5-74: Selection of functional packages via parameter P-0-2003

Use Observe the following aspects for parameter setting:

- When the mode is switched from parameter mode (PM) to operating mode (OM), this parameter is marked as invalid if enabled packages were selected which may be active only alternatively to each other.
- Changes to this parameter only become effective upon the next restart of the drive or by executing "S-0-1350, C6400 Reboot command".

P-0-2003 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.3 P-0-2004, Active functional packages

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter contains the active functional packages.

When booting the functional packages selected in "P-0-2003, Selection of functional packages " are activated and then the respective bits are set or cleared in "P-0-2004". This allows recognizing at any time which functional packages are actually active.

See also Functional Description "Enabling of Functional Packages"

See also Functional Description "Functional Packages"

See also Functional Description "Change of Active Functional Packages Selection"

P-0-2004 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.12.4 P-0-2216, Parameter set switching, configuration

Allocation	Contained in 16VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Contained in 17VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Contained in 18VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter is used to configure parameter set switching. It can be determined, which parameter groups are to be involved in parameter set switching, and the switching behavior can be parameterized.

Structure The individual bits of the parameter have the following meaning:

Bit	Designation/function	Comment
4 - 0	Parameter group selection Bit 0: Group 1, application parameters 0: not switchable 1: switchable Bit 1: Group 2, control loop parameters 0: not switchable 1: switchable Bit 2: reserved Bit 3: reserved Bit 4: reserved	
7 - 5	Reserved	
8	Activation "Drive-controlled parameter set switching" 0: deactivated 1: "Drive-controlled parameter set switching" is active.	
14 - 9	Reserved	
15	Reserved	

Tab. 5-75: Parameter Set Switching, Group Selection

Use When using the parameter, observe the following:

- For parameter set switching you can select "no", "several" or "all" parameter groups.

- Which parameters are contained in the individual groups can be seen in chapter "Parameter set switching" in the functional description.
- Which parameters are to be switched can be checked in parameter "S-0-0219, IDN-list of parameter set" after "P-0-2216, Parameter set switching, configuration" was changed.

P-0-2216 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.12.5 P-0-2217, Parameter set switching, preselection range

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»		«HDC»		«-»
	Contained in 20VRS:	«HDB»		«HDC»	«HDE»	«HDP» «HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used to define the number of switchable parameter sets which are available in the drive firmware.

See also functional description "Parameter set switching"

Use

Parameter set number	0	1	2	3
Value in P-0-2217	0			
	1			
	2			
	3			

Tab. 5-76: Preselection of parameter sets for parameter set switching

P-0-2217 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / s. Text			Default value: 0	

5.12.6 P-0-2300, List of 32-bit IDNs

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»		«HDC»		«-»
	Contained in 20VRS:	«HDB»		«HDC»	«HDE»	«HDP» «HDM» «-»
	Device parameter:	device-specific				

Function The parameter lists

- [P-0-2300](#), List of 32-bit IDNs and
- [P-0-2301](#), List of 16-bit alias IDNs

allow converting 32-bit EIDNs to 16-bit alias IDNs. By means of the 16-bit alias IDNs, it is possible to parameterize the functionality accessible via EIDNs via a conventional communication interface which cannot handle 32-bit EIDNs.

[P-0-2300](#) contains the list of those EIDNs for which 16-bit alias IDNs have been defined. The list is displayed in hexadecimal form and classified in ascending order. For each entry there is a corresponding entry in [P-0-2301](#) which indicates the associated 16-bit alias IDN.

P-0-2300 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.7 P-0-2301, List of 16-bit alias IDNs

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	device-specific				

Function The parameter lists

- [P-0-2300](#), List of 32-bit IDNs and
- [P-0-2301](#), List of 16-bit alias IDNs

allow converting 32-bit EIDNs to 16-bit alias IDNs. By means of the 16-bit alias IDNs, it is possible to parameterize the functionality accessible via EIDNs via a conventional communication interface which cannot handle 32-bit EIDNs.

[P-0-2301](#) contains the list of the 16-bit alias IDNs. The list is displayed in hexadecimal form and is not classified. For each entry there is a corresponding entry in [P-0-2300](#) which indicates the associated EIDN.

P-0-2301 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.8 P-0-2303, Device address

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	device-specific				

Alias idn: [P-0-2303](#)

Function "P-0-4089.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-2303 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0 / 250			Default value: 1	

5.12.9 P-0-2304, Active device address

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	device-specific				

Alias idn: [P-0-2304](#)

Function "P-0-4089.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-2304 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.12.10 P-0-2310, Master communication: Protocol

Allocation	Contained in 16VRS:					«-»	
	Contained in 17VRS:					«-»	
	Contained in 18VRS:		«HDB»	«HDC»	«-»		
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:		device-specific					
Alias idn:		P-0-2310					
Function	Replacement parameter of "P-0-4089.0.1" for communication interface, which does not support 32-bit ident numbers (EIDN).						
P-0-2310 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: s. Text / s. Text			Default value: s. Text	

5.12.11 P-0-2311, Master communication: Device name

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM»
	Hardware					EtherNet/IP, Ethernet POWERLINK, PROFINET
Device parameter:		device-specific				
Alias idn:		P-0-2311				
Function		Replacement parameter of "P-0-4089.0.2" for communication interface, which does not support 32-bit ident numbers (EIDN).				
P-0-2311 - Attributes						
Function:	Par	Editable:	PM	Data length:	1Byte var.	
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII	
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: --- / ---		Default value: s. Text		

5.12.12 P-0-2315, Master communication: IP address

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					EtherNet/IP, PROFINET
Device parameter:		device-specific				
Alias idn:		P-0-2315				
Function		Replacement parameter of "P-0-4089.0.13" for communication interface, which does not support 32-bit ident numbers (EIDN).				
P-0-2315 - Attributes		Function: Par	Editable: PM	Data length: 1Byte var.		
		Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV		
		Unit: --	Extr. val. ch.: --	Decim. pl.: 0		
		Cycl. tra.: --	Comb. check: --	Set-depend.: --		
		HDx:	min./max.: --- / ---		Default value: s. Text	

5.12.13 P-0-2316, Master communication: Network mask

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	EtherNet/IP, PROFINET					
	Device parameter:	device-specific					
	Alias idn:	P-0-2316					
Function	Replacement parameter of "P-0-4089.0.14" for communication interface, which does not support 32-bit ident numbers (EIDN).						

P-0-2316 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.14 P-0-2317, Master communication: Gateway address

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»					«-»
	Hardware	Ethernet/IP, PROFINET					
Device parameter:	device-specific						
Alias idn:	P-0-2317						

Function Replacement parameter of "[P-0-4089.0.15](#)" for communication interface, which does not support 32-bit ident numbers (EIDN).

P-0-2317 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.15 P-0-2318, Master communication: Configuration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»					«-»
	Device parameter:	device-specific					
Alias idn:	P-0-2318						

Function [P-0-4089.0.5](#) replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-2318 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.16 P-0-2320, System data

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Alias idn:	P-0-2320						

Function "[P-0-0250.0.1](#)" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-2320 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.17 P-0-2339, Parameter channel: Configuration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	EtherNet/IP, PROFIBUS, PROFINET					

5.12.21 P-0-2560, Configuration master/slave command/actual values, compact

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»		«-»		«-»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»
Hardware	Controller A-CC, MLD					
Device parameter:	device-specific					
Alias idn:	P-0-2560, P-0-2561					
Function	"P-0-1805.1.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2560 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.22 P-0-2561, Configuration master/slave command/actual values, compact

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»		«-»		«-»	
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»
Hardware	Controller A-CC, MLD					
Device parameter:	device-specific					
Alias idn:	P-0-2560, P-0-2561					
Function	"P-0-1805.2.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2561 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.23 P-0-2578, Type plate, compact

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»		«-»		«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	device-specific					
Alias idn:	P-0-2578					
Function	"S-0-1300.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2578 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.24 P-0-2584, Serial Number

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
Contained in 18VRS:	«HDB»		«HDC»		«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	device-specific					
Alias idn:	P-0-2584					
Function	Replacement parameter of "S-0-1300.0.12" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					

P-0-2584 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.25 P-0-2588, Diagnostic trace configuration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Alias idn: [P-0-2588](#)

Function Replacement parameter for "S-0-1303.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-2588 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.26 P-0-2589, Diagnostic trace control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Alias idn: [P-0-2589](#)

Function Replacement parameter for "S-0-1303.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-2589 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.27 P-0-2590, Diagnostic trace state

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Alias idn: [P-0-2590](#)

Function Replacement parameter for "S-0-1303.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-2590 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.28 P-0-2591, Diagnostic trace main diagnostics

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Alias idn: [P-0-2591](#)

Function	Replacement parameter for "S-0-1303.0.10" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2591 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.12.29 P-0-2593, Diagnostic trace detailed diagnostics

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Alias idn:					P-0-2593
Function	Replacement parameter for "S-0-1303.0.12" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2593 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.12.30 P-0-2594, Diagnostic trace system time fine

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-2594
Function	Replacement parameter for "S-0-1303.0.13" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2594 - Attributes						
Function:	Par	Editable:	--	Data length:	4Byte var.	
Memory:	--	Validity ch.:	--	Format:	DEC_OV	
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3	
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:	min./max.: --- / ---			Default value: ---		

5.12.31 P-0-2595, Diagnostic trace system time coarse

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
Alias idn:						P-0-2595
Function	Replacement parameter for "S-0-1303.0.14" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2595 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.12.32 P-0-2660, Configurable factory default values

Allocation	Contained in 16VRS: «-»				
	Contained in 17VRS: «HDB»				
	Contained in 18VRS: «HDB» «HDC»				

	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-2660					
Function	"P-0-0660.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-2660 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.	
	Memory:	FIX_IDN_SP	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: s. Text		

5.12.33 P-0-2729, Detailed diagnostic message

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-2729					
Function	Replacement parameter for "S-0-0390.0.136" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-2729 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	HEX		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

5.12.34 P-0-2730, Generate type plate, IDN list of type plates

Allocation	Contained in 16VRS:		«-»											
	Contained in 17VRS:		«-»											
	Contained in 18VRS:		«-»		«-»		«-»							
	Contained in 20VRS:		«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«-»	
	Device parameter:		axis-specific											
	Alias idn:		P-0-2730											
Function	Replacement parameter for "P-0-0660.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).													
P-0-2730 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.								
	Memory:	--	Validity ch.:	--	Format:	IDN								
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0								
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--								
	HDx:		min./max.: --- / ---					Default value: ---						

5.12.35 P-0-2738, Generate type plate, configuration list

Allocation	Contained in 16VRS:						«-»					
	Contained in 17VRS:						«-»					
	Contained in 18VRS:						«-»					
	Contained in 20VRS:						«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:						axis-specific					
	Alias idn:						P-0-2738					
Function	Replacement parameter for "P-0-0660.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).											
P-0-2738 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.						
	Memory:	--	Validity ch.:	--	Format:	IDN						
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0						
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--						
	HDx:		min./max.: --- / ---						Default value: ---			

5.12.36 P-0-2755, System fine time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter:	device-specific					
	Alias idn:	P-0-2755					
Function	Replacement parameter for "S-0-1305.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-2755 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_OV	
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.12.37 P-0-2756, System coarse time

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		device-specific					
	Alias idn:		P-0-2756					
Function	Replacement parameter for "S-0-1305.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-2756 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_OV		
	Unit:	s	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

5.12.38 P-0-2757, ECAT: SII Configured Station Alias

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		device-specific					
	Alias idn:		P-0-2757					
Function	Replacement parameter for "P-0-4089.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-2757 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
		HDx:	min./max.: --- / ---			Default value: ---		

5.12.39 P-0-2759, IndraWorks view manager

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-2759					
Function	"P-0-0250.0.10" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-2759 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.	
	Memory:	PARAM SP	Validity ch.:	PM->OM	Format:	HEX	

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.12.40 P-0-2768, Encoder status

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	ENC-Profil					
Device parameter:	device-specific					
Alias idn:	P-0-2768, P-0-2771					
Function	"S-0-0600.1.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2768 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.41 P-0-2769, Marker position

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	ENC-Profil					
Device parameter:	device-specific					
Alias idn:	P-0-2769, P-0-2772					
Function	"S-0-0600.1.10" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2769 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.42 P-0-2770, Position

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	ENC-Profil					
Device parameter:	device-specific					
Alias idn:	P-0-2770, P-0-2773					
Function	"S-0-0600.1.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2770 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.12.43 P-0-2771, Encoder status

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
Hardware	ENC-Profil					

	Device parameter: device-specific	
	Alias idn: P-0-2768, P-0-2771	
Function	"S-0-0600.2.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).	
P-0-2771 - Attributes	Function: Par	Editable: --
	Memory: --	Validity ch.: --
	Unit: --	Extr. val. ch.: --
	Cycl. tra.: AT	Comb. check: --
		Data length: 2Byte
		Format: BIN
		Decim. pl.: 0
		Set-depend.: --
	HDX:	min./max.: --- / ---
		Default value: ---

5.12.44 P-0-2772, Marker position

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Hardware	ENC-Profil					
	Device parameter:	device-specific					
	Alias idn:	P-0-2769, P-0-2772					
Function	"S-0-0600.2.10" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-2772 - Attributes							
Function:	Par	Editable:	--	Data length:	4Byte		
Memory:	--	Validity ch.:	--	Format:	DEC_OV		
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0		
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
HDx:	min./max.: --- / ---			Default value: ---			

5.12.45 P-0-2773, Position

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Hardware	ENC-Profil				
	Device parameter:	device-specific				
Function	Alias idn:	P-0-2770, P-0-2773				
	"S-0-0600.2.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2773 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: ---		

5.12.46 P-0-2786, Encoder status (input)

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-2786					
Function	Replacement parameter for "S-0-0610.1.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-2786 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

5.12.47 P-0-2787, Marker position not scaled (input)

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Alias idn:					P-0-2787
Function	Replacement parameter for "S-0-0610.1.10" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-2787 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.12.48 P-0-2788, Position unscaled (input)

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-2788
Function	Replacement parameter for "S-0-0610.1.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-2788 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_OV	
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

5.12.49 P-0-2790, Prewarning threshold - performance utilization

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«HDB»	«HDC»			«-»	
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		device-specific					
	Alias idn:		P-0-2790					
Function	Replacement parameter for "P-0-0322.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-2790 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV		
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: 0,00 / 100,00			Default value: 90,00		

5.13 P-0-2800 - P-0-2899

5.13.1 P-0-2800, p/Q controller control word

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	This parameter contains the control word for the p/Q function.						

Structure

Bit	Designation/function	Comment
0	The applicative pressure feedback values are used for flow control.	If TRUE, then the applicative pressure feedback values "P-0-2828" or "P-0-2829", respectively, are used for flow control. Otherwise, "S-0-0803" or "S-0-0804", respectively, is effective.
1	Switching p->Q	An L->H edge causes switching back to Q control in dependence upon "P-0-2850"
2-15	Reserved	

Tab. 5-77: Structure

P-0-2800 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.13.2 P-0-2801, p/Q controller status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function This parameter contains the p/Q controller status word.

See also Functional Description "Pressure/flow control".

Structure

Bit	Designation / function	Comment
0	p-controller (pressure controller) inactive / active 0: Inactive 1: Active	If 0, then the flow controller or the valve command value is active If 1, then the pressure controller is active
1	"P-0-2802, Flow command value internal" < 0 or "P-0-2928.0.3, Output of valve command value generator" < 0 0: Positive 1: Negative	If 0, then Q-comm (flow command value) or valve-comm (valve command value generator output), respectively, is positive. This means: Open/closed-loop control on A-side If 1, then Q-comm (flow command value) or valve-comm (valve command value generator output), respectively, is negative. This means: Open/closed-loop control on B-side

Bit	Designation / function	Comment
2	Enable condition for I-controller fulfilled/not fulfilled 0: Enable conditions are not fulfilled 1: Enable conditions are fulfilled	If 0, then the integrator of the pressure controller is inactive. The integrator "stops". See also "P-0-2806.0.5, Pressure controller integrator enable pressure change window" and "P-0-2806.0.6, Pressure controller accuracy window integrator". If 1, then the enable conditions are fulfilled. This means that the integrator of the pressure controller is active. See also "P-0-2806.0.5" and "P-0-2806.0.6"
3-15	Reserved	

Tab. 5-78: Relevant bits of the p/Q controller status word

P-0-2801 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.3 P-0-2802, Flow command value internal

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter indicates the current internal "Flow command value". It is the input value for the p/Q switching logic and/or in case of flow control, it is the input command value for the flow calculation. The internal flow command value is the total of the flow command value (S-0-0840, after the ramp generator) and the "Additive flow command value" (S-0-0841). Afterwards, the total passes through the limiter and can then be displayed as P-0-2802.

Use Active limitation of the "Flow command value controller" is displayed by the set bit 2 in S-0-0849 (Flow status word).

P-0-2802 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.4 P-0-2803, Pressure command value of controller

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter displays the current internal "pressure command value". It is the input value for the pressure controller.

The "internal pressure command value" is composed of the sum of the "pressure command value" (S-0-0800, downstream of the ramp generator) and the "additive pressure command value" (S-0-0801). Then, the sum is processed in the limiter and can be displayed as P-0-2803.

Use An active limitation of the “pressure command value of the controller“ is indicated by bit 2 set in [S-0-0830](#) (pressure status word).

P-0-2803 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.5 P-0-2804, Pressure controller P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used to adjust the proportional gain (P gain) of the pressure controller. The greater the value, the greater the gain.

Use From the control loop perspective, the P gain is to be optimized first before the other controller options are used. In many cases, sufficient accuracy can already be achieved by increasing the P gain. If the system is prone to vibrate, the selected P gain value may be too high. In this case, it is to be reduced.

P-0-2804 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0,000	

5.13.6 P-0-2805, Output of pressure controller

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter displays the current output value of the pressure controller.

P-0-2805 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.7 P-0-2806.0.2, Output pressure controller P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Alias idn: [P-0-3729](#)

Function This parameter displays the proportional share of the pressure controller.

P-0-2806.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.8 P-0-2806.0.3, Pressure controller integrator enable lowpass filter

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Alias idn: [P-0-3400](#)

Function This parameter determines the time coefficient of the low-pass filter which is used to filter the differentiated actual pressure value.

Use The output of this low-pass filter is compared to parameter [P-0-2806.0.5](#) (Pressure controller connection gradient integrator). If the filtered value is smaller, one of the three "Integrator enable conditions" is satisfied for the pressure controller.

[P-0-2806.0.3](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: 0,0 / 6500,0 Default value: 4,0

5.13.9 P-0-2806.0.4, Pressure controller integration time constant

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Alias idn: [P-0-3401](#)

Function This parameter determines the integration time of the integrator in the pressure controller. The integrator time determines, how fast an error is reduced. The shorter the time, the more easily it may happen that the system is more sensitive and tends to oscillate.



If the value "0 ms" is entered in this parameter, the integrator in the pressure controller is deactivated.

Use The integrator is used to minimize steady-state errors or dynamic effects (e.g. a movement). For this reason, it would be useful to optimize the control loop first without the integrator and then to use the integrator later.

[P-0-2806.0.4](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: 0,0 / 6500,0 Default value: 0,0

5.13.10 P-0-2806.0.5, Pressure controller integrator pressure change threshold

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Alias idn: [P-0-3402](#)

Function The integrator only becomes active, if the increase in the actual pressure value drops below this threshold. The increase is filtered through a low-pass filter and the absolute value is used.



In order that the integrator can become active, all conditions must be fulfilled.

A value of zero deactivates the evaluation of the change threshold.

P-0-2806.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0806 / S-0-0806				Default value: 0,0

5.13.11 P-0-2806.0.6, Pressure controller integrator accuracy window

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3403				

Function If the absolute value of "S-0-0827, Pressure control deviation" is less than the accuracy window, the current value of the pressure integrator is frozen. This prevents the integrator from operating below a threshold and the system from entering into a limit cycle.

P-0-2806.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0806 / S-0-0806				Default value: 0,0

5.13.12 P-0-2806.0.7, Pressure controller integrator limit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3404				

Function The parameter serves to limit the integrator. The absolute value creates this limit. This means that the integrator is limited in the positive and negative direction with the same value.

Use The limit is to be used to prevent an integrator from reaching an excessive value so that it cannot be reduced within a reasonable time using the time constant.

With the pressure controller, for example, the integrator may cause a pressure increase to occur briefly at the limit stop, since the integrator continues opening the valve, although the controller is to close it already. The limit can reduce this time.

P-0-2806.0.7 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0806 / S-0-0806				Default value: 0,0

5.13.13 P-0-2806.0.9, Output pressure controller I-part

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				

Contained in 18VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					
Alias idn:	P-0-3405					

Function This parameter indicates the current value of the pressure controller integrator.

P-0-2806.0.9 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.14 P-0-2806.0.10, Correction value: pressure controller D-component

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The parameter shows the current value of the D-term in the pressure controller.

P-0-2806.0.10 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.15 P-0-2806.0.11, Pressure controller feedback to integrator

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«-»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The parameter shows the current value of the feedback to the integrator in the pressure controller of pump control.

P-0-2806.0.11 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.16 P-0-2806.0.12, Output pump pressure controller I-part

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The parameter shows the current value of the integrator in the pressure controller for pump control.

P-0-2806.0.12 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.17 P-0-2806.0.13, Pressure controller calculation p->Q value side A

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3406					
Function	This parameter is used to indicate the oil "dead volume" on the A side of the valve.						
Use	The control value of the pressure controller is converted into a flow by means of the "Dead volume" parameter. This is to consider the oil quantity in the pipe/hose between port A of the valve as well as the corresponding oil quantity in the cylinder on the A side. To calculate the oil quantity in the cylinder, you should assume the most probable piston position during the pressure control.						
- Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	l	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	Input		min./max.		Default value		
	HDB:		0,001 / 4000,000		1,000		
	HDC:		0,001 / 4000,000		1,000		
	HDE:		0,001 / 4000,000		1,000		
	HDP:		0,001 / 4000,000		1,000		
	HDM:		0,001 / 4000,000		1,000		
HDS:		--- / ---		0,000			

5.13.18 P-0-2806.0.14, Pressure controller calculation p->Q value side B

Allocation	Contained in 16VRS:		«-»											
	Contained in 17VRS:		«HDB»											
	Contained in 18VRS:		«HDB»		«HDC»		«-»							
	Contained in 20VRS:		«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«-»	
	Device parameter:		axis-specific											
Alias idn:		P-0-3407												
Function	This parameter is used to indicate the oil "dead volume" on the B side of the valve.													
Use	The control value of the pressure controller is converted into a flow by means of the "Dead volume" parameter. This is to consider the oil quantity in the pipe/hose between port B of the valve as well as the corresponding oil quantity in the cylinder on the B side. To calculate the oil quantity in the cylinder, you should assume the most probable piston position during the pressure control.													
- Attributes	Function:	Par	Editable:	++			Data length:	4Byte						
	Memory:	PARAM_SP	Validity ch.:	--			Format:	DEC_MV						
	Unit:	l	Extr. val. ch.:	+			Decim. pl.:	3						
	Cycl. tra.:	--	Comb. check:	--			Set-depend.:	Grp. 2						
HDx:		min./max.: 0,001 / 4000,000						Default value: 1,000						

5.13.19 P-0-2806.0.15, Pressure controller preload integrator, threshold 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3438					
Function	This parameter defines the lower pressure change limit value. If changes in the actual pressure value (derivative of the actual pressure value) are smaller than this pressure change limit value, the complete difference between the flow command value and the pressure controller output is taken over by the						

integrator of the pressure controller while switching from flow control to pressure. This will, however, only take place, if the integrator time constant ("P-0-2806.0.4") is unequal to zero. See also "P-0-2806.0.16" and the pertinent diagram.



P-0-2806.15 must be smaller than P-0-2806.0.16 in order that the value is taken over. In the operating mode (OM) this is checked while writing the parameters.

This parameter provides for jerk-free switching from flow control to pressure control and is useful in particular for "easing", flow-controlled axes, for the integrator in the pressure controller is only activated when changing over to pressure control takes place. Otherwise, the integrator is cleared. With a cleared integrator, an "easing" axis would firstly come to a standstill when being switched to pressure control. Reason: The integrator is still 0 and has to be charged first. To achieve nevertheless a jerk-free changeover to pressure control, the integrator can take over the difference between the flow command value and the pressure controller output at the time of changing over. This causes the axis, which is now pressure-controlled, to continue its movement "smoothly".

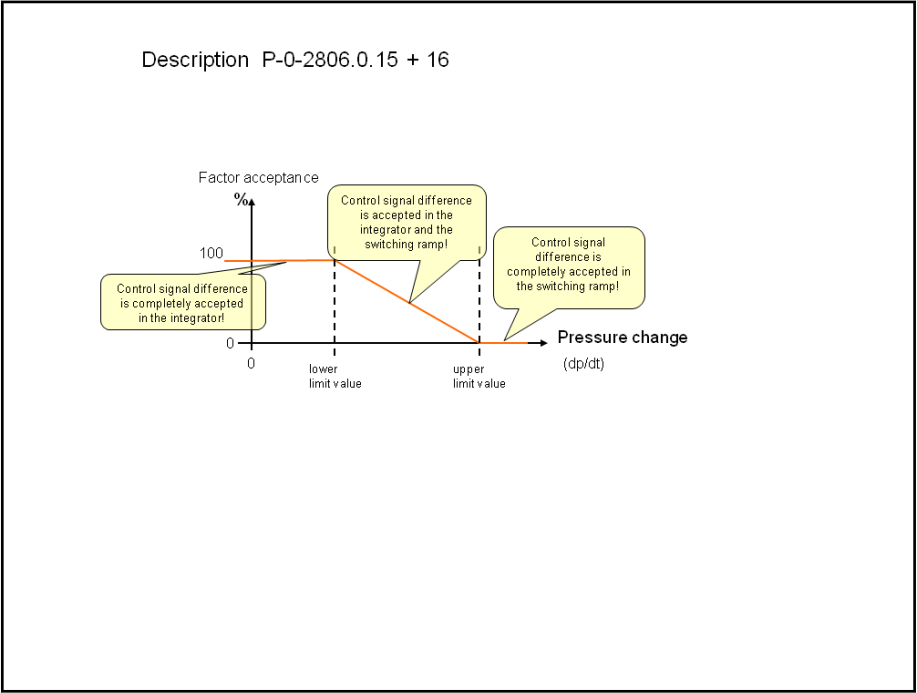


Fig. 5-14: Diagram explaining the calculation of the factor for taking over the control variable difference in the pressure controller integrator

P-0-2806.0.15 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.13.20 P-0-2806.0.16, Pressure controller preload integrator, threshold 2

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»

Device parameter: axis-specific
Alias idn: P-0-3531

Function This parameter defines the upper pressure change limit value. If the changes of the actual pressure value (derivative of the actual pressure value) are greater than this pressure change limit value, the integrator in the pressure controller remains cleared.



P-0-2806.15 must be smaller than P-0-2806.0.16 in order that the value is taken over. In the operating mode (OM) this is checked while writing the parameters.

The entire difference between the flow command value and the position controller actuating signal is then applied in the changeover ramp. By contrast, if the changes of the actual pressure value (derivative of the actual pressure value) are less than this limit value and greater than P-0-2806.0.15, a part is applied in the integrator and the remainder is loaded to the changeover ramp via linear scaling of the difference between the flow command value and the pressure controller actuating signal. (See diagram)

This parameter is used for jerk-free switching from flow control to pressure control. In case of a flow-controlled axis moving a movable mass, the integrator is to be loaded as the pressure controller is only activated (computes) after changing over to pressure control. Otherwise, the integrator is cleared. With a cleared integrator, an "easing" axis would firstly come to a standstill when being switched to pressure control. Reason: The integrator is still 0 and has to be charged first. To achieve nevertheless a jerk-free changeover to pressure control, the integrator can take over the difference between the flow command value and the pressure controller output at the time of changeover. This will then result in a "smooth continued travel" of the now pressure-controlled axis.

The difference can also be taken over by the changeover ramp instead of the integrator. The extent, to which the difference is accepted by the integrator and/or the changeover ramp, depends on the current pressure change (derivative of the actual pressure value) as well as on the parameters "P-0-2806.0.15" and "P-0-2806.0.16". The following diagram explains the relationship.

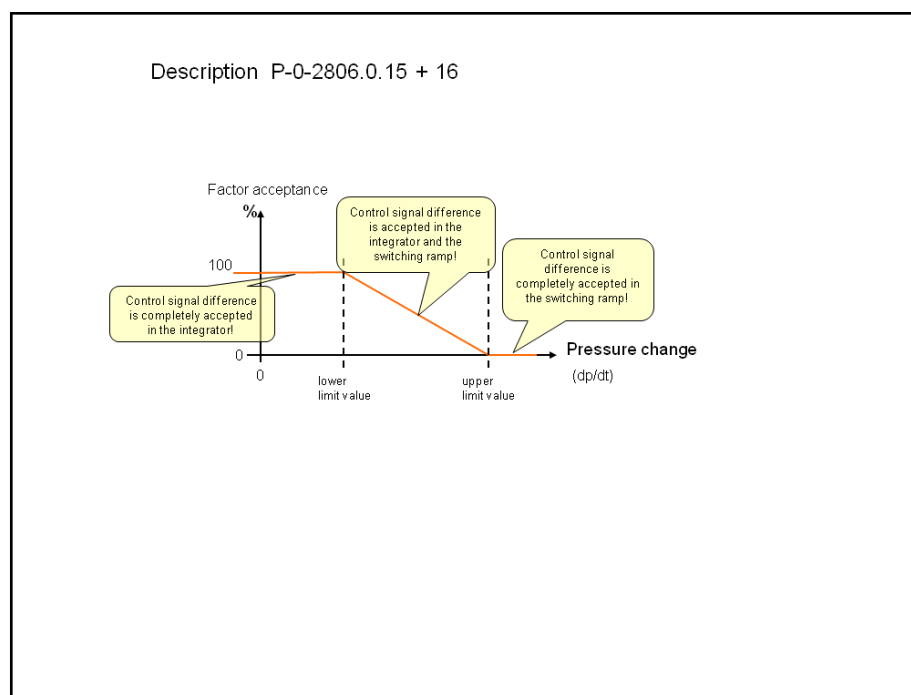


Fig. 5-15: Diagram for calculating the factor for applying the control variable difference in the pressure controller integrator

P-0-2806.0.16 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0,0	

5.13.21 P-0-2806.0.17, Pressure controller preload, pressure change filter time

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	
Alias idn:	P-0-3722	

Function For changing over from flow control to pressure control the integrator for the pressure controller has to be initialized (activation of the I-component). For this, the change of the pressure feedback value is evaluated. The change of the pressure feedback value can be filtered additionally for this function. This parameter can be used to set the filter time for this filter. If 0 ms is entered as filter time, the filter is deactivated.

P-0-2806.0.17 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: 0,0 / 100,0			Default value: 0,0	

5.13.22 P-0-2806.0.18, Pressure controller adaptation, P-term

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»

P-0-2806.0.21 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx: min./max.: 0,0 / 6500,0 Default value: 0,0					

5.13.26 P-0-2806.0.22, Derivative action time, actual pressure value DT1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3821				

Function Together with the parameter "Filter time of pressure feedback value DT1" (P-0-2806.0.23), the "Derivative action time, actual pressure value DT1" configures the D-component of the pressure controller.

P-0-2806.0.22 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx: min./max.: 0,0 / 6500,0 Default value: 0,0					

5.13.27 P-0-2806.0.23, Filter time of pressure feedback value DT1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3822				

Function The "Filter time of pressure feedback value DT1" is used for setting the low-pass behavior (of 1st order) of the D-component. A filter time of 0 deactivates the low-pass behavior.

P-0-2806.0.23 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx: min./max.: 0,0 / 6500,0 Default value: 0,0					

5.13.28 P-0-2806.0.24, Pressure feedback value, filtered

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3859				

Function The signal of the force or pressure transducer may be noisy. It is therefore useful to smooth the signal. Smoothing is achieved by means of the "Filter time of pressure feedback value", P-0-2806.0.21.

Use This parameter contains the result of pressure feedback filtering.

P-0-2806.0.24 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx: min./max.: --- / --- Default value: ---					

5.13.29 P-0-2806.0.25, Pressure control deviation, filtered

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«-»		«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The “pressure control deviation, filtered” indicates the current control quality, that is, the difference between the pressure command value and the filtered actual pressure value.							
Use	With the help of this parameter you can check the control, which means, how precise is controlling or how fast is a disturbance corrected.							
P-0-2806.0.25 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 S-0-0808		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: ---		

5.13.30 P-0-2806.0.26, Output pressure controller in PD branch

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«-»		«-»		«-»	
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	This parameter serves to display the value in the PD branch of the pressure controller.							
P-0-2806.0.26 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 S-0-0847		/
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: ---		

5.13.31 P-0-2806.0.27, Lower speed limit of P-term adaptation

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	This parameter is used for setting the lower limit value of the speed characteristic curve. Below this speed limit the P-term of the pressure controller is no longer adapted.							
P-0-2806.0.27 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	1/min	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: 250			

5.13.32 P-0-2806.0.28, Upper speed limit of P-term adaptation

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	This parameter is used for setting the upper limit value of the speed characteristic curve. Above this speed limit the P-term of the pressure controller is						

no longer adapted. From this limit value on the adaptation factor remains at 1.0.

P-0-2806.0.28 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	1/min	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 1200

5.13.33 P-0-2806.0.29, P-term gain factor for lower speed limit

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function By means of P-0-2806.0.29 the P-term gain factor can be set for the lower speed limit. The gain factor for the upper speed limit is firmly set to 1.0. Between the upper and the lower speed limit the gain factor is linearly increased depending on the speed.

P-0-2806.0.29 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 2,150

5.13.34 P-0-2806.0.30, Lower speed limit of D-term adaptation

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter is used for setting the lower limit value of the speed characteristic curve. Below this speed limit the D-term of the pressure controller is no longer adapted.

P-0-2806.0.30 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	1/min	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 250

5.13.35 P-0-2806.0.31, Upper speed limit of D-term adaptation

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter is used for setting the upper limit value of the speed characteristic curve. Above this speed limit the D-term of the pressure controller is no longer adapted. From this limit value on the adaptation factor remains at 1.0.

P-0-2806.0.31 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	1/min	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 1200

5.13.36 P-0-2806.0.32, D-term gain factor for lower speed limit

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «-» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	By means of P-0-2806.0.32 the D-term gain factor can be set for the lower speed limit. The gain factor for the upper speed limit is firmly set to 1.0. Between the upper and the lower speed limit the gain factor is linearly increased depending on the speed.						
P-0-2806.0.32 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: 3,200	

5.13.37 P-0-2807, Pressure controller pilot flow control command value

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
Function	The parameter is used for the flow pilot control and has an effect on the pressure controller control signal. The value is added to the pressure controller control signal and constitutes the pressure controller control signal for the switching logic.					
Use	The flow pilot control in the pressure controller branch is e.g. used for the jerk-free switching from flow control to pressure control in case of shifting axes.					
P-0-2807 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 S-0-0847
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.38 P-0-2809, Pressure controller P-gain, cascade structure

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «-» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
Function	This parameter is used to set the proportional gain (P-gain) of the pressure controller. The higher the value, the higher the gain.					
Use	For adjusting the pressure controller, the P-gain should be optimized first, before further options of the controller are utilized. In many cases, sufficient accuracy can already be achieved by increasing the P-gain. If the system tends to oscillate, the P-gain may have been selected too high. In this case, it should be reduced.					
P-0-2809 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	1/s	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0,000	

5.13.39 P-0-2810, List of easy-startup operating modes

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«HDB»	«HDC»			«-»	
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The parameter contains the list of the sercos operating modes that are available during setup mode (easy startup mode).							
	Its content depends on the selected functional package or the connected hardware.							
	The parameter is only for internal use.							
P-0-2810 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.		
	Memory:	--	Validity ch.:	--	Format:	HEX		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

5.13.40 P-0-2811, Setting of base clock cycle

Allocation	Contained in 16VRS:					«-»											
	Contained in 17VRS:					«-»											
	Contained in 18VRS:					«-»		«-»		«-»							
	Contained in 20VRS:					«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«-»	
	Device parameter:					device-specific											
Function	If “adjustable performance” has been selected P-0-0556 , the basic cycle time can be adjusted by means of this setting.																
	At present, the firmware only allows 400 µs and 1:1 timing to be set.																
P-0-2811 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte											
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV											
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0											
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--											
	HDx:		min./max.: 400 / 400										Default value: 400				

5.13.41 P-0-2812, Feedback of actual pressure value derivative to integrator

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
Function	This parameter determines the factor, with which the pressure change acts on the I-term.					
Use	The parameter is used for quickly compensating for load jumps or load changes by the pressure controller. During these changes, the integration value is reduced by the feedback. This prevents or reduces under-/overshoots of the actual pressure value. The value set here should approximately correspond to the integration time constant.					
P-0-2812 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:		min./max.: --- / ---		Default value: 0,000	

5.13.42 P-0-2813, Pressure controller dead volume

Allocation	Contained in 16VRS:				«-»			
	Contained in 17VRS:				«-»			
	Contained in 18VRS:				«-»	«-»	«-»	

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter is used to specify the dead volume in the system.					
Use	By means of the “dead volume” parameter, the control output of the pressure controller is converted into a swivel angle. Thus, the oil volume in the system between the pressure port of the pump and the consumer is taken into account. In the case of a closed circuit, it is recommended that the average oil volume be entered.					
P-0-2813 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	l	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: 0,001 / 4000,000			Default value: 1,000	

5.13.43 P-0-2814, Output of pump pressure controller, cascade structure

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter merely serves to display the pressure controller output in the cascade structure of the pump controller.					
P-0-2814 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.44 P-0-2815, Pressure controller output signal, negative limit, cascade

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter allows determining a limit value for negative pressure controller output values.					
P-0-2815 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: -100,000 / 100,000			Default value: ---	

5.13.45 P-0-2816, Pressure controller positive factor for D-component, cascade

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter defines the factor, with which a positive pressure change acts on the output signal.					
P-0-2816 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- Default value: 0,000

5.13.46 P-0-2817, Pressure controller negative factor for D-component, cascade

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter determines the factor, with which a negative pressure change acts on the output signal.

P-0-2817 - Attributes	Function: Par	Editable: ++	Data length: 2Byte
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 3
	Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2

HDx: min./max.: --- / --- Default value: 0,000

5.13.47 P-0-2818, Pressure controller upper integrator limit, cascade

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The parameter is intended for the manual limitation of the integrator in the pressure controller. This value limits the integrator to a maximum value.



For activating the manual limitation of the integrator, bit 10 = 1 has to be set in "P-0-2950, Pump controller control word".

Use This limitation should be used to prevent the integrator from reaching too high a value, which cannot be reduced via the time constant within a reasonable time.

P-0-2818 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV
	Unit: S-0-0845	Extr. val. ch.: +	Decim. pl.: S-0-0846 / S-0-0847
	Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2

HDx: min./max.: S-0-0845 / S-0-0845 Default value: 0,000

5.13.48 P-0-2819, Error suppression control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ErrorHandling.DeactivateErrorControlWord

Function With the help of this parameter, selected axis errors can be reconfigured as a warning.

⚠ CAUTION

Configuring an error as warning results in the fact that responding of the monitoring function will no longer cause an error reaction. It is therefore the user's responsibility to react to the response of the monitoring function (error) in an appropriate way that suits the individual system requirements. If the user does not react, the installation/machine could be damaged or destroyed!

The following table shows the supported error messages that can be re-configured into a warning:

Diagnostic message number	Name	Comment
F2028	Excessive control deviation	As of HDx20V18
F2037	Excessive position command value difference	As of HDx20V18
F8022	Encoder 1: Encoder signals incorrect	As of HDx20V18
F8024	Error encoder 2: Signal amplitude incorrect	Only with HDS
F8079	Velocity limit value exceeded	As of HDx20V16:
F8282	Fault: Hardware enable	As of HDx20V10 Not with HDS
F8271	Excessive valve control deviation	As of HDx20V14 Not with HDS

Tab. 5-79: Supported error messages

Structure

The following bits are defined:

Bit	Error message and error or warning that is triggered	Comment
0	Excessive control deviation 0: F2028 1: E2030	As of HDx20V18
1	Excessive position command value difference 0: F2037 1: E2037	As of HDx20V18
2	Encoder 1: Incorrect encoder signals (can be cleared in phase 2) 0: F8022 1: E8022	As of HDx20V18

Bit	Error message and error or warning that is triggered	Comment
3	Error encoder 2: Signal amplitude incorrect 0: F8042 1: E8045	HDS only
4	Velocity limit value exceeded 0: F8079 1: E8079	As of HDx20V16:
5	Error: Hardware enable 0: F8282 1: A0521	As of HDx20V10 Not with HDS
6	Excessive valve control deviation 0: F8271 1: E8271	As of HDx20V14 Not with HDS
7-31	Reserved	

Tab. 5-80: P-0-2819, Error suppression control word

Use The following aspects have to be observed for use:

- Warnings are cleared automatically when the cause of the warning is no longer present.
- With HDS, the warning is reset without delay in the next motion clock cycle.
- This parameter can be edited in both, the parameter level and the operating mode.



Note: In the case of the "Error: Hardware enable", instead of the error, no warning, but info message "A0521, Power loss, switching back to bb" is generated by setting of the relevant bit in parameter [P-0-2819](#). The drive switches internally to "bb".

P-0-2819 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --
HDx:	min./max.: --- / ---	Default value: 0x0

5.13.49 P-0-2820, Control word of position controller

Allocation	Contained in 16VRS: «HDS»
	Contained in 17VRS: «HDB»
	Contained in 18VRS: «HDB» «HDC» «HDS»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter: axis-specific
	Property name: PosControl.ControlWord

Function Control word for switching position controller components

Structure

Structure	Bit	Designation/function	Comment
	0	Activation integrator (fine positioner): 0: Deactivated 1: Activated	HDS: The bit is set permanently for axes that are not controlled by the synchronization controller. For deactivating fine interpolation, parameter P-0-2830.0.4 has to be set to zero.
	1	Determination of type of monitoring: 0: The model error is monitored 1: The following distance is monitored	The function is available as of version HDx-20VRS.
	2 - 15	Reserved	Bits should always be 0.

Tab. 5-81: Structure

P-0-2820 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0x0	

5.13.50 P-0-2821, Position controller status word

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	PosControl.StatusWord

Function Status word for displaying position controller states

Structure	Bit	Designation/function	Comment
	0	Active fine positioning	= 1: Active
	1	Active down ramp integrator	= 1: Active
	2 - 15	Reserved	Bits are always 0

Tab. 5-82: Structure

P-0-2821 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.51 P-0-2822, Velocity controller control word

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	VelControl.ControlWord

Function Control word for switching the components of the subordinate velocity controller**Structure**

Structure

Bit	Designation/function	Comment
0	Subordinate velocity controller is active	= 1: Active
1 - 14	Not used	Should always be ZERO
15	Deactivate direct component	= 1: Not active = 0: Direct component is effective

Tab. 5-83: Structure

P-0-2822 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0x0	

5.13.52 P-0-2823, Velocity controller status word

Allocation

Contained in 16VRS:	«HDS»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	VelControl.StatusWord					

Function
Structure

Status word for displaying the subordinate velocity controller states

Bit	Designation/function	Comment
0	I-component active	= 1: Active
1 - 15	Reserved	

Tab. 5-84: Structure

P-0-2823 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.53 P-0-2824, Active damping: Control word

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	StateControl.ControlWord					

Function

The control quality can be improved with the help of active damping. Whether and to which extent an improvement can be achieved depends on the individual system and the activated feedbacks.

As of firmware version 20VRS, active damping can also be utilized in devices without position measuring systems. However, with these devices only force feedback is permitted.

Structure	Bit	Designation/function	Comment
	0	Velocity feedback 0: Off 1: On	
	1,2	Selection of feedback 00: Acceleration feedback 01: Force feedback 10: Reserved 11: Reserved	These bits are only active if bit 3 is activated
	3	Acceleration/force feedback 0: Off 1: On	
	4-15	Reserved	

Tab. 5-85: Structure

P-0-2824 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0x0	

5.13.54 P-0-2826, Output of velocity controller

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	SwitchingLogic.PosCtrlOutput

Function Output value of the complete position controller, including components of the inner-loop velocity controller and active damping.

P-0-2826 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.55 P-0-2827, Pump changeover logic control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter contains the control word for the pump changeover logic in the cascade structure of the pump controller.

Structure	Bit	Designation/function	Comment
	0-1	Switching condition for swivel angle -> pressure control 0: Min/max value principle 1: Pressure switch-on threshold: 2: Min/max value principle AND pressure switch-on threshold	
	2	Selection of calculation of the initialization value for the integrator 0: The swivel angle command value according to the pump model is used for the calculation. 1: The swivel angle command value without pump model is used for the calculation.	
	3	Reserved	
	4-5	Changeover condition Pressure -> swivel angle control 0: Min/max value principle 1: Pressure switch-off threshold 2: Min/max value principle OR pressure switch-off threshold	
	6-7	Reserved	
	8-9	Type of threshold 0: Relative thresholds 1: Absolute threshold 2: Reference of absolute thresholds to pressure control difference	
	9-15	Reserved	

Tab. 5-86: P-0-2827.0.0, Pump changeover logic control word

P-0-2827 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x22	

5.13.56 P-0-2828, Pressure feedback value A (applicative)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In this parameter, the applicative actual pressure value of chamber A is entered. It is only effective, if bit 0 in control word "P-0-2800" is set.

In order to prevent instabilities in the closed-loop flow control of low-frequency axes, instead of the measured actual pressure value "S-0-0803" the applicative actual pressure value of chamber A may be used for flow control.

P-0-2828 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.13.57 P-0-2829, Pressure feedback value B (applicative)

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter: axis-specific					
Function	In this parameter, the applicative actual pressure value of chamber A is entered. It is only effective, if bit 0 in control word "P-0-2800" is set.					
	In order to prevent instabilities in the closed-loop flow control of low-frequency axes, instead of the measured actual pressure value "S-0-0804" the applicative actual pressure value of chamber B may be used for flow control.					
P-0-2829 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---				Default value: ---

5.13.58 P-0-2830.0.1, Position controller Kv-factor change ramp

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						PosControl.KvRamp
	Alias idn:						P-0-3408
Function	In case the Kv factor (the position controller) is changed, the Kv ramp provides for a continuous transition (ramp) from the old Kv factor to the new Kv factor. In this way, jumps in the Kv share (P share) can be avoided.						
	In case of Kv ramp = 0, the ramp function is inactive.						
P-0-2830.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	(1000/min)/s	Extr. val. ch.:	--	Decim. pl.:	2	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:		min./max.: --- / ---			Default value: 0,00	

5.13.59 P-0-2830.0.2, Position loop time constant D-component

Allocation	Contained in 16VRS:					«HDS»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					PosControl.DPartTime
	Alias idn:					P-0-3409
Function	The time constant D share (lead time) and the parameter filter time D share (P-0-2830.0.3) are used together to configure the D share of the position controller.					
P-0-2830.0.2 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.13.60 P-0-2830.0.3, Position controller filter time D-component

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		PosControl.DPartFilterTime					
Alias idn:		P-0-3410					

Function The filter time D share is used to set the low-pass behavior (1st order) of the D share. If the filter time = 0, the low-pass behavior is deactivated!

P-0-2830.0.3 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- **Default value:** 0,0

5.13.61 P-0-2830.0.4, Position controller integration time constant

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		PosControl.IPartTime					
Alias idn:		P-0-3411					

Function The integration time determines the time constant of the I share in the fine positioner. If the integration time = 0, the integrator and thus the fine positioner are deactivated.

P-0-2830.0.4 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- **Default value:** 0

5.13.62 P-0-2830.0.5, Position controller integrator velocity threshold

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		PosControl.IPartSwitchOnVel					
Alias idn:		P-0-3412					

Function If the amount of the velocity feedback value ([S-0-0535](#)) is greater than the change threshold, the integrator is calculated. If it is smaller, the integrator is stopped.

The following parameters also have to be configured for commissioning the fine positioner:

[P-0-2820](#), Control word of position controller (activate integrator/fine positioner)

[P-0-2830.0.6](#), Position controller integrator position window

[P-0-2830.0.7](#), Position controller integrator limit

A value of zero deactivates the evaluation of the change threshold.

Function While the force controller is active, the integrator is stopped.

P-0-2830.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV

Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.13.63 P-0-2830.0.6, Position controller integrator position window

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.IPartWindow					
	Alias idn:	P-0-3413					
Function	If the following distance " S-0-0189, Following distance " is inside the accuracy window, the integrator is stopped. If the following distance is outside of it, the integrator is calculated.						
	See also Functional Description						
Use	The accuracy window indicates the desired maximum deviation from the target value. An attempt is made to compensate this deviation outside of this window.						



If the force controller is active, the integrator of the position controller is stopped.

P-0-2830.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.13.64 P-0-2830.0.7, Position controller integrator limit

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.IPartLimitation					
	Alias idn:	P-0-3414					
Function	The maximum and minimum value of the integrator can be determined via this limitation.						



With a value of zero, the limitation is deactivated.

For deactivating fine interpolation, parameter P-0-2830.0.4 can be set to zero.

P-0-2830.0.7 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.13.65 P-0-2830.0.8, Position controller integrator washout ramp

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	PosControl.IPartRamp					
Alias idn:	P-0-3415					

Function The integrator can be slowly deactivated after disconnection via the deactivation ramp.

The integrator is deactivated if one or both of the following conditions are met:

- "P-0-2820" Bit 0 (integrator/fine positioner is activated) is reset
- A new position command value is specified

In "P-0-2821", bit 1 it is displayed whether the deactivation ramp is active.

If the deactivation ramp = 0, the content of the integrator is immediately deleted during deactivation.

P-0-2830.0.8 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0160 / S-0-0160				Default value: 0,000

5.13.66 P-0-2830.0.9, Position command filter time

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	PosControl.PosSetValueFilterTime				
	Alias idn:	P-0-3416				

Function Using the filter time, you can set a PT1 filter for the position command value (P-0-0434).

If the filter time = 0, the PT1 filter is inactive.

P-0-2830.0.9 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---				Default value: 0,0

5.13.67 P-0-2830.0.10, Position command dead time

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	PosControl.PosSetValueDeadTime				
	Alias idn:	P-0-3417				

Function The position command value (P-0-0434) can be delayed by means of the dead time.

If the dead time = 0, the position command value is not delayed.

P-0-2830.0.10 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: 0,0 / s. Text				Default value: 0,0

5.13.68 P-0-2830.0.11, Velocity feedforward change ramp

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						PosControl.VelFeedForwardRamp
	Alias idn:						P-0-3418
Function	In case the pilot control factor (of the position controller) is changed, the velocity pilot control ramp results in a continuous transition (ramp) from the old factor to the new factor. In this way, jumps in the pilot control share can be avoided.						
	In case the velocity pilot control ramp = 0, the ramp function is inactive.						
P-0-2830.0.11 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	%/s	Extr. val. ch.:	--	Decim. pl.:	2	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
		HDx:			min./max.: --- / ---		Default value: 0,00

5.13.69 P-0-2830.0.12, Filter time of position feedback value

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:		axis-specific					
	Property name:		PosControl.ActPosActValueFilterTime					
Function	By means of the filter time, a FTP1 filter can be set for the position feedback value (S-0-0386).							
	If the filter time = 0, the PT1 filter is inactive.							
P-0-2830.0.12 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV		
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2		
		HDx:	min./max.: --- / ---			Default value: 0,0		

5.13.70 P-0-2831.0.1, Output position controller Kv-part

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						PosControl.CtrlKvPart
Function	The parameter displays the interim value (Kv component) of the position controller. The value is calculated from the current "S-0-0189, Following distance" and "S-0-0104, Position loop Kv-factor".						
Use	The parameter can be used to separately view the respective component of the control signal or the position controller output "P-0-2831.0.4".						
P-0-2831.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

5.13.71 P-0-2831.0.2, Output position controller D-part

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.CtrlDTPart					

Function The parameter displays the interim value (Kv component) of the position controller.

Use The parameter can be used to separately view the respective component of the control signal or the position controller output "P-0-2831.0.4".

P-0-2831.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.72 P-0-2831.0.3, Output position controller I-part

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.CtrlIPart					

Function The parameter displays the interim value (I component) of the position controller.

Use The parameter can be used to separately view the respective component of the control signal or the position controller output "P-0-2831.0.4".

P-0-2831.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.73 P-0-2831.0.4, Output of position controller

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.CtrlOutput					

Function The parameter indicates the output value of the entire position controller.

Use The velocity feedforward control component "P-0-0454" added with the position controller integrator component "P-0-2831.0.3", the position controller Kv component "P-0-2831.0.1" and the position controller D component "P-0-2831.0.2" equals the position controller output "P-0-2831.0.4".

The position controller output is simultaneously the input parameter of the velocity controller (see "P-0-0048, effective velocity command value").

P-0-2831.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.74 P-0-2831.0.5, Correction value: velocity feedforward control

Allocation	Contained in 16VRS:				«HDS»											
	Contained in 17VRS:				«HDB»											
	Contained in 18VRS:				«HDB»		«HDC»		«HDS»							
	Contained in 20VRS:				«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«HDS»	
	Device parameter:				axis-specific											
	Property name:				PosControl.CtrlVelFFPart											
Function	The parameter displays the interim value of the velocity feedforward control of the position controller.															
Use	The parameter can be used to separately view the respective component of the control signal or the position controller output "P-0-2831.0.4".															
P-0-2831.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte										
	Memory:	--	Validity ch.:	--	Format:	DEC_MV										
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046										
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--										
	HDx:	min./max.: --- / ---												Default value: ---		

5.13.75 P-0-2831.0.6, Position command value of controller, delayed

Allocation	Contained in 16VRS:				«HDS»											
	Contained in 17VRS:				«HDB»											
	Contained in 18VRS:				«HDB»		«HDC»		«HDS»							
	Contained in 20VRS:				«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«HDS»	
	Device parameter:				axis-specific											
	Property name:				PosControl.CtrlPosSetValue											
Function	The parameter displays the interim position command value "P-0-0434" after the dead time delay and the PT1 filtering by the filter time of position command value parameter "P-0-2830.0.9" and the dead time of position command value "P-0-2830.0.10".															
Use	The parameter can be used to separately view the impact of filtering and dead time.															
P-0-2831.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte										
	Memory:	--	Validity ch.:	--	Format:	DEC_MV										
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078										
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--										
	HDx:	min./max.: --- / ---												Default value: ---		

5.13.76 P-0-2831.0.7, Actual position value model

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «-» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					PosControl.ActPosModel
Function	A model is calculated in the firmware to determine the actual position value for an ideal system. The parameter shows the calculated actual position value.					
	To calculate the modeled velocity, the following parameters are taken into account: P-0-2831.0.6 , P-0-2930.0.1 and S-0-0104 .					
Use	For accurate or also velocity-related monitoring, model monitoring is suggested. It checks the deviation between the real actual position value and the calculated actual position model for exceeding the monitoring window (S-0-0159).					
P-0-2831.0.7 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV

Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.77 P-0-2831.0.8, Following distance for monitoring

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.CtrlDeviation					

Function The parameter indicates the following distance applied for monitoring. The following distance is calculated in dependence on parameter [P-0-2820](#) (bit 1) from the difference between the actual position value and the position command value or from the difference between the actual position value and the actual position value model.

Use The hydraulic axis can be monitored optionally with the help of the following distance or the model error.

If the respective deviation exceeds the value entered in "[S-0-0159](#), Monitoring window", the axis cannot follow the given command value and error "F2028, Excessive deviation" is generated.

P-0-2831.0.8 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.78 P-0-2831.0.9, Position feedback value, filtered

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.CtrlActPosFilter					

Function The parameter shows the filtered actual position value. The actual position value "[S-0-0386](#), Active position feedback value" can be filtered by means of [P-0-2830.0.12](#).

P-0-2831.0.9 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.79 P-0-2831.0.130, Outputs of position controller, compact

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»			«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3717					

Function Summary of structural elements for the components of the position controller ([P-0-2831.0.1](#) to [P-0-2831.0.9](#)).

P-0-2831.0.130 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.80 P-0-2832.0.1, Velocity controller P-gain

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		VelControl.Pgain				
Alias idn:		P-0-3419				

Function The velocity control deviation "S-0-0347" is multiplied by the P-gain and thus generates the proportional term of the velocity controller.

See functional description Inner-loop velocity controller

P-0-2832.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0,000	

5.13.81 P-0-2832.0.2, Velocity controller integration time constant

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		VelControl.IPartTime				
Alias idn:		P-0-3420				

Function The integration time determines the time constant of the I share in the outer velocity controller. If the integration time = 0, the integrator is deactivated and the I share is deleted.

P-0-2832.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0	

5.13.82 P-0-2832.0.3, Velocity controller integrator acceleration threshold

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		VelControl.IPartSwitchOnAcc				
Alias idn:		P-0-3421				

Function If the amount of the acceleration feedback value (S-0-0536) is greater than the change threshold, the integrator is calculated. If it is greater, the integrator is stopped.

The following parameters also have to be configured for commissioning the integrator in the inner-loop velocity controller: P-0-2832.0.4, Velocity controller integrator velocity window

P-0-2822, Velocity controller control word (velocity controller activated)

A value of zero deactivates the evaluation of the change threshold.

Function While the force controller is active, the integrator in the inner-loop velocity controller is stopped as well.

P-0-2832.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

5.13.83 P-0-2832.0.4, Velocity controller integrator velocity window

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	VelControl.IPartWindow				
	Alias idn:	P-0-3422				

Function If the velocity control deviation (S-0-0347) is within the accuracy window, the integrator is stopped. If the lag error is outside this window, the integrator is calculated.

The following parameters are also to be configured for commissioning of the integrator: P-0-2832.0.3 Velocity controller connection condition integrator

P-0-2822 Velocity controller control word (velocity controller activated)

If the force controller is active, the integrator in the inner velocity controller is stopped.

P-0-2832.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.13.84 P-0-2832.0.5, Velocity controller integrator limit

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	VelControl.IPartLimitation				
	Alias idn:	P-0-3423				

Function By means of the limitation the maximum value and the minimum value of the integrator are determined. The limitation has a bipolar effect.



A value of zero deactivates the limitation.

P-0-2832.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.13.85 P-0-2832.0.7, Active damping: Force/time constant

Allocation	Contained in 16VRS:	«--»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»

Device parameter:	axis-specific
Property name:	StateControl.ForceFilterTime
Alias idn:	P-0-3424

Function If force feedback is activated in "P-0-2824, Active damping: control word" bit 1,3, then the harmonic content is considered for positive feedback at a frequency of this value or higher.

Use With low-frequency axes, oscillations may occur during closed-loop-controlled operation. The force feedback is used for generating an oscillation in phase opposition, thus stabilizing the system. The natural frequency of the system is increased. If oscillation occurs, the oscillation frequency is entered in this parameter. The amplitude of the oscillation in phase opposition is entered in parameter "P-0-2832.0.8, Active damping: acceleration gain".

Prerequisite: The valve has to be sufficiently fast to be able to dampen this oscillation!

P-0-2832.0.7 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- **Default value:** 0,0

5.13.86 P-0-2832.0.8, Active damping: Acceleration gain

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	StateControl.AccGain
	Alias idn:	P-0-3425

Function If acceleration feedback is activated in "P-0-2824, Active damping: control word" bit 1,3, then the acceleration feedback is amplified by this factor. If force feedback is activated in "P-0-2824, Active damping: control word" bit 1,3, then the filtered force feedback is amplified by this factor.

P-0-2832.0.8 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- **Default value:** 0,0

5.13.87 P-0-2832.0.9, Active damping: Velocity gain

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	StateControl.VelGain
	Alias idn:	P-0-3426

Function If velocity feedback is activated in "P-0-2824, Active damping: control word" bit 0, this parameter indicates, to which extent and in which direction the velocity feedback value is to be amplified.

A positive gain corresponds to a positive feedback, and a negative gain corresponds to a negative feedback.

P-0-2832.0.9 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- **Default value:** 0,000

5.13.88 P-0-2832.0.10, Moved mass

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		StateControl.Weight					
Alias idn:		P-0-3427					

Function Up to HDx19: Designation so far: "Force normalization"

If force feedback is activated in "P-0-2824, Active damping: control word" bit 1,3, "S-0-0084, Force feedback value" is normalized to an acceleration ($a = F / m$) with the help of this parameter.

As of HDx20: Apart from position control/force feedback, this parameter is now also used for the simulation encoder and, in conjunction with system data, for calculating suggested values.

If force feedback is activated in "P-0-2824, Active damping: control word" bit 1,3, "S-0-0552, Force feedback value" is normalized to an acceleration ($a = F / m$) with the help of this parameter.

P-0-2832.0.10 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	kg	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- Default value: 0,0

5.13.89 P-0-2832.0.11, Velocity controller integrator feedback threshold

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Alias idn:		P-0-3789					

Function If the amount of the velocity feedback value falls below the threshold, and the time constant (P-0-2832.0.12) is unequal to zero, the integrator feedback is active.

Use The integrator feedback is used for avoiding slip-stick effects on axes with increased friction. See also P-0-2832.0.12.

P-0-2832.0.11 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: S-0-0044 / S-0-0044 Default value: 0,0000

5.13.90 P-0-2832.0.12, Velocity controller integrator feedback time constant

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Alias idn:		P-0-3790					

Function The parameter determines the time constant of the integrator feedback. If the time constant = 0, the feedback is deactivated irrespective of the threshold (P-0-2832.0.11).

Use The integrator feedback can be used for avoiding slip-stick effects for axes with increased friction. Useful settings are approximately 5 to 20-fold values of the integration time (P-0-2832.0.2).

P-0-2832.0.12 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0	

5.13.91 P-0-2832.0.13, Velocity command filter time

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	VelControl.VelSetValueFilterTime					
Alias idn:	P-0-3428					

Function Using the filter time, you can set a PT1 filter for the velocity command value ([P-0-0048](#)).

If the filter time = 0, the PT1 filter is inactive.

P-0-2832.0.13 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0,000	

5.13.92 P-0-2832.0.14, Velocity command dead time

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	VelControl.VelSetValueDeadTime					
Alias idn:	P-0-3429					

Function The velocity command value ([P-0-0048](#)) can be delayed via the dead time.

If the dead time = 0, the velocity command value is not delayed.

P-0-2832.0.14 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: 0,0 / s. Text			Default value: 0,0	

5.13.93 P-0-2832.0.15, Active damping: Acceleration gain ramp time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	StateControl.AccGainRampTime					
Alias idn:	P-0-3792					

Function The parameter "Acceleration gain ramp time" determines the time, which, in the case of a change of parameter "[P-0-2832.0.8](#), Active damping: Acceleration gain", can be used for cross-fading from the old value to the new value.

In this way, jumps in the acceleration/force component of active damping can be avoided. With a ramp time of 0 ms, the ramp is deactivated.

P-0-2832.0.15 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0	

5.13.94 P-0-2832.0.16, Active damping: Velocity gain ramp time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		StateControl.VelGainRampTime					
Alias idn:		P-0-3793					

Function The parameter "Acceleration gain ramp time" determines the time, which, in the case of a change of parameter "P-0-2832.0.9, Active damping: Velocity gain", can be used for the transition from the old value to the new value.

In this way, jumps in the velocity component of active damping can be avoided. With a ramp time of 0 ms, the ramp is deactivated.

P-0-2832.0.16 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0	

5.13.95 P-0-2832.0.17, Additive velocity command value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Alias idn:		P-0-3844					

Function In this parameter an additive velocity command value can be entered for the output of the velocity controller.

P-0-2832.0.17 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0044 / S-0-0044			Default value: ---	

5.13.96 P-0-2833.0.1, Output velocity controller

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		VelControl.CtrlOutput					

Function Output value of the complete velocity controller.

The correction value: velocity controller P-gain (P-0-2833.0.6) added to the correction value: velocity controller integrator (P-0-2833.0.7) results in the correction value: velocity controller (P-0-2833.0.1).

P-0-2833.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.97 P-0-2833.0.2, Portion of active damping: Velocity

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«HDS»		

	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter:					
	axis-specific					
	Property name:					
	StateControl.CtrlVelPart					
Function	If velocity feedback is activated in "P-0-2824, Active damping: control word" bit 0, the part of velocity feedback is shown in this parameter.					
P-0-2833.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.98 P-0-2833.0.3, Portion of active damping: Acceleration/force

Allocation	Contained in 16VRS:					
	«HDB»					
	Contained in 17VRS:					
	«HDB»					
	Contained in 18VRS:					
	«HDB» «HDC»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter:					
	axis-specific					
	Property name:					
	StateControl.CtrlAccForcePart					
Function	The part of active damping is shown, which can be activated with "P-0-2824, Active damping: control word" bit 3. The part is also shown, if it is not currently used.					
P-0-2833.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.99 P-0-2833.0.5, Velocity command value of controller, delayed

Allocation	Contained in 16VRS:					
	«HDB»					
	Contained in 17VRS:					
	«HDB»					
	Contained in 18VRS:					
	«HDB» «HDC»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter:					
	axis-specific					
	Property name:					
	VelControl.CtrlVelSetValue					
Function	Current velocity command value after the dead time deceleration and the PT1 filtration by the parameter filter time velocity command value (P-0-2832.0.13) and dead time velocity command value (P-0-2832.0.14).					
P-0-2833.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.100 P-0-2833.0.6, Output velocity controller P-part

Allocation	Contained in 16VRS:					
	«HDB»					
	Contained in 17VRS:					
	«HDB»					
	Contained in 18VRS:					
	«HDB» «HDC»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter:					
	axis-specific					
	Property name:					
	VelControl.CtrlPPart					
Function	Proportional value of the velocity controller P-term.					
	The correction value: velocity controller P-gain (P-0-2833.0.6) added to the correction value: velocity controller integrator (P-0-2833.0.7) results in the correction value: velocity controller (P-0-2833.0.1).					

P-0-2833.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.101 P-0-2833.0.7, Output velocity controller I-part

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		VelControl.CtrlIPart				

Function Proportional value of the velocity controller integrator.

The correction value: velocity controller P-gain (P-0-2833.0.6) added to the correction value: velocity controller integrator (P-0-2833.0.7) results in the correction value: velocity controller (P-0-2833.0.1).

P-0-2833.0.7 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.102 P-0-2833.0.8, Correction value: Velocity controller feedforward control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		VelControl.AccFeedforwardPart				

Function Proportional value of the velocity controller acceleration feedforward control.

The added up correction values of velocity controller (P-0-2833.0.1), effective velocity command value (P-0-0048), state controller velocity (P-0-2833.0.2), state controller acceleration/force (P-0-2833.0.3) and velocity controller acceleration feedforward result in the output of the velocity/status controller (P-0-2826).

P-0-2833.0.8 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.103 P-0-2835, Pump pressure controller status word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter contains the control word for the pressure controller in the cascade structure of the pump controller.

Structure	Bit	Designation/function	Comment
	0	Enable condition for I-controller fulfilled/not fulfilled 0: Not fulfilled (integrator frozen) 1: Fulfilled (integrator started)	
	1	Pressure controller output signal is limited 0: Output signal is not limited 1: Output signal is limited	
	2-15	Reserved	

Tab. 5-87: P-0-2835.0.0, Pump pressure controller status word

P-0-2835 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.104 P-0-2836, Pump changeover logic swivel angle, cascade

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter shows the swivel angle as input variable in the pump changeover logic with activated cascade structure.

P-0-2836 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.105 P-0-2837, Pump changeover logic output pressure controller, cascade

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter shows the pressure control variable in the pump changeover logic with activated cascade structure.

P-0-2837 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.106 P-0-2838, Pressure controller lower integrator limit, cascade

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The parameter is intended for the manual limitation of the integrator in the pressure controller. This value limits the integrator to a minimum value.



For activating the manual limitation of the integrator, bit 10 = 1 has to be set in [P-0-2950](#), Pump controller control word.

P-0-2838 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC. MV
Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	+
HDx:	min./max.: S-0-0845 / S-0-0845			Default value: 0,000	

5.13.107 P-0-2840, Force controller control word

Allocation	Contained in 16VRS:	«--»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ForceControl.ControlWord

Function The force controller is commanded with the help of the force controller control word. Various functions can be activated or deactivated by setting or resetting the appropriate bits.

See functional description "Force control"

Structure

Bit	Designation/function	Comment
0	Consideration of P-0-2845.0.4 as switch-on condition for the integrator 0: Change threshold is taken into account. 1: Change threshold is not taken into account	
1-2	Quadrant limitation 00: Limitation not active 01: Limitation of control variable in negative direction 10: Limitation of the control variable in positive direction 11: Not allowed	
3	Jerk-free activation: When changing over to force control, the current control variable is taken to the I-term of the force controller 0: Off 1: On	Not with HDS
4-14	Reserved	
15	Valve root function 0: Off 1: On	Only with HDS

Tab. 5-88: Structure

P-0-2840 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0x0	

5.13.108 P-0-2841, Force controller status word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ForceControl.StatusWord					

Function The force controller status word indicates which functions activated in the force controller control word, parameter [P-0-2840](#) are active. Apart from that, additional information is displayed.

Structure

Bit	Designation/function	Comment
0	Force controller in engagement	
1	Quadrant limitation is effective	
2	Switch-on condition I share has been satisfied	

Tab. 5-89: Structure

P-0-2841 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.13.109 P-0-2842, Force control deviation

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ForceControl.Deviation					

Function The force control deviation indicates the current control quality of the closed-loop control. I.e. the difference between the force command value and the actual force value.

Use The closed-loop control can be controlled by means of this parameter. I.e. the level of exactness of the closed-loop control and/or how fast malfunctions are corrected.

P-0-2842 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.13.110 P-0-2843, Output of force controller

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ForceControl.CtrlOutput					

Function The force controller output is the total of the force controller shares. The shares of the force control are: P share [P-0-2846.0.1](#), I share [P-0-2846.0.2](#) and pilot control share [P-0-2846.0.3](#). The output of the force controller can be inverted by means of a bit in the force controller control word, parameter [P-0-2840](#).

Use The force controller output is used in the switching logic. There, it is checked by means of different switching criteria whether the output of the positioning controller or the position controller is forwarded to the distance adjustment.

P-0-2843 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

5.13.111 P-0-2844, Force controller velocity feedforward control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ForceControl.VelFeedForwardExternal				

Function You can activate a velocity connection by writing a constant to the parameter or by writing it dynamically.

Use This functionality is e.g. used when an axis is moved, it must, however, not exceed a certain force limitation value. The dynamic velocity connection unloads the I share of the force controller and improves the control quality. If the velocity connection is not active in this situation, the actual force value oscillations exceed the command value as the I share has to be removed. If the function is active, the actual force value oscillations do not exceed the command value and the I share only corrects minor differences.

P-0-2844 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value:	---

5.13.112 P-0-2845.0.1, Force controller P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ForceControl.PGain				
	Alias idn:	P-0-3430				

Function The force controller P gain specifies how strong the force control deviation [P-0-2842](#) is amplified.

Use The force controller P share is the product of the force controller P gain and the force control deviation.

P-0-2845.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
HDB:	0,000 / 1000,000	1,000
HDC:	0,000 / 1000,000	1,000
HDE:	0,000 / 1000,000	1,000
HDP:	0,000 / 1000,000	1,000
HDM:	0,000 / 1000,000	1,000
HDS:	0,000 / 1,000	1,000

5.13.113 P-0-2845.0.2, Scaling force to velocity

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		ForceControl.ForceCtrlNormalVel					
Alias idn:		P-0-3431					

Function The factor is used for converting the control deviation of force into an equivalent velocity signal, which is then used for further calculations in the force controller. Generally, all internal variables of the axis controller are converted into a velocity signal, since the output signal to the valve (in the case of MLC also the pump) is proportional to velocity. This factor is automatically pre-calculated and is derived from the cylinder area and the cylinder length. The calculation causes the P-gain of the force controller to be typically within the range of 1 - 10.

With a firmware in open loop up to HDx-19VRS this parameter has to be set manually. The reason is that the necessary parameters are not yet available for open loop in these firmware versions. For this purpose, the following formula can be used:

$$P-0-2845.0.2 = \frac{5}{4} * \frac{\text{stroke}}{\text{area}}$$

Fig. 5-16: Calculation of normalization

The calculation is intended for the units [mm/min] and [N]. If, for example, the velocity is scaled in [mm/s], then the conversion 60 s/min has to be considered additionally in this calculation. A division by this value has therefore to be carried out. With the scaling [kN] the factor has to be multiplied, since 1000 N = 1 kN.

Use This calculation results in the fact that the P-gain of the force controller can be assumed to be 1 in a first step. This gain is presumably somewhat too small, but in its basic configuration the system should be set so that it will not tend to oscillate.

If the control error is too large, "P-0-2845.0.1" or the force control integrator should be adjusted.

P-0-2845.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	5
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.114 P-0-2845.0.3, Force controller integration time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		ForceControl.IPartTime					
Alias idn:		P-0-3432					

Function The force controller integration time specifies how quickly the force control deviation P-0-2842 is to be integrated. The result is the share force controller integrator P-0-2846.0.3.

Use As the force controller P gain results in a remaining controller deviation, the latter is compensated by the share force controller integrator P-2846.0.3.

P-0-2845.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:		min./max.:	--- / ---		Default value: 0

5.13.115 P-0-2845.0.4, Force controller integrator force change threshold

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ForceControl.IPartSwitchOnGradient				
Alias idn:		P-0-3433				

Function In order that the force controller integrator is started, the current average change in force per second has to be less than the value of this parameter.

This enable condition can be deactivated with the help of "P-0-2840, Force controller control word". A value of zero also deactivates the evaluation of the change threshold.

P-0-2845.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:		min./max.:	S-0-0086 / S-0-0086		Default value: 1,0

5.13.116 P-0-2845.0.5, Force controller integrator force window

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ForceControl.IPartWindow				
Alias idn:		P-0-3434				

Function The "force controller integrator accuracy window" indicates, how accurate controlling is to be. The value indicates, with which positive or negative deviation the force feedback value may differ from the force command value.

Use This parameter indicates the control accuracy of the axis. When the actual force value is within the window around the force command value, the integrator of the force controller is not active.

P-0-2845.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:		min./max.:	S-0-0086 / S-0-0086		Default value: 0,0

5.13.117 P-0-2845.0.6, Force controller limitation integrator

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ForceControl.IPartLimitation				
Alias idn:		P-0-3435				

Function This parameter indicates to which value the force controller integrator P-0-2846.0.2 may increase. The "force controller integrator" part is limited to the value of this parameter with bipolar effect.

Use This parameter prevents the "force controller integrator [P-0-2846.0.2](#)" part from becoming excessively large, if the actual force value cannot reach the "Force controller accuracy window integrator [P-0-2845.0.5](#)".



A value of zero deactivates the limitation.

[P-0-2845.0.6](#) - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0,0000	

5.13.118 [P-0-2845.0.8](#), Force controller scaling of velocity feedforward control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ForceControl.VelFeedForwardFactor					
Alias idn:	P-0-3436					

Function The correction value of velocity feedforward control of the force controller, [P-0-2846.0.3](#), is determined by multiplying this parameter by the velocity feedforward control of the force controller, [P-0-2844](#).

Use This is applied for drives that are displaced at a measurable, impressed velocity. In this case, the measured velocity value is cyclically assigned to the force controller velocity feedforward control, [P-0-2844](#). The resulting velocity feedforward control component is added to the force controller output.

[P-0-2845.0.8](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0,00	

5.13.119 [P-0-2845.0.9](#), Force feedback filter time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ForceControl.FilterTime					
Alias idn:	P-0-3437					

Function There may be noise in the signal of the force or pressure transducer. Thus, it is reasonable to smoothen the signal.

Use The larger the value, the more strongly signal peaks are smoothened.

[P-0-2845.0.9](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.13.120 [P-0-2845.0.10](#), Derivative action time, actual force value DT1

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»

	Device parameter: axis-specific	
	Property name: ForceControl.FeedFwdDPartTime	
Function	The derivative action time "actual force value DT1" together with the parameter for the filter time of force feedback value DT1 (P-0-2845.0.11) configures the D-term of the force controller.	
P-0-2845.0.10 - Attributes	Function: Par Memory: PARAM_SP Unit: ms Cycl. tra.: --	Editable: ++ Validity ch.: PM->OM Extr. val. ch.: -- Comb. check: --
	Data length: 2Byte	Format: DEC_OV
	Decim. pl.: 1	Set-depend.: Grp. 2
	HDx: min./max.: --- / ---	Default value: 0,0

5.13.121 P-0-2845.0.11, Filter time of force feedback value DT1

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «-» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						ForceControl.FeedFwdFilterTime
Function	The low-pass filter behavior (1st order) of the D-term is set via the "actual force value DT1" filter time. If the filter time = 0, the low-pass filter behavior is deactivated.						
P-0-2845.0.11 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
		HDx:	min./max.: --- / ---			Default value: 0	

5.13.122 P-0-2846.0.1, Output force controller P-part

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						ForceControl.CtrlPPart
Function	The force controller P share is the product of the force controller P gain P-0-2845.0.1 and the force control deviation P-0-2842 .						
Use	The force controller P share is one part of the force controller output and is required for the force control.						
P-0-2846.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

5.13.123 P-0-2846.0.2, Output force controller I-part

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: ForceControl.CtrlIPart					
Function	The interim value (I component) of the force controller is in this parameter.					
Use	The parameter can be used to separately view the respective component of the control signal or the force controller output " P-0-2843 ".					

P-0-2846.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.124 P-0-2846.0.3, Output force controller velocity feedforward part

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	ForceControl.CtrlVelFFPart	

Function You can activate a velocity connection [P-0-2844](#) by writing a constant to the parameter or by writing it dynamically.

Use This functionality is e.g. used when an axis is moved, it must, however, not exceed a certain force limitation value. The dynamic velocity connection unloads the I share of the force controller and improves the control quality. If the velocity connection is not active in this situation, the actual force value oscillations exceed the command value as the I share has to be removed. If the function is active, the actual force value oscillations do not exceed the command value and the I share only corrects minor differences.

P-0-2846.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.125 P-0-2846.0.5, Torque/force feedback value, filtered

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	ForceControl.CtrlActForceFilter	

Function There may be noise in the signal of the force or pressure transducer. Thus, it is reasonable to smoothen the signal. Smoothing is effected by means of the filter time actual force value [P-0-2845.0.9](#).

Use The result of the actual force value filtration is shown in this parameter.

P-0-2846.0.5 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.126 P-0-2846.0.6, Force control deviation, unfiltered

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	ForceControl.DeviationUnfiltered	

Function The force control deviation indicates the current control quality of the closed-loop control. This corresponds to the difference between the force command value and the unfiltered actual force value.

Use This parameter can be used to control the control characteristics. This means, how accurately and how quickly are disturbances corrected.

P-0-2846.0.6 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

5.13.127 P-0-2846.0.7, Output of force controller in flow

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«-»	«-»
	Device parameter:	axis-specific				

Function This parameter contains the value of the force controller output "P-0-2843" converted into the set flow scaling. It is used exclusively for display purposes. The parameter is available only with active functional package p/Q.

Use The parameter can be used to examine the value of the force controller output "P-0-2843" in a unit, which is more favorable in conjunction with the functional package p/Q.

P-0-2846.0.7 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	---

5.13.128 P-0-2850, p/Q changeover logic control word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Structure This parameter contains the control word for the p/Q switching logic.

Bit	Designation/function	Comment
0-2	Mode of switching logic from flow to pressure: 0x0: No selection 0x1: Min. value principle 0x2: Switch-on threshold 0x3: Min. value principle and switch-on threshold 0x4: Minimum value with active integrator (as of HDx20V14)	
3	Reserved	Always set bits to 0

Bit	Designation/function	Comment
4-7	Mode of switching logic from pressure to flow: 0x0: No selection 0x1: Min. value principle 0x2: Switch-off threshold 0x3: Min. value principle or switch-off threshold 0x4: Bit switch (response to positive edge of P-0-2800 bit 1) 0x5: Flow command value sign 0x6: Min. value principle or flow command value sign 0x7: Switch-off threshold or flow command value sign 0x8: Min. value principle or switch-off threshold or flow command value sign 0x9: Bit switch or flow command value sign 0xA: Min. value principle or by bit 1 (P-0-2800) with L→H edge (as of HDx20V10) 0xB: Min. value principle or pressure switch-off threshold or by bit 1 (P-0-2800) with L→H edge (as of HDx20V10) 0xC-0xF: Reserved	
8	Type of switching threshold 0: The relative switching threshold is used 1: The absolute switching threshold is used	
9-15	Reserved	Always set bits to 0

Tab. 5-90: Structure

P-0-2850 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0x11
HDC:	--- / ---	0x0
HDE:	--- / ---	0x11
HDP:	--- / ---	0x11
HDM:	--- / ---	0x0
HDS:	--- / ---	---

5.13.129 P-0-2851, p/Q changeover logic status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	

Function This parameter contains the status word of the p/Q switching logic.

Structure

Bit	Designation/function	Comment
0	1, if switching logic Q->p active	
1	1, if switching logic p->Q active	
2-15	Reserved	

Tab. 5-91: Structure

P-0-2851 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.130 P-0-2852.0.3, Pressure controller switch-on threshold, relative

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-3439

Function This parameter is used to set the relative switch-on threshold for the pressure controller. The pressure controller in the changeover logic is activated via the relative threshold, if the suitable changeover mode was set in the relevant control word.

Use The relative switch-on threshold refers to the internal pressure command value (can be displayed with the help of parameter P-0-2803). The currently active switch-on threshold is shown via P-0-2852.0.5. The respective control word (P-0-2850 in p/Q control or P-0-2827 in pump control) determines whether the relative or the absolute switch-on threshold is to be used.

P-0-2852.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: -100,00 / 100,00			Default value: 0,00	

5.13.131 P-0-2852.0.4, Pressure controller switch-on threshold, absolute

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-3440

Function This parameter sets the absolute switch-on threshold for the pressure controller. The absolute threshold activates the pressure controller in the changeover logic, if the suitable changeover mode was set in the relevant control word.

Use The currently active switch-on threshold is shown via P-0-2852.0.5. The respective control word (P-0-2850 in p/Q control or P-0-2827 in pump control) determines whether the relative or the absolute switch-on threshold is to be used.

P-0-2852.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: S-0-0806 / S-0-0806 Default value: 0,0

5.13.132 P-0-2852.0.5, Pressure controller active switch-on threshold

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	P-0-2852.0.5 displays the currently active switch-on threshold.						
Use	The respective control word (P-0-2850 in p/Q control or P-0-2827 in pump control) determines whether the relative (P-0-2852.0.3) or the absolute (P-0-2852.0.4) switch-on threshold is to be used.						
P-0-2852.0.5 - Attributes							
Function:	Par	Editable:	--	Data length:	4Byte		
Memory:	--	Validity ch.:	--	Format:	DEC_MV		
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808		
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
HDx:	min./max.: --- / ---			Default value: ---			

5.13.133 P-0-2852.0.6, Pressure controller switch-off threshold, relative

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3441					
Function	This parameter is used to set the relative switch-off threshold for the pressure controller. The pressure controller in the changeover logic is deactivated via the relative switch-off threshold, if the suitable changeover mode was set in the relevant control word.						
Use	The relative switch-off threshold refers to the internal pressure command value (can be displayed with the help of parameter P-0-2803). The currently active switch-off threshold is shown via P-0-2852.0.8 . The respective control word (P-0-2850 in p/Q control or P-0-2827 in pump control) determines whether the relative or the absolute switch-off threshold is to be used.						
P-0-2852.0.6 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: -100,00 / 100,00				Default value: 0,00	

5.13.134 P-0-2852.0.7, Pressure controller switch-off threshold, absolute

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3442					
Function	This parameter sets the absolute switch-off threshold for the pressure controller. The absolute switch-off threshold activates the pressure controller in the changeover logic, if the suitable changeover mode was set in the relevant control word.						
Use	The currently active switch-off threshold is shown via P-0-2852.0.8 . The respective control word (P-0-2850 in p/Q control or P-0-2827 in pump control) determines whether the relative or the absolute switch-off threshold is to be used.						

P-0-2852.0.7 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0,0	

5.13.135 P-0-2852.0.8, Pressure controller active switch-off threshold

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function P-0-2852.0.8 displays the currently active switch-off threshold.

Use The respective control word (P-0-2850 in p/Q control or P-0-2827 in pump control) determines whether the relative (P-0-2852.0.6) or the absolute (P-0-2852.0.7) switch-off threshold is to be used.

P-0-2852.0.8 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.136 P-0-2852.0.9, Pressure controller ramp time switching logic

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter determines the time of the switching logic ramp generator. The time is referred to the max. flow (P-0-2875.0.3).

P-0-2852.0.9 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: 0,0 / 6500,0			Default value: 0,0	

5.13.137 P-0-2852.0.10, Correction value: pressure controller changeover logic ramp

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The parameter indicates the current ramp value of the switching logic.

P-0-2852.0.10 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.138 P-0-2852.0.11, Correction value: Changeover logic p/Q pressure controller

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	The parameter indicates the pressure controller output signal "converted" by the pressure controller into a flow. Apart from the "internal valve command value", "P-0-2928.0.3", it represents the second "input value" of the changeover logic.					
P-0-2852.0.11 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.139 P-0-2852.0.12, Pressure change at changeover time

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter indicates the pressure change value at the moment when changing over from swivel angle control to pressure control takes place. The value is maintained until the next changeover.					
Use	The pressure change indicated by this parameter should be within the pressure change thresholds (P-0-2806.0.15 + 16), if properly parameterized. If this is not the case, adjust the thresholds accordingly.					
P-0-2852.0.12 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.140 P-0-2852.0.13, Output of pump changeover logic, cascade structure

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter shows the current "output value" of the pump changeover logic with activated cascade structure of the pump controller.					
P-0-2852.0.13 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.141 P-0-2852.0.14, Output ramp of pump changeover logic, cascade structure

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	This parameter displays the current ramp value of the changeover logic.					
P-0-2852.0.14 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.142 P-0-2852.0.15, Pump changeover logic ramp time, cascade

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	The parameter (P-0-2852.0.15, Pump changeover logic ramp time, cascade) is the reference time for the ramp function generator in the changeover logic. This parameter defines the ramp slope in the case of a swivel angle change at the output of the changeover logic in the cascade structure. The ramp time refers to a swivel angle change from 0 % to 100 %. With a ramp time of 0 ms the ramp is deactivated.					
P-0-2852.0.15 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0,0 / 6500,0			Default value: 0,0	

5.13.143 P-0-2853, Alternating control, control word 1

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: SwitchingLogic.ControlWord1					
Function	This parameter contains control word 1 for alternating control. See also Functional Description "Alternating control"					

Structure

Bit	Designation/function	Comment
0	Enable alternating control 0: Do not enable 1: Enable	HDS: Activation/deactivation via function blocks of the library MH_TechHydrMotion.
2,1	Behavior of position interpolator positive 00: Continue The position interpolator continues to run to the target position 01: Break The position interpolator stops the current command value 10: Jump The position interpolator jumps to the target position 11: Reserved	Valid for switching to force control in positive direction HDS: Activation/deactivation via function blocks of the library MH_TechHydrMotion.
4,3	Behavior of position interpolator negative 00: Continue The position interpolator continues to run to the target position 01: Break The position interpolator stops the current command value 10: Jump The position interpolator jumps to the target position 11: Reserved	Valid for switching to force control in negative direction HDS: Activation/deactivation via function blocks of the library MH_TechHydrMotion.

Tab. 5-92: P-0-2853

P-0-2853 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: MDT	Comb. check: --	Set-depend.: --

Input	min./max.	Default value
HDB:	--- / ---	0xA
HDC:	--- / ---	0xA
HDE:	--- / ---	0xA
HDP:	--- / ---	0xA
HDM:	--- / ---	0xA
HDS:	--- / ---	0x0

5.13.144 P-0-2854, Alternating control, control word 2

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «HDB»
	Contained in 18VRS: «HDB» «HDC» «HDS»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific
Property name:	SwitchingLogic.ControlWord

Function Up to firmware version 19: "Force controller changeover logic control word"
This parameter contains control word 2 for alternating control.
See also Functional Description "Alternating control"

Structure

Bit	Designation/function	Comment
0	Up to FW 19: Enable alternating control 0: Do not enable 1: Enable As of FW 20: Reserved	Up to FW 19: HDS: Activation/deactivation via function blocks of the library MH_TechHydrMotion. As of FW 20: Bit 0 is realized in P-0-2853
1	Lock for changing back ON/OFF 0: Off 1: On	Switching to position control is impossible.
2	Switching threshold relative/absolute 0: Relative changeover window 1: Absolute switching threshold	The relative switching window refers to the torque/force command value See P-0-2856.0.2 The absolute switching threshold can be set in P-0-2856.0.1 . The currently valid switching threshold is shown in P-0-2856.0.3 .
3	Allow alternating control in positive direction of force 0: Not allowed 1: Allowed	
4	Allow alternating control in negative direction of force 0: Not allowed 1: Allowed	
5-15	Reserved	

Tab. 5-93: Relevant bits in alternating control, control word 2

[P-0-2854](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x8	

5.13.145 P-0-2855, Alternating control, status word

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «HDS» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: SwitchingLogic.StatusWord

Function This parameter contains the status word of the changeover logic.
 See also Functional Description "Alternating control"

Structure	Bit	Designation/function	Comment
	0	Force controller active 0: Not active 1: Active	
	1	Delay time inactive/active 0: Inactive 1: Active	If 1, then delay time is active. See also "P-0-2856.0.4".
	2	Alternating control in positive direction active 0: Not active 1: Active	
	3	Alternating control in negative direction active 0: Not active 1: Active	
	4-15	Reserved	

Tab. 5-94: Relevant bits of the status word of the force controller changeover logic

P-0-2855 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.13.146 P-0-2856.0.1, Alternating control, changeover threshold

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	SwitchingLogic.SwitchingOnThresholdAbsolute
	Alias idn:	P-0-3444

Function Depending on "P-0-2854" bit 2, either "P-0-2856.0.1" or "P-0-2856.0.2" is used to calculate the active changeover threshold. The active changeover threshold is used for the alternating control as an additional changeover condition when switching from position control to force control.

The changeover threshold is entered as a "force value" with a sign. In case of a positive control direction, this value is applied in "P-0-2856.0.3" and for a negative control direction, the value is inverted beforehand.

P-0-2856.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: S-0-0086 / S-0-0086 Default value: 0,0

5.13.147 P-0-2856.0.2, Alternating control, relative changeover window

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	SwitchingLogic.SwitchingOnThresholdRelative
	Alias idn:	P-0-3445

Function Depending on "P-0-2854" bit 2, either "P-0-2856.0.1" or "P-0-2856.0.2" is used to calculate the active changeover threshold. The active changeover threshold is used for the alternating control as an additional changeover condition when switching from position control to force control.

The relative changeover window is entered as a percentage value with a sign. "P-0-2856.0.3" is calculated from this value. (The percentage value refers to the force command value)

In case of a positive control direction, the changeover threshold is calculated according to this formula:

$$F_{\text{Command\_Pos}} - (\text{rel.changeover window} \cdot \text{ABS}(F_{\text{Command\_Pos}}))$$

In case of a negative control direction, the changeover threshold is calculated according to this formula:

$$F_{\text{Command\_neg}} - (\text{rel.changeover window} \cdot \text{ABS}(F_{\text{Command\_neg}}))$$

P-0-2856.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- Default value: 0

5.13.148 P-0-2856.0.3, Alternating control, active changeover threshold

Allocation	Contained in 16VRS:	«--»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	SwitchingLogic.CtrlSwitchingOnThreshold

Function Depending on "P-0-2854" bit 2, either "P-0-2856.0.1" or "P-0-2856.0.2" is used to calculate the active changeover threshold. The active changeover threshold is used for the alternating control as an additional changeover condition when switching from position control to force control.

The changeover condition depends on the control direction. In case of a positive control direction, the changeover condition is met once the actual force value is greater than the active changeover threshold.

In case of a negative control direction, the changeover threshold is met once the actual force value is less than the active changeover threshold.

Use This parameter indicates the used activation threshold.

P-0-2856.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.13.149 P-0-2856.0.4, Alternating control, switch-on delay

Allocation	Contained in 16VRS:	«--»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	SwitchingLogic.SwitchingOnDelayTime
	Alias idn:	P-0-3446

Function If the conditions for switching from position to force control have been satisfied, you can specify a deceleration time, when the force controller is to take over. The deceleration time is specified in this parameter.

P-0-2856.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0	

5.13.150 P-0-2856.0.5, Alternating control, ramp time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	SwitchingLogic.SwitchingRampTime					
Alias idn:	P-0-3447					

Function There may be a command value jump on the controller output with the changeover between position and force controller. To avoid this, a ramp cross-fades to the respective active controller output for the changeover between position and force controller. The entry is made in "ms" based on the value of "P-0-2873.0.1, Valve standard velocity" (corresponds to the maximum control value). If the ramp time is set to zero, the ramp is deactivated and it is immediately changed over.

Use The ramp is only effective if there is a control value difference in the changeover moment. This can occur if the "changeover window/changeover threshold" and "activation threshold" changeover conditions are used.

P-0-2856.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0	

5.13.151 P-0-2856.0.6, Alternating control, ramp value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	SwitchingLogic.CtrlRampPart					

Function If the superimposition from position to force control is effected by means of a ramp, the current ramp value can be found in this parameter.

P-0-2856.0.6 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.152 P-0-2857, Output of changeover logic p/Q

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function The parameter indicates the current "output value" of the switching logic. The switching logic interconnects either the "internal flow command value" (P-0-2802) or the "pressure controller control signal" (P-0-2805).

P-0-2857 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV

Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.153 P-0-2858, Output of alternating control

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		SwitchingLogic.CtrlOutput				

Function Depending on whether the axis is in position or force control, the output of the relevant control plus the share force controller switching logic ramp [P-0-2856.0.6](#) will be output.

P-0-2858 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.154 P-0-2860.0.1, Synchronization control word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»
	Device parameter:	axis-specific				
Property name:		SynchBase.ControlWord				
Alias idn:		P-0-3845				

Function In this parameter additional functions of the synchronization controller can be activated.

Structure

Bit	Designation/function	Comment
0	Break monitoring 0: Deactivates break monitoring 1: Activates break monitoring	
1	Synchronization error monitoring 0: Deactivates synchronization error monitoring 1: Activates synchronization error monitoring	
2-3	Error mode 00: Closed-loop-controlled stopping of the synchronization group 01: Axes carry out their parameterized error reaction	

Bit	Designation/function	Comment
4	Command value correction 0: Deactivates command value correction 1: Activates command value correction	
5	Command value generation for closed-loop force control operation mode 0: Stops command value generation as soon as a slave axis is in closed-loop force control 1: Command values continue to be generated, even if a slave axis is in closed-loop force control	

Tab. 5-95: P-0-2860.0.1

P-0-2860.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.13.155 P-0-2860.0.2, Synchronization status word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific				
	Property name:	SynchBase.StatusWord				
	Alias idn:	P-0-3846				

Function The current status of the synchronization controller can be viewed in this parameter.

Structure

Bit	Designation/function	Comment
0	Break monitoring 0: Not engaged 1: Engaged	
1	Force monitoring 0: Not engaged 1: Engaged	

Tab. 5-96: P-0-2860.00.2

P-0-2860.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.156 P-0-2860.0.3, Synchronization list slave axes

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific				
	Property name:	SynchBase.ListSlaveAxes				

Function The composition of the synchronized group can be set in this parameter

Use The synchronization always displays its actual position in relation to the first axis in the list.

P-0-2860.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.13.157 P-0-2860.0.4, Synchronization mode

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»			
Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
Device parameter:	axis-specific				
Property name:	SynchBase.Mode				

Function Structure

The synchronization controller mode is set in this parameter.

Value	Designation/function	Comment
0	Master command value principle	
1	Reserved	
2	Minimum value principle	
3	Maximum value principle	
4	Follow-up principle	
5	Average value principle with alternating position/force controller	
6	Average value principle with alternating position/force controller and cumulative value principle	

Tab. 5-97: P-0-2860.00.4

P-0-2860.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0 / 6 **Default value:** 0

5.13.158 P-0-2860.0.5, Synchronization integrator accuracy window

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»			
Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
Device parameter:	axis-specific				
Property name:	SynchBase.IntegrationWindow				

Function

In this parameter the integration window is set for the integrator of the synchronization window. It acts on the position/velocity and force branch of the synchronization controller. See also functional description "Synchronization controller"

P-0-2860.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	S-0-0076 / S-0-0076	0,1000
HDC:	S-0-0076 / S-0-0076	0,1000
HDE:	S-0-0076 / S-0-0076	0,1000

HDP:	S-0-0076 / S-0-0076	0,1000
HDM:	S-0-0076 / S-0-0076	0,1000
HDS:	--- / ---	1,0000

5.13.159 P-0-2860.0.6, Synchronization down ramp integrator position

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					axis-specific
	Property name:					PosControl.IPartRamp
Function	"P-0-2862.x.11, Correction value: synchronization position integrator" of the slave axis is reduced via this down ramp as soon as the axis changed to force limitation.					
P-0-2860.0.6 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					min./max.: S-0-0044 / S-0-0044
					Default value: 0,0000	

5.13.160 P-0-2860.0.7, Synchronization down ramp integrator velocity

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»	«-»	«HDS»			
	Contained in 20VRS:					«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:					axis-specific					
	Property name:					VelControl.IPartRamp					
Function	"P-0-2864.x.11, Correction value: synchronization velocity integrator" of the individual axis is reduced via this down ramp as soon as the axis changed to force limitation.										
P-0-2860.0.7 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte					
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV					
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162					
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--					
	HDx:	min./max.:					S-0-0160 / S-0-0160		Default value: 0,000		

5.13.161 P-0-2860.0.8, Synchronization down ramp integrator force

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»	«-»	«HDS»			
	Contained in 20VRS:					«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:					axis-specific					
Property name:					ForceControl.IPartRamp						
Function	"P-0-2863.x.11, Correction value: synchronization force integrator" of the individual axis is reduced via this down ramp as soon as the axis exited force limitation.										
P-0-2860.0.8 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte					
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV					
	Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094					
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--					
	HDx:	min./max.:					S-0-0086 / S-0-0086		Default value: 0,0		

5.13.162 P-0-2860.0.9, Synchronization monitoring window

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
Function	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»

	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»				
	Device parameter: axis-specific				
	Property name: ActualValue.MonitoringWindow				
Function	The maximum permitted synchronization error can be entered in this parameter. A zero monitoring window deactivates the monitoring.				
P-0-2860.0.9 - Attributes	Function: Par	Editable: ++	Data length: 4Byte		
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV		
	Unit: S-0-0076	Extr. val. ch.: +	Decim. pl.: S-0-0077 / S-0-0078		
	Cycl. tra.: --	Comb. check: --	Set-depend.: --		
	HDx:	min./max.: S-0-0076 / S-0-0076	Default value: 100,0000		

5.13.163 P-0-2860.0.10, Synchronization current fault absolute

	Contained in 16VRS: «-»				
	Contained in 17VRS: «-»				
	Contained in 18VRS: «-» «-» «HDS»				
	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»				
	Device parameter: axis-specific				
	Property name: ActualValue.ActualSynchError				
Function	The current synchronization error is displayed in this parameter. It is the amount of the difference between the slave axis with the largest actual position and the slave axis with the smallest actual position.				
P-0-2860.0.10 - Attributes	Function: Par	Editable: --	Data length: 4Byte		
	Memory: --	Validity ch.: --	Format: DEC_OV		
	Unit: S-0-0076	Extr. val. ch.: --	Decim. pl.: S-0-0077 / S-0-0078		
	Cycl. tra.: --	Comb. check: --	Set-depend.: --		
	HDx:	min./max.: --- / ---	Default value: ---		

5.13.164 P-0-2860.0.11, Synchronization deviation actual reference value

	Contained in 16VRS: «-»				
	Contained in 17VRS: «-»				
	Contained in 18VRS: «-» «-» «HDS»				
	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»				
	Device parameter: axis-specific				
	Property name: ActualValue.MasterAxis				
Function	The axis number of the current master axis is displayed in this parameter.				
P-0-2860.0.11 - Attributes	Function: Par	Editable: --	Data length: 2Byte		
	Memory: --	Validity ch.: --	Format: DEC_OV		
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0		
	Cycl. tra.: --	Comb. check: --	Set-depend.: --		
	HDx:	min./max.: --- / ---	Default value: ---		

5.13.165 P-0-2860.0.12, Synchronization actual reference position

	Contained in 16VRS: «-»				
	Contained in 17VRS: «-»				
	Contained in 18VRS: «-» «-» «HDS»				
	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»				
	Device parameter: axis-specific				
	Property name: ActualValue.ReferencePosition				
Function	The actual position of the current master axis is displayed in this parameter.				
P-0-2860.0.12 - Attributes	Function: Par	Editable: --	Data length: 4Byte		
	Memory: --	Validity ch.: --	Format: DEC_MV		
	Unit: S-0-0076	Extr. val. ch.: --	Decim. pl.: S-0-0077 / S-0-0078		
	Cycl. tra.: --	Comb. check: --	Set-depend.: --		
	HDx:	min./max.: --- / ---	Default value: ---		

5.13.166 P-0-2860.0.13, Synchronization break distance

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»		«-»		«HDS»	
	Contained in 20VRS:		«-»		«-»		«HDM»	
	Device parameter:		axis-specific					
	Property name:		PosControl.BreakDistance					
Function	The break distance is entered in this parameter. The break distance defines the maximum allowed difference between the calculated model following distance and the real following distance. If the difference is greater than the break distance, the positioning of the synchronization axis is interrupted. Once the following distance is less than the break distance, the positioning is continued.							
P-0-2860.0.13 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV		
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: S-0-0076 / S-0-0076				Default value: 0,0000		

5.13.167 P-0-2860.0.14, Synchronization model loop gain

Allocation	Contained in 16VRS:		«-»			
	Contained in 17VRS:		«-»			
	Contained in 18VRS:		«-»		«HDS»	
	Contained in 20VRS:		«-»		«HDS»	
	Device parameter:		axis-specific			
	Property name:		PosControl.ModelGain			
Function	A model following distance is calculated for break distance monitoring. A model loop gain is required for this calculation. The Kv of the slave axes is usually applied for this. If the single axis controllers of the slave axes have different model loop gains, the largest Kv of the slave axis group is used.					
P-0-2860.0.14 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	1000/min	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,00	

5.13.168 P-0-2860.0.15, Synchronization model scaling velocity feedforward control

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»	«-»			«HDS»	
	Contained in 20VRS:					«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:					axis-specific					
	Property name:					PosControl.VelFeedForward					
Function	A model following distance is calculated for break distance monitoring. In addition to the loop gain, the velocity feedforward control is taken into account for this model. The velocity feedforward control of the slave axes is usually applied for this. If the single axis controllers of the slave axes have different velocity feedforward controls, the largest velocity feedforward control of the slave axis group is used.										

P-0-2860.0.15 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.				Default value
HDB:	0.00 / 120.00				0.00	

HDC:	0,00 / 120,00	0,00
HDE:	0,00 / 120,00	0,00
HDP:	0,00 / 120,00	0,00
HDM:	0,00 / 120,00	0,00
HDS:	0,00 / 1,20	0,00

5.13.169 P-0-2860.0.16, Synchronization threshold command value follow-up

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«HDS»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		PosControl.SetPositionFollowWindow					

Function The threshold for the command value follow-up is entered in this parameter. Once the difference between the model following distance and synchronization following distance is larger than the threshold of the command value follow-up, the command value is corrected. It is generally used for "P-0-2860.0.4, Synchronization mode 5 and 6" to correct the command value of the synchronization axis in displacement mode.

P-0-2860.0.16 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: S-0-0076 / S-0-0076				Default value: 0,0000

5.13.170 P-0-2860.0.20, Synchronization slave axis status word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«HDS»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:		SynchBase.SlaveAxisStatusWord					

Function This parameter contains a list of status information on the single slave axes of the synchronized group

Structure	Bit	Designation/function	Comment
	0	Single parameterization 0: Single parameterization inactive 1: Single parameterization active	
	1	Force limitation 0: Force limitation not engaged 1: Force limitation engaged	
	2	Position limitation integrator 0: Position limitation integrator inactive 1: Position limitation integrator active	
	3	Force limitation integrator 0: Force limitation integrator inactive 1: Force limitation integrator active	
	4	Velocity limitation integrator 0: Velocity limitation integrator inactive 1: Velocity limitation integrator active	

Tab. 5-98: P-0-2860.0.20,

P-0-2860.0.20 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.171 P-0-2860.0.21, Synchronization model deviation

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	SynchBase.ModelError				

Function The deviation from the synchronization model error is mapped in this parameter. The synchronization controller generates a model following error and compares it with its internally created deviation between the synchronization command value "P-0-0434" and the actual synchronization reference position "P-0-2860.0.12". The difference between these two values forms the synchronization model deviation.

P-0-2860.0.21 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.172 P-0-2860.0.22, Synchronization maximum model deviation

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	SynchBase.MaxModelError				

Function The maximum occurred model deviation that occurs in "P-0-2860.0.21" is saved in this parameter. This value is reset if the controller is restarted or the user resets it.

P-0-2860.0.22 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.173 P-0-2860.0.23, Synchronization break delay ramp

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	SynchBase.BreakDelayRamp				

Function This parameter can be used to set the braking characteristics of the break mechanism. If the value is 0, the provision of command values is stopped abruptly. For restarting, the acceleration rate of the active motion command is used.

P-0-2860.0.23 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	--	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.13.174 P-0-2861.x.1, Synchronization slave axes control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	SynchBase.SlaveControlword					

Function Structure Control word of the slave axes

Bit	Designation/function	Comment
0	Individual parameterization 0: Deactivated individual parameterization 1: Activated individual parameterization	

Tab. 5-99: P-0-2861.x.1,

P-0-2861.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x0

5.13.175 P-0-2861.x.2, Synchronization slave axes status word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	SynchBase.SlaveStatusword					

Function Structure Status word of the slave axes

Bit	Designation/function	Comment
0	Individual parameterization 0: Inactive 1: Active	
1	Force limitation 0: Not engaged 1: Engaged	
2	Position limitation integrator 0: Integrator of the axis is below the limitation value 1: Integrator of the axis has reached the limitation value "P-0-2862.x.3 Synchronization position limitation integrator" and is limited to this value.	

Bit	Designation/function	Comment
3	Force limitation integrator 0: Integrator of the axis is below the limitation value 1: Integrator of the axis has reached the limitation value "P-0-2863.x.3 Synchronization force limitation integrator" and is limited to this value.	
4	Velocity limitation integrator 0: Integrator of the axis is below the limitation value 1: Integrator of the axis has reached the limitation value "P-0-2864.x.3 Synchronization velocity limitation integrator" and is limited to this value.	

Tab. 5-100: P-0-2861.0.2,

P-0-2861.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.176 P-0-2861.x.3, Synchronization deviation actual reference value

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «HDS»
	Contained in 20VRS:	«-» «-» «-» «-» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	SynchBase.PositionDeviation	

Function The deviation of the actual position of the axis for the actual reference position of the current master axis is in this parameter.

P-0-2861.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: ---	

5.13.177 P-0-2861.x.4, Synchronization factor relative synchronism

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «HDS»
	Contained in 20VRS:	«-» «-» «-» «-» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	SynchBase.RatioFactor	

Function The factor for the relative synchronization is entered in this parameter. Since the synchronization always refers to the first axis for the command value input, the factor of the first axis is always 1 in parameter "P-0-2860.0.3, Synchronization list slave axes". A relationship can only be entered for slave axes 2 - MB_MAX_AXIS_NUMBER.

Example:

If a slave axis receives factor 2, it moves twice the distance depending on the command value input.

P-0-2861.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 1,000	

5.13.178 P-0-2861.x.5, Synchronization command value, additive

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific			
	Property name:	PosGenerator.SetPosAdditiv			

Function The additive position command value can be specified in this parameter. The individual slave axes can be offset by any position while they are already in the synchronization control mode. The additive command value has to be provided in the Sercos clock cycle. No position command value jumps may be generated that could lead to an excessive position command value step-change.

P-0-2861.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0076 / S-0-0076			Default value: ---	

5.13.179 P-0-2861.x.6, Synchronization slave axis feedback value

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific			
	Property name:	SynchBase.SlaveActualPosition			

Function This parameter shows the actual position value of the slave axis.

Use Note: This value can also be checked directly for the slave axes.

P-0-2861.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.180 P-0-2862.x.1, Synchronization position P-gain

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific			
	Property name:	PosControl.PosPGain			
	Alias idn:	P-0-3847, P-0-3849			

Function The proportional gain of the position synchronization controller is set in this parameter. This has no unit and describes how much the position command value of the single axis controller is influenced for each unit of the position synchronization difference.

Use SI 0 = All slave axes
SI 1 = Slave axis 1
SI 2 = Slave axis 2
SI x = Slave axis x

P-0-2862.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,00	

5.13.181 P-0-2862.x.2, Synchronization position integral time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	PosControl.PosIGain					
Alias idn:	P-0-3848, P-0-3850					
Function	The integration time of the position synchronization controller is set in ms in this parameter.					
Use	SI 0 = All slave axes					
	SI 1 = Slave axis 1					
	SI 2 = Slave axis 2					
	SI x = Slave axis x					

P-0-2862.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 1000	

5.13.182 P-0-2862.x.3, Synchronization position limitation integrator

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	PosControl.PosLimit					
Function	The limitation of the integrator is parameterized by this parameter. If this value is set to zero, the limitation is inactive.					
Use	SI 0 = All slave axes					
	SI 1 = Slave axis 1					
	SI 2 = Slave axis 2					
	SI x = Slave axis x					

P-0-2862.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 5,0000	

5.13.183 P-0-2862.x.10, Correction value: synchronization position P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	PosControl.CtrlPosPPart					
Function	Current proportional component of the position synchronization controller.					
Use	SI 0 = All slave axes					

SI 1 = Slave axis 1

SI 2 = Slave axis 2

SI x = Slave axis x

P-0-2862.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.184 P-0-2862.x.11, Correction value: synchronization position integrator

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «HDS»
	Contained in 20VRS:	«-» «-» «-» «-» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	PosControl.CtrlPosIPart	

Function Current integration component of the position synchronization controller.**Use** SI 0 = All slave axes

SI 1 = Slave axis 1

SI 2 = Slave axis 2

SI x = Slave axis x

P-0-2862.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.185 P-0-2862.x.12, Output of synchronization position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «HDS»
	Contained in 20VRS:	«-» «-» «-» «-» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	PosControl.CtrlPosition	

Function Synchronization position controller output. It is derived from the current "P-0-0434, position command value" + "P-0-2862.x.10, Correction value: synchronization position P-gain" + "P-0-2862.x.11 Correction value: synchronization position integrator" + "P-0-2865.x.10 Correction value: synchronization target integrator".**Use** SI 0 = All slave axes

SI 1 = Slave axis 1

SI 2 = Slave axis 2

SI x = Slave axis x

P-0-2862.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.186 P-0-2863.x.1, Synchronization force P-gain

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»			«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Function	Property name:	ForceControl.ForcePGain					
	Alias idn:	P-0-3851, P-0-3853					
Use	The proportional gain of the force synchronization controller is set in this parameter.						
	SI 0 = All slave axes						
	SI 1 = Slave axis 1						
	SI 2 = Slave axis 2						
	SI x = Slave axis x						
P-0-2863.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: 1,00		

5.13.187 P-0-2863.x.2, Synchronization force integration time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»
	Device parameter:	axis-specific				
Function	Property name:	ForceControl.ForceIGain				
	Alias idn:	P-0-3852, P-0-3854				
Use	The integration time of the force synchronization controller is set in ms in this parameter.					
	SI 0 = All slave axes					
	SI 1 = Slave axis 1					
	SI 2 = Slave axis 2					
	SI x = Slave axis x					
P-0-2863.0.2 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 300	

5.13.188 P-0-2863.x.3, Synchronization force limitation integrator

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«HDS»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ForceControl.ForceLimit					
Function	The limitation of the integrator is parameterized by this parameter. If this value is set to zero, the limitation is inactive.						
Use	SI 0 = All slave axes						
	SI 1 = Slave axis 1						
	SI 2 = Slave axis 2						
	SI x = Slave axis x						

P-0-2863.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0086 / S-0-0086				Default value: 10,0

5.13.189 P-0-2863.x.4, Synchronization force factor conversion position force

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific			
	Property name:	ForceControl.ForceCalcFactor			

Function This parameter normalizes the position deviation of the slave axis in the corresponding force unit. The components and the output of the force synchronization controller are displayed in the corresponding force weighting. The "P-0-2861-x-3, Synchronization deviation actual reference value" is multiplied by the "P-0-2863-x-4, Synchronization force factor conversion position force".

Use SI 0 = All slave axes
SI 1 = Slave axis 1
SI 2 = Slave axis 2
SI x = Slave axis x

P-0-2863.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---				Default value: 1

5.13.190 P-0-2863.x.5, Synchronization force minimum force value

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific			
	Property name:	ForceControl.ForceMinValue			

Function The force synchronization controller determines the command force for the slave axes. Theoretically, it would be possible that the synchronization algorithm generates a command force for the slave axis which is smaller than the holding force for the cylinder. As a result, a cylinder would retract or extend (depending on the mounting situation of the cylinder) in an uncontrolled manner. In order that this cannot happen, a minimum value can be set via "P-0-2863.x.5, Synchronization force minimum force value", below which the force must not fall. Note: Depending on the synchronization mode, the limitation mode can result in the fact that the synchronization accuracy cannot always be adhered to.

Use SI 0 = all slave axes
SI 1 = slave axis 1
SI 2 = slave axis 2
SI x = slave axis x

P-0-2863.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0086 / S-0-0086 Default value: 0,0

5.13.191 P-0-2863.x.6, Synchronization force base value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific				
	Property name:	ForceControl.ForceSocketValue				

Function Defines the force base value, which the slave axes receive as force command value from the synchronization control. The I- and P-components of the controller are then added to the force base value and transferred to the slave axes as force command value. The total force of the synchronization axis corresponds to the force base value * number of slave axes.

Use SI 0 = all slave axes
SI 1 = slave axis 1
SI 2 = slave axis 2
SI x = slave axis x

P-0-2863.0.6 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: S-0-0086 / S-0-0086 Default value: 0,0

5.13.192 P-0-2863.x.10, Correction value: synchronization force P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific				
	Property name:	ForceControl.CtrlForcePPart				

Function Current proportional component of the force synchronization controller.

Use SI 0 = All slave axes
SI 1 = Slave axis 1
SI 2 = Slave axis 2
SI x = Slave axis x

P-0-2863.0.10 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.13.193 P-0-2863.x.11, Correction value: synchronization force integrator

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific				
	Property name:	ForceControl.CtrlForceIPart				

Function Current integration component of the force synchronization controller.

Use SI 0 = All slave axes
SI 1 = Slave axis 1

SI 2 = Slave axis 2

SI x = Slave axis x

P-0-2863.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.194 P-0-2863.x.12, Output of synchronization force

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific				
	Property name:	ForceControl.CtrlForce				

Function Output of the force synchronization controller. It is made up from the current "P-0-2863.x.6, Synchronization force base value" + "P-0-2863.x.10, Correction value: synchronization force P-gain" + "P-0-2863.x.11, Correction value: synchronization force integrator".

Use SI 0 = all slave axes

SI 1 = slave axis 1

SI 2 = slave axis 2

SI x = slave axis x

P-0-2863.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.195 P-0-2864.x.1, Synchronization velocity P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific				
	Property name:	VelControl.VelPGain				
	Alias idn:	P-0-3855, P-0-3857				

Function The proportional gain of the velocity synchronization controller is set in this parameter.

Use SI 0 = All slave axes

SI 1 = Slave axis 1

SI 2 = Slave axis 2

SI x = Slave axis x

P-0-2864.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 1,00	

5.13.196 P-0-2864.x.2, Synchronization velocity integration time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				

	Contained in 18VRS:	«-»	«-»		«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»	
	Device parameter:	axis-specific				
	Property name:	VelControl.VelIGain				
	Alias idn:	P-0-3856, P-0-3858				
Function	The integration time of the velocity synchronization controller is set in ms in this parameter.					
Use	SI 0 = All slave axes					
	SI 1 = Slave axis 1					
	SI 2 = Slave axis 2					
	SI x = Slave axis x					
P-0-2864.0.2 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 100	

5.13.197 P-0-2864.x.3, Synchronization velocity limitation integrator

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»
	Device parameter:	axis-specific				
	Property name:	VelControl.VelLimit				
Function	The limitation of the integrator is parameterized by this parameter. If this value is set to zero, the limitation is inactive.					
Use	SI 0 = All slave axes SI 1 = Slave axis 1 SI 2 = Slave axis 2 SI x = Slave axis x					
P-0-2864.0.3 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.13.198 P-0-2864.x.4, Synchronization velocity factor conversion position velocity

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«HDS»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	VelControl.VelCalcFactor					
Function	This parameter normalizes the position deviation of the slave axis in the corresponding velocity unit. The components and the output of the velocity synchronization controller are displayed in the corresponding velocity scaling. The "P-0-2861.x.3 Synchronization deviation actual reference value" is multiplied by the "P-0-2864.x.4 Synchronization velocity factor conversion position velocity" and passed on to the PI-controller.						
Use	SI 0 = All slave axes						
	SI 1 = Slave axis 1						
	SI 2 = Slave axis 2						

SI x = Slave axis x						
P-0-2864.0.4 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:			min./max.: --- / ---		Default value: 1

5.13.199 P-0-2864.x.10, Correction value: synchronization velocity P-gain

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«HDS»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	VelControl.CtrlVelIPPart					
Function	Current proportional component of the velocity synchronization controller.						
Use	SI 0 = All slave axes						
	SI 1 = Slave axis 1						
	SI 2 = Slave axis 2						
	SI x = Slave axis x						

P-0-2864.0.10 - Attributes	Function: Par	Editable: --	Data length: 4Byte
	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: S-0-0044	Extr. val. ch.: --	Decim. pl.: S-0-0045 / S-0-0046
	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx:	min./max.: --- / ---	Default value: ---

5.13.200 P-0-2864.x.11, Correction value: synchronization velocity integrator

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«HDS»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	VelControl.CtrlVelIPart					
Function	Current integration component of the velocity synchronization controller.						
Use	SI 0 = All slave axes						
	SI 1 = Slave axis 1						
	SI 2 = Slave axis 2						
	SI x = Slave axis x						

P-0-2864.0.11 - Attributes	Function: Par	Editable: --	Data length: 4Byte
	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: S-0-0044	Extr. val. ch.: --	Decim. pl.: S-0-0045 / S-0-0046
	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx:	min./max.: --- / ---	Default value: ---

5.13.201 P-0-2864.x.12, Output of synchronization velocity

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
	Device parameter:	axis-specific				
	Property name:	VelControl.CtrlVelocity				

Function Output of the velocity synchronization controller. It is made up from the current "P-0-0048, Velocity command value of controller" + "P-0-2864.x.10, Cor-

rection value: synchronization velocity P-gain" + "P-0-2864.x.11, Correction value: synchronization velocity integrator."

Use SI 0 = all slave axes
SI 1 = slave axis 1
SI 2 = slave axis 2
SI x = slave axis x

P-0-2864.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.202 P-0-2865.0.1, Synchronization target integrator accuracy window**Allocation**

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«HDS»		
Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	PosControl.TargetWindow				

Function

The integration window of the target integrator is set via this parameter.

P-0-2865.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: 0,0000	

5.13.203 P-0-2865.0.2, Synchronization target integrator integral time**Allocation**

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«HDS»		
Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	PosControl.TargetGain				

Function

The integration time of the target integrator is set in ms in this parameter.

P-0-2865.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0	

5.13.204 P-0-2865.0.3, Synchronization target integrator limitation**Allocation**

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«HDS»		
Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	PosControl.TargetLimit				

Function

The limitation of the integrator is parameterized by this parameter. If this value is set to zero, the limitation is inactive.

P-0-2865.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: [S-0-0076](#) / [S-0-0076](#) Default value: 0,0000

5.13.205 P-0-2865.0.4, Synchronization target integrator enable speed

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.TargetSwitchOnVel					

Function The integrator is active when the actual velocity of the synchronization axis is less than the set velocity threshold.

P-0-2865.0.4 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045	/
						S-0-0046	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	

HDx: min./max.: [S-0-0044](#) / [S-0-0044](#) Default value: 0,0000

5.13.206 P-0-2865.0.5, Synchronization target integrator down ramp

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.TargetIRamp					

Function The current integration component "P-0-2865.0.10, Correction value: synchronization target integrator" is reduced again via the down ramp during operation. When the down ramp reaches zero, the target integrator is abruptly set to zero.

P-0-2865.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045	/
						S-0-0046	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	

HDx: min./max.: [S-0-0044](#) / [S-0-0044](#) Default value: 0,0000

5.13.207 P-0-2865.0.10, Correction value: synchronization target integrator

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.CtrlTargetIPart					

Function Current integration component of the target integrator.

P-0-2865.0.10 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077	/
						S-0-0078	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	

HDx: min./max.: --- / --- Default value: ---

5.13.208 P-0-2870, Control variable adjustment control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function As of firmware version 20VRS: Replacement parameter of "S-0-2873.0.20" for compatible access and for communication interfaces which do not support any 32-bit ident numbers (EIDN).

Details of the description can be seen in [P-0-2873.0.20](#).

P-0-2870 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** 0x0

5.13.209 P-0-2871, Control variable adjustment status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.StatusWord

Function This parameter contains the status word for output adjustment.

Structure

Bit	Designation/function	Comment
0	Invalid characteristic curve 0: Valid characteristic curve 1: Invalid characteristic curve	An invalid characteristic curve can have the following causes: • Monotonicity instructions not fulfilled • Different lengths of the value lists • Minimum number of values not reached
1	Show limitation 0: Do not show limitation function in the output adjustment dialog 1: Show limitation in the output adjustment dialog	This bit is evaluated in the IndraWorks dialog "output adjustment"
2	Lead the valve control variable through the limitation function 0: The valve control variable is NOT led through the limitation function 1: The valve control variable is led through the limitation function	
3	Limit the valve control variable 0: The valve control variable is NOT limited 1: The valve control is limited by "P-0-2873.0.24" or "P-0-2873.0.25"	
4-15	Reserved	

Tab. 5-101: P-0-2871, Control variable adjustment status word

P-0-2871 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.210 P-0-2872, Output of valve characteristic curve

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The parameter displays the current output value of the inverse valve characteristic curve of the flow calculation.

P-0-2872 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.211 P-0-2873.0.1, Valve standard velocity

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Property name: LineAdapt.ValveCtrlNominalVel
Alias idn: [P-0-3448](#)

Function The valve standard velocity is part of output adjustment. The valve standard velocity is the travel speed with 100 % valve opening.

The controller generates a velocity as output variable. In controller output adjustment, this velocity is standardized via the valve standard velocity to the valve opening in %.

As of firmware release **HDx20V18** the valve standard velocity is MDT-capable.



With a valve standard velocity of 0 every controller output value is normalized to a valve opening of 0 %.

P-0-2873.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.13.212 P-0-2873.0.2, Direction-dependent gain

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Property name: LineAdapt.FactorForwBackwAdj
Alias idn: [P-0-3449](#)

Function The direction-dependent gain is part of the actuating variable adjustment. In order to achieve direction-independent behavior, you can here enter a corresponding factor. Negative actuating values will be multiplied by the factor set here, positive actuating values remain unchanged.

P-0-2873.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
HDB:	0,0001 / 10000,0000	1,0000
HDC:	0,0001 / 10000,0000	1,0000
HDE:	0,0001 / 10000,0000	1,0000
HDP:	0,0001 / 10000,0000	1,0000
HDM:	0,0001 / 10000,0000	1,0000
HDS:	0,0001 / 10,0000	1,0000

5.13.213 P-0-2873.0.3, Control variable inversion

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.Inversion
	Alias idn:	P-0-3450

Function This parameter can be used to activate the inversion of the valve control value.

Use If this parameter = -1, the inversion is active.

P-0-2873.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: -1 / 1	Default value:	1

5.13.214 P-0-2873.0.4, Valve overlap type

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.OverlapType
	Alias idn:	P-0-3451

Function The overlap of a valve can be compensated with the help of this function. Two overlap variants are available. Within the threshold, a valve actuating variable of 0 % is output and otherwise, linear interpolation is carried out between the two overlaps.

Use

Type	Behavior
0	Overlap is off
1	0 % is output within the threshold
2	Linear interpolation is carried out within the threshold

Tab. 5-102: Structure

See also parameters:

- Valve overlap A-side "P-0-2873.0.5"
- Valve overlap B-side "P-0-2873.0.6"
- Valve overlap threshold "P-0-2873.0.7"

P-0-2873.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0 / 2 Default value: 0

5.13.215 P-0-2873.0.5, Valve overlap A-side

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.OverlapSideA
	Alias idn:	P-0-3452

Function The overlap on the A side of the valve defines the step height at the place of the threshold.

Use See also "Valve overlap type" (P-0-2873.0.4)

P-0-2873.0.5 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV
	Unit: %	Extr. val. ch.: +	Decim. pl.: 3
	Cycl. tra.: --	Comb. check: --	Set-depend.: --

Input	min./max.	Default value
HDB:	0,000 / 100,000	0,000
HDC:	0,000 / 100,000	0,000
HDE:	0,000 / 100,000	0,000
HDP:	0,000 / 100,000	0,000
HDM:	0,000 / 100,000	0,000
HDS:	0,000 / 0,100	0,000

5.13.216 P-0-2873.0.6, Valve overlap B-side

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.OverlapSideB
	Alias idn:	P-0-3453

Function The overlap on the B side of the valve defines the step height at the place of the threshold.

Attention: This value is positive by definition.

Use See also "Valve overlap type" (P-0-2873.0.4)

P-0-2873.0.6 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV
	Unit: %	Extr. val. ch.: +	Decim. pl.: 3
	Cycl. tra.: --	Comb. check: --	Set-depend.: --

Input	min./max.	Default value
HDB:	0,000 / 100,000	0,000
HDC:	0,000 / 100,000	0,000
HDE:	0,000 / 100,000	0,000
HDP:	0,000 / 100,000	0,000
HDM:	0,000 / 100,000	0,000
HDS:	0,000 / 0,100	0,000

5.13.217 P-0-2873.0.7, Valve overlap threshold

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.OverlapWindow
	Alias idn:	P-0-3454

Function The threshold defines the area of the overlap in positive and in negative direction.

Attention: This value is only positive by definition.

Use See also "Valve overlap type" (P-0-2873.0.4)

P-0-2873.0.7 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,000 / 100,000	0,000
HDC:	0,000 / 100,000	0,000
HDE:	0,000 / 100,000	0,000
HDP:	0,000 / 100,000	0,000
HDM:	0,000 / 100,000	0,000
HDS:	0,000 / 0,100	0,000

5.13.218 P-0-2873.0.8, Characteristic of type

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	LineAdapt.CurveType					
	Alias idn:	P-0-3455					

Function The characteristic curve of a valve can be linearized with the help of this function. This is valid for valves with an inflected characteristic curve, for example Between defined points, linear interpolation is carried out. It has to be noted that the smallest or greatest output value also limits the control output to the valve.

Use Attention: The input mode of the characteristic curve has to be selected by means of P-0-2873.0.20, bit 2.

Type	Behavior
0	Characteristic curve is off
-1	A symmetric characteristic curve is used. This means that the amount of a negative value is taken and the sign is corrected in the end.
-2	An asymmetric characteristic curve is used. The positive and negative pairs of values are entered separately.

Tab. 5-103: Structure

See also parameters:

- Valve characteristic curve input value (P-0-2873.0.9)
- Valve characteristic curve output value (P-0-2873.0.10)

P-0-2873.0.8 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.:	-2 / 0	Default value:	0

5.13.219 P-0-2873.0.9, Characteristic of flow

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	LineAdapt.CurveTableInputValue					
	Alias idn:	P-0-3456					

Function This parameter contains the list of input values for valve compensation. In most of the cases an inflection is compensated in this way in order to achieve linear characteristics of the valve. To this end, it is important that the in-

put value contains the percentage-based flow, which is given by the controller. The percentage-based opening of the valve is entered in the associated line of the output value. The length of the input and output values has to be identical, and every line represents an associated value pair.

Between the set values, linear interpolation is carried out.

Use See also "characteristic curve type" (P-0-2873.0.8)

If, for example, the valve has an inflection at 40 % of the valve control variable and at 10 % flow, then 10 % has to be set for the flow as input value and 40 % as output value.



It is recommended that 0 % and 100 % are always set, too, in order to allow an interpolation between these points.

P-0-2873.0.9 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
HDB:	-100,000 / 100,000	s. Text
HDC:	-100,000 / 100,000	s. Text
HDE:	-100,000 / 100,000	s. Text
HDP:	-100,000 / 100,000	s. Text
HDM:	-100,000 / 100,000	s. Text
HDS:	-0,100 / 0,100	---

5.13.220 P-0-2873.0.10, Characteristic of control variable

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.CurveTableOutputValue
	Alias idn:	P-0-3457

Function This parameter contains the list of output values for valve compensation. The output values correspond to the valve opening, which can be set via the input values.

Use See also "characteristic curve type" (P-0-2873.0.8) and "characteristic curve input value" (P-0-2873.0.9)

P-0-2873.0.10 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
HDB:	-100,000 / 100,000	s. Text
HDC:	-100,000 / 100,000	s. Text
HDE:	-100,000 / 100,000	s. Text
HDP:	-100,000 / 100,000	s. Text
HDM:	-100,000 / 100,000	s. Text
HDS:	-0,100 / 0,100	---

5.13.221 P-0-2873.0.11, Valve standard velocity (negativ)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	LineAdapt.ValveCtrlNominalVelNeg
	Alias idn:	P-0-3578

Function The negative valve standard velocity belongs to output adjustment. The "valve standard velocity (negative direction)" is the velocity, at which the hy-

draulic drive can move in the negative direction with maximum valve opening (-100 %).

The controller generates a velocity as output variable. In output adjustment, this velocity is normalized to the valve opening in % (see Functional Description).

P-0-2873.0.11 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.13.222 P-0-2873.0.12, Input of output adjustment

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	LineAdapt.CtrlVellInputSetValue					
Alias idn:	P-0-3739						

Function The input value of output adjustment is shown. Depending on the selected operation mode, this value corresponds to

- P-0-2858, Output of changeover logic, or the
- Direct valve signal, converted into the selected velocity unit.

P-0-2873.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.223 P-0-2873.0.13, Valve control variable offset

Allocation	Contained in 16VRS:						«HDS»		
	Contained in 17VRS:	«HDB»							
	Contained in 18VRS:	«HDB»	«HDC»						«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»		
	Device parameter:	axis-specific							
Property name:	LineAdapt.Offset								
Alias idn:	P-0-3458								

Function This parameter is used to set a valve control value having an additive effect, which will take effect in the actuating variable adjustment. This allows you e.g. to compensate offset errors that might exist.

P-0-2873.0.13 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	-100,000 / 100,000	0,000
HDC:	-100,000 / 100,000	0,000
HDE:	-100,000 / 100,000	0,000
HDP:	-100,000 / 100,000	0,000
HDM:	-100,000 / 100,000	0,000
HDS:	-0,100 / 0,100	0,000

5.13.224 P-0-2873.0.14, Control disabled offset

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»

	Device parameter: axis-specific	
	Property name: OutputData.ValveCtrlOutputStandstill	
	Alias idn: P-0-3459	
Function	The standstill value is output when the control is deactivated. When the control is activated, this parameter will not have any effect.	
P-0-2873.0.14 - Attributes	Function: Par	Editable: ++
	Memory: PARAM_SP	Validity ch.: --
	Unit: %	Extr. val. ch.: +
	Cycl. tra.: MDT	Comb. check: --
	Data length: 4Byte	Format: DEC_MV
	Decim. pl.: 3	Set-depend.: --
	Input	min./max.
	HDB:	-100,000 / 100,000
	HDC:	-100,000 / 100,000
	HDE:	-100,000 / 100,000
	HDP:	-100,000 / 100,000
	HDM:	-100,000 / 100,000
	HDS:	-0,100 / 0,100
	Default value	0,000

5.13.225 P-0-2873.0.15, Filter time of valve control output

Allocation	Contained in 16VRS: «HDS»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: LineAdapt.FilterTime					
	Alias idn: P-0-3460					
Function	In case the control signal has to be smoothened, a low-pass can be activated in the distance adjustment. It must be noted that a filter time of 0 ms means that this filter is not effective.					
P-0-2873.0.15 - Attributes	Function: Par	Editable: ++	Data length: 2Byte			
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV			
	Unit: ms	Extr. val. ch.: --	Decim. pl.: 1			
	Cycl. tra.: --	Comb. check: --	Set-depend.: --			
	HDx:	min./max.: 0,0 / 650,0	Default value: 0,0			

5.13.226 P-0-2873.0.16, Output adjustment command value

Allocation	Contained in 16VRS: «HDS»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: LineAdapt.CtrlValveInputSetValue					
	Alias idn: P-0-3461					
Function	The current command value for the actuating variable adjustment is displayed.					
P-0-2873.0.16 - Attributes	Function: Par	Editable: --	Data length: 4Byte			
	Memory: --	Validity ch.: --	Format: DEC_MV			
	Unit: %	Extr. val. ch.: --	Decim. pl.: 3			
	Cycl. tra.: AT	Comb. check: --	Set-depend.: --			
	HDx:	min./max.: --- / ---	Default value: ---			

5.13.227 P-0-2873.0.17, Control variable adjustment of command value, maintenance

Allocation	Contained in 16VRS: «--»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: OutputData.SetValueValveService					
	Alias idn: P-0-3786					
Function	If drive enable is not set, ((P-0-2873.0.14)) is normally output on the output.					

Using the "Accept temporary value" button in the dialog of the actuating variable adjustment, a temporary valve standstill value can be output.

This value will only be output as long as the button is being pressed (dead-man button). After release, the value will be maintained for 200 ms.

P-0-2873.0.17 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	-100,000 / 100,000	---
HDC:	-100,000 / 100,000	---
HDE:	-100,000 / 100,000	---
HDP:	-100,000 / 100,000	---
HDM:	-100,000 / 100,000	---
HDS:	-0,100 / 0,100	---

5.13.228 P-0-2873.0.18, Valve standard velocity ramp

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	LineAdapt.ValveCtrlNominalVelRamp	
Alias idn:	P-0-3579	

Function Changes to the valve standard velocity are smoothed using this ramp. Here, a small value means a slow change and a large value means a fast change.

If the value is set to 0, the ramp is deactivated and changes to the valve standard velocity are immediately applied.

Use This parameter is helpful if the valve standard velocity must be changed during controlling. Depending on the situation, a change to the valve standard velocity could otherwise excite the axis and lead to vibrations.

P-0-2873.0.18 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx:	min./max.: S-0-0160 / S-0-0160	Default value:	0,000

5.13.229 P-0-2873.0.20, Control variable adjustment control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Device parameter:	axis-specific	
Property name:	LineAdapt.ControlWord	
Alias idn:	P-0-2870	

Function Output adjustment is commanded with the help of the output adjustment control word. By setting or resetting the relevant bits various functions can be activated or deactivated. See Functional Description Output adjustment

Structure

Bit	Designation/function	Comment
1..0	Adjustment of the active valve standard velocity 00: Via the valve standard velocity for both directions of travel and forward-backward factor 01: Via different valve standard velocities for forward and backward travel 10: Reserved 11: Reserved	
2	Entry type characteristic curve This bit defines, in which way the points of the characteristic curve from list parameters "P-0-2873.0.9, Valve characteristic curve input value" and "P-0-2873.0.10, Valve characteristic curve output value" will be interpreted. For further information, see functional description. 0: Compensation characteristic curve 1: Valve characteristic curve	This bit is available as of FW 20V06 By default, valve characteristic curve is selected

Tab. 5-104: Structure P-0-2873.0.20

P-0-2873.0.20 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
HDB:	--- / ---	0x4
HDC:	--- / ---	0x4
HDE:	--- / ---	0x4
HDP:	--- / ---	0x4
HDM:	--- / ---	0x4
HDS:	--- / ---	0x0

5.13.230 P-0-2873.0.23, Selection of controller output

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «HDC» «-»
	Contained in 20VRS:	«-» «HDC» «-» «-» «HDM» «-»
Device parameter:	axis-specific	
Alias idn:	P-0-3570	

Function This parameter can be used to set, to which output of the HMC the control variable of the controller is to be output.

Use The value that is output is the effective valve command value (P-0-2914). It is mapped within the range of -100 %...+100 % onto the respective range of the output (voltage or current).

P-0-2873.0.23 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0
HDC:	--- / ---	s. Text
HDE:	--- / ---	0
HDP:	--- / ---	0
HDM:	--- / ---	s. Text
HDS:	--- / ---	---

5.13.231 P-0-2873.0.24, Limitation of valve control variable, A-side

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The parameter allows the valve control variable to be limited on the A-side while pressure control is active. This prevents oil from flowing from P to A (P → A) at the valve connection on the B-side while pressure control is active.							
P-0-2873.0.24 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: -100,000 / 100,000			Default value: s. Text		

5.13.232 P-0-2873.0.25, Limitation of valve control variable, B-side

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The parameter allows the valve control variable to be limited on the B-side while pressure control is active. This prevents oil from flowing from P to B (P → B) at the valve connection on the A-side while pressure control is active.							
P-0-2873.0.25 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: -100,000 / 100,000			Default value: s. Text		

5.13.233 P-0-2874.0.1, Q calculation delta p limitation

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3462					
Function	For the flow calculation, this parameter is used to limit the measured differential pressure to a minimum value. Greater differential pressures than in P-0-2874.0.1 will not be limited.						
	The unit of the parameter is %						
Use	As small differential pressures have an "increasing" effect on the flow calculation, you want to limit the increase in "gain" for small differential pressures. The noise existing in the measured pressure signals must not have any negative effect on the "closed-loop control". P-0-2874.0.1 is multiplied by the nominal pressure (P-0-2875.0.2) and then results in the minimum value to which delta p is limited downwards.						
P-0-2874.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: 10.00 / 200.00			Default value: 20.00	

5.13.234 P-0-2874.0.2, Q calculation time constant 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Alias idn: [P-0-3463](#)

Function The differential pressure formed from the measured pressures passes through a low-pass the time constant of which is set by means of this parameter.

The unit of the parameter is ms.

P-0-2874.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0,0 / 6500,0	Default value:	0,0

5.13.235 P-0-2874.0.4, Output of Q calculation

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter also shows the current "input value" for the calculation of the inverse flow characteristic curve.

P-0-2874.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.13.236 P-0-2874.0.5, Delta p of pressure feedback value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The parameter indicates the current "delta p" (differential pressure) of the flow calculation.

Case 1: Pressure controller not active

The current differential pressure is the basis for the flow calculation and is calculated from the measured system pressure (P side) as well as from the pressure on the A side (in case of positive Q command) and/or the pressure on the B side (in case of negative Q command).

Case 2: Pressure controller active

To a positive control signal of the pressure controller the same applies as to case 1. If, however, the pressure controller supplies a negative control signal, the differential pressure is calculated from the tank pressure (measured at the T port or entered in [S-0-0814](#)) and the pressure on the A side (in case of positive Q command) and/or the pressure on the B side (in case of negative Q command).

P-0-2874.0.5 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV

Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 S-0-0808
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.237 P-0-2874.0.6, Q calculation factor of characteristic curve, A-side

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3465				

Function For the customer, this parameter offers the possibility to subsequently influence the flow adjustment on the A side. This parameter can be used to change the "gradient" of the flow characteristic curve. Reasonable adjustment values lie within the range from +0.5 to +2.0!

This does not influence the factory flow adjustment values.

Use P-0-2874.0.7 is used to influence the offset on the A side.

P-0-2874.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,0010 / 1000,0000 Default value: 1,0000

5.13.238 P-0-2874.0.7, Q calculation offset characteristic curve, A-side

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3466				

Function For the customer, this parameter offers the possibility to subsequently influence the flow adjustment on the A side. This parameter can be used to change the "offset" of the flow characteristic curve. Reasonable adjustment values lie within the range from -0.5 to +0.5!

This does not influence the factory flow adjustment values.

Use P-0-2874.0.6 is used to influence the gradient on the A side.

P-0-2874.0.7 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: -100,0000 / 100,0000 Default value: 0,0000

5.13.239 P-0-2874.0.8, Q calculation factor of characteristic curve, B-side

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3467				

Function For the customer, this parameter offers the possibility to subsequently influence the flow adjustment on the B side. This parameter can be used to change the "gradient" of the flow characteristic curve. Reasonable adjustment values lie within the range from +0.5 to +2.0!

This does not influence the factory flow adjustment values.

Use P-0-2874.0.9 is used to influence the offset on the B side.

P-0-2874.0.8 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,0010 / 1000,0000			Default value: 1,0000	

5.13.240 P-0-2874.0.9, Q calculation offset characteristic curve, B-side

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific			
	Alias idn:	P-0-3468			

Function For the customer, this parameter offers the possibility to subsequently influence the flow adjustment on the B side. This parameter can be used to change the "offset" of the flow characteristic curve. Reasonable adjustment values lie within the range from -0.5 to +0.5!

This does not influence the factory flow adjustment values.

Use P-0-2874.0.8 is used to influence the gradient on the B side.

P-0-2874.0.9 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -100,0000 / 100,0000			Default value: 0,0000	

5.13.241 P-0-2875.0.1, Nominal flow

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«-»	«HDC»	«HDS»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDM»
	Device parameter:	axis-specific			
	Alias idn:	P-0-3471			

Function The parameter is used to enter the nominal flow referred to the nominal pressure (P-0-2875.0.2).

P-0-2875.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	S-0-0845 / S-0-0845	100,000
HDC:	S-0-0845 / S-0-0845	100,000
HDE:	S-0-0845 / S-0-0845	100,000
HDP:	S-0-0845 / S-0-0845	100,000
HDM:	S-0-0845 / S-0-0845	100,000
HDS:	--- / ---	0,000

5.13.242 P-0-2875.0.2, Nominal pressure delta p

Allocation	Contained in 16VRS:	«HDS»			
	Contained in 17VRS:	«HDB»			
	Contained in 18VRS:	«-»	«HDC»	«HDS»	
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDM»
	Device parameter:	axis-specific			
	Property name:	ActualValue.NominalPressure			
	Alias idn:	P-0-3472			

Function This parameter displays the nominal pressure.

If the pressure drop across the edge of a valve (P-A or A-T) corresponds to the nominal pressure, the nominal flow can flow with a 100 % valve opening (P-0-2875.0.1).

P-0-2875.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	S-0-0806 / S-0-0806	3500,0
HDC:	S-0-0806 / S-0-0806	3500,0
HDE:	S-0-0806 / S-0-0806	3500,0
HDP:	S-0-0806 / S-0-0806	3500,0
HDM:	S-0-0806 / S-0-0806	3500,0
HDS:	--- / ---	5,0

5.13.243 P-0-2875.0.3, Maximum flow

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	
Alias idn:	P-0-3473	

Function The possible maximum flow is stored in this parameter. The value results from the performance data of the valve and electronics and is stored as default value in the valve.

P-0-2875.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	l/min	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,001 / 4294967,295	s. Text
HDC:	0,001 / 4294967,295	8000,000
HDE:	0,001 / 4294967,295	s. Text
HDP:	0,001 / 4294967,295	s. Text
HDM:	0,001 / 4294967,295	8000,000
HDS:	--- / ---	---

5.13.244 P-0-2875.0.4, Maximum pressure

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	axis-specific	
Alias idn:	P-0-3474	

Function The permissible maximum pressure for the valve is stored as default value in this parameter.

P-0-2875.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	bar	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	0,001 / 4294967,295	s. Text
HDC:	0,001 / 4294967,295	315,000
HDE:	0,001 / 4294967,295	s. Text
HDP:	0,001 / 4294967,295	s. Text
HDM:	0,001 / 4294967,295	315,000
HDS:	--- / ---	---

5.13.245 P-0-2875.0.5, Nominal flow

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «-» «-»
	Contained in 20VRS:	«HDB» «-» «HDE» «HDP» «-» «-»
Device parameter:	axis-specific	
Alias idn:	P-0-3715	

Function The parameter serves to display the max. nominal flow referred to the nominal pressure "P-0-2875.0.6, Nominal pressure delta p".

P-0-2875.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 / S-0-0847
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.246 P-0-2875.0.6, Nominal pressure delta p

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»
	Device parameter:	axis-specific				

Function This parameter displays the nominal pressure.
If the pressure drop across an edge of the valve (P-A or A-T) corresponds to the nominal pressure, the nominal flow can flow with a 100 % valve opening (P-0-2875.0.5).

P-0-2875.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.247 P-0-2876, Output control variable adjustment

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In this parameter, the output of the actuating variable adjustment is displayed. Normally, this value corresponds to ((P-0-2914)).

The output of the actuating variable adjustment is only not taken over into ((P-0-2914)) if the simulation is active, i.e. if the simulation encoder functions as position encoder; there the valve standstill value will be output instead.

P-0-2876 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.248 P-0-2877, Input of output adjustment p/Q

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«-»	«-»
	Device parameter:	axis-specific				

Function This parameter contains the output of alternating control "P-0-2858" converted to the set flow scaling.

The parameter is available only with active functional package p/Q.

Use The output of alternating control "P-0-2858" is fed to controlled system adjustment and is available in the set velocity scaling. However, with active

functional package p/Q, the controlled system adjustment expects values in the set flow scaling. For this reason, a corresponding conversion is carried out, the result of which can be seen in this parameter.

P-0-2877 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.249 P-0-2880.0.1, Valve monitoring control word**Allocation**

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	ActualValue.ValveControlWord					
Alias idn:	P-0-3475					

Function

Valve monitoring is commanded with the help of "valve monitoring". By setting or resetting associated bits, various functions can be activated or deactivated.

Structure

Bit	Designation/function	Comment
0	Valve monitoring	1 means active
1	Pilot pressure monitoring	1 means active Relevant only for pilot operated valves For IAC/IFB - Multi-Ethernet valves only
2	Extended valve monitoring (combination with pilot pressure monitoring)	1 means active Relevant only for pilot operated valves For IAC/IFB - Multi-Ethernet valves only
3-15	Reserved	

Tab. 5-105: Structure

P-0-2880.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.13.250 P-0-2880.0.3, Valve monitoring filter time**Allocation**

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	ActualValue.ValveDeviationFilterTime					
Alias idn:	P-0-3477					

Function

The filter time provides for filtration of changes in the actual valve value. This is necessary if there is e.g. a valve step as the latter must be corrected first. In this case, the valve dynamics are compensated. If the actual value is noisy, the signal can be improved by means of this filter.

Use

The larger the value, the more strongly signal peaks are smoothened.

P-0-2880.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 4,0	

5.13.251 P-0-2880.0.4, Valve monitoring threshold

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ActualValue.ValveDeviationMaxAllowed				
Alias idn:		P-0-3478				

Function If the actual valve value monitoring is activated, the difference between the (filtered) actual valve value and the valve command value is monitored. If the difference is larger than the value in this parameter, the warning E8271 is output

P-0-2880.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: -100,000 / 100,000		Default value: 10,000	

5.13.252 P-0-2880.0.5, Valve monitoring maximum valve error

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ActualValue.ValveDeviationMaxValue				
Alias idn:		P-0-3479				

Function If the actual valve value monitoring is activated, the difference between the (filtered) actual valve value and the valve command value is monitored. The largest measured difference is stored in this parameter.

Use This parameter can be set to zero and supports you in the setting of the valve monitoring threshold.

P-0-2880.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: -100,000 / 100,000		Default value: ---	

5.13.253 P-0-2880.0.6, Valve monitoring delay

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ActualValue.ValveMonitoringDelayTime				
Alias idn:		P-0-3785				

Function While actual valve value monitoring is activated, this parameter indicates the minimum time during which the difference between the (filtered) spool feedback value and the valve command value has to exceed the threshold "P-0-2880.0.4", before an error or a warning is triggered.

Use The delay is to ensure that false messages, e.g. due to valve command value step-changes, are avoided.

P-0-2880.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: 0	

5.13.254 P-0-2880.0.7, Pilot pressure monitoring, spring pressure

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»
	Hardware	Pilot Pressure				
	Device parameter:	axis-specific				

Function This parameter shows the spring pressure. The spring pressure is the force of the return spring of the main spool referred to area A. It counteract the pilot pressure.

In conjunction with certain designs of the valve, this value is used for calculating the minimum pilot pressure. In the case of IFB/IAC valves this value is provided by the hardware data and cannot be changed.

P-0-2880.0.7 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.13.255 P-0-2880.0.8, Pilot pressure monitoring, area ratio

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»
	Hardware	Pilot Pressure				
	Device parameter:	axis-specific				

Function In this parameter, the area ratio of the pilot control circuit area to area A.

In conjunction with certain designs of the valve, this value is used for calculating the minimum pilot pressure. In the case of IFB/IAC valves this value is provided by the hardware data and cannot be changed.

P-0-2880.0.8 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.13.256 P-0-2880.0.9, Pilot pressure monitoring, minimum pilot pressure

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»
	Hardware	Pilot Pressure				
	Device parameter:	axis-specific				

Function This parameter lists the pilot pressure that is required as a minimum to ensure correct functioning of the pilot operated valve.

Depending on the design of the valve this value is either calculated in dependence on the system pressure or it is a constant value.

P-0-2880.0.9 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV

Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 S-0-0808	/
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:	min./max.: --- / ---			Default value: ---		

5.13.257 P-0-2880.0.10, Pilot pressure monitoring, delay time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»
Hardware	Pilot Pressure					
Device parameter:	axis-specific					

Function With pilot pressure monitoring activated, this parameter specifies the minimum time during which the current pilot pressure has to be below the threshold of parameter "P-0-2880.0.9" before an error or a warning is triggered.

Use The delay time is to ensure that incorrect messages, e.g. due to pressure fluctuations, are avoided.

P-0-2880.0.10 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.13.258 P-0-2885.0.1, Control section temperature

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	device-specific					
Alias idn:	P-0-3571					

Function The control section temperature refers to the temperature within the electronic housing.

Use It is used to display information for users and for monitoring by a higher-level control. The device itself does not react to an increased temperature.

P-0-2885.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0208	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.259 P-0-2885.0.2, Temperature monitoring of control section

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	device-specific					

Function The device stores the time, within which it is operated within determined temperature ranges. The temperature limits of the first three elements are defined in the production and are device-specific. As soon as the current temperature "P-0-2885.0.1" is within one of these ranges, counting is started.

As of HDx-20VRS:

In addition to the first three entries, further eleven entries are utilized for a temperature profile. From this, it can be read, within which temperature ranges the device was operated.

Structure Up to HDx-19VRS

Element	Meaning
0	Temperature below 0 °C
1	Time above warning temperature
2	Time within the critical temperature range

Tab. 5-106: Meaning of elements

As of HDx-20VRS

Element	Meaning
0	Temperature below 0 °C
1	Time above warning temperature
2	Time within critical temperature range
3	Time within temperature range from 0 °C to 9.9 °C
4	Time within temperature range from 10 °C to 19.9 °C
5	Time within temperature range from 20 °C to 29.9 °C
6	Time within temperature range from 30 °C to 39.9 °C
7	Time within temperature range from 40 °C to 49.9 °C
8	Time within temperature range from 50 °C to 59.9 °C
9	Time within temperature range from 60 °C to 69.9 °C
10	Time within temperature range from 70 °C to 79.9 °C
11	Time within temperature range from 80 °C to 89.9 °C
12	Time within temperature range from 90 °C to 99.9 °C
13	Time within temperature range from 100 °C to 109.9 °C

Tab. 5-107: Meaning of elements

P-0-2885.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	RETAIN_GER-AET	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.260 P-0-2885.0.3, Supply voltage, actual value

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB» «HDC»					«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM»					«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3572					

Function Display parameter for supply voltage.

P-0-2885.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.261 P-0-2885.0.4, Sensor supply, actual value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function Display parameter for voltage supply at connector XG20, depending on the device and activated position sensing:

Integrated axis controller

- Position sensor supply 13.5 V

HMC

- SSI absolute value encoder (24 V, pin a15)
- EnDat 2.2 (5 V, pin a14)
- Incremental encoder (TTL) (5 V, Pin a14)

P-0-2885.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.262 P-0-2885.0.5, Sensor supply, analog, actual value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»		«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					

Function Display parameter for analog sensor supply voltage (ANA) at connector XG20, pin a1.

P-0-2885.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.263 P-0-2885.0.6, Load current, actual value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»		«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					

Function Display parameter for the load current, which is drawn via the encoder supply at connection XG20.

P-0-2885.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	mA	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.13.264 P-0-2885.0.7, Sensor supply, extension card, actual value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«HDC»		«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Hardware Device parameter:	HMC:Extended device-specific					

Function Display parameter for the sensor voltage supply at connector XG21, depending on the activated position acquisition:

- SSI absolute value encoder (24 V, pin a15)
- EnDat 2.2 (5 V, pin a14)
- Incremental encoder (TTL) (5 V, pin a14)

P-0-2885.0.7 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.13.265 P-0-2885.0.8, Sensor supply, analog, extension card, actual value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
Hardware	HMC:Extended					
Device parameter:	device-specific					

Function Display parameter for the analog sensor supply voltage (ANA) at connector XG21, pin a1.

P-0-2885.0.8 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.13.266 P-0-2885.0.9, Load current extension card, actual value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
Hardware	HMC:Extended					
Device parameter:	device-specific					

Function Display parameter for the load current, which is drawn via the encoder supply at connection XG21.

P-0-2885.0.9 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	mA	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.13.267 P-0-2885.0.10, Cycle time deviation

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:	device-specific					

Function The current bus interval is acquired by measuring the SYNC signal and compared with the given time. The parameter provides useful values only during cyclic bus communication; otherwise, it feeds back "0".

P-0-2885.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.13.268 P-0-2885.0.11, Supply voltage, actual value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Display parameter for the internal supply voltage of -13.5 V

P-0-2885.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.13.269 P-0-2885.0.12, Oil temperature

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Alias idn: [P-0-3862](#)

Function This parameter is used to indicate the oil temperature. The oil temperature is not determined independently, but can be set by the control. The oil temperature is then used for internal functions (e.g. condition monitoring). The oil temperature is merely an additional indication and is not required for standard operation.

P-0-2885.0.12 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0208	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.13.270 P-0-2887, C90xx Condition Monitoring command parameter

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function "C90xx, Condition monitoring command parameters" can be used to start various condition monitoring functions in dependence on parameter "P-0-2888, Condition monitoring control word".

See also Functional Description "Chapter Condition monitoring".

Use The following condition monitoring functions can be started:

- Determining of the current condition of the system
- Setting of the reference point for condition monitoring of the pump



Determining of the current condition of the system: This function should be called at regular intervals (e.g. weekly) in order to determine the current condition of the system.

Setting the reference point for condition monitoring of the pump: This function is used to set the reference point for condition monitoring at the end of commissioning of the system. When this function is called the next time, the previous reference point is overwritten.

⚠ WARNING

Uncontrolled machine movements due to internal command values while the condition monitoring function is being executed

While the command function is being called up, the control switches to internal command values for the controller. The command values preset by the machine control are not influenced by the command. However, they are not used while the command is running. Therefore, before starting the command, bring the system to a state, which is safe for the condition monitoring function.

P-0-2887 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.271 P-0-2888, Condition monitoring control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "P-0-2888, Condition monitoring control word" can be used to select, which condition monitoring function is to be started with command "C9000, Execute Condition Monitoring command".

See also Functional Description "Condition monitoring".

Structure

Number	Description / selection of condition monitoring function
1	Determining of the current condition of the system
10	Setting of the reference point for condition monitoring of the pump

P-0-2888 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.13.272 P-0-2891, Condition monitoring status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter displays the various status messages of the condition monitoring function.

Structure

Bit	Designation/function	Comment
0-2	001: System status GREEN 010: System status YELLOW 100: System status RED	Bits 0-2 are updated after successful completion of command "C9000 Condition monitoring, determination of current condition of the system".

Tab. 5-108: P-0-2891, Condition monitoring status word

P-0-2891 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0x0	

5.14 P-0-2900 - P-0-2999

5.14.1 P-0-2900.x.1, Analog input, assignment, control word

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware	Analog-In x axis-specific					
	Device parameter:	ActualValue.[#SI#AnalogInput]ControlWord					
Property name:		P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486					
Alias idn:							

Function Every instance of this parameter stands for one of the assignments.

The parameter is used for allocating the analog inputs to the respective assignment, for selecting, at which clocking cycle the assignment is calculated, and for selecting the measuring range.

For the default setting of derivatives HDB and HDC it is valid that the assignment is deactivated (bit 3-0 = 0 0 0 0, assignment is not used).

Structure The parameter has the following structure:

Bit	Designation/function	Comment
3-0	Channel number	The assignment of analog inputs to device connections can be found in the device documentation. With HDS, it is used only for system pressure or tank pressure.
	0 0 0 0: Assignment is not used	
	0 0 0 1: Analog input 1	
	0 0 1 0: Analog input 2	
	0 0 1 1: Analog input 3	
	0 1 0 0: Analog input 4	
	0 1 0 1: Analog input 5	
	0 1 1 0: Analog input 6	
	0 1 1 1: Analog input 7	
	1 0 0 0: Analog input 8	
4	Reserved	
7-5	Clock cycle, at which the assignment is calculated	Not with HDS
	0 0 0: Valve controller clock cycle	
	0 0 1: Velocity controller clock cycle	
	0 1 0: Position controller clock cycle	

11-8	Determinations for the measuring range of analog inputs 0 0 0 0: Voltage 0 - 10 V 0 0 0 1: Voltage ± 10 V 0 0 1 0: Voltage 1.0 - 10 V (wire break monitoring active) 0 0 1 1: Voltage 0.5 - 5 V (wire break monitoring active) 0 1 0 0: Voltage 0.1 - 10 V (wire break monitoring active) 0 1 1 1: User-defined voltage range (wire break monitoring depending on range) 1 0 0 0: Current 0 - 20 mA 1 0 0 1: Current 4 - 20 mA (wire break monitoring active) 1 1 1 1: User-defined current range (wire break monitoring depending on range)	Not with HDS
15-12	Reserved	

Tab. 5-109: P-0-2900.0.1, Structure

Use Additional eight parameters belong to each of the assignments:

- "P-0-2900.0.2"
- "P-0-2900.0.3"
- "P-0-2900.0.4"
- "P-0-2900.0.5"
- "P-0-2900.0.6"
- "P-0-2900.0.7"
- "P-0-2900.0.8"
- "P-0-2900.0.9"

For HDS, the assignment "analog inputs" / signals cannot be changed. In MLC-H, the I/Os and the controllers are assigned using the axis wizard. For HDS the following assignment is valid:

- "Analog input 1" (corresponds to parameters P-0-2900.0.x) stands for pressure A.
- "Analog input 2" (corresponds to parameters P-0-2900.1.x) stands for pressure B.
- "Analog input 3" (corresponds to parameters P-0-2900.2.x) stands for force.
- "Analog input 4" (corresponds to parameters P-0-2900.3.x) stands for system pressure.
- "Analog input 5" (corresponds to parameters P-0-2900.4.x) stands for tank pressure.
- "Analog input 6" (corresponds to parameters P-0-2900.5.x) stands for actual valve value.

P-0-2900.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.14.2 P-0-2900.x.2, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Hardware	Analog-In x	
Device parameter:	axis-specific	
Property name:	ActualValue.AssignAnalogIn[#SI]	
Alias idn:	P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493	

Function Every instance of this parameter stands for one of the assignments.

In this parameter, the IDN of that parameter is entered to which a value is to be written, which corresponds to the voltage at the respective analog input. The analog input is assigned in "P-0-2900.x.1".

Only such IDNs can be entered in "P-0-2900.x.2" that are contained in "P-0-0212, Analog input, list of assignable parameters".

Use Additional eight parameters belong to each of the assignments:

- "P-0-2900.0.1"
- "P-0-2900.0.3"
- "P-0-2900.0.4"
- "P-0-2900.0.5"
- "P-0-2900.0.6"
- "P-0-2900.0.7"
- "P-0-2900.0.8"
- "P-0-2900.0.9"

For HDS, the assignment "analog inputs" / signals cannot be changed. In MLC-H, the I/Os and the controllers are assigned using the axis wizard. For HDS the following assignment is valid:

- "Analog input 1" (corresponds to parameters P-0-2900.0.x) stands for pressure A. P-0-2900.0.2 is firmly set to S-0-0803.
- "Analog input 2" (corresponds to parameters P-0-2900.1.x) stands for pressure B. P-0-2900.1.2 is firmly set to S-0-0804.
- "Analog input 3" (corresponds to parameters P-0-2900.2.x) stands for force. P-0-2900.2.2 is firmly set to P-0-2937.0.3.
- "Analog input 4" (corresponds to parameters P-0-2900.3.x) stands for system pressure. P-0-2900.3.2 is firmly set to S-0-0813.
- "Analog input 5" (corresponds to parameters P-0-2900.4.x) stands for tank pressure. P-0-2900.4.2 is firmly set to S-0-0814.
- "Analog input 6" (corresponds to parameters P-0-2900.5.x) stands for actual valve value. P-0-2900.5.2 is firmly set to S-0-0862.

P-0-2900.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.14.3 P-0-2900.x.3, Analog input, assignment, nominal value

Allocation	Contained in 16VRS:	«HDS»
	Contained in 17VRS:	«HDB»

Contained in 18VRS:	«HDB»	«HDC»				«HDS»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Hardware	Analog-In x					
Device parameter:	axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]Nominal					
Alias idn:	P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500					

Function Every instance of this parameter stands for one of the assignments.

This parameter is used for scaling the analog input for the individual assignment. The nominal value is always the value, which is generated at the upper signal limit of the measuring range (without consideration of offset).

The unit, the decimal places and the data type are determined by the parameter assigned by "P-0-2900.x.2, Analog input, assignment, target parameter".

Use Additional eight parameters belong to each of the assignments:

- "P-0-2900.0.1"
- "P-0-2900.0.2"
- "P-0-2900.0.4"
- "P-0-2900.0.5"
- "P-0-2900.0.6"
- "P-0-2900.0.7"
- "P-0-2900.0.8"
- "P-0-2900.0.9"

For HDS, the assignment "analog inputs" / signals cannot be changed. In MLC-H, the I/Os and the controllers are assigned using the axis wizard. For HDS the following assignment is valid:

- "Analog input 1" (corresponds to parameters P-0-2900.0.x) stands for pressure A.
- "Analog input 2" (corresponds to parameters P-0-2900.1.x) stands for pressure B.
- "Analog input 3" (corresponds to parameters P-0-2900.2.x) stands for force.
- "Analog input 4" (corresponds to parameters P-0-2900.3.x) stands for system pressure.
- "Analog input 5" (corresponds to parameters P-0-2900.4.x) stands for tank pressure.
- "Analog input 6" (corresponds to parameters P-0-2900.5.x) stands for actual valve value.

P-0-2900.0.3 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,0	

5.14.4 P-0-2900.x.4, Analog input, assignment, offset

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Analog-In x					
Device parameter:	axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]Offset					
Alias idn:	P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507					

- Function** Every instance of this parameter stands for one of the assignments.
- In this parameter the offset is set for the individual assignment. The offset corresponds to the value that the assignment parameter has with a signal value of 0. (If "0" is not included in the selected measuring range, the offset refers to the lower limit of the signal range).
- The unit, the decimal places and the data type are determined by the parameter assigned by "P-0-2900.x.2, Analog input, assignment, target parameter".
- Use** Additional eight parameters belong to each of the assignments:
- "P-0-2900.0.1"
 - "P-0-2900.0.2"
 - "P-0-2900.0.3"
 - "P-0-2900.0.5"
 - "P-0-2900.0.6"
 - "P-0-2900.0.7"
 - "P-0-2900.0.8"
 - "P-0-2900.0.9"
- For HDS, the assignment "analog inputs" / signals cannot be changed. In MLC-H, the I/Os and the controllers are assigned using the axis wizard. For HDS the following assignment is valid:
- "Analog input 1" (corresponds to parameters P-0-2900.0.x) stands for pressure A.
 - "Analog input 2" (corresponds to parameters P-0-2900.1.x) stands for pressure B.
 - "Analog input 3" (corresponds to parameters P-0-2900.2.x) stands for force.
 - "Analog input 4" (corresponds to parameters P-0-2900.3.x) stands for system pressure.
 - "Analog input 5" (corresponds to parameters P-0-2900.4.x) stands for tank pressure.
 - "Analog input 6" (corresponds to parameters P-0-2900.5.x) stands for actual valve value.

P-0-2900.0.4 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: 0,0	

5.14.5 P-0-2900.x.5, Analog input, assignment, filter time

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Analog-In x					
Device parameter:	axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]FilterTime					
Alias idn:	P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514					

- Function** Every instance of this parameter stands for one of the assignments.
- To improve the signal quality of the analog input, a filter can be activated and set via this parameter.
- Use** Additional eight parameters belong to each of the assignments

- "P-0-2900.x.1"
- "P-0-2900.x.2"
- "P-0-2900.x.3"
- "P-0-2900.x.4"
- "P-0-2900.x.6"
- "P-0-2900.x.7"
- "P-0-2900.x.8"
- "P-0-2900.x.9"

For HDS, the assignment "analog inputs" / signals cannot be changed. In MLC-H, the I/Os and the controllers are assigned using the axis wizard. For HDS the following assignment is valid:

- "Analog input 1" (corresponds to parameters P-0-2900.0.x) stands for pressure A.
- "Analog input 2" (corresponds to parameters P-0-2900.1.x) stands for pressure B.
- "Analog input 3" (corresponds to parameters P-0-2900.2.x) stands for force.
- "Analog input 4" (corresponds to parameters P-0-2900.3.x) stands for system pressure.
- "Analog input 5" (corresponds to parameters P-0-2900.4.x) stands for tank pressure.
- "Analog input 6" (corresponds to parameters P-0-2900.5.x) stands for actual valve value.

P-0-2900.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,000 / 65,535			Default value: 0,000	

5.14.6 P-0-2900.x.6, Analog input, assignment, status word

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Analog-In x					
Device parameter:	axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]Status					
Alias idn:	P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521					

Function Structure Reflects the status of the analog input selected in the assignment.

Bit	Designation/function	Comment
1-0	Assignment signals wire break	
	0 0: No message	
	0 1: Assignment signals warning	
	1 0: Assignment signals error	
15-2	Reserved	

Tab. 5-110: Structure

Use Additional eight parameters belong to each of the assignments:

- "P-0-2900.0.1"
- "P-0-2900.0.2"

- "P-0-2900.0.3"
- "P-0-2900.0.4"
- "P-0-2900.0.5"
- "P-0-2900.0.7"
- "P-0-2900.0.8"
- "P-0-2900.0.9"

For HDS, the assignment "analog inputs" / signals cannot be changed. In MLC-H, the I/Os and the controllers are assigned using the axis wizard. For HDS the following assignment is valid:

- "Analog input 1" (corresponds to parameters P-0-2900.0.x) stands for pressure A.
- "Analog input 2" (corresponds to parameters P-0-2900.1.x) stands for pressure B.
- "Analog input 3" (corresponds to parameters P-0-2900.2.x) stands for force.
- "Analog input 4" (corresponds to parameters P-0-2900.3.x) stands for system pressure.
- "Analog input 5" (corresponds to parameters P-0-2900.4.x) stands for tank pressure.
- "Analog input 6" (corresponds to parameters P-0-2900.5.x) stands for actual valve value.

P-0-2900.0.6 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.7 P-0-2900.x.7, Analog input, assignment, extended control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
Hardware	Analog-In x	
Device parameter:	axis-specific	
Property name:	ActualValue.[#SI#AnalogInput]ExtControlWord	
Alias idn:	P-0-3526, P-0-3527, P-0-3528, P-0-3529, P-0-3530, P-0-3700	

Function Every instance of this parameter stands for one of the assignments.

This parameter is used:

- For activating wire break monitoring (**as of firmware version 20**)
- For selecting the type of reaction to wire break

Structure

Up to firmware version 19		
Bit	Designation/function	Comment
14-0	Not used	
15	Definition of the diagnostic message type in case of wire break if wire break detection is active: 0: Signal wire break as warning 1: Signal wire break as error	

As of firmware version 20		
Bit	Designation/function	Comment
13-0	Not used	
15-14	Control of wire break detection 00: Signal wire break as warning 10: Signal wire break as error 01: No monitoring 11: Reserved	The behavior described in the above table is also valid for derivative HDS as of firmware version 20.

Use Additional eight parameters belong to each of the assignments

- "P-0-2900.0.1"
- "P-0-2900.0.2"
- "P-0-2900.0.3"
- "P-0-2900.0.4"
- "P-0-2900.0.5"
- "P-0-2900.0.6"
- "P-0-2900.0.8"
- "P-0-2900.0.9"

P-0-2900.0.7 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0x0
HDC:	--- / ---	0x0
HDE:	--- / ---	0x0
HDP:	--- / ---	0x0
HDM:	--- / ---	0x0
HDS:	--- / ---	0x8000

5.14.8 P-0-2900.x.8, Analog input, assignment, signal range lower limit

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware Device parameter:	Analog-In x axis-specific
Alias idn:	P-0-3560, P-0-3561, P-0-3562, P-0-3563, P-0-3564	

Function Every instance of this parameter stands for one of the assignments.

This parameter contains the lower limit of the selected measuring range. If a user-defined measuring range is selected, this parameter can be written; otherwise, it is used for display purposes only.

The lower limit must not be greater than or equal to the upper limit.

Use Additional eight parameters belong to each of the assignments:

- "P-0-2900.x.1"
- "P-0-2900.x.2"
- "P-0-2900.x.3"
- "P-0-2900.x.4"
- "P-0-2900.x.5"
- "P-0-2900.x.6"

- "P-0-2900.x.7"
- "P-0-2900.x.9"

P-0-2900.0.8 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text Default value: 0,000

5.14.9 P-0-2900.x.9, Analog input, assignment, signal range upper limit

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Analog-In x	
Device parameter:	axis-specific	
Alias idn:	P-0-3565, P-0-3566, P-0-3567, P-0-3568, P-0-3569	

Function Every instance of this parameter stands for one of the assignments.

This parameter contains the upper limit of the selected measuring range. If a user-defined measuring range is selected, this parameter can be written; otherwise, it is used for display purposes only.

The upper limit must not be less than or equal to the lower limit.

Use Additional eight parameters belong to each of the assignments:

- "P-0-2900.x.1"
- "P-0-2900.x.2"
- "P-0-2900.x.3"
- "P-0-2900.x.4"
- "P-0-2900.x.5"
- "P-0-2900.x.6"
- "P-0-2900.x.7"
- "P-0-2900.x.8"

P-0-2900.0.9 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text Default value: 10,000

5.14.10 P-0-2901.0.1, Analog input, adjustment control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function Parameter for controlling the automatic adjustment of the assignment for the analog inputs.

Structure

Bit	Designation/function	Comment
3-0	Number of the assignment to be adjusted corresponds to the structure index of P-0-2900.x.1	
7-4	Reserved	
8	Adjustment target 0 : Adjustment signal value at 0 V 1 : Adjustment maximum value for adjustment (P-0-2901.0.3)	

Tab. 5-111: Structure

Use By means of:

- [P-0-2901.0.2](#) Analog encoder input, assignment, adjustment command C2700
- [P-0-2901.0.3](#) Analog encoder input, assignment, maximum value for adjustment

a zero point and gain adjustment for the relevant analog channel assignment selected ([P-0-2901.0.1](#) Bit 0-3) can be carried out.

[P-0-2901.0.1](#) - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.14.11 [P-0-2901.0.2](#), Analog input, assignment, adjustment command C2700

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Analog-In x					
Device parameter:	device-specific					

Function

Command for the automatic adjustment of the assignments for the analog inputs.

Use Using the command "C2700", the values for:

- [P-0-2900.x.3](#) Analog encoder input, assignment, evaluation [1/10V]
 - [P-0-2900.x.4](#) Analog encoder input, assignment, signal value at 0 Volt
- are determined and stored automatically.

In this connection, "x" corresponds to the assignment selected in [P-0-2901.0.1](#) bit 0-3.

[P-0-2901.0.2](#) - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.14.12 [P-0-2901.0.3](#), Analog input, assignment, maximum value for adjustment

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»

	Hardware	Analog-In x		
	Device parameter:	device-specific		
Function	This parameter provides a defined command value for the value determination of			
	• P-0-2900.x.3 Analog encoder input, assignment, evaluation [1/10V] and/or			
Use	In this connection, "x" corresponds to the assignment selected in P-0-2901.0.1 bit 0-3.			
P-0-2901.0.3 - Attributes	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	PM->OM
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	4Byte
			Format:	DEC_MV
			Decim. pl.:	0
			Set-depend.:	--
	HDx:	min./max.: --- / ---		Default value: 0

5.14.13 P-0-2902, Line length A

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «HDS» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: SystemData.PipeLengthA					
Function	In this parameter, the length of the line between valve (or pump) and A-side of the cylinder is indicated.					
	 This value is required only for internal calculations. At present, the parameter has no direct effect on the axis control.					
Use	The line length and line diameter can be used to calculate the line volume. This is required to determine, for example, value suggestions for parameterizing the controller.					
P-0-2902 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---		Default value: 0,00		

5.14.14 P-0-2903, Line length B

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «HDS» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: SystemData.PipeLengthB					
Function	In this parameter, the length of the line between valve (or pump) and B-side of the cylinder is indicated.					
	 This value is required only for internal calculations. At present, the parameter has no direct effect on the axis control.					
Use	The line length and line diameter can be used to calculate the line volume. This is required to determine, for example, value suggestions for parameterizing the controller.					
P-0-2903 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,00	

5.14.15 P-0-2904, Line diameter A

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	SystemData.PipeDiameterA				
Function	In this parameter, the length of the line between valve (or pump) and A-side of the cylinder is indicated.					
		This value is required only for internal calculations. At present, the parameter has no direct effect on the axis control.				
Use	The line length and line diameter can be used to calculate the line volume. This is required to determine, for example, value suggestions for parameterizing the controller.					
P-0-2904 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,00	

5.14.16 P-0-2905, Line diameter B

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	SystemData.PipeDiameterB				
Function	In this parameter, the length of the line between valve (or pump) and B-side of the cylinder is indicated.					
		This value is required only for internal calculations. At present, the parameter has no direct effect on the axis control.				
Use	The line length and line diameter can be used to calculate the line volume. This is required to determine, for example, suggested values for parameterizing the controller.					
P-0-2905 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,00	

5.14.17 P-0-2906, System pressure 2

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»			«HDS»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.ActSystemPressure2					
Function	This parameter is used, if a cylinder side is pressurized to a constant pressure. The constant pressure applied can be entered via this parameter.						

Use The unit of the parameter depends on the settings in parameter “S-0-0806, Pressure data scaling type”. This parameter is used for calculating suggested values for the controller parameters, for example.

P-0-2906 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0,0	

5.14.18 P-0-2910.0.1, Analog encoder, control word

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific				

Function Structure

This parameter is used for configuring the analog encoder.

Bit	Designation/function	Comment
0-3	Channel number: 0 0 0 0: Not used 0 0 0 1: Analog input 1 0 0 1 0: Analog input 2 0 0 1 1: Analog input 3 0 1 0 0: Analog input 4 0 1 0 1: Analog input 5 0 1 1 0: Analog input 6 0 1 1 1: Analog input 7 1 0 0 0: Analog input 8	The assignment of analog inputs to device connections can be found in the device documentation.
4	Type of execution: 1: Linear 0: Rotary	
5	Wire break monitoring: 1: Monitoring active 0: Monitoring deactivated	Wire break monitoring is only available, if a signal range was selected, the lower limit of which is greater than 0.
6-15	Reserved	

P-0-2910.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.14.19 P-0-2910.0.2, Analog encoder, lower limit of signal range

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific				

Function The lower limit of the signal range of the analog encoder is configured in these parameters. The valid range of values as well as the unit are determined by the analog input of the device selected in the control word.

Use Example:

Analog encoder with voltage signal, 0...10 V

P-0-2910.x.2 = 0 V

P-0-2910.x.3 = 10 V

P-0-2910.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text **Default value:** 0,000

5.14.20 P-0-2910.0.3, Analog encoder, upper limit of signal range

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The upper limit of the signal range of the analog encoder is configured in these parameters. The valid range of values as well as the unit are determined by the analog input of the device selected in the control word.

Use Example:

Analog encoder with voltage signal, 0...10 V

P-0-2910.x.2 = 0 V

P-0-2910.x.3 = 10 V

P-0-2910.0.3 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text **Default value:** 10,000

5.14.21 P-0-2910.0.4, Analog encoder, lower limit of position range

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The lower limit of the position range, which is represented by the measuring system, is configured in these parameters. The unit depends on the type of execution configured in the control word and on the configured unit of scaling: linear = millimeter [mm] or Inch [in], rotary = angular degree [°].

Use Example:

Analog encoder with voltage signal, 0...10 V = 0...200 mm

P-0-2910.x.4 = 0 mm

P-0-2910.x.5 = 200 mm

P-0-2910.0.4 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** 0,000

5.14.22 P-0-2910.0.5, Analog encoder, upper limit of position range

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function The upper limit of the position range, which is represented by the measuring system, is configured in these parameters. The unit depends on the type of execution configured in the control word and on the configured unit of scaling: linear = millimeter [mm] or Inch [in], rotary = angular degree [°].

Use Example:

Analog encoder with voltage signal, 0...10 V = 0...200 mm

P-0-2910.x.4 = 0 mm

P-0-2910.x.5 = 200 mm

P-0-2910.0.5 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0,000

5.14.23 P-0-2910.0.6, Analog encoder, filter time

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function To improve the signal quality of the analog input, a filter can be activated and set via this parameter.

P-0-2910.0.6 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,000 / 65,535 Default value: 0,000

5.14.24 P-0-2911.x.1, Analog output, assignment, control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware Device parameter:	Analog-Out axis-specific					
	Alias idn:	P-0-3532, P-0-3539, P-0-3546, P-0-3553					

Function Each instance of the parameter stands for an assignment to an analog output.

The following is defined for the assignment via the control word of the assignment:

- Number of the analog output, to which the assignment is made
- Clock cycle, at which the assignment is calculated
- Definition of the bit to be output of a drive parameter, the value of which is represented in binary format (bit string).

See also Functional Description "Analog inputs and outputs"

Structure

Bit	Designation/function	Comment
2-0	Number of the analog output, to which the assignment is to be made 0 0 0: Assignment is not active 0 0 1: Analog output 1 0 1 0: Analog output 2 0 1 1: Analog output 3 1 0 0: Analog output 4 1 0 1: Reserved ... 1 1 1: Reserved	The assignment of analog outputs to device connections can be found in the device documentation.
3	Reserved	
8-4	Definition of the bit to be output of a drive parameter, the value of which is represented in binary format (bit string). 0 0 0 0 0: Bit 0 is output 0 0 0 0 1: Bit 1 is output ... 1 1 1 1 0: Bit 30 is output 1 1 1 1 1: Bit 31 is output	
11-9	Reserved	
12	Clock cycle, at which the assignment is calculated 0: Position controller clock cycle 1: Flow controller clock cycle	
15-13	Reserved	

Tab. 5-112: P-0-2911.x.1, Structure

Use The following further parameters belong to each assignment:

- [P-0-2911.x.2](#)
- [P-0-2911.x.3](#)
- [P-0-2911.x.4](#)
- [P-0-2911.x.5](#)
- [P-0-2911.x.6](#)
- [P-0-2911.x.7](#)

P-0-2911.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.14.25 P-0-2911.x.2, Analog output, assignment, status word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Analog-Out					

Device parameter: axis-specific
Alias idn: P-0-3533, P-0-3540, P-0-3547, P-0-3554

Function Each instance of the parameter stands for an assignment to an analog output.

This parameter shows the status of the assignment.

Structure See also Functional Description "Analog Inputs and Output"

Bit	Designation / Function	Comment
0	An error is present at the analog output, to which the assignment is output. This bit can, at present, only be set with the control cabinet-mounted electronics HMC, because its analog output can signal a collective fault, if one of the following faults is present: Overtemperature, overvoltage or overload 0: No error at analog output 1: Error at analog output	
15-1	Reserved	

Tab. 5-113: P-0-2911.x.2, Structure

Use The following parameters belong additionally to every assignment:

- P-0-2911.x.1
- P-0-2911.x.3
- P-0-2911.x.4
- P-0-2911.x.5
- P-0-2911.x.6
- P-0-2911.x.7

P-0-2911.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: ---	

5.14.26 P-0-2911.x.3, Analog output, assignment, source parameter

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Analog-Out	
Device parameter:	axis-specific	
Alias idn:	P-0-3534, P-0-3541, P-0-3548, P-0-3555	

Function Each instance of the parameter stands for an assignment to an analog output.

In this parameter the IDN of the parameter is entered, the current value of which is to be output to the associated analog output by assignment. The analog output is set in "P-0-2911.x.1". In this parameter only IDNs can be entered that are contained in "P-0-0426, Analog output IDN list of assignable parameters".

See also Functional Description "Analog Inputs and Outputs"

Use The following parameters belong additionally to every assignment:

- [P-0-2911.x.1](#)
- [P-0-2911.x.2](#)
- [P-0-2911.x.4](#)
- [P-0-2911.x.5](#)
- [P-0-2911.x.6](#)
- [P-0-2911.x.7](#)

P-0-2911.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: 0	

5.14.27 P-0-2911.x.4, Analog output, assignment, offset

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Analog-Out					
Device parameter:		axis-specific					
Alias idn:		P-0-3535 , P-0-3542 , P-0-3549 , P-0-3556					

Function Each instance of the parameter stands for an assignment to an analog output.

Via this parameter the offset can be set for the assignment, which is to be added to the current signal value of the drive parameter to be output when it is issued.

See also Functional Description "Analog Inputs and Outputs"

Use The following parameters belong additionally to every assignment:

- [P-0-2911.x.1](#)
- [P-0-2911.x.2](#)
- [P-0-2911.x.3](#)
- [P-0-2911.x.5](#)
- [P-0-2911.x.6](#)
- [P-0-2911.x.7](#)

P-0-2911.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: 0,0	

5.14.28 P-0-2911.x.5, Analog output, assignment, value range

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Analog-Out					
Device parameter:		axis-specific					
Alias idn:		P-0-3536 , P-0-3543 , P-0-3550 , P-0-3557					

Function Each instance of the parameter stands for an assignment to an analog output.

This parameter is used to set for the assignment the value range of the drive parameter, which is to be output to the relevant analog output.

See also Functional Description "Analog Inputs and Outputs"

Use The following parameters belong additionally to every assignment:

- [P-0-2911.x.1](#)
- [P-0-2911.x.2](#)
- [P-0-2911.x.3](#)
- [P-0-2911.x.4](#)
- [P-0-2911.x.6](#)
- [P-0-2911.x.7](#)

P-0-2911.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx: min./max.: --- / --- Default value: 0,1					

5.14.29 P-0-2911.x.6, Analog output, assignment, signal range, lower limit

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Analog-Out
	Device parameter:	axis-specific
	Alias idn:	P-0-3537 , P-0-3544 , P-0-3551 , P-0-3558

Function Each instance of the parameter stands for an assignment to an analog output.

This parameter defines the lower limit of the signal range of the analog output. In conjunction with parameter [P-0-2911.x.7](#) (upper limit) the signal range of the analog output is defined, onto which the signal of the drive parameter is to be mapped. Moreover, this parameter is used to limit the output to the analog output towards lower values, that is, it determines the smallest voltage or the smallest current that can be output. If mapping of the current signal of the drive parameter to be output results in a smaller voltage or smaller current, the output value is limited to the value in parameter [P-0-2911.x.6](#).

The following conditions must be observed when making entries in this parameter:

- [P-0-2911.x.6](#) $\geq$ minimum voltage (e.g. -10 V) / minimum current of the analog output (e.g. 4 mA), to which the assignment is made
- [P-0-2911.x.6](#) $<$ maximum voltage (e.g. 10 V) / maximum current of the analog output (e.g. 20 mA), to which the assignment is made
- [P-0-2911.x.6](#) $<$ [P-0-2911.x.7](#)

See also Functional Description "Analog Inputs and Outputs"

Use The following parameters belong additionally to every assignment:

- [P-0-2911.x.1](#)
- [P-0-2911.x.2](#)
- [P-0-2911.x.3](#)
- [P-0-2911.x.4](#)
- [P-0-2911.x.5](#)
- [P-0-2911.x.7](#)

P-0-2911.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV

Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: s. Text / s. Text			Default value: ---	

5.14.30 P-0-2911.x.7, Analog output, assignment, signal range, upper limit

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware Device parameter:	Analog-Out axis-specific				

Alias idn: [P-0-3538](#), [P-0-3545](#), [P-0-3552](#), [P-0-3559](#)

Function Each instance of the parameter stands for an assignment to an analog output.

This parameter defines the upper limit of the signal range of the analog output. In conjunction with parameter [P-0-2911.x.6](#) (lower limit) the signal range of the analog output is defined, onto which the signal of the drive parameter is to be mapped. Moreover, this parameter is used to limit the output to the analog output towards greater values, that is, it determines the greatest voltage or the greatest current that can be output. If mapping of the current signal of the drive parameter to be output results in a greater voltage or greater current, the output value is limited to the value in parameter [P-0-2911.x.7](#).

The following conditions must be observed when making entries in this parameter:

- [P-0-2911.x.7](#) > minimum voltage (e.g. -10 V) / minimum current of the analog output (e.g. 4 mA), to which the assignment is made
- [P-0-2911.x.7](#) <= maximum voltage (e.g. 10 V) / maximum current of the analog output (e.g. 20 mA), to which the assignment is made
- [P-0-2911.x.7](#) > [P-0-2911.x.6](#)

See also Functional Description "Analog Inputs and Outputs"

Use The following parameters belong additionally to every assignment:

- [P-0-2911.x.1](#)
- [P-0-2911.x.2](#)
- [P-0-2911.x.3](#)
- [P-0-2911.x.4](#)
- [P-0-2911.x.5](#)
- [P-0-2911.x.6](#)

[P-0-2911.0.7](#) - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: s. Text / s. Text			Default value: 10,000	

5.14.31 P-0-2912.0.1, Valve and flow controller settings

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function Parameters for electronic device name plate and hardware settings.

Use For internal use only.

P-0-2912.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.32 P-0-2912.0.3, Advanced settings for valve controller

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function For internal use.

P-0-2912.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.33 P-0-2914, Effective valve command value

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function The current valve command value is displayed in this parameter.

With an active simulation, that is, if the simulation encoder is active as a position encoder, the valve standstill value is applied as a valve command value.

P-0-2914 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: -100,000 / 100,000			Default value: ---	

5.14.34 P-0-2915.0.1, Actual pilot value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Alias idn: [P-0-3727](#)

Function Display parameter for the current actual pilot valve value.

P-0-2915.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.35 P-0-2915.0.3, Actual current value of solenoid A

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Alias idn: [P-0-3573](#)

Function Display parameter for the current actual current value in solenoid A.

P-0-2915.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	mA	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.36 P-0-2915.0.4, Actual current value of solenoid B

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Alias idn:	P-0-3574					

Function Display parameter for the current actual current value in solenoid B.

P-0-2915.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	mA	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.37 P-0-2915.0.5, Output of pilot controller

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function For internal use.

P-0-2915.0.5 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.38 P-0-2915.0.6, Output of main stage controller

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Alias idn:	P-0-3728					

Function Display parameter for the current control variable of the main stage controller.

P-0-2915.0.6 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.39 P-0-2917.0.1, Simulation of control word

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ActualValue.SimuControlWord					

Function The state controller is commanded with the help of the simulation control word. By setting or resetting the relevant bits various functions can be activated or deactivated.

Structure

Bit	Designation/function	Comment
0	Structure of the axis for the simulation 0: Horizontal axis 1: Vertical axis	If weight forces are to be simulated, this parameter has to be set accordingly
1-15	Reserved	

Tab. 5-114: Structure

Use

To activate the simulation, switch the encoder type to simulation.

P-0-2917.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.14.40 P-0-2917.0.3, Natural frequency of axis

Allocation

Contained in 16VRS:	«HDS»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	ActualValue.AxisFrequency					
Alias idn:	P-0-3575					

Function

In this parameter, the natural frequency of the system is to be entered. On the basis of this frequency, it is, for example, possible to simulate the system behavior or to calculate suggested values for the controller parameters.

Use

To activate the simulation, switch the encoder type to simulation.

P-0-2917.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
HDB:	10,0 / 2000,0			80,0	
HDC:	10,0 / 2000,0			80,0	
HDE:	10,0 / 2000,0			80,0	
HDP:	10,0 / 2000,0			80,0	
HDM:	10,0 / 2000,0			80,0	
HDS:	1,0 / 200,0			80,0	

5.14.41 P-0-2917.0.4, Simulation of positive limit stop

Allocation

Contained in 16VRS:	«HDS»					
Contained in 17VRS:	«HDB»					
Contained in 18VRS:	«HDB»	«HDC»				
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific					
Property name:	ActualValue.SimuPosLimitPositive					

Function

The parameter defines the maximum positive travel of the simulated axis.

Use

The positive limit stop of the axis is simulated starting from this position.

If you position beyond the limit, the parameter "S-0-0552, Torque/force feedback value 2" is built up in a linear form from the limit stop up to position "P-0-2917.0.6, Simulation of spring length".

To activate the simulation, switch the encoder type to simulation.

Positioning beyond the position "limit stop positive plus spring length" is not possible.

P-0-2917.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV

Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
HDB:	S-0-0076 / S-0-0076		0,0000		
HDC:	S-0-0076 / S-0-0076		0,0000		
HDE:	S-0-0076 / S-0-0076		0,0000		
HDP:	S-0-0076 / S-0-0076		0,0000		
HDM:	S-0-0076 / S-0-0076		0,0000		
HDS:	--- / ---		1000,0000		

5.14.42 P-0-2917.0.5, Simulation of negative limit stop

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ActualValue.SimuPosLimitNegative					

Function The parameter defines the maximum negative travel of the simulated axis.

Use Starting from this position the negative limit stop of the axis is simulated.
If you position beyond the limit, the parameter "S-0-552, Torque/force feedback value 2" is built up in a linear form from the limit stop up to position "P-0-2917.0.6, Simulation of spring length".

To activate the simulation on, switch the encoder type to simulation.

Positioning beyond the position of limit stop negative minus spring length is not possible.

P-0-2917.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076		Default value: 0,0000		

5.14.43 P-0-2917.0.6, Simulation of spring length

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ActualValue.SimuSpringLength					

Function This parameter specifies the spring length of the simulated axis.

Use The spring length can be used to simulate a so-called soft limit stop.
If you position the simulated axis beyond the limits, the parameter "S-0-0552, Torque/force feedback value 2" is built up in a linear form from the limit stop to the position of limit stop plus spring length.

To activate the simulation on, switch the encoder type to simulation.

P-0-2917.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
HDB:	S-0-0076 / S-0-0076		0,0001		
HDC:	S-0-0076 / S-0-0076		0,0001		
HDE:	S-0-0076 / S-0-0076		0,0001		
HDP:	S-0-0076 / S-0-0076		0,0001		
HDM:	S-0-0076 / S-0-0076		0,0001		
HDS:	--- / ---		1,0000		

5.14.44 P-0-2917.0.7, Moved mass

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
	Device parameter:	axis-specific					
Property name:		ActualValue.Weight					
Alias idn:		P-0-3576					

Function In this parameter, the mass moved by the axis is to be entered. On the basis of this mass, it is possible to simulate the system behavior or to calculate suggested values for the controller parameters, for example.

Use To activate the simulation, switch the encoder type to simulation.

P-0-2917.0.7 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	kg	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0

5.14.45 P-0-2917.0.130, Simulation parameter, compact

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Alias idn:		P-0-3577					

Function Summary of structural elements for the correction values of the position controller (P-0-2917.0.1 to P-0-2917.0.7).

P-0-2917.0.130 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.14.46 P-0-2918.0.1, Hardware control word of analog inputs and outputs

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«-»				
	Contained in 20VRS:	«HDB»	«-»	«-»	«HDP»	«-»	«-»
	Device parameter:	device-specific					
Alias idn:		P-0-3522					

Function Control parameters for current/voltage switching of analog inputs and outputs.

Structure

Bit	Designation / function	
0	Analog input 1 & 2	0: Voltage
	Analog output 1	1: Current
1 to 2	Analog input 3 with digital option	0 0: Voltage 0 1: Current 1 0: Reserved 1 1: Reserved

Bit	Designation / function	
3 to 4	Analog input 4 with digital option	0 0: Voltage 0 1: Current 1 0: Reserved 1 1: Reserved
5 to 6	Analog input 5 with digital option	0 0: Voltage 0 1: Reserved 1 0: Reserved 1 1: Reserved
7 to 8	Analog input 6 with digital option	0 0: Voltage 0 1: Reserved 1 0: Reserved 1 1: Reserved
9 to 10	Reserved	
11 to 12	Analog input 8	0 0: Voltage 0 1: Current 1 0: Reserved 1 1: Reserved
13 to 31	Reserved	

Tab. 5-115: P-0-2918.0.1, Hardware control word of analog inputs and outputs

Use This parameter is used to determine whether the individual inputs and outputs are to work in the current or voltage mode.

Analog inputs with digital option can be configured additionally as digital input.



Analog inputs 1 and 2 as well as analog output 1 do not allow separate switching between current and voltage mode and are therefore always configured together.



The assignment of analog inputs and outputs to device connections can be found in the device documentation.

P-0-2918.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDX: min./max.: --- / --- Default value: 0x0

5.14.47 P-0-2918.0.2, Hardware control word of analog inputs and outputs

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				
	Alias idn:	P-0-3740				

Function Control parameter for the current/voltage selection of the analog inputs and outputs.

Structure

Bit	Designation/function	
0	Analog input 1	0: Voltage 1: Current
1	Analog input 2	0: Voltage 1: Current
2	Analog input 3	0: Voltage 1: Current
3	Analog input 4	0: Voltage 1: Current
4	Analog input 5	0: Voltage 1: Current
5	Analog input 6	0: Voltage 1: Current
6	Analog input 7	0: Voltage 1: Current
7	Analog input 8	0: Voltage 1: Current
8 to 9	Analog output 1	0 0: Voltage 0 1: Current (0 - 20 mA) 1 0: Current (-10 - 10 mA) 1 1: Reserved
10 to 11	Analog output 2	0 0: Voltage 0 1: Current (0- 20 mA) 1 0: Current (-10 - 10 mA) 1 1: Reserved
12 to 13	Analog output 3	0 0: Voltage 0 1: Current (0 - 20 mA) 1 0: Current (-10 - 10 mA) 1 1: Reserved
14 to 15	Analog output 4	0 0: Voltage 0 1: Current (0 - 20 mA) 1 0: Current (-10 - 10 mA) 1 1: Reserved
16 to 31	Reserved	

Tab. 5-116: P-0-2918.0.2, Hardware Control Word of Analog Inputs and Outputs

Use

This parameter is used to define whether the individual analog inputs and outputs are to work in current or voltage mode.



Refer to the device documentation for the assignment of the analog inputs and outputs to the device connections.

P-0-2918.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: 0x0	

5.14.48 P-0-2918.0.3, Sensor supply via digital outputs

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Device parameter:						device-specific

Function This bit parameter is applied, if a digital output is to be used as supply voltage for a sensor (e.g. pressure transducer).

In this case, the digital output that is to be used as supply voltage must always be set, irrespective of the operating state.

This can be ensured by assigning any bit of parameter [P-0-2918.0.3](#) to the digital output, since all bits of this parameter always take the value "1".

P-0-2918.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.14.49 P-0-2918.0.4, Hardware control word of analog inputs and outputs

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Device parameter:						axis-specific
Alias idn:	P-0-3745						

Function Control parameters for current/voltage switching of analog inputs and outputs.

Structure

Bit	Designation/function	
0	Analog input 1	0: Voltage 1: Current
1	Analog input 2	0: Voltage 1: Current
2	Analog input 3	0: Voltage 1: Current
3	Analog input 4	0: Voltage 1: Current
4	Reserved	
5	Reserved	
6	Reserved	
7	Reserved	

Bit	Designation/function	
8 to 9	Analog output 1	0 0: Voltage 0 1: Current (0 - 20 mA) 1 0: Reserved 1 1: Reserved
10 to 11	Reserved	
12 to 13	Reserved	
14 to 15	Reserved	
16 to 31	Reserved	

Tab. 5-117: P-0-2918.0.4, Hardware control word of analog inputs and outputs

Use This parameter determines for the individual inputs and outputs, whether these are to work in the current or voltage mode and in which signal range.



The assignment of analog inputs and outputs to device connections can be found in the device documentation.

P-0-2918.0.4 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0x0

5.14.50 P-0-2919, Inclination angle of axis

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	SystemData.AxisSlopeAngle					

Function This parameter indicates the mechanical angle of the cylinder.

If the cylinder was mounted horizontally, the mechanical angle "0°" must be entered. In the case of a cylinder that is mounted vertically and extends upwards, the mechanical angle "+90°" must be entered. If a vertically mounted cylinder extends downwards, the mechanical angle "-90°" must be entered.



This setting has no influence on the polarity of the individual scalings.

P-0-2919 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	-180,0 / 180,0	0,0
HDC:	-180,0 / 180,0	0,0
HDE:	-180,0 / 180,0	0,0
HDP:	-180,0 / 180,0	0,0
HDM:	-180,0 / 180,0	0,0
HDS:	-18,0 / 18,0	0,0

5.14.51 P-0-2921, Load pressure

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«HDS»			

	Contained in 20VRS: «-» «-» «-» «-» «-» «HDS»					
	Device parameter: axis-specific					
	Property name: SystemData.LoadPressure					
Function	Reserved					
P-0-2921 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.52 P-0-2923, Configuration of system data

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: SystemData.ControlWord					

Function This parameter contains the properties of the hydraulic system.



This value is required only for internal calculations. At present, the parameter has no direct effect on the axis control.

Structure

Bit	Designation/function	Comment
0-2	Valve circuit 000: 4/3 directional high-response valve 001: 3/2 directional high-response valve, with which a constant system pressure is applied to the piston rod side 010: 3/2 directional high-response valve, with which a constant system pressure is applied to the piston side 011-111: Reserved	
3	Valve spool type (area ratio) 0: 1:1 1: 2:1	Please refer to the data sheet of the valve
4	Dead volume 0: Off 1: Activated	The dead volume has a significant influence on the system behavior. In order that the dead volume can be calculated, the following parameters have to be entered, too: "P-0-2902, Line length A", "P-0-2903, Line length B", "P-0-2904, Line diameter A" and "P-0-2905, Line diameter B".
5	Line type 0: Tube 1: Hose	See bit 4
6-7	Reserved	

Bit	Designation/function	Comment
8-10	Cylinder type 000: Single rod cylinder 001: Double rod cylinder 010: Cylinder with different areas 011: Plunger 1xx: Reserved	This information is usually provided in hydraulic or mechanical drawings and diagrams.
11	Valve spool monitoring A and B 0: Deactivated Enable acknowledgement is set as soon as A is reliably switched off. 1: Activated Enable acknowledgement is set as soon as A and B are reliably switched off.	Only available with single-solenoid WRPx sleeve valves with 4th spool position (see Functional Description, chapter "Enable acknowledgement"). Valve spool monitoring A and B can only be activated as of firmware release HDx20V18.
12-31	Reserved	

Tab. 5-118: System data configuration

Use

The data are used for various functions, e.g. calculation of suggested values.

P-0-2923 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	s. Text
HDC:	--- / ---	s. Text
HDE:	--- / ---	s. Text
HDP:	--- / ---	s. Text
HDM:	--- / ---	s. Text
HDS:	--- / ---	0x0

5.14.53 P-0-2923.0.1, Configuration of system data 2

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»	«-»			
Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»	«-»
Device parameter:	axis-specific					

Function Structure

This parameter shows the specific properties of the valve.

Bit	Designation/function	Comment
0	Pilot-operated valve 0: The valve is a direct operated valve. 1: The valve is a pilot operated valve.	
1	Separate pilot pressure 0: Pilot pressure corresponds to system pressure. 1: The pilot pressure supply is provided via a separate port.	
2	Dependent on system pressure 0: The minimum pilot pressure is constant. 1: The minimum pilot pressure depends on the current system pressure.	

Tab. 5-119: P-0-2923.0.1,

P-0-2923.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.54 P-0-2925, Natural frequency of valve

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	SystemData.ValveFrequency

Function In this parameter, the natural frequency of the valve is to be entered. It can be found in the data sheet of the valve.

Use On the basis of this frequency, it is possible to calculate suggested values for the controller parameters, for example.

P-0-2925 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 80,0	

5.14.55 P-0-2928.0.1, Valve command value control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	AnalogGenerator.ControlWord

Function With the help of this control parameter the operation mode "direct valve control" can be set.

Structure

Bit	Significance	Comment
0	Activate 4-quadrant ramp 0: Off 1: On	Not with HDS
1	Direct valve command value output 0: Output adjustment is utilized 1: Valve command value is used without any changes	
2-15	Reserved	

Use The 4-quadrant ramp is usually employed, if a single ramp is not sufficient for the application. When this ramp type is activated, all of the four ramps have to be set:

- "P-0-2928.0.4"
- "P-0-2928.0.5"
- "P-0-2928.0.6"
- "P-0-2928.0.7"



Note that a change is also possible with controller enable. This can have corresponding effects on the movements of an axis.

P-0-2928.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx: min./max.: --- / --- Default value: 0x0					

5.14.56 P-0-2928.0.3, Output of valve command value generator

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		AnalogGenerator.CtrlOutputValveSetValue				

Function This is the output of the valve generator after the limitation. This value is only valid in the direct valve control operation mode.

P-0-2928.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx: min./max.: --- / --- Default value: ---					

5.14.57 P-0-2928.0.4, Valve command value ramp time positive, acceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This time refers to 100% valve opening of the valve command value generator.

In case of 4-quadrant ramp function, this gradient is used if the valve command value is positive and a positive change is necessary.

P-0-2928.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx: min./max.: --- / --- Default value: 0,0					

5.14.58 P-0-2928.0.5, Valve command value ramp time positive, deceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This time refers to 100% valve opening of the valve command value generator.

In case of 4-quadrant ramp function, this gradient is used if the valve command value is positive and a negative change is necessary.

P-0-2928.0.5 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx: min./max.: --- / --- Default value: 0,0					

5.14.59 P-0-2928.0.6, Valve command value ramp time negative, acceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				

Contained in 18VRS:	«HDB»	«HDC»				«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function This time refers to 100% valve opening of the valve command value generator.

In case of 4-quadrant ramp function, this gradient is used if the valve command value is negative and a negative change is necessary.

P-0-2928.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0,0

5.14.60 P-0-2928.0.7, Valve command value ramp time negative, deceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This time refers to 100% valve opening of the valve command value generator.

In case of 4-quadrant ramp function, this gradient is used if the valve command value is negative and a positive change is necessary.

P-0-2928.0.7 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0,0

5.14.61 P-0-2928.0.8, Valve command value emergency ramp

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Property name:	ErrorHandling.HaltRamp				
	Alias idn:	P-0-3523				

Function The maximum time that the valve command value requires to provide a command value from 100% to 0% is set with this ramp. This ramp is to be used to prevent an axis from abruptly braking during the error reaction.

Use The command value generator is set slower than the error reaction in many applications. This is why an additional parameter is defined for this.

P-0-2928.0.8 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0,0

5.14.62 P-0-2929.0.1, Flow control word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3701				

Function The control word can be used to make various settings of the flow command value generator. It is possible to utilize a 4-quadrant generator instead of a 1-

quadrant generator (one slope for all quadrants). This allows a separate slope to be defined for each quadrant.

Structure

Bit	Designation/function	Comment
0	Activate 4-quadrant ramp	

Tab. 5-120: Control word for flow command value

P-0-2929.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0x0

5.14.63 P-0-2929.0.2, Flow status word

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«HDB»				
Contained in 18VRS:	«HDB»	«HDC»	«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:	axis-specific				
Alias idn:	P-0-3702				

Function

The parameter contains the volume flow generator status bits which are generated with the controller enable.

Structure

Bit	Designation/function	Comment
0	Flow command value ramp active / not active 0: Flow command value ramp is active 1: Flow command value ramp is NOT active. This means that the effective flow command value equals the "entered command value"	S-0-0855 S-0-0856
15-1	15-1: Reserved	

Tab. 5-121:

P-0-2929.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.14.64 P-0-2929.0.3, Flow ramp time positive, acceleration

Allocation

Contained in 16VRS:	«-»				
Contained in 17VRS:	«HDB»				
Contained in 18VRS:	«HDB»	«HDC»	«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Device parameter:	axis-specific				
Alias idn:	P-0-3703				

Function

In this way, the gradient is defined for the quadrant in case of acceleration with a positive command value.

P-0-2929.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	0,0

5.14.65 P-0-2929.0.4, Flow ramp time positive, deceleration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3704
Function	In this way, the gradient is defined for the quadrant in case of deceleration with a positive command value.						
P-0-2929.0.4 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:			min./max.: --- / ---		Default value: 0,0

5.14.66 P-0-2929.0.5, Flow ramp time negative, acceleration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3705
Function	In this way, the gradient is defined for the quadrant in case of acceleration with a negative command value.						
P-0-2929.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: --- / ---			Default value: 0,0	

5.14.67 P-0-2929.0.6, Flow ramp time negative, deceleration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3706
Function	In this way, the gradient is defined for the quadrant in case of deceleration with a negative command value.						
P-0-2929.0.6 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: --- / ---			Default value: 0,0	

5.14.68 P-0-2930.0.1, Feedforward control setpoint velocity

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						PosGenerator.SetVelActive
Function	Display of the active pilot control command velocity. It is the first derivation of the active position command value.						
P-0-2930.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC MV	

Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.69 P-0-2930.0.2, Feedforward control setpoint acceleration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	OpModeSwitchingLogic.SetAccActive

Function Display of the active pilot control command acceleration. It is the second derivation of the active position command value.

P-0-2930.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	--	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.70 P-0-2930.0.3, Synchronization of velocity ramp

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «HDS»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «HDS»
	Device parameter:	device-specific
	Property name:	OpModeSwitchingLogic.RampTime

Function When the operation mode is changed, P-0-0048, Effective velocity command value, is updated. This may result in a step-change in the velocity command value (e.g. if, for example, alternating control is employed). To prevent this, the synchronizing velocity ramp is used.

Use The ramp is usually adjusted within seconds. To deactivate synchronizing, enter value "0". The ramp refers to P-0-2873.0.1, Valve standard velocity.

P-0-2930.0.3 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 100	

5.14.71 P-0-2935, Swivel angle command value for master/slave function

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter (P-0-2935, Swivel angle command value for master/slave function) provides the swivel angle command value for the slave. In the "pressure controller master/slave" function, the swivel angle command value for the slave corresponds to the actual swivel angle value of the master.



This parameter is evaluated only, if the slave function has been activated via (P-0-2950, Pump controller control word).

See also Functional Description "Pump controller"

P-0-2935 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV

Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -100,000 / 100,000			Default value: ---	

5.14.72 P-0-2936.0.1, Encoder control word extended

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»					«HDS»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.EncExtControlWord					
Function	In conjunction with parameter "S-0-0520, Axis control word", it is determined, which encoder(s) is/are to be used for calculating the actual position value.						
	- Exclusively encoder 1 ("S-0-0520, Axis control word" bits 1, 2 are set to 00/10) - Exclusively encoder 2 ("S-0-0520, Axis control word" bits 1, 2 are set to 01) - Redundancy: Encoder 1 and encoder 2 are read in. Encoder 1 is used by default. In the event of a failure of one encoder, the other encoder is available for calculations. ("S-0-0520, Axis control word" bits 1, 2 are set to 11 and "P-0-2936.0.1, Encoder control word extended" bit 0 is 0) - Sum: The sum of encoder 1 and encoder 2 is used as actual position value ("S-0-0520, Axis control word" bits 1, 2 are set to 11 and "P-0-2936.0.1, Encoder control word extended" bit 0 is 1)						

Structure

Bit	Designation/function	Comment
0	Use of the optional encoder for redundancy purposes with automatic changeover (= 0;) or encoder sum (= 1;)	Valid only, if activated as optional encoder; i.e. parameter S-0-0520 bit 1 is zero.
1-15	Reserved	

Tab. 5-122: Structure

P-0-2936.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.73 P-0-2936.0.2, Encoder status word extended

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«-»				«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»		«-»	«-»	«HDS»
	Device parameter:	axis-specific						
	Property name:	ActualValue.EncExtStatusWord						
Function	In connection with parameter S-0-0521 Position controller status word, this parameter shows which encoder(s) is/are actively used.							

Structure

Bit	Designation/function	Comment
0	Encoders are in redundancy mode and encoder 1 is active	Redundancy is activated (S-0-0520 bit 1 is 0 and P-0-2936.0.1 bit 0 is 0). The "hybrid actual position value" is active (S-0-0521 bit 0 and bit 1 are set to 1).
1	Encoders are in redundancy mode and encoder 2 is active	Redundancy is activated (S-0-0520 bit 1 is 0 and P-0-2936.0.1 bit 0 is 0). The "hybrid actual position value" is active (S-0-0521 bit 0 and bit 1 are set to 1).
2	Encoders are in "Encoder total" mode and both encoders are active	Encoder total is active (S-0-0520 bit 1 is 0 and P-0-2936.0.1 bit 0 is 1). The "hybrid actual position value" is active (S-0-0521 bit 0 and bit 1 are set to 1).

Tab. 5-123: Structure

P-0-2936.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.74 P-0-2936.0.6, Maximum number of cycles of encoder jump suppression

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «HDS»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:	axis-specific
	Property name:	ActualValue.EncJumpMaxCount

Function Here, the maximum number of encoder step suppression (specified in position controller cycles) is set.

If an encoder step is identified, the velocity will be extrapolated for the set number of cycles in case of error. If no valid signal is available after the cycles, an error reaction will be performed.

Use It must be noted that in case of an error, the axis can only perform an error reaction after a time delay.

With the value 0, the suppression is deactivated.

P-0-2936.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / 10			Default value: 0	

5.14.75 P-0-2936.0.7, Actual velocity filter time

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB»
	Device parameter:						axis-specific
Property name:		ActualValue.VelFilterTime					
Function	The actual velocity value is calculated from the actual position value and may be correspondingly noisy. This signal is filtered accordingly. Here, you can set the filter time. The values will be averaged over this time.						
Use	If the time is set to 0, the filter is deactivated.						
P-0-2936.0.7 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: 0,0 / s. Text			Default value: 0,0	

5.14.76 P-0-2936.0.8, Velocity feedback value, not filtered

Allocation	Contained in 16VRS:					«-»		
	Contained in 17VRS:					«-»		
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The value of parameter "P-0-2936.0.8" shows the current velocity of the active encoder without any filters.							
	The filtered velocity feedback value is displayed in parameter "S-0-0535, Active velocity feedback value".							
P-0-2936.0.8 - Attributes								
Function:		Par	Editable:		--	Data length:		4Byte
Memory:		--	Validity ch.:		--	Format:		DEC_MV
Unit:		S-0-0044	Extr. val. ch.:		--	Decim. pl.:		S-0-0045 / S-0-0046
Cycl. tra.:		AT	Comb. check:		--	Set-depend.:		--
HDx:			min./max.: --- / ---			Default value: ---		

5.14.77 P-0-2936.0.9, Actual acceleration filter time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»			«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Property name:		ActualValue.AccFilterTime				
Function	The actual acceleration value is calculated from the actual velocity value and may be correspondingly noisy. This parameter can be used to filter the actual value. The longer the time, the larger is the effect of the filter.					
Use	If the time is set to 0, the filter is deactivated.					
P-0-2936.0.9 - Attributes						
Function:	Par	Editable:	++	Data length:	2Byte	
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1	
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: 0,0 / s. Text			Default value: 4,0	

5.14.78 P-0-2936.0.10, Acceleration feedback value, not filtered

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			

Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
 Device parameter: axis-specific

Function The value of parameter "P-0-2936.0.10" shows the current, unfiltered acceleration of the active encoder.

The filtered acceleration feedback value is displayed in parameter "S-0-0536, Active acceleration feedback value".

P-0-2936.0.10 - Attributes

Function: Par	Editable: --	Data length: 4Byte
Memory: --	Validity ch.: --	Format: DEC_MV
Unit: S-0-0160	Extr. val. ch.: --	Decim. pl.: S-0-0161 / S-0-0162
Cycl. tra.: AT	Comb. check: --	Set-depend.: --

HDx:	min./max.: --- / ---	Default value: ---

5.14.79 P-0-2937.0.1, Force acquisition control word

Allocation Contained in 16VRS: «-»
 Contained in 17VRS: «HDB»
 Contained in 18VRS: «HDB» «HDC» «HDS»
 Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
 Device parameter: axis-specific
 Property name: ActualValue.ForceControlWord

Function Control word for configuring force acquisition
 The type of force acquisition has to be selected in dependence on the encoder configuration.

Structure

Bit	Designation/function	Comment
0, 1	Determination of force 00: Differential pressure A-B 01: Pressure in chamber A 10: Pressure in chamber B 11: Force sensor	With functional package p/Q the force sensor cannot be selected
2	Inversion of actual force value 0: No inversion 1: Inversion activated	Only with force sensor
3 - 14	Reserved	
15	Force acquisition 0: Force acquisition after bit 0, 1 1: No force acquisition	Not with HDS

Tab. 5-124: System data configuration

P-0-2937.0.1 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: --	Format: BIN
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

Input	min./max.	Default value
HDB:	--- / ---	0x0
HDC:	--- / ---	0x0
HDE:	--- / ---	0x8000
HDP:	--- / ---	0x0
HDM:	--- / ---	0x0
HDS:	--- / ---	---

5.14.80 P-0-2937.0.3, Input of force feedback value

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						ActualValue.ForceInput
Function	This parameter is an interim value of the actual force value acquisition. Offset and inversion have already been considered. The force input value is only used if the force acquisition has also been activated using the force acquisition control word (P-0-2937).						
P-0-2937.0.3 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094	
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

5.14.81 P-0-2938.0.1, Underclocking control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«HDS»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ActualValue.UnderClockingControlWord					
Function	The respective underclocking ratio or cycle sequence can be selected using this parameter.						
Structure	Bit	Designation/function		Comment			
	0			Reserved			
	1	1:2 Underclocking		The hydraulic axis is scanned with each second sercos cycle.			
	2	1:4 Underclocking		The hydraulic axis is scanned with each fourth sercos cycle.			
	3			Reserved			
	4	1-cycle sequence		The hydraulic axis is scanned during the first sercos cycle (1:2 or 1:4 underclocking possible).			
	5	2-cycle sequence		The hydraulic axis is scanned during the second sercos cycle (1:2 or 1:4 underclocking possible).			
	6	3-cycle sequence		The hydraulic axis is scanned during the third sercos cycle (1:4 underclocking possible).			
	7	4-cycle sequence		The hydraulic axis is scanned during the fourth sercos cycle (1:4 underclocking possible).			
	15... 8			Reserved			

Tab. 5-125:

Underclocking control word

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.14.82 P-0-2940, Pressure feedback value 1

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
Function	This parameter contains the current actual pressure value of pressure transducer 1.					
Use	The unit for the values of this parameter depends on the scaling that has been set in "S-0-0806, Pressure data scaling type".					
P-0-2940 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.14.83 P-0-2941, Pressure feedback value 2

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»					
	Contained in 20VRS:					«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:		axis-specific									
Function	This parameter contains the current actual pressure value of pressure transducer 2.										
Use	The unit for the value of this parameter depends on the scaling that has been set in "S-0-0806, Pressure data scaling type".										
P-0-2941 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte					
	Memory:	--	Validity ch.:	--	Format:	DEC_MV					
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808					
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--					
	HDx:	min./max.: --- / ---				Default value: ---					

5.14.84 P-0-2943, Pump displacement volume

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «-» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
Function	With parameter "P-0-2943, Pump displacement volume", the displacement volume of the pump is specified in cm³.					
P-0-2943 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	cm³	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	HDB:	0,1 / 6553,5			s. Text	
	HDC:	0,1 / 6553,5			100,0	
	HDE:	0,1 / 6553,5			s. Text	
	HDP:	0,1 / 6553,5			s. Text	
	HDM:	0,1 / 6553,5			100,0	
	HDS:	--- / ---			---	

5.14.85 P-0-2944, Motor nominal speed

Allocation	Contained in 16VRS:				«-»
	Contained in 17VRS:				«-»
	Contained in 18VRS:				«-»

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	Parameter "P-0-2944, Motor nominal speed" indicates the nominal speed of the drive motor in the operation modes "pressure/swivel angle control" or "pressure/flow" (open/closed-loop control).					
P-0-2944 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	1/min	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: 1500	

5.14.86 P-0-2945, Configuration of analog mode

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
Function	On devices with analog master communication or deactivated Multi-Ethernet master communication, this parameter is used for configuring analog operation. See also Functional Description "Analog interface"					
Structure	The individual bits have the following significance:					

Bit	Designation/function	Comment
0	Activation of controller enable 0: Edge-controlled signal 1: State-controlled signal	
1	Automatic setting of controller enable in condition "Ab" 0: Not active 1: Active	"P-0-4028; bit 15" must not be cyclically configured.
2	Activation of controller enable by enable cable 0: Not active 1: Active	HydraulicDrive only! "P-0-4028; bit 15" must not be cyclically configured.

Tab. 5-126: Relevant bits of P-0-2945



WARNING

State-controlled controller enable!

If analog operation is configured for "state-controlled controller enable", the drive automatically switches to drive control after a drive error was cleared, if the configured digital input or the enable cable is set. This can cause a movement of the axis!



WARNING

Automatic run-up

If analog operation is configured for "automatic after run-up", the drive switches to closed-loop control immediately after running up. This can cause a movement of the axis!

Use Activation of controller enable (bit 0)

For activating the controller enable, parameter "P-0-4028; bit 15" has to be configured for a digital input.

- **Edge-controlled:** With a positive edge of the digital input the drive switches to closed-loop control. In the case of an error, the error has to be acknowledged first. Afterwards the drive can only be switched to closed-loop control operation with a new positive edge at the digital input.
- **State-controlled:** State "1" at the digital input switches the drive to closed-loop control, as long as this is not prevented by any error. When an error is acknowledged, the drive automatically switches again to the closed-loop control mode as long as the digital input is still set.

Automatic setting of controller enable (bit 1)

After having run up to the state "Ab" the drive automatically switches to closed-loop control (AF). If an error occurs, the drive enable is reset.

After command "C0500, Reset class 1 diagnostics" was executed for clearing any present error, the drive remains in state "Ab" and requires again an edge (e.g. switching from PM -> OM) to set the controller enable when bit 0 = 0 (edge-controlled) is set. With bit 0 = 1 (state-controlled), the drive activates the controller enable immediately after the error was cleared.

Activation of controller enable by enable cable (bit 2)

With HydraulicDrive it is possible to set the drive enable by means of a special hardware enable cable.

With a positive edge of the enable cable, command "C0500, Reset class 1 diagnostics" is executed first and then the drive enable is activated. If an error occurs, the drive enable is reset.

If, while drive enable is active, the enable cable is reset, the drive signals "F2025, Drive not ready for control".

P-0-2945 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:					
			min./max.: --- / ---	Default value: 0x0	

5.14.87 P-0-2946, Enable signal

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»
	Hardware	Enable signal				
	Device parameter:	axis-specific				

Function The current state of the valve's enable signals is displayed here. A separate signal is generated for each output stage here. The second signal has no meaning for valves with only one output stage.

The enable displays the respective signal detected at the plug. The enable acknowledgement indicates the controller's signal internally read back. It is only used for diagnostic purposes, since it cannot be used internally.

If the valve is ready to connect the output, the output stage is enabled by the controller. This signal interacts with the enable signal and activates the output stage. In case the valve does not activate the output stage, this signal can be used to see why an enable was prevented. The controller only enables the output stage if a valid operating state is reached.

The information indicating whether the valve is in a safe position is generated by the controller and used for the enable acknowledgement. The high enable acknowledgement signal is only generated if an enable is not available (output stage without power) and the actual valve value is in the defined range.

⚠ WARNING

The valve-dependent safety function can only be used when using the switching signals of the device plug X2 or X3.

Structure

Bit	Designation/function	Comment
0	External enable signal for output stage A	High: there was an enable signal Low: there was no enable signal
1	External enable signal for output stage B	High: there was an enable signal Low: there was no enable signal
2	Enable acknowledgement for output stage A	High means the valve is safe Low means the valve is not safe
3	Enable acknowledgement for output stage B	High means the valve is safe Low means the valve is not safe
4	Output stage A enabled by firmware	High: there was an enable signal Low: there was no enable signal
5	Output stage B enabled by firmware	High: there was an enable signal Low: there was no enable signal
6	Valve position of output stage of A is safe	High: The valve position is in the safe range Low: The valve position is in the unsafe range
7	Valve position of output stage of B is safe	High: The valve position is in the safe range Low: The valve position is in the unsafe range

Tab. 5-127: Enable signals

Use

These signals should be read back for safety-relevant applications. The bus, for example, could be used as another channel.

P-0-2946 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.88 P-0-2946.0.1, Valve type

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»		«-»		
Contained in 20VRS:	«HDB»	«-»	«HDE»	«HDP»	«-»	«-»
Device parameter:	axis-specific					

Function The current state of the enable signals of the valve is displayed here. A separate signal is generated for each output stage. For valves with only one output stage the second signal is irrelevant.

The enable shows the signal that was recognized at the connector. The enable acknowledgement shows the internally read back signal of the controller. It is used exclusively for diagnostic purposes, since it is not provided for any other internal use.

When the valve is prepared to cut in power, the controller enables the output stage. This signal is only effective together with the enable signal and activates the output stage. In case that the valve does not activate the output stage, these signals indicate, why the enable was prevented. The controller only enables the output stage, if a valid operating state has been reached.

The information whether the valve is in a safe position is generated by the controller and used for the enable acknowledgement. Only when no enable is present (output stage powered off) and the actual valve value is within the defined range is the enable acknowledgement signal high.

Structure

Bit	Designation/function	Comment
0	Enable signal output stage A	High: Enable was granted Low: No enable granted
1	Enable signal output stage B	High: Enable was granted Low: No enable granted
2	Enable acknowledgement output stage A	High means safe Low means unsafe
3	Enable acknowledgement output stage B	High means safe Low means unsafe
4	Output stage A enabled	High: Enable was granted Low: No enable granted
5	Output stage B enabled	High: Enable was granted Low: No enable granted
6	Valve position output stage A safe	High: Valve position within the safe range Low: Valve position within the unsafe range
7	Valve position output stage B safe	High: Valve position within the safe range Low: Valve position within the unsafe range

Tab. 5-128: Enable signals

Use These signals should be read back for safety-related applications. The bus could be used as further channel, for example.

P-0-2946.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.89 P-0-2947.0.16, Reference pressure for pump controller calibration

Allocation	Contained in 16VRS: «-»				
	Contained in 17VRS: «-»				
	Contained in 18VRS: «-» «-»				
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»				
	Device parameter: axis-specific				
Function	Parameter "P-0-2947.0.16" specifies the reference pressure for: - Calibrating the swivel angle offset, see Functional Description "Swivel angle offset (zero point)" - Leakage calibration, see Functional Description "Leakage calibration" - Leakage compensation, See Functional Description "Leakage compensation"				
P-0-2947.0.16 - Attributes	Function: Par Memory: PARAM_SP Unit: S-0-0806 Cycl. tra.: --	Editable: ++ Validity ch.: PM->OM Extr. val. ch.: + Comb. check: --	Data length: 4Byte Format: DEC_MV Decim. pl.: S-0-0807 / S-0-0808 Set-depend.: --		
	HDx:	min./max.: S-0-0806 / S-0-0806		Default value: 2000,0	

5.14.90 P-0-2948, Selection of swivel angle sensor type

Allocation	Contained in 16VRS:	«-»																							
	Contained in 17VRS:	«-»																							
	Contained in 18VRS:	«-»	«-»			«-»																			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»																		
	Device parameter:	axis-specific																							
Function	Parameter P-0-2948 can be used to select the type of swivel angle sensor. Various pre-defined swivel angle sensors are available as type. Moreover, it is possible to set a freely configurable type.																								
<table> <tr> <th>Type</th><th>Value P-0-2948</th><th>Signal range</th></tr> <tr> <td>VT-SWA or VT-SWA LIN</td><td>1</td><td>2 V to 8 V</td></tr> <tr> <td>SWS</td><td>2</td><td>0.5 V to 4.5 V</td></tr> <tr> <td>AWAX voltage</td><td>3</td><td>2 V to 10 V</td></tr> <tr> <td>AWAX current</td><td>4</td><td>4 mA to 20 mA</td></tr> <tr> <td>Manual</td><td>0</td><td>Adjustable</td></tr> </table>								Type	Value P-0-2948	Signal range	VT-SWA or VT-SWA LIN	1	2 V to 8 V	SWS	2	0.5 V to 4.5 V	AWAX voltage	3	2 V to 10 V	AWAX current	4	4 mA to 20 mA	Manual	0	Adjustable
Type	Value P-0-2948	Signal range																							
VT-SWA or VT-SWA LIN	1	2 V to 8 V																							
SWS	2	0.5 V to 4.5 V																							
AWAX voltage	3	2 V to 10 V																							
AWAX current	4	4 mA to 20 mA																							
Manual	0	Adjustable																							
<i>Tab. 5-129: Selection options for swivel angle sensors, P-0-2948</i> See also Functional Description "Pump control".																									
P-0-2948 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte																			
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV																			
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0																			
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--																			
	HDx:	min./max.: --- / ---				Default value: s. Text																			

5.14.91 P-0-2949.0.1, Swivel angle sensor configuration

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»		«-»			«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3707					
Function	Parameter "P-0-2949.0.1, Swivel angle sensor configuration" can be used to make various configurations for the swivel angle sensor.						

Structure

Bit	Designation/function	Comment
0	Output wire rupture as error or warning 0: Warning 1: Error	

Tab. 5-130: P-0-2949.0.1, Swivel angle sensor configuration

P-0-2949.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.14.92 P-0-2949.0.2, Swivel angle sensor, lower working point

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-3708

Function This parameter specifies the lower working point of the active swivel angle sensor.



The default value for parameter "P-0-2949.0.2, Swivel angle sensor, lower working point" depends on the selection of the swivel angle sensor type (P-0-2948).

P-0-2949.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 2,000	

5.14.93 P-0-2949.0.3, Swivel angle sensor, upper working point

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-3709

Function This parameter specifies the upper working point of the active swivel angle sensor.



The default value for parameter "P-0-2949.0.3, Swivel angle sensor, upper working point" depends on the selection of the swivel angle sensor type (P-0-2948).

P-0-2949.0.3 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 8,000	

5.14.94 P-0-2949.0.4, Swivel angle sensor wire rupture, lower threshold

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					
Alias idn:	P-0-3710					

Function This parameter specifies the lower threshold for wire break detection of the active swivel angle sensor.



The default value depends on the selection of the swivel angle sensor type (P-0-2948).

P-0-2949.0.4 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0,200

5.14.95 P-0-2949.0.5, Swivel angle sensor wire rupture, upper threshold

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3711				

Function This parameter specifies the upper threshold for wire break detection of the active swivel angle sensor.



The default value depends on the selection of the swivel angle sensor type (P-0-2948).

P-0-2949.0.5 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 9,800

5.14.96 P-0-2949.0.6, Swivel angle sensor wire rupture, timeout

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				
	Alias idn:	P-0-3712				

Function This parameter specifies the time for detecting a wire break of the swivel angle sensor.

If the voltage value for the actual swivel angle value is beyond the thresholds for wire break monitoring for a certain period of time (> than specified in "P-0-2949.0.6, Swivel angle sensor wire rupture, timeout"), the message "wire rupture of swivel angle sensor" is output.

P-0-2949.0.6 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 50

5.14.97 P-0-2949.0.7, Analog input of swivel angle feedback value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		

	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3713					
Function	This parameter can be used to read and display the input current in mA or the input voltage in V (depending on the selected swivel angle sensor type) currently applied to the analog input for sensing the actual swivel angle value.						
P-0-2949.0.7 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.14.98 P-0-2949.0.8, Filter time of swivel angle feedback value

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB»
	Device parameter:						axis-specific
	Alias idn:						P-0-3714
Function	The current actual swivel angle value can be filtered through an additional low-pass filter. This parameter specifies the filter time constant for the low-pass filter.						
P-0-2949.0.8 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: 0 / 100			Default value: 0	

5.14.99 P-0-2950, Pump controller control word

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function With the help of parameter [P-0-2950](#), various functions of the pressure controller can be influenced.

Structure

Bit	Designation/function	Comment
0	Activation of leakage compensation 0: Leakage compensation is not active 1: Leakage compensation is active	For leakage compensation, see also " P-0-2958.0.6 , Correction value: leakage compensation offset value" and " P-0-2980 , Leakage compensation calibration value"
1	Activation of torque limitation 0: Torque limitation is not activated 1: Torque limitation is activated	For torque limitation, see also " P-0-2952 , Torque limitation of pump, relative"
2	Activation of feedback of actual pressure value derivative 0: Feedback is not activated 1: Feedback is activated	See also " P-0-2973 , Filter time for feedback of actual pressure value derivative"

Bit	Designation/function	Comment
3	Extended pressure controller with inflected characteristic curve 0: Standard pressure controller without inflected characteristic curve is active 1: Extended pressure controller with inflected characteristic curve is active	For the extended pressure controller, see also "P-0-2967, Pressure controller control deviation threshold positive" and "P-0-2968, Pressure controller control deviation threshold negative"
4	Activation of conversion of internal swivel angle command value to current drive speed 0: Command value refers to current drive speed; conversion has been deactivated 1: Command value refers to maximum drive speed; conversion is active	
5	Pressure controller master/slave function 0: Controller configured as master 1: Controller configured as slave	For the pressure controller master/slave function, see also "P-0-2935, Swivel angle command value for master/slave function" and Functional Description "Pump control"
7/6	Deactivate swivel angle controller/pressure controller 11: Changeover logic active (standard) 01: Pressure control active, swivel angle control is deactivated 10: Swivel angle control active, pressure control is deactivated	
8	Changeover of active pressure feedback value 0: Pressure feedback value 1 active 1: Pressure feedback value 2 active	For the changeover of the activated pressure feedback value, see also "P-0-2940, Pressure feedback value 1", and "P-0-2941, Pressure feedback value 2"
9	Activation of minimum swivel angle limitation 0: Minimum swivel angle limitation deactivated 1: Minimum swivel angle limitation activated	
10	Manual integrator limitation 0: No manual integrator limitation. The integrator is limited to the maximum flow of the pump. 1: Manual limitation activated. Parameters P-0-2818 and P-0-2838 are used as limitation.	
11	Activate/deactivate pressure controller adaptation in parallel structure 0: Adaption not active. The adaptation factors are set to 1.0. 1: Adaption active. The adaptation factors are calculated via the speed characteristic curve.	
12-13	Reserved	

Bit	Designation/function	Comment
14	Activation of valve command value feedforward control 0: Feedforward control deactivated 1: Feedforward control activated	
15	Controller structure changeover 0: Parallel structure activated 1: Cascade structure activated	

Tab. 5-131: "P-0-2950, Pump controller control word"

See also Functional Description "Pump control".

P-0-2950 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0xC1	

5.14.100 P-0-2951, Pump controller status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Structure

This parameter represents the current status of the pump controller.

Bit	Designation/function	Comment
0	Status of closed-loop pressure control 0: Closed-loop pressure control is inactive 1: Closed-loop pressure control is active	
1	Status of closed-loop swivel angle control 0: Closed-loop swivel angle control is inactive 1: Closed-loop swivel angle control is active	
2	Status of torque limitation 0: Torque limitation is inactive 1: Torque limitation is active	
3	Status of leakage compensation 0: Leakage compensation is inactive 1: Leakage compensation is active	
4	Status of feedback of actual pressure value derivative 0: Feedback is inactive 1: Feedback is active	
5-7	Reserved	
8	Effective actual pressure value in the open circuit 0: Pressure feedback value 1 is active 1: Pressure feedback value 2 is active	

Bit	Designation/function	Comment
9	Effective pressure feedback value in the closed circuit 0: Pressure feedback value B is active 1: Pressure feedback value A is active	
10-13	Reserved	
14	Valve command value feedforward 0: Feedforward is not active 1: Feedforward is active	
15	Reserved	

Tab. 5-132: P-0-2951, Pump controller status word

P-0-2951 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.101 P-0-2952, Torque limitation of pump, relative

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function To protect the drive motor against overloading, the maximum torque of the SY(H)DFED pump can be limited. The settings refer to the maximum torque of the pump. When the current torque exceeds the permissible maximum torque, the swivel angle command value is reduced.



The settings for "P-0-2952, Torque limitation of pump, relative" correspond to the values for the power limitation of SY(H)DFEE systems with fixed speed.

P-0-2952 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,0 / 125,0			Default value: 100,0	

5.14.102 P-0-2953, Output of swivel angle controller

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter displays the output of the swivel angle controller.

P-0-2953 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.103 P-0-2954, Pump changeover logic output pressure controller, parallel

Allocation	Contained in 16VRS:					«-»				
	Contained in 17VRS:					«-»				
	Contained in 18VRS:		«HDB»	«HDC»		«-»				
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»		
	Device parameter:		axis-specific							
Function	The parameter indicates the pressure control output of the pressure controller in the parallel structure.									
	Apart from the "internal swivel angle command value", " P-0-2956 ", it represents the second "input value" of the changeover logic for the parallel structure.									
P-0-2954 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte				
	Memory:	--	Validity ch.:	--	Format:	DEC_MV				
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3				
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--				
	HDx:		min./max.: --- / ---			Default value: ---				

5.14.104 P-0-2955, Output of pump changeover logic, parallel structure

Allocation	Contained in 16VRS:					«-»		
	Contained in 17VRS:					«-»		
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	This parameter displays the output of the pump changeover logic							
P-0-2955 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

5.14.105 P-0-2956, Pump changeover logic swivel angle, parallel

Allocation	Contained in 16VRS:					«-»		
	Contained in 17VRS:					«-»		
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The parameter shows the "internal" swivel angle command value.							
	Apart from the "pressure control variable", "P-0-2954", it represents the second "input value" of the changeover logic for the parallel structure.							
P-0-2956 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

5.14.106 P-0-2957.0.1, Pressure normalization

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«HDB»	«HDC»				«-»
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3599					
Function	This parameter displays the internal pressure value for the normalization.							
P-0-2957.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM SP	Validity ch.:	PM->OM	Format:	DEC MV		

Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 S-0-0808	/
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
Input	min./max.		Default value			
HDB:	S-0-0806 / S-0-0806		s. Text			
HDC:	S-0-0806 / S-0-0806		31500,0			
HDE:	S-0-0806 / S-0-0806		31500,0			
HDP:	S-0-0806 / S-0-0806		s. Text			
HDM:	S-0-0806 / S-0-0806		31500,0			
HDS:	--- / ---		---			

5.14.107 P-0-2957.0.2, Output pressure controller P-gain

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «-» «-» «-» «-» «-» «-» Device parameter: axis-specific					
Function	This parameter displays the proportional component in the pump pressure controller.					
P-0-2957.0.2 - Attributes	Function: Par	Editable: --	Data length: 4Byte	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: %	Extr. val. ch.: --	Decim. pl.: 3	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx:	min./max.: --- / ---	Default value: ---			

5.14.108 P-0-2957.0.3, Correction value: pressure controller D-component

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «-» «-» «-» «-» «-» «-» Device parameter: axis-specific					
Function	This parameter displays the D-component in the pump pressure controller.					
P-0-2957.0.3 - Attributes	Function: Par	Editable: --	Data length: 4Byte	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: %	Extr. val. ch.: --	Decim. pl.: 3	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx:	min./max.: --- / ---	Default value: ---			

5.14.109 P-0-2957.0.4, Correction value: swivel angle feedback

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific					
Function	This parameter displays the component of the swivel angle feedback in the pump pressure controller.					
P-0-2957.0.4 - Attributes	Function: Par	Editable: --	Data length: 4Byte	Memory: --	Validity ch.: --	Format: DEC_MV
	Unit: %	Extr. val. ch.: --	Decim. pl.: 3	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx:	min./max.: --- / ---	Default value: ---			

5.14.110 P-0-2957.0.6, Derivation pressure feedback value

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific					

Function	This parameter displays the derivation of the actual pressure value.					
P-0-2957.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.111 P-0-2957.0.7, Pressure feedback value, delayed

P-0-2957.0.7 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific					
	Function	This parameter displays the actual pressure value delayed by the gate time.					
	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.14.112 P-0-2957.0.8, Output of pump pressure controller, parallel structure

P-0-2957.0.8 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «-» «-» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific					
	Function	This parameter serves to display the pressure controller output in the parallel structure of the pump controller.					
	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.14.113 P-0-2958.0.1, Derivation swivel angle feedback value

P-0-2958.0.1 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific					
	Function	This parameter displays the derivation of the swivel angle actual value.					
	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.14.114 P-0-2958.0.3, Correction value: torque limitation

	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Device parameter: axis-specific					
	Function	This parameter displays the component of torque limitation.					
	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

P-0-2958.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.115 P-0-2958.0.4, Swivel angle command value after leakage compensation

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter displays the swivel angle command value after leakage compensation.

P-0-2958.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.116 P-0-2958.0.5, Feedback of actual pressure value derivative

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter shows the proportion of the feedback of the actual pressure value derivative in swivel angle command value processing.

P-0-2958.0.5 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.117 P-0-2958.0.6, Correction value: leakage compensation offset value

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter displays the leakage compensation offset value.

P-0-2958.0.6 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.14.118 P-0-2958.0.7, Output of swivel angle command value processing

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter displays the output of swivel angle command value processing.

P-0-2958.0.7 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.119 P-0-2958.0.8, Torque limitation, field weakening operation

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	In variable-speed operation, this parameter specifies the permissible torque in field-weakening operation of the motor.						

P-0-2958.0.8 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0,0 / 125,0			Default value: ---	

5.14.120 P-0-2958.0.9, Effective torque limitation

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	This parameter specifies the current effective value for torque limitation of the pump controller.						

P-0-2958.0.9 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.121 P-0-2959.0.1, Correction value: output adjustment after feedforward

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter displays the controller output of the minimum value generator with feedforward of the feedforward control

P-0-2959.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.122 P-0-2959.0.2, Correction value: valve correction

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function This parameter displays the component of the valve correction during the control variable adjustment. Parameter "P-0-2959.0.2, Correction value:

valve correction" is calculated from the support values determined in the calibration function.

P-0-2959.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.14.123 P-0-2960, Gate time derivation actual pressure value 1 or A

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "P-0-2960, Gate time derivation actual pressure value 1" can be used to indicate the gate time for calculating the derivative of the actual pressure value. The active actual pressure value, which is delayed by the gate time, is displayed in parameter "P-0-2957.0.7, Pressure feedback value, delayed". The gate time can be used to filter out a certain frequency (e.g. pressure pulsation of the pump) and its multiples from the derivative of the pressure feedback value.



The maximum value of this parameter results from the maximum length of the list of actual pressure values, which are internally used for the calculation.



With the default value of 22.5 ms for the gate time, pump systems can be operated at a fixed input speed of 1500 rpm or 1800 rpm. The default value is the least common multiple of the period of a pressure pulsation at the various input speeds. Further notes on the filtration of the actual pressure value with the gate time can be found in the Functional Description in chapter Actual value acquisition

Use This parameter is used for calculating the derivative of actual pressure value 1 or A.

P-0-2960 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2

HDx:	min./max.: 0,5 / s. Text	Default value: 22,5

5.14.124 P-0-2961, Filter time of swivel angle feedback value derivative

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The derivation of the swivel angle actual value can be filtered by another low-pass filter. The filter time constant for this low-pass filter can be specified with this parameter.

P-0-2961 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0,0 / 100,0	Default value: 5,0

5.14.125 P-0-2963, Pressure controller P-gain 1 positive

Allocation	Contained in 16VRS:					«-»		
	Contained in 17VRS:					«-»		
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The proportional gain of the pressure controller for a positive control deviation is specified with parameter "P-0-2963, Pressure controller P-gain 1 positive". This proportional gain is active for the standard pressure controller as well as the advanced pressure controller.							
P-0-2963 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV		
	Unit:	1/s	Extr. val. ch.:	+	Decim. pl.:	2		
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:		min./max.: 0.00 / 100.00			Default value: 2.80		

5.14.126 P-0-2964, Pressure controller P-gain 1 negative

Allocation	Contained in 16VRS:					«-»		
	Contained in 17VRS:					«-»		
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The proportional gain of the pressure controller for a negative control deviation is specified with parameter "P-0-2964, Pressure controller P-gain 1 negative". This proportional gain is active for the standard pressure controller as well as for the extended pressure controller.							
P-0-2964 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV		
	Unit:	1/s	Extr. val. ch.:	+	Decim. pl.:	2		
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:		min./max.: 0.00 / 100.00			Default value: 2.80		

5.14.127 P-0-2965, Pressure controller P-gain 2 positive

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
Function	The second proportional gain of the pressure controller for a positive control deviation is specified with parameter "P-0-2965, Pressure controller P-gain 2 positive". This proportional gain is only used in the advanced pressure controller.							
P-0-2965 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV		
	Unit:	1/s	Extr. val. ch.:	+	Decim. pl.:	2		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:		min./max.: 0.00 / 100.00			Default value: 2.80		

5.14.128 P-0-2966, Pressure controller P-gain 2 negative

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	The second proportional gain of the pressure controller for a negative control deviation is specified with parameter "P-0-2966, Pressure controller P-gain 2						

negative". This proportional gain is only used in the advanced pressure controller.

P-0-2966 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	1/s	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: 0,00 / 100,00 Default value: 2,80

5.14.129 P-0-2967, Pressure controller control deviation threshold positive

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The changeover threshold with a positive control deviation for the pressure controller P-gain 1 and P-gain 2 is specified with parameter "P-0-2967, Pressure controller control deviation threshold positive". This parameter is only used in the advanced pressure controller.

P-0-2967 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: S-0-0806 / S-0-0806 Default value: 2500,0

5.14.130 P-0-2968, Pressure controller control deviation threshold negative

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The changeover threshold with a negative control deviation for the pressure controller P-gain 1 and P-gain 2 is specified with parameter "P-0-2968, Pressure controller control deviation threshold negative". This parameter is only used in the advanced pressure controller.

P-0-2968 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: S-0-0806 / S-0-0806 Default value: ---

5.14.131 P-0-2969, Pressure controller pos. Factor for D-component, parallel

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The D-component of the pressure controller is determined for a positive pressure change with parameter "P-0-2969, Pressure controller time constant D-component positive".

P-0-2969 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- Default value: 0,190

5.14.132 P-0-2970, Pressure controller neg. factor for D-component, parallel

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	The D-component of the pressure controller is determined for a negative pressure change with parameter "P-0-2970, Pressure controller time constant D-component negative".					
P-0-2970 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:		min./max.: --- / ---			Default value: 0,230	

5.14.133 P-0-2971, Pressure controller time constant swivel angle feedback

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	A feedback of derivation of the actual swivel angle value is used for the pump pressure controller. The time constant for evaluating this feedback is specified with parameter "P-0-2971, Pressure controller time constant swivel angle feedback".					
P-0-2971 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
HDx:		min./max.: --- / ---			Default value: 0,070	

5.14.134 P-0-2972, Swivel angle command value of controller

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	«HDB»		«HDC»				«-»	
	«HDB»		«HDC»		«HDE»	«HDP»	«HDM»	«-»
	Device parameter:						axis-specific	
Function	This parameter serves to display the given swivel angle command value for the pump controller.							
 The actually effective swivel angle command value for the input of the swivel angle controller is shown in parameter "P-0-2992, Swivel angle command value, internal".								
P-0-2972 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
HDx:		min./max.: --- / ---			Default value: ---			

5.14.135 P-0-2973, Filter time for feedback of actual pressure value derivative

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					

Function For the feedback in the swivel angle command value calculation, the derivative of the actual pressure value can be smoothed with an additional filter. The filter time for this filter is specified by parameter "P-0-2973, Filter time for feedback of actual pressure value derivative".

P-0-2973 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV
Unit: ms	Extr. val. ch.: +	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2
HDx: min./max.: 0 / 1000		Default value: 5

5.14.136 P-0-2974, Time constant for feedback of act. pressure value derivative

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function For calculating the swivel angle command value, a feedback of the derivative of the actual pressure value can be activated. Parameter "P-0-2974, Time constant for feedback of act. pressure value derivative" specifies the factor for this feedback.

P-0-2974 - Attributes

Function: Par	Editable: ++	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_OV
Unit: s	Extr. val. ch.: --	Decim. pl.: 3
Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2
HDx: min./max.: --- / ---		Default value: 0,000

5.14.137 P-0-2975, Pressure command value (without controller enable)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function A fixed pressure command value can be specified, which is effective without a controller enable, with parameter "P-0-2975, Pressure command value (without controller enable)".

Use This fixed pressure command value is always used if the drive switches into the no controller enable state or if no controller enable is set after initialization.

P-0-2975 - Attributes

Function: Par	Editable: ++	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_MV
Unit: S-0-0806	Extr. val. ch.: +	Decim. pl.: S-0-0807 / S-0-0808
Cycl. tra.: --	Comb. check: --	Set-depend.: --
HDx: min./max.: S-0-0806 / S-0-0806		Default value: 1500,0

5.14.138 P-0-2976, Swivel angle command value (without controller enable)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function A fixed swivel angle command value can be specified, which is effective without a controller enable, with parameter "P-0-2976, Swivel angle command value (without controller enable)".

Use This fixed swivel angle command value is always used if the drive switches into the no controller enable state or if no controller enable is set after initialization.

P-0-2976 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: -100,000 / 100,000 **Default value:** 10,000

5.14.139 P-0-2977, Swivel angle controller P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The proportional gain of the swivel angle controller is specified using this parameter.

P-0-2977 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: 0,00 / 100,00 **Default value:** 8,00

5.14.140 P-0-2978, Swivel angle controller time constant D-component

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function The D-component of the swivel angle controller is provided using this parameter.

P-0-2978 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx: min./max.: --- / --- **Default value:** 0,000

5.14.141 P-0-2979, Gate time derivation actual pressure value 2 or B

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function Parameter "P-0-2979, Gate time derivation actual pressure value 2 or B" can be used to indicate the gate time for calculating the derivative of the actual pressure value. The active actual pressure value, which is delayed by the gate time, is displayed in parameter "P-0-2957.0.7, Pressure feedback value, delayed". The gate time can be used to filter out a certain frequency (e.g. pressure pulsation of the pump) and its multiples from the derivation of the pressure feedback value.



The maximum value of this parameter results from the maximum length of the list of actual pressure values, which are internally used for the calculation.



With the default value of 22.5 ms for the gate time, pump systems can be operated at a fixed drive speed of 1500 rpm or 1800 rpm. The default value is the least common multiple of the period of a pressure pulsation at the various input speeds. Further notes on the filtration of the actual pressure value with the gate time can be found in the Functional Description in chapter Actual value acquisition.

Use This parameter is used for calculating the derivative of "actual pressure feedback 2 or B".

P-0-2979 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx:	min./max.: 0,5 / s. Text	Default value: 22,5

5.14.142 P-0-2980, Leakage compensation calibration value

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function This parameter can be used to specify the leakage value of the pump system. Based on this leakage value, a corrective value can be calculated for the swivel angle command value.



This parameter can either be entered manually or determined by automatic calibration.

P-0-2980 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0,00 / s. Text	Default value: ---

5.14.143 P-0-2981, Valve correction pressure stage

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function Parameter "P-0-2981, Valve correction pressure stage" contains a list of the four pressure ratings for valve calibration.

P-0-2981 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: S-0-0806 / S-0-0806	Default value: ---

5.14.144 P-0-2982, Valve correction pressure offset

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			

	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	Parameter "P-0-2982, Valve correction pressure offset" contains a list of the four valve offset values for the corrective valve characteristic curve.					
	 This parameter can either be entered manually or determined by automatic calibration.					
P-0-2982 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: -100,000 / 100,000			Default value: ---	

5.14.145 P-0-2983, Output adjustment, feedforward valve

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	Parameter "P-0-2983, Control variable adjustment, feedforward valve". can be used top specify a feedforward control value that is subsequently scaled with a factor and added to the valve command value.					
P-0-2983 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.14.146 P-0-2984, Control variable adjustment, scaling feedforward positive

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	A factor for scaling the positive feedforward control value can be specified using parameter "P-0-2984, Control variable adjustment, scaling feedforward positive".					
P-0-2984 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: 0,00 / 100,00			Default value: 0,00	

5.14.147 P-0-2985, Control variable adjustment, scaling feedforward negative

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «HDB» «HDC» «-»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter: axis-specific					
Function	A factor for scaling of the negative feedforward control value can be specified using parameter "P-0-2985, Control variable adjustment, scaling feedforward negative".					
P-0-2985 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: 0,00 / 100,00			Default value: 0,00	

5.14.148 P-0-2986, Output adjustment of pump command value

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
Function	Contained in 18VRS:	«-»	«-»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
P-0-2986 - Attributes	Device parameter:	axis-specific			
	The current command value for the output adjustment of the pump is indicated.				
P-0-2986 - Attributes	Function:	Par	Editable:	--	Data length: 4Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
P-0-2986 - Attributes	Unit:	%	Extr. val. ch.:	--	Decim. pl.: 3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:
P-0-2986 - Attributes	HDx:	min./max.: --- / ---			Default value: ---

5.14.149 P-0-2987, Maximum drive speed

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
Function	Contained in 18VRS:	«-»	«-»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
P-0-2987 - Attributes	Device parameter:	axis-specific			
	In this parameter, the maximum drive speed is given. While the n-functionality is activated in the pump controller, the maximum drive speed is used as constant speed. In addition, it is possible to give the swivel angle command value in reference to the maximum drive speed. In this case, while the n-functionality is active, the conversion of the internal swivel angle command value can be activated with pump controller control word P-0-2950, bit 4.				
P-0-2987 - Attributes	Function:	Par	Editable:	++	Data length: 2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format: DEC_OV
P-0-2987 - Attributes	Unit:	1/min	Extr. val. ch.:	+	Decim. pl.: 0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:
P-0-2987 - Attributes	HDx:	min./max.: 1 / 6000			Default value: 1500

5.14.150 P-0-2988, Control variable adjustment, swivel angle minimum value

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
Function	Contained in 18VRS:	«HDB»	«HDC»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
P-0-2988 - Attributes	Device parameter:	axis-specific			
	The minimum swivel angle can be determined for the pump controller using parameter "P-0-2988, Control variable adjustment, swivel angle minimum value". This minimum swivel angle is active in swivel angle control and pressure control. The "negative limit stop" of the pump can be limited using this parameter.				
P-0-2988 - Attributes	Function:	Par	Editable:	++	Data length: 4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format: DEC_MV
P-0-2988 - Attributes	Unit:	%	Extr. val. ch.:	+	Decim. pl.: 3
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:
P-0-2988 - Attributes	HDx:	min./max.: -100,000 / 100,000			Default value: ---

5.14.151 P-0-2989, Configuration of pump controller

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			

Contained in 18VRS:	«-»	«-»	«-»	«-»	«-»	«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	axis-specific					

Function With the help of parameter "P-0-2989, Configuration of pump controller", various functions of the pressure controller can be configured.

Structure

Bit	Designation/function	Comment
0	Direction of rotation of the pump 0: Clockwise rotating pump 1: Counter-clockwise rotating pump	-
1	Hydraulic execution 0: Operation in the open hydraulic circuit (VSO) 1: Operation in the closed hydraulic circuit (VSG)	-
2	System / pump adjustment 0: SY(H)DFED, HS5V, HS5EV 1: HS5, HS5K, HS5P, HS5KP, HS5M, HS5E	-
3	Decimal places of displacement (P-0-2943) 0: Indication of displacement with decimal places 1: Indication of displacement without decimal places	-
4-15	Reserved	-

Tab. 5-133: Structure P-0-2989

P-0-2989 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value:	s. Text

5.14.152 P-0-2990, C79xx Calibration command parameter

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB»
	Device parameter:	axis-specific

Function "C79xx, calibration command parameters" can be used to start various calibration functions of the pump controller in dependence on parameter "P-0-2991, Calibration command control word".

See also Functional Description "Pump control".

Use The following calibration functions can be started:

1. Calibration of pressure sensor offset
2. Pressure-related valve calibration (valve zero point)
3. Calibration of swivel angle offset (zero point)
4. Calibration of swivel angle factor (+100 %)
5. Leakage calibration



It is recommended that the calibrations be carried out in the order given above during commissioning, when sensors are changed and at regular intervals.

⚠ WARNING**Uncontrolled machine movements due to internal command values during calibration**

While calibrating, internal command values are used for the controller. The calibration function has no influence on the command values (S-parameters) pre-set by the machine control. However, these are not used while a calibration is running. Before the calibration function is started, the system must therefore be brought to a safe state for calibrating.

P-0-2990 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.14.153 P-0-2991, Calibration command control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "P-0-2991, Calibration command control word" can be used to select, which calibration function is started with "C7900, Start selected calibration command".

See also Functional Description "Calibration functions of pump"

Structure

Number	Description / selection of calibration function
0	Calibration of pressure sensor offset (sensor for pressure feedback value 1 or 2)
1	Pressure-related valve calibration (valve zero point)
2	Calibration of swivel angle offset (zero point)
3	Calibration of swivel angle factor (+100 %)
4	Leakage calibration
5	Calibration of pressure sensor A offset
6	Calibration of pressure sensor B offset
7	Calibration of swivel angle sensor of A10 slave pump
8	Calibration of swivel angle sensor of A4 slave pump
15	Write default values to calibration values

P-0-2991 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.14.154 P-0-2992, Swivel angle command value, internal

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter displays the current command value for the swivel angle controller.

P-0-2992 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.14.155 P-0-2993, Current drive speed

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In this parameter, the maximum drive speed is given. The pump controller generates a conversion factor from the current drive speed for determining the current flow. The parameter can be written either by the machine control or by the variable-speed function of the pump controller.

P-0-2993 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	1/min	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** 1500

5.14.156 P-0-2994, Established calibration swivel angle zero point

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "P-0-2994, Established calibration swivel angle zero point" is used for calibrating the zero point of the actual swivel angle value.



This parameter can either be entered manually or determined by automatic calibration.

P-0-2994 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: -100,000 / 100,000 **Default value:** ---

5.14.157 P-0-2995, Established calibration swivel angle factor

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "P-0-2995, Established calibration swivel angle zero point" is used for calibrating the zero point of the actual swivel angle value.



This parameter can either be entered manually or determined by automatic calibration.

P-0-2995 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0,500 / 2,000			Default value: ---	

5.14.158 P-0-2996, Pressure command value for leakage calibration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Parameter "P-0-2996, Pressure command value for leakage calibration" is used to specify the pressure command value for the second pressure rating of leakage calibration.

See also Functional Description "Pump control".

P-0-2996 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0806 / S-0-0806			Default value: ---	

5.14.159 P-0-2997.0.1, EnDat 2.2: Encoder data

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «-»
	Device parameter:	device-specific

Function This parameter comprises the encoder data read out by a connected EnDat encoder.

- Element 0 contains the version of the EnDat encoder. Only encoders according to the EnDat 2.2 standard are supported.
- Element 1 contains the data width of the EnDat position value in bits.
- Element 2 contains the encoder type. Possible encoders include:
 - 0x4001: Absolute length measuring device
 - 0xE001: Multi-turn rotary encoder
 - 0xC001: Single-turn rotary encoder
- Element 3 contains the maximum computing time of the EnDat encoder in bits 0 to 12.
 - Bits 15/14/13 values 0/0/0: Indication of the computing time is not supported
 - Bits 15/14/13 values 0/0/1: Time indication in microseconds
 - Bits 15/14/13 values 0/1/0: Time indication in milliseconds
 - Bits 15/14/13 values 0/1/1: Time indication in nanoseconds
- Element 4 contains the encoder resolution in nm.
- Element 5 contains the currently set EnDat clock rate in kHz.

P-0-2997.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.14.160 P-0-2997.0.2, EnDat 2.2: clock frequency

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»		«HDC»		«-»	
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
	Device parameter:	device-specific					

Function Via this parameter, the clock cycle used to the EnDat encoder can be set. The minimum values for the clock cycle depend on the performance setting of the drive in parameter [P-0-0556](#).

P-0-2997.0.2 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	kHz	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 100 / 1000	Default value: 400

5.14.161 P-0-2998.0.1, Maximum values of write counter, SPI flash memory

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»		«HDC»		«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function Parameter for data memory management.

Use For internal use only.

P-0-2998.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.15 P-0-3000 - P-0-3199

5.16 P-0-3200 - P-0-3599

5.16.1 P-0-3400, Pressure controller integrator enable lowpass filter

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»		«HDC»		«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3400					

Function Replacement parameter of "[P-0-2806.0.3](#)" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3400 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

HDx:	min./max.: 0,0 / 6500,0	Default value: 4,0

5.16.2 P-0-3401, Pressure controller integration time constant

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»		«HDC»		«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»

	Device parameter:	axis-specific		
	Alias idn:	P-0-3401		
Function	Replacement parameter of "P-0-2806.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).			
P-0-3401 - Attributes	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	--
	Unit:	ms	Extr. val. ch.:	+
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte
		Format:	DEC_OV	
		Decim. pl.:	1	
		Set-depend.:	Grp. 2	
	HDx:	min./max.: 0,0 / 6500,0		Default value: 0,0

5.16.3 P-0-3402, Pressure controller integrator pressure change threshold

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3402
Function	Replacement parameter of "P-0-2806.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3402 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: S-0-0806 / S-0-0806				Default value: 0,0	

5.16.4 P-0-3403, Pressure controller integrator accuracy window

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3403
Function	Replacement parameter of "P-0-2806.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3403 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0.0	

5.16.5 P-0-3404, Pressure controller integrator limit

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3404
Function	Replacement parameter of "P-0-2806.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3404 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0806 / S-0-0806			Default value: 0.0	

5.16.6 P-0-3405, Output pressure controller I-part

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:							axis-specific
	Alias idn:							P-0-3405
Function	Replacement parameter of "P-0-2806.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3405 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

5.16.7 P-0-3406, Pressure controller calculation p->Q value side A

Allocation	Contained in 16VRS:		«-»				
	Contained in 17VRS:		«HDB»				
	Contained in 18VRS:		«HDB»	«HDC»	«-»		
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:		axis-specific				
	Alias idn:		P-0-3406				
Function	Replacement parameter of "P-0-2806.0.13" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3406 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	I	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	Input	min./max.			Default value		
	HDB:	0,001 / 4000,000			1,000		
	HDC:	0,001 / 4000,000			1,000		
	HDE:	0,001 / 4000,000			1,000		
	HDP:	0,001 / 4000,000			1,000		
	HDM:	0,001 / 4000,000			1,000		
	HDS:	--- / ---			0,000		

5.16.8 P-0-3407, Pressure controller calculation p->Q value side B

Allocation	Contained in 16VRS:							«-»	
	Contained in 17VRS:		«HDB»						
	Contained in 18VRS:		«HDB»	«HDC»					«-»
	Contained in 20VRS:		«HDB»	«HDC»		«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific						
	Alias idn:		P-0-3407						
Function	Replacement parameter of "P-0-2806.0.14" for communication interfaces which do not support any 32-bit ident numbers (EIDN).								
P-0-3407 - Attributes	Function:	Par	Editable:	++		Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	--		Format:	DEC_MV		
	Unit:	I	Extr. val. ch.:	+		Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	Grp. 2		
		HDx:	min./max.: 0,001 / 4000,000				Default value: 1,000		

5.16.9 P-0-3408, Position controller Kv-factor change ramp

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
Property name:	PosControl.KvRamp						
	Alias idn:	P-0-3408					

Function	Replacement parameter of "P-0-2830.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3408 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	(1000/min)/s	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:		min./max.: --- / ---		Default value: 0,00	

5.16.10 P-0-3409, Position loop time constant D-component

Allocation	Contained in 16VRS:					«HDS»					
	Contained in 17VRS:					«HDB»					
	Contained in 18VRS:					«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:					«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:					axis-specific					
	Property name:					PosControl.DPartTime					
	Alias idn:					P-0-3409					
Function		Replacement parameter of "P-0-2830.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).									
P-0-3409 - Attributes		Function:	Par	Editable:	++	Data length:	2Byte				
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV					
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1					
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2					
HDx:		min./max.: --- / ---					Default value: 0,0				

5.16.11 P-0-3410, Position controller filter time D-component

Allocation	Contained in 16VRS:					«HDS»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					PosControl.DPartFilterTime
	Alias idn:					P-0-3410
Function	Replacement parameter of "P-0-2830.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3410 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:		min./max.: --- / ---		Default value: 0,0	

5.16.12 P-0-3411, Position controller integration time constant

Allocation	Contained in 16VRS:					«HDS»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					PosControl.IPartTime
	Alias idn:					P-0-3411
Function	Replacement parameter of "P-0-2830.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3411 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:		min./max.: --- / ---		Default value: 0	

5.16.13 P-0-3412, Position controller integrator velocity threshold

Allocation	Contained in 16VRS:							«HDS»	
	Contained in 17VRS:		«HDB»						
	Contained in 18VRS:		«HDB»	«HDC»					«HDS»
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»	
	Device parameter:		axis-specific						
	Property name:		PosControl.IPartSwitchOnVel						
	Alias idn:		P-0-3412						
Function	Replacement parameter of "P-0-2830.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).								
P-0-3412 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte			
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV			
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046			
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2			
	HDx:	min./max.: S-0-0044 / S-0-0044				Default value: 0.0000			

5.16.14 P-0-3413, Position controller integrator position window

Allocation	Contained in 16VRS:							«HDS»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC» «HDS»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:							axis-specific
	Property name:							PosControl.IPartWindow
	Alias idn:							P-0-3413
Function	Replacement parameter of "P-0-2830.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3413 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV		
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:	min./max.: S-0-0076 / S-0-0076				Default value: 0,0000		

5.16.15 P-0-3414, Position controller integrator limit

Allocation	Contained in 16VRS:							«HDS»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC» «HDS»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:							axis-specific
	Property name:							PosControl.IPartLimitation
	Alias idn:							P-0-3414
Function	Replacement parameter of "P-0-2830.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3414 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV		
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:	min./max.: S-0-0044 / S-0-0044				Default value: 0,0000		

5.16.16 P-0-3415, Position controller integrator washout ramp

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Device parameter:	axis-specific						
	Property name:	PosControl.IPartRamp					
	Alias idn:	P-0-3415					

Function	Replacement parameter of "P-0-2830.0.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
P-0-3415 - Attributes	Function: Par	Editable: ++	Data length: 4Byte		
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_MV		
	Unit: S-0-0160	Extr. val. ch.: +	Decim. pl.: S-0-0161 / S-0-0162		
	Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2		
	HDx:	min./max.: S-0-0160 / S-0-0160	Default value: 0,000		

5.16.17 P-0-3416, Position command filter time

Allocation	Contained in 16VRS: «HDS» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «HDS» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: PosControl.PosSetValueFilterTime Alias idn: P-0-3416				
Function	Replacement parameter of "P-0-2830.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
P-0-3416 - Attributes	Function: Par	Editable: ++	Data length: 2Byte		
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV		
	Unit: ms	Extr. val. ch.: --	Decim. pl.: 1		
	Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2		
	HDx:	min./max.: --- / ---	Default value: 0,0		

5.16.18 P-0-3417, Position command dead time

Allocation	Contained in 16VRS: «HDS» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «HDS» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: PosControl.PosSetValueDeadTime Alias idn: P-0-3417				
Function	Replacement parameter of "P-0-2830.0.10" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
P-0-3417 - Attributes	Function: Par	Editable: ++	Data length: 2Byte		
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV		
	Unit: ms	Extr. val. ch.: +	Decim. pl.: 1		
	Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2		
	HDx:	min./max.: 0,0 / s. Text	Default value: 0,0		

5.16.19 P-0-3418, Velocity feedforward change ramp

Allocation	Contained in 16VRS: «HDS» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» «HDS» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: PosControl.VelFeedForwardRamp Alias idn: P-0-3418				
Function	Replacement parameter of "P-0-2830.0.11" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
P-0-3418 - Attributes	Function: Par	Editable: ++	Data length: 2Byte		
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV		
	Unit: %/s	Extr. val. ch.: --	Decim. pl.: 2		
	Cycl. tra.: --	Comb. check: --	Set-depend.: Grp. 2		
	HDx:	min./max.: --- / ---	Default value: 0,00		

5.16.20 P-0-3419, Velocity controller P-gain

Allocation	Contained in 16VRS: «HDS»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: VelControl.Pgain					
	Alias idn: P-0-3419					
Function	Replacement parameter of "P-0-2832.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3419 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0,000	

5.16.21 P-0-3420, Velocity controller integration time constant

Allocation	Contained in 16VRS: «HDS»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: VelControl.IPartTime					
	Alias idn: P-0-3420					
Function	Replacement parameter of "P-0-2832.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3420 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0	

5.16.22 P-0-3421, Velocity controller integrator acceleration threshold

Allocation	Contained in 16VRS: «HDS»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: VelControl.IPartSwitchOnAcc					
	Alias idn: P-0-3421					
Function	Replacement parameter of "P-0-2832.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3421 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

5.16.23 P-0-3422, Velocity controller integrator velocity window

Allocation	Contained in 16VRS: «HDS»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: VelControl.IPartWindow					
	Alias idn: P-0-3422					
Function	Replacement parameter of "P-0-2832.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					

P-0-3422 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.16.24 P-0-3423, Velocity controller integrator limit

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	VelControl.IPartLimitation					
Alias idn:	P-0-3423					

Function Replacement parameter of "[P-0-2832.0.5](#)" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3423 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.16.25 P-0-3424, Active damping: Force/time constant

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	StateControl.ForceFilterTime					
Alias idn:	P-0-3424					

Function Replacement parameter of "[P-0-2832.0.7](#)" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3424 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0,0	

5.16.26 P-0-3425, Active damping: Acceleration gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	StateControl.AccGain					
Alias idn:	P-0-3425					

Function Replacement parameter of "[P-0-2832.0.8](#)" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3425 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0,0	

5.16.27 P-0-3426, Active damping: Velocity gain

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:							axis-specific
	Property name:							StateControl.VelGain
	Alias idn:							P-0-3426
Function	Replacement parameter of "P-0-2832.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3426 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:		min./max.: --- / ---			Default value: 0,000		

5.16.28 P-0-3427, Moved mass

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						StateControl.Weight
	Alias idn:						P-0-3427
Function	Replacement parameter of "P-0-2832.0.10" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3427 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	kg	Extr. val. ch.:	--	Decim. pl.:	1	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
		HDx:					

5.16.29 P-0-3428, Velocity command filter time

Allocation	Contained in 16VRS:							«HDS»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:							axis-specific
	Property name:							VelControl.VelSetValueFilterTime
	Alias idn:							P-0-3428
Function	Replacement parameter of "P-0-2832.0.13" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3428 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV		
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:		min./max.: --- / ---			Default value: 0,000		

5.16.30 P-0-3429, Velocity command dead time

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	VelControl.VelSetValueDeadTime					
	Alias idn:	P-0-3429					
Function	Replacement parameter of "P-0-2832.0.14" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						

P-0-3429 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: 0,0 / s. Text			Default value: 0,0	

5.16.31 P-0-3430, Force controller P-gain

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ForceControl.PGain					
Alias idn:	P-0-3430					

Function Replacement parameter of "P-0-2845.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3430 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
Input	min./max.			Default value	
HDB:	0,000 / 1000,000			1,000	
HDC:	0,000 / 1000,000			1,000	
HDE:	0,000 / 1000,000			1,000	
HDP:	0,000 / 1000,000			1,000	
HDM:	0,000 / 1000,000			1,000	
HDS:	0,000 / 1,000			1,000	

5.16.32 P-0-3431, Scaling force to velocity

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ForceControl.ForceCtrlNorminalVel					
Alias idn:	P-0-3431					

Function Replacement parameter of "P-0-2845.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3431 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	5
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.16.33 P-0-3432, Force controller integration time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Property name:	ForceControl.IPartTime					
Alias idn:	P-0-3432					

Function Replacement parameter of "P-0-2845.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3432 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: --- / ---			Default value: 0	

5.16.34 P-0-3433, Force controller integrator force change threshold

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						ForceControl.IPartSwitchOnGradient
	Alias idn:						P-0-3433
Function		Replacement parameter of "P-0-2845.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3433 - Attributes		Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 S-0-0094	/
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: S-0-0086 / S-0-0086				Default value: 1,0	

5.16.35 P-0-3434, Force controller integrator force window

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						ForceControl.IPartWindow
	Alias idn:						P-0-3434
Function	Replacement parameter of "P-0-2845.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3434 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: S-0-0086 / S-0-0086				Default value: 0,0	

5.16.36 P-0-3435, Force controller limitation integrator

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						ForceControl.IPartLimitation
	Alias idn:						P-0-3435
Function	Replacement parameter of "P-0-2845.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3435 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: --- / ---				Default value: 0,0000	

5.16.37 P-0-3436, Force controller scaling of velocity feedforward control

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	ForceControl.VelFeedForwardFactor					
	Alias idn:	P-0-3436					

Function	Replacement parameter of "P-0-2845.0.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3436 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0,00	

5.16.38 P-0-3437, Force feedback filter time

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						ForceControl.FilterTime
	Alias idn:						P-0-3437
Function	Replacement parameter of "P-0-2845.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3437 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: 0	

5.16.39 P-0-3438, Pressure controller preload integrator, threshold 1

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3438
Function	Replacement parameter of "P-0-2806.0.15" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3438 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.16.40 P-0-3439, Pressure controller switch-on threshold, relative

Allocation	Contained in 16VRS:					«-»								
	Contained in 17VRS:					«HDB»								
	Contained in 18VRS:					«HDB»		«HDC»		«-»				
	Contained in 20VRS:					«HDB»		«HDC»		«HDE»	«HDP»	«HDM»	«-»	
	Device parameter:					axis-specific								
	Alias idn:					P-0-3439								
Function	Replacement parameter of "P-0-2852.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).													
P-0-3439 - Attributes	Function:	Par	Editable:	++		Data length:	2Byte							
	Memory:	PARAM_SP	Validity ch.:	--		Format:	DEC_MV							
	Unit:	%	Extr. val. ch.:	+		Decim. pl.:	2							
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	Grp. 2							
	HDx:	min./max.:					-100,00 / 100,00				Default value:			

5.16.41 P-0-3440, Pressure controller switch-on threshold, absolute

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3440
Function	Replacement parameter of "P-0-2852.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3440 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: S-0-0806 / S-0-0806				Default value: 0,0	

5.16.42 P-0-3441, Pressure controller switch-off threshold, relative

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3441
Function	Replacement parameter of "P-0-2852.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3441 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:		min./max.: -100,00 / 100,00			Default value: 0,00	

5.16.43 P-0-3442, Pressure controller switch-off threshold, absolute

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«HDB»	
	Contained in 18VRS:		«HDB»	«HDC»				«-»
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3442					
Function	Replacement parameter of "P-0-2852.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3442 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV		
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2		
	HDx:		min./max.: S-0-0806 / S-0-0806				Default value: 0,0	

5.16.44 P-0-3443, Pressure controller ramp time switching logic

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3443
Function	Replacement parameter of "P-0-2852.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3443 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM SP	Validity ch.:	--	Format:	DEC OV	

Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: 0,0 / 6500,0			Default value: 0,0	

5.16.45 P-0-3444, Alternating control, changeover threshold

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					SwitchingLogic.SwitchingOnThresholdAbsolute
Alias idn:						P-0-3444
Function						Replacement parameter of "P-0-2856.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).
P-0-3444 - Attributes						
Function:		Par	Editable:	++	Data length:	4Byte
Memory:		PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:		S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:		--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:		min./max.: S-0-0086 / S-0-0086			Default value: 0,0	

5.16.46 P-0-3445, Alternating control, relative changeover window

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					SwitchingLogic.SwitchingOnThresholdRelative
Alias idn:						P-0-3445
Function	Replacement parameter of "P-0-2856.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3445 - Attributes						
Function:	Par	Editable:	++	Data length:	2Byte	
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	0	
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
HDx:		min./max.: --- / ---			Default value: 0	

5.16.47 P-0-3446, Alternating control, switch-on delay

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					SwitchingLogic.SwitchingOnDelayTime
	Alias idn:					P-0-3446
Function	Replacement parameter of "P-0-2856.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3446 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:		min./max.: --- / ---		Default value: 0	

5.16.48 P-0-3447, Alternating control, ramp time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»

	Device parameter: axis-specific	
	Property name: SwitchingLogic.SwitchingRampTime	
	Alias idn: P-0-3447	
Function	Replacement parameter of "P-0-2856.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).	
P-0-3447 - Attributes	Function: Par	Editable: ++
	Memory: PARAM_SP	Validity ch.: --
	Unit: ms	Extr. val. ch.: --
	Cycl. tra.: --	Comb. check: --
	HDx:	min./max.: --- / ---
		Default value: 0

5.16.49 P-0-3448, Valve standard velocity

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						LineAdapt.ValveCtrlNominalVel
	Alias idn:						P-0-3448
Function	Replacement parameter of "P-0-2873.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3448 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046	
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000		

5.16.50 P-0-3449, Direction-dependent gain

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						LineAdapt.FactorForwBackwAdj
	Alias idn:						P-0-3449
Function	Replacement parameter of "P-0-2873.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3449 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	Input	min./max.			Default value		
	HDB:	0,0001 / 10000,0000			1,0000		
	HDC:	0,0001 / 10000,0000			1,0000		
	HDE:	0,0001 / 10000,0000			1,0000		
	HDP:	0,0001 / 10000,0000			1,0000		
	HDM:	0,0001 / 10000,0000			1,0000		
	HDS:	0,0001 / 10,0000			1,0000		

5.16.51 P-0-3450, Control variable inversion

Allocation	Contained in 16VRS:					«HDS»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter: axis-specific					
		Property name: LineAdapt.Inversion				
		Alias idn: P-0-3450				
Function	Replacement parameter of "P-0-2873.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					

P-0-3450 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: -1 / 1			Default value: 1	

5.16.52 P-0-3451, Valve overlap type

P-0-3451 - Attributes	Allocation	Contained in 16VRS: «HDS» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: LineAdapt.OverlapType Alias idn: P-0-3451				
	Function	Replacement parameter of "P-0-2873.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: 0 / 2			Default value: 0	

5.16.53 P-0-3452, Valve overlap A-side

P-0-3452 - Attributes	Allocation	Contained in 16VRS: «HDS» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: LineAdapt.OverlapSideA Alias idn: P-0-3452				
	Function	Replacement parameter of "P-0-2873.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	HDB:	0,000 / 100,000			0,000	
	HDC:	0,000 / 100,000			0,000	
	HDE:	0,000 / 100,000			0,000	
	HDP:	0,000 / 100,000			0,000	
	HDM:	0,000 / 100,000			0,000	
	HDS:	0,000 / 0,100			0,000	

5.16.54 P-0-3453, Valve overlap B-side

P-0-3453 - Attributes	Allocation	Contained in 16VRS: «HDS» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS» Device parameter: axis-specific Property name: LineAdapt.OverlapSideB Alias idn: P-0-3453				
	Function	Replacement parameter of "P-0-2873.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	HDB:	0,000 / 100,000			0,000	

HDC:	0,000 / 100,000	0,000
HDE:	0,000 / 100,000	0,000
HDP:	0,000 / 100,000	0,000
HDM:	0,000 / 100,000	0,000
HDS:	0,000 / 0,100	0,000

5.16.55 P-0-3454, Valve overlap threshold

Allocation	Contained in 16VRS:							«HDS»	
	Contained in 17VRS:		«HDB»						
	Contained in 18VRS:		«HDB»	«HDC»					«HDS»
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»	
	Device parameter:		axis-specific						
	Property name:		LineAdapt.OverlapWindow						
	Alias idn:		P-0-3454						
Function	Replacement parameter of "P-0-2873.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).								
P-0-3454 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte			
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV			
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3			
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--			
	Input	min./max.			Default value				
	HDB:	0,000 / 100,000			0,000				
	HDC:	0,000 / 100,000			0,000				
	HDE:	0,000 / 100,000			0,000				
	HDP:	0,000 / 100,000			0,000				
	HDM:	0,000 / 100,000			0,000				
	HDS:	0,000 / 0,100			0,000				

5.16.56 P-0-3455, Characteristic of type

Allocation	Contained in 16VRS:							«HDS»	
	Contained in 17VRS:	«HDB»							
	Contained in 18VRS:	«HDB»		«HDC»				«HDS»	
	Contained in 20VRS:	«HDB»		«HDC»		«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific							
Property name:	LineAdapt.CurveType								
Alias idn:	P-0-3455								
Function	Replacement parameter of "P-0-2873.0.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).								
P-0-3455 - Attributes	Function:	Par	Editable:	++		Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	--		Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	+		Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	--		
	HDx:	min./max.:			-2 / 0		Default value: 0		

5.16.57 P-0-3456, Characteristic of flow

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	LineAdapt.CurveTableInputValue					
	Alias idn:	P-0-3456					
Function	Replacement parameter of "P-0-2873.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3456 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	Input	min./max.			Default value		
	HDB:	-100,000 / 100,000			s. Text		
	HDC:	-100,000 / 100,000			s. Text		
	HDE:	-100,000 / 100,000			s. Text		

HDP:	-100,000 / 100,000	s. Text
HDM:	-100,000 / 100,000	s. Text
HDS:	-0,100 / 0,100	---

5.16.58 P-0-3457, Characteristic of control variable

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	LineAdapt.CurveTableOutputValue					
	Alias idn:	P-0-3457					
Function	Replacement parameter of "P-0-2873.0.10" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3457 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	Input	min./max.			Default value		
	HDB:	-100,000 / 100,000			s. Text		
	HDC:	-100,000 / 100,000			s. Text		
	HDE:	-100,000 / 100,000			s. Text		
	HDP:	-100,000 / 100,000			s. Text		
	HDM:	-100,000 / 100,000			s. Text		
	HDS:	-0,100 / 0,100			---		

5.16.59 P-0-3458, Valve control variable offset

Allocation	Contained in 16VRS:	«HDB»					«HDS»	
	Contained in 17VRS:	«HDB»						
	Contained in 18VRS:	«HDB»	«HDC»					«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»	
	Device parameter:	axis-specific						
	Property name:	LineAdapt.Offset						
	Alias idn:	P-0-3458						
Function	Replacement parameter of "P-0-2873.0.13" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3458 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	Input	min./max.			Default value			
	HDB:	-100,000 / 100,000			0,000			
	HDC:	-100,000 / 100,000			0,000			
	HDE:	-100,000 / 100,000			0,000			
	HDP:	-100,000 / 100,000			0,000			
	HDM:	-100,000 / 100,000			0,000			
	HDS:	-0,100 / 0,100			0,000			

5.16.60 P-0-3459, Control disabled offset

Allocation	Contained in 16VRS:						«HDS»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «HDS»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:						axis-specific
	Property name:						OutputData.ValveCtrlOutputStandstill
	Alias idn:						P-0-3459
Function	Replacement parameter of "P-0-2873.0.14" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3459 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--	

Input	min./max.	Default value
HDB:	-100,000 / 100,000	0,000
HDC:	-100,000 / 100,000	0,000
HDE:	-100,000 / 100,000	0,000
HDP:	-100,000 / 100,000	0,000
HDM:	-100,000 / 100,000	0,000
HDS:	-0,100 / 0,100	0,000

5.16.61 P-0-3460, Filter time of valve control output

Allocation	Contained in 16VRS:							«HDS»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:							axis-specific
	Property name:							LineAdapt.FilterTime
	Alias idn:							P-0-3460
Function	Replacement parameter of "P-0-2873.0.15" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3460 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV		
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: 0,0 / 650,0			Default value: 0,0		

5.16.62 P-0-3461, Output adjustment command value

Allocation	Contained in 16VRS:							«HDS»
	Contained in 17VRS:	«HDB»						
	Contained in 18VRS:	«HDB»	«HDC»					«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»	
	Device parameter:	axis-specific						
Property name:	LineAdapt.CtrlValveInputSetValue							
Alias idn:	P-0-3461							
Function	Replacement parameter of "P-0-2873.0.16" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3461 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

5.16.63 P-0-3462, Q calculation delta p limitation

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»				«-»
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3462					
Function	Replacement parameter of "P-0-2874.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3462 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV		
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: 10.00 / 200.00			Default value: 20.00		

5.16.64 P-0-3463, Q calculation time constant 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»

	Device parameter: axis-specific		
	Alias idn: P-0-3463		
Function	Replacement parameter of "P-0-2874.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).		
P-0-3463 - Attributes	Function: Par	Editable: ++	Data length: 2Byte
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_OV
	Unit: ms	Extr. val. ch.: +	Decim. pl.: 1
	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx: min./max.: 0,0 / 6500,0		Default value: 0,0

5.16.65 P-0-3465, Q calculation factor of characteristic curve, A-side

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:		«HDB»
	Contained in 18VRS:		«HDB» «HDC»
	Contained in 20VRS:		«-» «-» «-» «-» «-» «-»
	Device parameter: axis-specific		
	Alias idn: P-0-3465		
Function	Replacement parameter of "P-0-2874.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).		
P-0-3465 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_MV
	Unit: --	Extr. val. ch.: +	Decim. pl.: 4
	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx: min./max.: 0,0010 / 1000,0000		Default value: 1,0000

5.16.66 P-0-3466, Q calculation offset characteristic curve, A-side

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:		«HDB»
	Contained in 18VRS:		«HDB» «HDC»
	Contained in 20VRS:		«-» «-» «-» «-» «-» «-»
	Device parameter: axis-specific		
	Alias idn: P-0-3466		
Function	Replacement parameter of "P-0-2874.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).		
P-0-3466 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_MV
	Unit: %	Extr. val. ch.: +	Decim. pl.: 4
	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx: min./max.: -100,0000 / 100,0000		Default value: 0,0000

5.16.67 P-0-3467, Q calculation factor of characteristic curve, B-side

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:		«HDB»
	Contained in 18VRS:		«HDB» «HDC»
	Contained in 20VRS:		«-» «-» «-» «-» «-» «-»
	Device parameter: axis-specific		
	Alias idn: P-0-3467		
Function	Replacement parameter of "P-0-2874.0.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).		
P-0-3467 - Attributes	Function: Par	Editable: ++	Data length: 4Byte
	Memory: PARAM_SP	Validity ch.: --	Format: DEC_MV
	Unit: --	Extr. val. ch.: +	Decim. pl.: 4
	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx: min./max.: 0,0010 / 1000,0000		Default value: 1,0000

5.16.68 P-0-3468, Q calculation offset characteristic curve, B-side

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:		«HDB»				
	Contained in 18VRS:		«HDB»		«HDC»		«-»
	Contained in 20VRS:		«-»	«-»	«-»	«-»	«-»
	Device parameter:		axis-specific				
	Alias idn:		P-0-3468				
Function	Replacement parameter of "P-0-2874.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3468 - Attributes	Function:	Par	Editable:	++		Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--		Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+		Decim. pl.:	4
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	--
	HDx:		min./max.: -100,0000 / 100,0000			Default value: 0,0000	

5.16.69 P-0-3471, Nominal flow

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«-» «HDC» «HDS»
	Contained in 20VRS:						«-» «HDC» «-» «-» «HDM» «HDS»
	Device parameter:						axis-specific
	Alias idn:						P-0-3471
Function	Replacement parameter of "P-0-2875.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3471 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	S-0-0845	Extr. val. ch.:	+	Decim. pl.:	S-0-0846 / S-0-0847	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	Input	min./max.				Default value	
	HDB:	S-0-0845 / S-0-0845				100,000	
	HDC:	S-0-0845 / S-0-0845				100,000	
	HDE:	S-0-0845 / S-0-0845				100,000	
	HDP:	S-0-0845 / S-0-0845				100,000	
	HDM:	S-0-0845 / S-0-0845				100,000	
	HDS:	--- / ---				0,000	

5.16.70 P-0-3472, Nominal pressure delta p

Allocation	Contained in 16VRS:		«HDS»						
	Contained in 17VRS:		«HDB»						
	Contained in 18VRS:		«-»	«HDC»	«HDS»				
	Contained in 20VRS:		«-»	«HDC»	«-»	«-»	«HDM»	«HDS»	
Function	Device parameter:		axis-specific						
	Property name:		ActualValue.NominalPressure						
	Alias idn:		P-0-3472						
Function		Replacement parameter of "P-0-2875.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3472 - Attributes	Function:	Par	Editable:	++		Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM		Format:	DEC_MV		
	Unit:	S-0-0806	Extr. val. ch.:	+		Decim. pl.:	S-0-0807 / S-0-0808		
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	--		
Input		min./max.		Default value					
HDB:		S-0-0806 / S-0-0806		3500,0					
HDC:		S-0-0806 / S-0-0806		3500,0					
HDE:		S-0-0806 / S-0-0806		3500,0					
HDP:		S-0-0806 / S-0-0806		3500,0					
HDM:		S-0-0806 / S-0-0806		3500,0					
HDS:		--- / ---		5,0					

5.16.71 P-0-3473, Maximum flow

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3473
Function	Replacement parameter for "P-0-2875.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3473 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	l/min	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	HDB:	0,001 / 4294967,295			s. Text	
	HDC:	0,001 / 4294967,295			8000,000	
	HDE:	0,001 / 4294967,295			s. Text	
	HDP:	0,001 / 4294967,295			s. Text	
	HDM:	0,001 / 4294967,295			8000,000	
	HDS:	--- / ---			---	

5.16.72 P-0-3474, Maximum pressure

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3474					
Function	Replacement parameter for "P-0-2875.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3474 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV		
	Unit:	bar	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	Input	min./max.			Default value			
	HDB:	0,001 / 4294967,295			s. Text			
	HDC:	0,001 / 4294967,295			315,000			
	HDE:	0,001 / 4294967,295			s. Text			
	HDP:	0,001 / 4294967,295			s. Text			
	HDM:	0,001 / 4294967,295			315,000			
	HDS:	--- / ---			---			

5.16.73 P-0-3475, Valve monitoring control word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					ActualValue.ValveControlWord
	Alias idn:					P-0-3475
Function	Replacement parameter of "P-0-2880.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3475 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0x0	

5.16.74 P-0-3477, Valve monitoring filter time

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:							axis-specific
	Property name:							ActualValue.ValveDeviationFilterTime
	Alias idn:							P-0-3477
Function	Replacement parameter of "P-0-2880.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3477 - Attributes	Function:	Par	Editable:	++		Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--		Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	--		Decim. pl.:	1	
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: 4,0		

5.16.75 P-0-3478, Valve monitoring threshold

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:	«HDB»						
	Contained in 18VRS:	«HDB»	«HDC»					«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»	
	Device parameter:	axis-specific						
	Property name:	ActualValue.ValveDeviationMaxAllowed						
	Alias idn:	P-0-3478						
Function	Replacement parameter of "P-0-2880.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3478 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: -100,000 / 100,000			Default value: 10,000			

5.16.76 P-0-3479, Valve monitoring maximum valve error

Allocation	Contained in 16VRS:							«-»	
	Contained in 17VRS:	«HDB»							
	Contained in 18VRS:	«HDB»	«HDC»						«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»		
	Device parameter:	axis-specific							
Property name:	ActualValue.ValveDeviationMaxValue								
Alias idn:	P-0-3479								
Function	Replacement parameter of "P-0-2880.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).								
P-0-3479 - Attributes	Function:	Par	Editable:	++		Data length:	4Byte		
	Memory:	--	Validity ch.:	--		Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	--		Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	--		
	HDx:	min./max.: -100,000 / 100,000					Default value: ---		

5.16.77 P-0-3480, Analog input, assignment, control word

Allocation	Contained in 16VRS:	«HDS»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware	Analog-In x					
	Device parameter:	axis-specific					
	Property name:	ActualValue.[#SI#AnalogInput]ControlWord					
	Alias idn:	P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486					

P-0-3480 - Attributes	Function	Replacement parameter of "P-0-2900.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: s. Text	

5.16.78 P-0-3481, Analog input, assignment, control word

Allocation	Contained in 16VRS:					«-»	
	Contained in 17VRS:					«HDB»	
	Contained in 18VRS:					«HDB» «HDC» «HDS»	
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»	
	Hardware					Analog-In x	
	Device parameter:					axis-specific	
	Property name:					ActualValue.[#SI#AnalogInput]ControlWord	
Function	Alias idn:					P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486	
	Replacement parameter of "P-0-2900.1.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
	P-0-3481 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
		Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
		Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
		Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
		HDx:					
min./max.: --- / ---					Default value: s. Text		

5.16.79 P-0-3482, Analog input, assignment, control word

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Hardware: Analog-In x					
	Device parameter: axis-specific					
Function	Property name: ActualValue.[#SI#AnalogInput]ControlWord					
	Alias idn: P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486					
	Replacement parameter of "P-0-2900.2.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3482 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: s. Text	

5.16.80 P-0-3483, Analog input, assignment, control word

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «HDB»					
	Contained in 18VRS: «HDB» «HDC» «HDS»					
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Hardware Analog-In x					
	Device parameter: axis-specific					
	Property name: ActualValue.[#SI#AnalogInput]ControlWord					
Alias idn:	P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486					
Function	Replacement parameter of "P-0-2900.3.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3483 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.16.81 P-0-3484, Analog input, assignment, control word

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware		Analog-In x					
	Device parameter:		axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]ControlWord							
	P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486							
	Alias idn:							
Function	Replacement parameter of "P-0-2900.4.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3484 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: s. Text		

5.16.82 P-0-3485, Analog input, assignment, control word

Allocation	Contained in 16VRS:					«-»	
	Contained in 17VRS:					«-»	
	Contained in 18VRS:		«-»	«-»	«HDS»		
	Contained in 20VRS:		«-»	«-»	«-»		
	Hardware					Analog-In x	
	Device parameter:					axis-specific	
Property name:						ActualValue.[#SI#AnalogInput]ControlWord	
Alias idn:						P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486	
Function	Replacement parameter of "P-0-2900.5.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3485 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--	
	HDx:						min./max.: --- / ---
	Default value:						s. Text

5.16.83 P-0-3486, Analog input, assignment, control word

Allocation	Contained in 16VRS:					«-»	
	Contained in 17VRS:					«-»	
	Contained in 18VRS:					«-»	
	Contained in 20VRS:					«-»	
	Device parameter:					device-specific	
	Property name:					ActualValue.[#SI#AnalogInput]ControlWord	
Alias idn:						P-0-3480, P-0-3481, P-0-3482, P-0-3483, P-0-3484, P-0-3485, P-0-3486	
Function		Replacement parameter of "P-0-2900.6.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3486 - Attributes		Function:	Par	Editable:	PM	Data length:	2Byte
		Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
		Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
		Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
		HDx:					
						Default value: s. Text	

5.16.84 P-0-3487, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
Contained in 18VRS:	«HDB»		«HDC»		«HDS»	

	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware		Analog-In x					
	Device parameter:		axis-specific					
	Property name:		ActualValue.AssignAnalogIn[#SI]					
	Alias idn:		P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493					
Function		Replacement parameter of "P-0-2900.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3487 - Attributes								
Function:		Par	Editable:	PM	Data length:	4Byte		
Memory:		PARAM_SP	Validity ch.:	PM->OM	Format:	IDN		
Unit:		--	Extr. val. ch.:	--	Decim. pl.:	0		
Cycl. tra.:		--	Comb. check:	--	Set-depend.:	--		
HDx:			min./max.: --- / ---			Default value: s. Text		

5.16.85 P-0-3488, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware	Analog-In x					
	Device parameter:	axis-specific					
Function	Property name:	ActualValue.AssignAnalogIn[#SI]					
	Alias idn:	P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493					
	Replacement parameter of "P-0-2900.1.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3488 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: s. Text		

5.16.86 P-0-3489, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Analog-In x				
	Device parameter:	axis-specific				
Property name:	ActualValue.AssignAnalogIn[#SI]					
	P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493					
	Alias idn:					
Function	Replacement parameter of "P-0-2900.2.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3489 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: s. Text	

5.16.87 P-0-3490, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware	Analog-In x					
	Device parameter:	axis-specific					
	Property name:	ActualValue.AssignAnalogIn[#SI]					
	Alias idn:	P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493					

Function Replacement parameter of "P-0-2900.3.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3490 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx: min./max.: --- / ---					Default value: s. Text

5.16.88 P-0-3491, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»		«HDS»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Analog-In x				
	Device parameter:	axis-specific				
	Property name:	ActualValue.AssignAnalogIn[#SI]				
Alias idn:		P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493				

Function Replacement parameter of "P-0-2900.4.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3491 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx: min./max.: --- / ---					Default value: s. Text

5.16.89 P-0-3492, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»		«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
	Hardware	Analog-In x				
	Device parameter:	axis-specific				
	Property name:	ActualValue.AssignAnalogIn[#SI]				
Alias idn:		P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493				

Function Replacement parameter of "P-0-2900.5.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3492 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx: min./max.: --- / ---					Default value: s. Text

5.16.90 P-0-3493, Analog input, assignment, target parameter

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»		«-»	
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»
	Hardware	Analog-In x				
	Device parameter:	device-specific				
	Property name:	ActualValue.AssignAnalogIn[#SI]				
Alias idn:		P-0-3487, P-0-3488, P-0-3489, P-0-3490, P-0-3491, P-0-3492, P-0-3493				

Function Replacement parameter of "P-0-2900.6.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3493 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: 0

5.16.91 P-0-3494, Analog input, assignment, nominal value

Allocation	Contained in 16VRS:				«HDB»				«HDS»							
	Contained in 17VRS:				«HDB»											
	Contained in 18VRS:				«HDB»		«HDC»									
	Contained in 20VRS:				«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«HDS»	
	Hardware				Analog-In x											
	Device parameter:				axis-specific											
	Property name:				ActualValue.[#SI#AnalogInput]Nominal											
Function	Alias idn:				P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500											
	Replacement parameter of "P-0-2900.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).															
	P-0-3494 - Attributes															
	Function:		Par		Editable:		PM		Data length:		4Byte					
	Memory:		PARAM_SP		Validity ch.:		--		Format:		DEC_MV					
	Unit:		--		Extr. val. ch.:		--		Decim. pl.:		1					
	Cycl. tra.:		--		Comb. check:		--		Set-depend.:		--					
HDx:				min./max.: --- / ---								Default value: 0,0				

5.16.92 P-0-3495, Analog input, assignment, nominal value

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Hardware					Analog-In x
	Device parameter:					axis-specific
	Property name:					ActualValue.[#SI#AnalogInput]Nominal
	Alias idn:					P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500
Function	Replacement parameter of "P-0-2900.1.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3495 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---				Default value: 0,0

5.16.93 P-0-3496, Analog input, assignment, nominal value

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «HDS»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Hardware					Analog-In x
	Device parameter:					axis-specific
Property name:						ActualValue.[#SI#AnalogInput]Nominal
Alias idn:						P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500
Function	Replacement parameter of "P-0-2900.2.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3496 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0,0	

5.16.94 P-0-3497, Analog input, assignment, nominal value

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB»

	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware	Analog-In x					
	Device parameter:	axis-specific					
	Property name:	ActualValue.[#SI#AnalogInput]Nominal					
	Alias idn:	P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500					
Function	Replacement parameter of "P-0-2900.3.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3497 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: 0.0		

5.16.95 P-0-3498, Analog input, assignment, nominal value

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware		Analog-In x					
P-0-3498 - Attributes	Device parameter:		axis-specific					
	Property name:		ActualValue.[#SI#AnalogInput]Nominal					
	Alias idn:		P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500					
	Function		Replacement parameter of "P-0-2900.4.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3498 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: 0,0		

5.16.96 P-0-3499, Analog input, assignment, nominal value

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDS»
	Hardware					«HDS»
	Device parameter:					
Property name:						
Alias idn:						
Analog-In x						
axis-specific						
ActualValue.[#SI#AnalogInput]Nominal						
P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500						
Function	Replacement parameter of "P-0-2900.5.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3499 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					min./max.: --- / ---
	Default value:					0,0

5.16.97 P-0-3500, Analog input, assignment, scaling

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
	Device parameter:	device-specific					
	Property name:	ActualValue.[#SI#AnalogInput]Nominal					
	Alias idn:	P-0-3494, P-0-3495, P-0-3496, P-0-3497, P-0-3498, P-0-3499, P-0-3500					

P-0-3500 - Attributes	Function	Replacement parameter of "P-0-2900.6.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:		min./max.: --- / ---		Default value: 0,0	

5.16.98 P-0-3501, Analog input, assignment, offset

Allocation	Contained in 16VRS:					«HDS»	
	Contained in 17VRS:					«HDB»	
	Contained in 18VRS:					«HDB» «HDC» «HDS»	
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»	
	Hardware					Analog-In x	
	Device parameter:					axis-specific	
	Property name:					ActualValue.[#SI#AnalogInput]Offset	
Function	Alias idn:					P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507	
	Replacement parameter of "P-0-2900.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
	P-0-3501 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
		Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
		Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
		Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		HDx:					min./max.: --- / ---
Default value:					0,0		

5.16.99 P-0-3502, Analog input, assignment, offset

Allocation	Contained in 16VRS:					«-»	
	Contained in 17VRS:					«HDB»	
	Contained in 18VRS:					«HDB» «HDC» «HDS»	
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»	
	Hardware					Analog-In x	
	Device parameter:					axis-specific	
	Property name:					ActualValue.[#SI#AnalogInput]Offset	
Function	Alias idn:					P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507	
	Function					Replacement parameter of "P-0-2900.1.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).	
	P-0-3502 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
		Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
		Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
		Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		HDx:		min./max.: --- / ---		Default value: 0,0	

5.16.100 P-0-3503, Analog input, assignment, offset

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Hardware					Analog-In x
	Device parameter:					axis-specific
	Property name:					ActualValue.[#SI#AnalogInput]Offset
Alias idn:	P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507					
Function	Replacement parameter of "P-0-2900.2.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3503 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0,0

5.16.101 P-0-3504, Analog input, assignment, offset

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
Contained in 18VRS:	«HDB» «HDC»					«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «HDS»
Hardware	Analog-In x					
Device parameter:	axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]Offset					
Alias idn:	P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507					
Function	Replacement parameter of "P-0-2900.3.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3504 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: 0,0	

5.16.102 P-0-3505, Analog input, assignment, offset

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
Contained in 18VRS:	«HDB» «HDC»					«HDS»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «HDS»
Hardware	Analog-In x					
Device parameter:	axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]Offset					
Alias idn:	P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507					
Function	Replacement parameter of "P-0-2900.4.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3505 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: 0,0	

5.16.103 P-0-3506, Analog input, assignment, offset

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
Contained in 18VRS:	«-» «-»					«HDS»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
Hardware	Analog-In x					
Device parameter:	axis-specific					
Property name:	ActualValue.[#SI#AnalogInput]Offset					
Alias idn:	P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507					
Function	Replacement parameter of "P-0-2900.5.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3506 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:		min./max.: --- / ---			Default value: 0,0	

5.16.104 P-0-3507, Analog input, assignment, signal value at zero

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				

Contained in 18VRS:	«-»	«-»	«-»	«-»	«-»	«-»
Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»
Device parameter:	device-specific					
Property name:	ActualValue.[#SI#AnalogInput]Offset					
Alias idn:	P-0-3501, P-0-3502, P-0-3503, P-0-3504, P-0-3505, P-0-3506, P-0-3507					

Function Replacement parameter of "P-0-2900.6.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3507 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

HDx: min./max.: --- / --- Default value: 0,0

5.16.105 P-0-3508, Analog input, assignment, filter time

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Analog-In x axis-specific					
Device parameter:	ActualValue.[#SI#AnalogInput]FilterTime					
Property name:	ActualValue.[#SI#AnalogInput]FilterTime					
Alias idn:	P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514					

Function Replacement parameter of "P-0-2900.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3508 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,000 / 65,535 Default value: 0,000

5.16.106 P-0-3509, Analog input, assignment, filter time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Analog-In x axis-specific					
Device parameter:	ActualValue.[#SI#AnalogInput]FilterTime					
Property name:	ActualValue.[#SI#AnalogInput]FilterTime					
Alias idn:	P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514					

Function Replacement parameter of "P-0-2900.1.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3509 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,000 / 65,535 Default value: 0,000

5.16.107 P-0-3510, Analog input, assignment, filter time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	Analog-In x axis-specific					
Device parameter:	ActualValue.[#SI#AnalogInput]FilterTime					
Property name:	ActualValue.[#SI#AnalogInput]FilterTime					
Alias idn:	P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514					

Function Replacement parameter of "P-0-2900.2.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3510 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,000 / 65,535 **Default value:** 0,000

5.16.108 P-0-3511, Analog input, assignment, filter time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Analog-In x				
	Device parameter:	axis-specific				
	Property name:	ActualValue.[#SI#AnalogInput]FilterTime				
	Alias idn:	P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514				

Function Replacement parameter of "P-0-2900.3.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3511 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,000 / 65,535 **Default value:** 0,000

5.16.109 P-0-3512, Analog input, assignment, filter time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Analog-In x				
	Device parameter:	axis-specific				
	Property name:	ActualValue.[#SI#AnalogInput]FilterTime				
	Alias idn:	P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514				

Function Replacement parameter of "P-0-2900.4.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3512 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0,000 / 65,535 **Default value:** 0,000

5.16.110 P-0-3513, Analog input, assignment, filter time

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«HDS»		
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDS»
	Hardware	Analog-In x				
	Device parameter:	axis-specific				
	Property name:	ActualValue.[#SI#AnalogInput]FilterTime				
	Alias idn:	P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514				

Function Replacement parameter of "P-0-2900.5.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3513 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0,000 / 65,535	Default value: 0,000

5.16.111 P-0-3514, Analog input, assignment, filter time

Allocation	Contained in 16VRS:				«-»	
	Contained in 17VRS:				«-»	
	Contained in 18VRS:				«-»	
	Contained in 20VRS:				«-»	
	Device parameter:				device-specific	
	Property name:				ActualValue.[#SI#AnalogInput]FilterTime	
	Alias idn:				P-0-3508, P-0-3509, P-0-3510, P-0-3511, P-0-3512, P-0-3513, P-0-3514	
Function	Replacement parameter of "P-0-2900.6.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3514 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1
	HDx:			min./max.: 0,000 / 6,500		Default value: 0,000

5.16.112 P-0-3515, Analog input, assignment, status word

Allocation	Contained in 16VRS:		«HDS»											
	Contained in 17VRS:		«HDB»											
	Contained in 18VRS:		«HDB»		«HDC»		«HDS»							
	Contained in 20VRS:		«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«HDS»	
	Hardware		Analog-In x											
	Device parameter:		axis-specific											
	Property name:		ActualValue.[#SI#AnalogInput]Status											
	Alias idn:		P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521											
Function	Replacement parameter of "P-0-2900.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).													
P-0-3515 - Attributes	Function:	Par	Editable:	--				Data length:	2Byte					
	Memory:	--	Validity ch.:	--				Format:	BIN					
	Unit:	--	Extr. val. ch.:	--				Decim. pl.:	0					
	Cycl. tra.:	--	Comb. check:	--				Set-depend.:	--					
	HDx:		min./max.: --- / ---						Default value: ---					

5.16.113 P-0-3516, Analog input, assignment, status word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Hardware					Analog-In x
	Device parameter:					axis-specific
Function	Property name:					ActualValue.[#SI#AnalogInput]Status
	Alias idn:					P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521
	Replacement parameter of "P-0-2900.1.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3516 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.16.114 P-0-3517, Analog input, assignment, status word

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «HDB» Contained in 18VRS: «HDB» «HDC»

	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Hardware					
	Analog-In x					
	Device parameter:					
	axis-specific					
	Property name:					
	ActualValue.[#SI#AnalogInput]Status					
	Alias idn:					
	P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521					
Function	Replacement parameter of "P-0-2900.2.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3517 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx: min./max.: --- / ---					Default value: ---

5.16.115 P-0-3518, Analog input, assignment, status word

Allocation	Contained in 16VRS:					
	«HDB»					
	Contained in 17VRS:					
	«HDB» «HDC»					
	Contained in 18VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Hardware					
	Analog-In x					
	Device parameter:					
	axis-specific					
	Property name:					
	ActualValue.[#SI#AnalogInput]Status					
	Alias idn:					
	P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521					
Function	Replacement parameter of "P-0-2900.3.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3518 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx: min./max.: --- / ---					Default value: ---

5.16.116 P-0-3519, Analog input, assignment, status word

Allocation	Contained in 16VRS:					
	«HDB»					
	Contained in 17VRS:					
	«HDB» «HDC»					
	Contained in 18VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Hardware					
	Analog-In x					
	Device parameter:					
	axis-specific					
	Property name:					
	ActualValue.[#SI#AnalogInput]Status					
	Alias idn:					
	P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521					
Function	Replacement parameter of "P-0-2900.4.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3519 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx: min./max.: --- / ---					Default value: ---

5.16.117 P-0-3520, Analog input, assignment, status word

Allocation	Contained in 16VRS:					
	«HDB»					
	Contained in 17VRS:					
	«HDB» «HDC»					
	Contained in 18VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»					
	Hardware					
	Analog-In x					
	Device parameter:					
	axis-specific					
	Property name:					
	ActualValue.[#SI#AnalogInput]Status					
	Alias idn:					
	P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521					

Function	Replacement parameter of "P-0-2900.5.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3520 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.16.118 P-0-3521, Analog input, assignment, status word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Device parameter:					device-specific
	Property name:					ActualValue.[#SI#AnalogInput]Status
	Alias idn:					P-0-3515, P-0-3516, P-0-3517, P-0-3518, P-0-3519, P-0-3520, P-0-3521
Function	Replacement parameter of "P-0-2900.6.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3521 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.16.119 P-0-3522, Hardware control word of analog inputs and outputs

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «-»
	Contained in 20VRS:					«HDB» «-» «-» «HDP» «-» «-»
	Device parameter:					device-specific
	Alias idn:					P-0-3522
Function	Replacement parameter of "P-0-2918.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3522 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0x0	

5.16.120 P-0-3523, Valve command value emergency ramp

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					ErrorHandling.HaltRamp
	Alias idn:					P-0-3523
Function	Replacement parameter of "P-0-2928.0.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3523 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0,0	

5.16.121 P-0-3524, Field bus: control word fluid power

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«HDB»
	Contained in 18VRS:							«HDB» «HDC»
	Contained in 20VRS:							«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware							CiA408
Function	Device parameter:							axis-specific
	Alias idn:							P-0-3524
	Replacement parameter of "P-0-4094.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3524 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

5.16.122 P-0-3525, Field bus: status word fluid power

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware						CiA408
Function	Device parameter:						device-specific
	Alias idn:						P-0-3525
	Replacement parameter of "P-0-4094.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3525 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

5.16.123 P-0-3526, Analog input, assignment, extended control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware	Analog-In x					
Function	Device parameter:	axis-specific					
	Property name:	ActualValue.[#SI#AnalogInput]ExtControlWord					
	Alias idn:	P-0-3526, P-0-3527, P-0-3528, P-0-3529, P-0-3530, P-0-3700					
Function		Replacement parameter of "P-0-2900.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3526 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	Replacement parameter of "P-0-2900.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
Input		min./max.		Default value			
HDB:		--- / ---		0x0			
HDC:		--- / ---		0x0			
HDE:		--- / ---		0x0			
HDP:		--- / ---		0x0			
HDM:		--- / ---		0x0			
HDS:		--- / ---		0x8000			

5.16.124 P-0-3527, Analog input, assignment, extended control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»

	Hardware	Analog-In x		
	Device parameter:	axis-specific		
	Property name:	ActualValue.[#SI#AnalogInput]ExtControlWord		
	Alias idn:	P-0-3526, P-0-3527, P-0-3528, P-0-3529, P-0-3530, P-0-3700		
Function	Replacement parameter of "P-0-2900.1.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).			
P-0-3527 - Attributes	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte
			Format:	BIN
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	HDB:	--- / ---		0x0
	HDC:	--- / ---		0x0
	HDE:	--- / ---		0x0
	HDP:	--- / ---		0x0
	HDM:	--- / ---		0x0
	HDS:	--- / ---		0x8000

5.16.125 P-0-3528, Analog input, assignment, extended control word

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware		Analog-In x					
	Device parameter:		axis-specific					
Property name:		ActualValue.[#SI#AnalogInput]ExtControlWord						
Alias idn:		P-0-3526, P-0-3527, P-0-3528, P-0-3529, P-0-3530, P-0-3700						
Function		Replacement parameter of "P-0-2900.2.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						

P-0-3528 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
HDB:		--- / ---		0x0		
HDC:		--- / ---		0x0		
HDE:		--- / ---		0x0		
HDP:		--- / ---		0x0		
HDM:		--- / ---		0x0		
HDS:		--- / ---		0x8000		

5.16.126 P-0-3529, Analog input, assignment, extended control word

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»				
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
	Hardware		Analog-In x					
	Device parameter:		axis-specific					
Property name:		ActualValue.[#SI#AnalogInput]ExtControlWord						
Alias idn:		P-0-3526, P-0-3527, P-0-3528, P-0-3529, P-0-3530, P-0-3700						
Function		Replacement parameter of "P-0-2900.3.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						

P-0-3529 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
HDB:		--- / ---		0x0		
HDC:		--- / ---		0x0		
HDE:		--- / ---		0x0		
HDP:		--- / ---		0x0		
HDM:		--- / ---		0x0		
HDS:		--- / ---		0x8000		

5.16.127 P-0-3530, Analog input, assignment, extended control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«HDS»
Hardware	Analog-In x						
Device parameter:	axis-specific						
Property name:	ActualValue.[#SI#AnalogInput]ExtControlWord						
Alias idn:	P-0-3526, P-0-3527, P-0-3528, P-0-3529, P-0-3530, P-0-3700						
Function	Replacement parameter of "P-0-2900.4.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3530 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	Input	min./max.				Default value	
	HDB:	--- / ---				0x0	
	HDC:	--- / ---				0x0	
	HDE:	--- / ---				0x0	
	HDP:	--- / ---				0x0	
	HDM:	--- / ---				0x0	
	HDS:	--- / ---				0x8000	

5.16.128 P-0-3531, Pressure controller preload integrator, threshold 2

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	axis-specific						
Device parameter:	P-0-3531						
Alias idn:	P-0-3531						
Function	Replacement parameter of "P-0-2806.0.16" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3531 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:	min./max.: --- / ---				Default value: 0,0	

5.16.129 P-0-3532, Analog output, assignment, control word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Analog-Out						
Device parameter:	axis-specific						
Alias idn:	P-0-3532, P-0-3539, P-0-3546, P-0-3553						
Function	Replacement parameter of "P-0-2911.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3532 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: 0x0	

5.16.130 P-0-3533, Analog output, assignment, status word

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»

	Hardware		Analog-Out	
	Device parameter:		axis-specific	
	Alias idn:		P-0-3533, P-0-3540, P-0-3547, P-0-3554	
Function	Replacement parameter of "P-0-2911.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN)..			
P-0-3533 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte
		Format:	BIN	
		Decim. pl.:	0	
		Set-depend.:	--	
	HDx:	min./max.: --- / ---		Default value: ---

5.16.131 P-0-3534, Analog output, assignment, source parameter

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware		Analog-Out					
	Device parameter:		axis-specific					
	Alias idn:		P-0-3534, P-0-3541, P-0-3548, P-0-3555					
Function	Replacement parameter of "P-0-2911.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3534 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: 0		

5.16.132 P-0-3535, Analog output, assignment, offset

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-Out
	Device parameter:					axis-specific
	Alias idn:					P-0-3535, P-0-3542, P-0-3549, P-0-3556
Function	Replacement parameter of "P-0-2911.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3535 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0,0	

5.16.133 P-0-3536, Analog output, assignment, value range

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-Out
	Device parameter:					axis-specific
	Alias idn:					P-0-3536, P-0-3543, P-0-3550, P-0-3557
Function	Replacement parameter of "P-0-2911.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3536 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,1	

5.16.134 P-0-3537, Analog output, assignment, signal range, lower limit

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-Out
Device parameter:	axis-specific					
	Alias idn:					P-0-3537, P-0-3544, P-0-3551, P-0-3558
Function	Replacement parameter of "P-0-2911.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3537 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					min./max.: s. Text / s. Text
					Default value: ---	

5.16.135 P-0-3538, Analog output, assignment, signal range, upper limit

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-Out
Device parameter:		axis-specific				
Alias idn:		P-0-3538, P-0-3545, P-0-3552, P-0-3559				
Function	Replacement parameter of "P-0-2911.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3538 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: s. Text / s. Text		Default value: 10,000	

5.16.136 P-0-3539, Analog output, assignment, control word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-Out
Device parameter:	axis-specific					
	Alias idn:					P-0-3532, P-0-3539, P-0-3546, P-0-3553
Function	Replacement parameter of "P-0-2911.1.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3539 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0x0	

5.16.137 P-0-3540, Analog output, assignment, status word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-Out
	Device parameter:					axis-specific
	Alias idn:					P-0-3533, P-0-3540, P-0-3547, P-0-3554
Function	Replacement parameter of "P-0-2911.1.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					

P-0-3540 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.16.138 P-0-3541, Analog output, assignment, source parameter

P-0-3541 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Hardware: Analog-Out Device parameter: axis-specific Alias idn: P-0-3534 , P-0-3541 , P-0-3548 , P-0-3555				
	Function	Replacement parameter of "P-0-2911.1.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0	

5.16.139 P-0-3542, Analog output, assignment, offset

P-0-3542 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Hardware: Analog-Out Device parameter: axis-specific Alias idn: P-0-3535 , P-0-3542 , P-0-3549 , P-0-3556				
	Function	Replacement parameter of "P-0-2911.1.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.16.140 P-0-3543, Analog output, assignment, value range

P-0-3543 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Hardware: Analog-Out Device parameter: axis-specific Alias idn: P-0-3536 , P-0-3543 , P-0-3550 , P-0-3557				
	Function	Replacement parameter of "P-0-2911.1.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,1	

5.16.141 P-0-3544, Analog output, assignment, signal range, lower limit

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»

	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Analog-Out					
	Device parameter:	axis-specific					
	Alias idn:	P-0-3537, P-0-3544, P-0-3551, P-0-3558					
Function	Replacement parameter of "P-0-2911.1.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3544 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: s. Text / s. Text			Default value: ---	

5.16.142 P-0-3545, Analog output, assignment, signal range, upper limit

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«HDB»	«HDC»				«-»
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware		Analog-Out					
Device parameter:	axis-specific							
	P-0-3538, P-0-3545, P-0-3552, P-0-3559							
Alias idn:								
Function	Replacement parameter of "P-0-2911.1.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3545 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: s. Text / s. Text			Default value: 10,000		

5.16.143 P-0-3546, Analog output, assignment, control word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Hardware					Analog-Out
Device parameter:		axis-specific				
Alias idn:		P-0-3532, P-0-3539, P-0-3546, P-0-3553				
Function	Replacement parameter of "P-0-2911.2.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3546 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0x0	

5.16.144 P-0-3547, Analog output, assignment, status word

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:							«-»
	Contained in 18VRS:							«-»
	Contained in 20VRS:							«-»
	Hardware							Analog-Out
	Device parameter:							axis-specific
	Alias idn:							P-0-3533, P-0-3540, P-0-3547, P-0-3554
Function	Replacement parameter of "P-0-2911.2.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3547 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		

HDx:	min./max.: --- / ---	Default value: ---

5.16.145 P-0-3548, Analog output, assignment, source parameter

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDC» «-»
	Contained in 20VRS:					«HDC» «-» «-» «HDM» «-»
	Hardware					Analog-Out
	Device parameter:					axis-specific
	Alias idn:					P-0-3534, P-0-3541, P-0-3548, P-0-3555
Function	Replacement parameter of "P-0-2911.2.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3548 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					min./max.: --- / ---
						Default value: 0

5.16.146 P-0-3549, Analog output, assignment, offset

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Hardware					«HDC»
	Device parameter:					«HDC»
	Alias idn:					«-»
	Analog-Out axis-specific					«HDM»
	P-0-3535, P-0-3542, P-0-3549, P-0-3556					«-»
Function	Replacement parameter of "P-0-2911.2.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3549 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0,0	

5.16.147 P-0-3550, Analog output, assignment, value range

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDC» «-»
	Contained in 20VRS:					«HDC» «-» «-» «HDM» «-»
	Hardware					Analog-Out axis-specific
	Device parameter:					
	Alias idn:					P-0-3536, P-0-3543, P-0-3550, P-0-3557
Function	Replacement parameter of "P-0-2911.2.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3550 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0,1	

5.16.148 P-0-3551, Analog output, assignment, signal range, lower limit

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «-» «HDC» «-» Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-» Hardware Analog-Out Device parameter: axis-specific Alias idn: P-0-3537 , P-0-3544 , P-0-3551 , P-0-3558

Function	Replacement parameter of "P-0-2911.2.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3551 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: s. Text / s. Text			Default value: ---	

5.16.149 P-0-3552, Analog output, assignment, signal range, upper limit

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Hardware						Analog-Out
	Device parameter:						axis-specific
	Alias idn:						P-0-3538, P-0-3545, P-0-3552, P-0-3559
Function	Replacement parameter of "P-0-2911.2.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3552 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: s. Text / s. Text			Default value: 10,000	

5.16.150 P-0-3553, Analog output, assignment, control word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»
	Hardware					Analog-Out
Device parameter:		axis-specific				
Alias idn:		P-0-3532, P-0-3539, P-0-3546, P-0-3553				
Function	Replacement parameter of "P-0-2911.3.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3553 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0x0	

5.16.151 P-0-3554, Analog output, assignment, status word

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Hardware						Analog-Out
	Device parameter:						axis-specific
	Alias idn:						P-0-3533, P-0-3540, P-0-3547, P-0-3554
Function	Replacement parameter of "P-0-2911.3.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3554 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: --- / ---			Default value: ---	

5.16.152 P-0-3555, Analog output, assignment, source parameter

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»					«HDC»
	Contained in 20VRS:	«-»					«HDC»
	Hardware	Analog-Out axis-specific					
	Device parameter:						
	Alias idn:	P-0-3534, P-0-3541, P-0-3548, P-0-3555					
Function	Replacement parameter of "P-0-2911.3.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3555 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: 0	

5.16.153 P-0-3556, Analog output, assignment, offset

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«HDC»		«-»			
	Contained in 20VRS:		«HDC»		«-»	«-»	«HDM»	«-»
	Hardware		Analog-Out axis-specific					
	Device parameter:		axis-specific					
	Alias idn:		P-0-3535, P-0-3542, P-0-3549, P-0-3556					
Function	Replacement parameter of "P-0-2911.3.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3556 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: 0,0		

5.16.154 P-0-3557, Analog output, assignment, value range

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«HDC»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Hardware	Analog-Out axis-specific				
Function	Device parameter:	axis-specific				
	Alias idn:	P-0-3536, P-0-3543, P-0-3550, P-0-3557				
	Replacement parameter of "P-0-2911.3.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3557 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,1	

5.16.155 P-0-3558, Analog output, assignment, signal range, lower limit

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«HDC»				«-»	
	Contained in 20VRS:	«-»	«HDC»		«-»	«-»	«HDM»	«-»
	Hardware	Analog-Out						
Device parameter:	axis-specific							
	Alias idn:	P-0-3537, P-0-3544, P-0-3551, P-0-3558						
Function	Replacement parameter of "P-0-2911.3.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							

P-0-3558 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: s. Text / s. Text			Default value: ---	

5.16.156 P-0-3559, Analog output, assignment, signal range, upper limit

P-0-3559 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «-» «HDC» «-» Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-» Hardware Analog-Out Device parameter: axis-specific Alias idn: P-0-3538, P-0-3545, P-0-3552, P-0-3559				
	Function	Replacement parameter of "P-0-2911.3.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: s. Text / s. Text			Default value: 10,000	

5.16.157 P-0-3560, Analog input, assignment, signal range lower limit

P-0-3560 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Hardware Analog-In x Device parameter: axis-specific Alias idn: P-0-3560, P-0-3561, P-0-3562, P-0-3563, P-0-3564				
	Function	Replacement parameter of "P-0-2900.0.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: s. Text / s. Text			Default value: 0,000	

5.16.158 P-0-3561, Analog input, assignment, signal range lower limit

P-0-3561 - Attributes	Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «HDB» «HDC» «-» Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-» Hardware Analog-In x Device parameter: axis-specific Alias idn: P-0-3560, P-0-3561, P-0-3562, P-0-3563, P-0-3564				
	Function	Replacement parameter of "P-0-2900.1.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: s. Text / s. Text			Default value: 0,000	

5.16.159 P-0-3562, Analog input, assignment, signal range lower limit

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»

	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware		Analog-In x					
	Device parameter:		axis-specific					
	Alias idn:		P-0-3560, P-0-3561, P-0-3562, P-0-3563, P-0-3564					
Function	Replacement parameter of "P-0-2900.2.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3562 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: s. Text / s. Text			Default value: 0,000		

5.16.160 P-0-3563, Analog input, assignment, signal range lower limit

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware						Analog-In x axis-specific
	Device parameter:						
	Alias idn:						P-0-3560, P-0-3561, P-0-3562, P-0-3563, P-0-3564
Function	Replacement parameter of "P-0-2900.3.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3563 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: s. Text / s. Text			Default value: 0,000	

5.16.161 P-0-3564, Analog input, assignment, signal range lower limit

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-In x axis-specific
Device parameter:		P-0-3560, P-0-3561, P-0-3562, P-0-3563, P-0-3564				
Alias idn:						
Function	Replacement parameter of "P-0-2900.4.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3564 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: s. Text / s. Text			Default value: 0,000

5.16.162 P-0-3565, Analog input, assignment, signal range upper limit

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Analog-In x axis-specific
	Device parameter:					
	Alias idn:					P-0-3565, P-0-3566, P-0-3567, P-0-3568, P-0-3569
Function	Replacement parameter of "P-0-2900.0.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3565 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Default value: 10.000

5.16.163 P-0-3566, Analog input, assignment, signal range upper limit

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«HDB»	«HDC»				«-»
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware		Analog-In x					
Function	Device parameter:		axis-specific					
	Alias idn:		P-0-3565, P-0-3566, P-0-3567, P-0-3568, P-0-3569					
	Replacement parameter of "P-0-2900.1.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3566 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: s. Text / s. Text			Default value: 10.000		

Default value: 10.000

5.16.164 P-0-3567, Analog input, assignment, signal range upper limit

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware						Analog-In x axis-specific
Device parameter:		P-0-3565, P-0-3566, P-0-3567, P-0-3568, P-0-3569					
Alias idn:							
Function	Replacement parameter of "P-0-2900.2.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3567 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: s. Text / s. Text			Default value: 10,000	

Default value: 10.000

5.16.165 P-0-3568, Analog input, assignment, signal range upper limit

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware						Analog-In x
Function	Device parameter:						axis-specific
	Alias idn:						P-0-3565, P-0-3566, P-0-3567, P-0-3568, P-0-3569
Replacement parameter of "P-0-2900.3.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3568 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: s. Text / s. Text		Default value: 10,000		

Default value: 10,000

5.16.166 P-0-3569, Analog input, assignment, signal range upper limit

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Analog-In x					
	Device parameter:	axis-specific					
	Alias idn:	P-0-3565, P-0-3566, P-0-3567, P-0-3568, P-0-3569					

Function	Replacement parameter of "P-0-2900.4.9" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3569 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: s. Text / s. Text		Default value: 10,000	

5.16.167 P-0-3570, Selection of controller output

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «HDC» «-»
	Contained in 20VRS:					«-» «HDC» «-» «-» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3570
Function	Replacement parameter of "P-0-2873.0.23" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3570 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
HDB:		--- / ---			0	
HDC:		--- / ---			s. Text	
HDE:		--- / ---			0	
HDP:		--- / ---			0	
HDM:		--- / ---			s. Text	
HDS:		--- / ---			---	

5.16.168 P-0-3571, Control section temperature

Allocation	Contained in 16VRS:					«-»												
	Contained in 17VRS:					«HDB»												
	Contained in 18VRS:					«HDB»		«HDC»		«-»								
	Contained in 20VRS:					«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«-»		
	Device parameter:					device-specific												
	Alias idn:					P-0-3571												
Function	Replacement parameter of "P-0-2885.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).																	
P-0-3571 - Attributes	Function:	Par			Editable:	--			Data length:	2Byte								
	Memory:	--			Validity ch.:	--			Format:	DEC_MV								
	Unit:	S-0-0208			Extr. val. ch.:	--			Decim. pl.:	1								
	Cycl. tra.:	AT			Comb. check:	--			Set-depend.:	--								
		HDx:			min./max.: --- / ---								Default value: ---					

5.16.169 P-0-3572, Supply voltage, actual value

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					device-specific
	Alias idn:					P-0-3572
Function	Replacement parameter of "P-0-2885.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3572 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.16.170 P-0-3573, Actual current value of solenoid A

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3573
Function	Replacement parameter of "P-0-2915.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3573 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	mA	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

5.16.171 P-0-3574, Actual current value of solenoid B

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«HDB»	«HDC»			«-»	
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3574					
Function	Replacement parameter of "P-0-2915.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3574 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	mA	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---		Default value: ---			

5.16.172 P-0-3575, Natural frequency of axis

Allocation	Contained in 16VRS:					«HDS»	
	Contained in 17VRS:					«HDB»	
	Contained in 18VRS:					«HDB» «HDC» «HDS»	
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»	
	Device parameter:					axis-specific	
Function	Property name:					ActualValue.AxisFrequency	
	Alias idn:					P-0-3575	
Function		Replacement parameter of "P-0-2917.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3575 - Attributes							
Function:		Par	Editable:		++	Data length:	2Byte
Memory:		PARAM_SP	Validity ch.:		PM->OM	Format:	DEC_OV
Unit:		Hz	Extr. val. ch.:		+	Decim. pl.:	1
Cycl. tra.:		--	Comb. check:		--	Set-depend.:	--
Input		min./max.				Default value	
HDB:		10,0 / 2000,0				80,0	
HDC:		10,0 / 2000,0				80,0	
HDE:		10,0 / 2000,0				80,0	
HDP:		10,0 / 2000,0				80,0	
HDM:		10,0 / 2000,0				80,0	
HDS:		1,0 / 200,0				80,0	

5.16.173 P-0-3576, Moved mass

Allocation	Contained in 16VRS:			«HDS»		
	Contained in 17VRS:			«HDB»		
Function	Contained in 18VRS:			«HDB» «HDC» «HDS»		
	Contained in 20VRS:			«-» «-» «-» «-» «-» «-»		
P-0-3576 - Attributes	Device parameter:			axis-specific		
	Property name:			ActualValue.Weight		
Function	Alias idn:			P-0-3576		

Function	Replacement parameter of "P-0-2917.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3576 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	kg	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0	

5.16.174 P-0-3577, Simulation parameter, compact

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«HDB» «HDC» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3577
Function	Replacement parameter for "P-0-2917.0.13" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3577 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: s. Text	

5.16.175 P-0-3578, Valve standard velocity (negativ)

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Property name:					LineAdapt.ValveCtrlNominalVelNeg
	Alias idn:					P-0-3578
Function	Replacement parameter of "P-0-2873.0.11" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3578 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.16.176 P-0-3579, Valve standard velocity ramp

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Property name:					LineAdapt.ValveCtrlNominalVelRamp
	Alias idn:					P-0-3579
Function	Replacement parameter of "P-0-2873.0.18" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3579 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: S-0-0160 / S-0-0160			Default value: 0,000	

5.16.177 P-0-3581, List of available profile types

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Alias idn:					P-0-3581
Function	Replacement parameter for "P-0-4084.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3581 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.16.178 P-0-3591, Module/firmware history, compact

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					device-specific
	Alias idn:					P-0-3591
Function	Replacement parameter of "P-0-3915.0.130" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3591 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: s. Text	

5.16.179 P-0-3599, Pressure normalization

Allocation	Contained in 16VRS:					«-»		
	Contained in 17VRS:					«-»		
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3599					
Function	Replacement parameter of "P-0-2957.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3599 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	S-0-0806	Extr. val. ch.:	+	Decim. pl.:	S-0-0807 / S-0-0808		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	Input		min./max.		Default value			
	HDB:		S-0-0806 / S-0-0806		s. Text			
	HDC:		S-0-0806 / S-0-0806		31500,0			
	HDE:		S-0-0806 / S-0-0806		31500,0			
	HDP:		S-0-0806 / S-0-0806		s. Text			
	HDM:		S-0-0806 / S-0-0806		31500,0			
	HDS:		--- / ---		---			

5.17 P-0-3600 - P-0-4067

5.17.1 P-0-3600.0.1, CANopen: Device type

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
Function	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-»

Hardware CoC, CoE, CoV, Ethernet POWERLINK
Device parameter: axis-specific

Function Parameter "P-0-3600.0.1" indicates the device type according to "CiA301".
 CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPSG301".

Index 1000_h - "Device type"

Structure

Bit	Contents
15... 0	Device profile number: Indicates the profile used. Example: With profile CiA402. 402 _d (0192 _h) is displayed.
31... 16	Additional information: indicates whether the drive is in "open loop" or "closed loop". In "open loop", bit 16 = 1, in "closed loop", bit 17 = 1.

P-0-3600.0.1 - Attributes

Function: Par **Editable:** -- **Data length:** 4Byte
Memory: -- **Validity ch.:** -- **Format:** HEX
Unit: -- **Extr. val. ch.:** -- **Decim. pl.:** 0
Cycl. tra.: -- **Comb. check:** -- **Set-depend.:** --

HDx: **min./max.:** --- / --- **Default value:** ---

5.17.2 P-0-3601.0.1, CANopen: Error register

Allocation Contained in 16VRS: «-»
 Contained in 17VRS: «-»
 Contained in 18VRS: «-» «-»
 Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware CoC, CoE, CoV, Ethernet POWERLINK
Device parameter: axis-specific

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPSG301".

Index 1001_h - "Error register"

Structure Any error present is signaled as "Generic error" in bit 0.

Bit	Designation/function
0	"Generic error" 0: No error present 1: Error present
7...1	Reserved

P-0-3601.0.1 - Attributes

Function: Par **Editable:** -- **Data length:** 2Byte / 1Byte
Memory: -- **Validity ch.:** -- **Format:** BIN
Unit: -- **Extr. val. ch.:** -- **Decim. pl.:** 0
Cycl. tra.: AT + MDT **Comb. check:** -- **Set-depend.:** --

HDx: **min./max.:** --- / --- **Default value:** ---

5.17.3 P-0-3603.0.1, CANopen: Communication cycle period

Allocation Contained in 16VRS: «-»
 Contained in 17VRS: «-»
 Contained in 18VRS: «-» «-»
 Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware CoC, CoE, CoV, Ethernet POWERLINK
Device parameter: axis-specific

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPSG301".

Index 1006_h - "Communication cycle period" in µs

Use **CAN application protocol over EtherCAT (CoE):** In the FreeRun mode, the communication cycle time is configured by the object. In the DC Mode (Distributed Clock) the object is not effective, since the communication cycle time is taken from the register of the FPGA.

CANopen/CAN (CoC) and Ethernet POWERLINK (EPL):

The communication cycle time is configured by the object. The object can be written for controlling, if the slave is in the state PreOperational (CoC) or Pre-Operational1 (EPL).

P-0-3603.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.4 P-0-3604.0.1, CANopen: Manufacturer device name

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, Ethernet POWERLINK	
Device parameter:	axis-specific	

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPSG301".

Index 1008_n - "Manufacturer device name"

Contains the "Manufacturer device name" as text (string).

P-0-3604.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.5 P-0-3604.0.2, CANopen: Manufacturer hardware version

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, Ethernet POWERLINK	
Device parameter:	axis-specific	

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPSG301".

Index 1009_n - "Manufacturer hardware version"

Contains the "Manufacturer hardware version" as text (string).

P-0-3604.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.6 P-0-3604.0.3, CANopen: Manufacturer software version

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, Ethernet POWERLINK	
Device parameter:	axis-specific	

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPG301".

Index 100A_h - "Manufacturer software version"

Contains the "Manufacturer software version" as text (string).

P-0-3604.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.7 P-0-3606.0.1, Identity Object: Highest sub-index supported

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CoC, CoE, CoV, Ethernet POWERLINK
	Device parameter:	axis-specific

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPG301".

Index 1018_h - "Identity Object"

Subindex 0 - "Highest subindex supported"

Subindex	Description	Parameter
0	Highest subindex supported	P-0-3606.0.1
1	Vendor ID	P-0-3606.0.2
2	Product code	P-0-3606.0.3
3	CANopen: Revision number	P-0-3606.0.4
4	Serial number	P-0-3606.0.5

P-0-3606.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.8 P-0-3606.0.2, CANopen: Vendor ID

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CoC, CoE, CoV, Ethernet POWERLINK
	Device parameter:	axis-specific

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPG301".

Index 1018_h - "Identity Object"

Subindex 1 - "Vendor ID"

See also parameter description "P-0-3606.0.1"

P-0-3606.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.9 P-0-3606.0.3, CANopen: Product Code

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CoC, CoE, CoV, Ethernet POWERLINK				
	Device parameter:	axis-specific				

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPG301".

Index 1018_h - "Identity Object"

Subindex 2 - "Product Code"

See also parameter description "[P-0-3606.0.1](#)"

P-0-3606.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.10 P-0-3606.0.4, CANopen: Revision Number

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CoC, CoE, CoV, Ethernet POWERLINK				
	Device parameter:	axis-specific				

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPG301".

Index 1018_h - "Identity Object"

Subindex 3 - "Revision Number"

See also parameter description "[P-0-3606.0.1](#)"

P-0-3606.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.11 P-0-3606.0.5, CANopen: Serial Number

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CoC, CoE, CoV, Ethernet POWERLINK				
	Device parameter:	axis-specific				

Function CANopen object according to "CiA301" and Ethernet POWERLINK object according to "EPG301".

Index 1018_h - "Identity Object"

Subindex 4 - "Serial Number"

See also parameter description "[P-0-3606.0.1](#)"

P-0-3606.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.12 P-0-3616.0.1, ECAT: EtherCAT Address

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»					
	Contained in 20VRS:					«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware					CoE					
	Device parameter:					axis-specific					
Function	CAN over EtherCAT (CoE) object										
	Index 1100 _h - "EtherCAT address"										
	Shows the identification number of EtherCAT - also called "Second Slave Address (SSA)".										
- Attributes	Function:	Par	Editable:	--	Data length:	2Byte					
	Memory:	--	Validity ch.:	--	Format:	DEC_OV					
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0					
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--					
	HDx:	min./max.: --- / ---				Default value: ---					

5.17.13 P-0-3616.0.2, ECAT: Virtual MAC Address

Allocation	Contained in 16VRS:						«-»					
	Contained in 17VRS:						«-»					
	Contained in 18VRS:						«-»					
	Contained in 20VRS:						«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware						CoE					
Device parameter:						axis-specific						
Function	CAN over EtherCAT (CoE) object											
	Index 1110 _h - "Virtual MAC Address"											
	Shows the MAC address for Ethernet over EtherCAT (EoE).											
- Attributes	Function:	Par	Editable:	--	Data length:	2Byte / 1Byte						
	Memory:	--	Validity ch.:	--	Format:	DEC_OV						
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0						
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--						
	HDx:		min./max.: --- / ---				Default value: ---					

5.17.14 P-0-3617.0.1, ECAT: IP Address Info

Allocation	Contained in 16VRS: «-»																					
	Contained in 17VRS: «-»																					
	Contained in 18VRS: «-»		«-»		«-»																	
	Contained in 20VRS: «HDB»		«HDC»	«HDE»	«HDP»	«HDM»	«-»															
	Hardware CoE																					
Device parameter: axis-specific																						
Function	CAN over EtherCAT (CoE) object																					
	Index 1111 _h - "IP Address Info"																					
	Subindex 0 - "Highest subindex supported"																					
	<table><tr><th>Subindex</th><th>Description</th><th>Parameter</th></tr><tr><td>0</td><td>Highest subindex supported</td><td>P-0-3617.0.1</td></tr><tr><td>1</td><td>IP address</td><td>P-0-3617.0.2</td></tr><tr><td>2</td><td>Subnet Mask</td><td>P-0-3617.0.3</td></tr><tr><td>3</td><td>Default gateway</td><td>P-0-3617.0.4</td></tr></table>							Subindex	Description	Parameter	0	Highest subindex supported	P-0-3617.0.1	1	IP address	P-0-3617.0.2	2	Subnet Mask	P-0-3617.0.3	3	Default gateway	P-0-3617.0.4
Subindex	Description	Parameter																				
0	Highest subindex supported	P-0-3617.0.1																				
1	IP address	P-0-3617.0.2																				
2	Subnet Mask	P-0-3617.0.3																				
3	Default gateway	P-0-3617.0.4																				
- Attributes	Function: Par		Editable: --		Data length: 2Byte / 1Byte																	
	Memory: --		Validity ch.: --		Format: DEC_OV																	
	Unit: --		Extr. val. ch.: --		Decim. pl.: 0																	
	Cycl. tra.: --		Comb. check: --		Set-depend.: --																	

HDx:	min./max.: --- / ---	Default value: ---

5.17.15 P-0-3617.0.2, ECAT: IP Address

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
	Device parameter:	axis-specific					

Function CAN over EtherCAT (CoE) object
 Index 1111_n - "IP Address Info"
 Subindex 1 - "IP address"
 See also parameter description "[P-0-3617.0.1](#)"

P-0-3617.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.16 P-0-3617.0.3, ECAT: Subnet Mask

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
	Device parameter:	axis-specific					

Function CAN over EtherCAT (CoE) object
 Index 1111_n - "IP Address Info"
 Subindex 2 - "Subnet Mask"
 See also parameter description "[P-0-3617.0.1](#)"

P-0-3617.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.17 P-0-3617.0.4, ECAT: Default Gateway

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
	Device parameter:	axis-specific					

Function CAN over EtherCAT (CoE) object
 Index 1111_n - "IP Address Info"
 Subindex 3 - "Default Gateway"
 See also parameter description "[P-0-3617.0.1](#)"

P-0-3617.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.18 P-0-3618.0.1, ECAT: Receive PDO Mapping

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
Device parameter:		axis-specific					

Function CAN over EtherCAT (CoE) object according to /CiA301/

Index 1600_h "Receive PDO Mapping Parameter"

Subindex 0 - "number of mapped application objects in PDO"

While reading, the number of valid entries of the application objects is returned to the subindex. When a certain value is written N ($0 \leq N \leq 16$) the entries of the application objects, which are available in subindices 1 to N, are mapped in the PDO channel. Subindices N+1 through 16 become invalid.

See also parameter description "[P-0-3619.0.1](#)"

Value	Description
0	Mapping deactivated
1	Subindex 1 valid
2	Subindices 1 to 2 valid
3	Subindices 1 to 3 valid
.....	
16	Subindices 1 to 16 valid

P-0-3618.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte / 1Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0 / 16

Default value: ---

5.17.19 P-0-3619.x.1, ECAT: RPDO: application object

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
Device parameter:		axis-specific					

Function CAN over EtherCAT (CoE) object according to /CiA301/

Index 1600_h "Receive PDO Mapping Parameter"

Subindices 1 to 16 - "Application object". The relevant parameter is "[P-0-3619.x.1](#)"

Subindex	Description	Parameter
1	Entry of the application object	P-0-3619.0.1
2	Entry of the application object	P-0-3619.1.1
3	Entry of the application object	P-0-3619.2.1
4	Entry of the application object	P-0-3619.3.1
5	Entry of the application object	P-0-3619.4.1
6	Entry of the application object	P-0-3619.5.1

7	Entry of the application object	P-0-3619.6.1
8	Entry of the application object	P-0-3619.7.1
9	Entry of the application object	P-0-3619.8.1
10	Entry of the application object	P-0-3619.9.1
11	Entry of the application object	P-0-3619.10.1
12	Entry of the application object	P-0-3619.11.1
13	Entry of the application object	P-0-3619.12.1
14	Entry of the application object	P-0-3619.13.1
15	Entry of the application object	P-0-3619.14.1
16	Entry of the application object	P-0-3619.15.1

Structure The application objects in the subindices describe the content of the PDO by their index, subindex and length in bit.

Bit 31... 16	Bit 15... 8	Bit 7... 0
Index	Subindex	Length

[P-0-3619.0.1](#) - Attributes

Function: Par	Editable: PM	Data length: 4Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: HEX
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --

HDx: min./max.: --- / --- **Default value:** ---

5.17.20 [P-0-3620.0.1](#), ECAT: Transmit PDO Mapping

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «-»
	Contained in 18VRS: «-» «-» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE
Device parameter:	axis-specific

Function CAN over EtherCAT (CoE) object to /CiA301/
Index 1A00_h "Transmit PDO Mapping Parameter"

Subindex 0 - "number of mapped application objects in PDO"

When this parameter is read, the number of valid entries of application objects in the subindices is returned. When a certain value N ($0 \leq N \leq 16$) is written to the parameter, the entries of application objects available in subindices 1 to N are mapped to the PDO channel. Subindices N+1 to 16 become invalid.

See also parameter description "[P-0-3621.0.1](#)"

Value	Description
0	Mapping deactivated
1	Subindex 1 valid
2	Subindices 1 to 2 valid
3	Subindices 1 to 3 valid
.....	
16	Subindices 1 to 16 valid

P-0-3620.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte / 1Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: 0 / 16	Default value: ---	

5.17.21 P-0-3621.x.1, ECAT: TPDO: application object

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CoE
	Device parameter:	axis-specific

Function CAN over EtherCAT (CoE) object to /CiA301/
Index 1A00_h "Receive PDO mapping parameter"
Subindices 1 to 16 - "Application object".

Subindex	Description	Parameter
1	Entry of the application object	P-0-3621.0.1
2	Entry of the application object	P-0-3621.1.1
3	Entry of the application object	P-0-3621.2.1
4	Entry of the application object	P-0-3621.3.1
5	Entry of the application object	P-0-3621.4.1
6	Entry of the application object	P-0-3621.5.1
7	Entry of the application object	P-0-3621.6.1
8	Entry of the application object	P-0-3621.7.1
9	Entry of the application object	P-0-3621.8.1
10	Entry of the application object	P-0-3621.9.1
11	Entry of the application object	P-0-3621.10.1
12	Entry of the application object	P-0-3621.11.1
13	Entry of the application object	P-0-3621.12.1
14	Entry of the application object	P-0-3621.13.1
15	Entry of the application object	P-0-3621.14.1
16	Entry of the application object	P-0-3621.15.1

Structure The application objects in the subindices describe the content of the PDO by their index, subindex and length in bits.

Bit 31...16	Bit 15...8	Bit 7...0
Index	Subindex	Length

P-0-3621.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.17.22 P-0-3622.0.1, ECAT: Sync Manager Communication Type

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
	Device parameter:	axis-specific					

Function CAN over EtherCAT (CoE) object
 Index 1C00_h "Sync Manager COMMUNICATION Type"
 Subindex 0 - "Number of Sync Manager".
 Supported subindices and relevant parameters:

Subindex	Description	Parameter
0	Number of Sync Manager	P-0-3622.0.1
1	Sync Manager 0: mailbox out (Master → slave) = 1	P-0-3622.0.2
2	Sync Manager 1: mailbox in (Slave → Master) = 2	P-0-3622.0.3
3	Sync Manager 2: process data out (RxPDO) = 3	P-0-3622.0.4
4	Sync Manager 3: process data in (TxPDO) = 4	P-0-3622.0.5

[P-0-3622.0.1](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.23 P-0-3622.0.2, ECAT: Sync Manager 0

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
	Device parameter:	axis-specific					

Function CAN over EtherCAT (CoE) object
 Index 1C00_h "Sync Manager COMMUNICATION Type"
 Subindex 1 - Sync Manager 0.
 See also parameter description "[P-0-3622.0.1](#)"

[P-0-3622.0.2](#) - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.24 P-0-3622.0.3, ECAT: Sync Manager 1

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
	Device parameter:	axis-specific					

Function CAN over EtherCAT (CoE) object
 Index 1C00_h "Sync Manager Communication Type"
 Subindex 2 - Sync Manager 1.

See also parameter description "[P-0-3622.0.1](#)"**P-0-3622.0.3 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.25 P-0-3622.0.4, ECAT: Sync Manager 2

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function CAN over EtherCAT (CoE) object
Index 1C00_h "Sync Manager Communication Type"
Subindex 3 - Sync Manager 2.

See also parameter description "[P-0-3622.0.1](#)"**P-0-3622.0.4 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.26 P-0-3622.0.5, ECAT: Sync Manager 3

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function CAN over EtherCAT (CoE) object
Index 1C00_h "Sync Manager Communication Type"
Subindex 4 - Sync Manager 3.

See also parameter description "[P-0-3622.0.1](#)"**P-0-3622.0.5 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.27 P-0-3623.0.1, ECAT: PDO Assignment RX (Outputs)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function CAN over EtherCAT (CoE) object
Index 1C12_h - "PDO Assignment RX (outputs)"
Subindex 0 - "Number of PDOs"
1 PDO channel is supported, "Number of PDOs" = 1.
Supported subindices and relevant parameters:

Subindex	Description	Parameter
0	Number of PDOs = 1	P-0-3623.0.1
1	PDO Assign Outputs 1 = 1600 _h	P-0-3623.0.2

P-0-3623.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.28 P-0-3623.0.2, ECAT: PDO Assign Outputs 1

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function CAN over EtherCAT (CoE) object

Index 1C12_h - "PDO assignment RX (outputs)"

Subindex 1 - "PDO assign outputs 1". See parameter [P-0-3623.0.1](#)

1 PDO channel is supported, "PDO assign outputs 1" = 1600_h.

P-0-3623.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.29 P-0-3624.0.1, ECAT: PDO Assignment TX (Inputs)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function CAN over EtherCAT (CoE) object

Index 1C13_h - "PDO assignment TX (inputs)"

Subindex 0 - "Number of PDOs"

1 PDO channel is supported, "number of PDOs" = 1.

For supported subindices and corresponding parameters, see the following table:

Subindex	Description	Parameter
0	Number of PDOs = 1	P-0-3624.0.1
1	PDO assign outputs 1 = 1A00 _h	P-0-3624.0.2

P-0-3624.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.30 P-0-3624.0.2, ECAT: PDO Assign Inputs 1

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»		«-»		«-»	
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware		CoE					
	Device parameter:		axis-specific					
Function	CAN over EtherCAT (CoE) object							
	Index 1C13 _h - "PDO assignment TX (inputs)"							
	Subindex 1 - "PDO assign outputs 1". See parameter P-0-3624.0.1							
	1 PDO channel is supported, "PDO assign outputs 1" = 1A00 _h .							
	P-0-3624.0.2 - Attributes							
	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	HEX		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---				Default value: ---		

5.17.31 P-0-3626.0.1, EPL: Verify Configuration

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	This parameter contains the number of parameters, which are used to configure the drive (CN) by the managed node (MN).					
P-0-3626.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.32 P-0-3626.0.2, EPL: ConfDate

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware						Ethernet POWERLINK
	Device parameter:						axis-specific
Function	The parameter contains the "configuration date", which is written by the Managed Node (MN) when the drive (CN) is being configured.						
	Contents: Number of days since January 1, 1984						
P-0-3626.0.2 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

5.17.33 P-0-3626.0.3, EPL: ConfTime

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Ethernet POWERLINK					
	Device parameter:	axis-specific					

Function This parameter contains the "configuration time" which is written by the managed node (MN) when the drive (CN) is configured.

Content: Number of milliseconds (ms) since midnight.

P-0-3626.0.3 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.34 P-0-3627.0.1, EPL: Interface Group

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Ethernet POWERLINK				

Device parameter: axis-specific

Function This parameter shows the number of entries of the "NMT_InterfaceGroup" (P-0-3627.0.2 to P-0-3627.0.10).

P-0-3627.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.35 P-0-3627.0.2, EPL: Interface Index

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Ethernet POWERLINK				

Device parameter: axis-specific

Function The parameter contains the number of the physical Ethernet POWERLINK interface of the drive. It is computed from object number - 0x102F.

Example: 0x1030 - 0x102 F = 1

⇒ Number of the physical Ethernet POWERLINK interface in the drive = 1

P-0-3627.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.36 P-0-3627.0.3, EPL: Interface Description

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Ethernet POWERLINK				

Device parameter: axis-specific

Function The parameter contains the vendor's name, product name and hardware version of the drive.

P-0-3627.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.37 P-0-3627.0.4, EPL: Interface Type

Allocation	Contained in 16VRS:	«-»												
	Contained in 17VRS:	«-»												
	Contained in 18VRS:	«-» «-»												
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»												
	Hardware	Ethernet POWERLINK												
	Device parameter:	axis-specific												
Function	The parameter indicates the type of interface, distinguished by the physical/link protocol/s directly below the network layer in the protocol stack.													
Structure	<table border="1"> <thead> <tr> <th>Value</th><th>Designation/function</th><th>Comment</th></tr> </thead> <tbody> <tr> <td>1</td><td>Others</td><td></td></tr> <tr> <td>6</td><td>ethernet-csmacd</td><td></td></tr> <tr> <td>7</td><td>iso88023-csmacd</td><td></td></tr> </tbody> </table>		Value	Designation/function	Comment	1	Others		6	ethernet-csmacd		7	iso88023-csmacd	
Value	Designation/function	Comment												
1	Others													
6	ethernet-csmacd													
7	iso88023-csmacd													

Tab. 5-134: P-0-3627.0.4, EPL: Interface type

P-0-3627.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.38 P-0-3627.0.5, EPL: Interface Mtu

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «-» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	The parameter contains the maximum packet size of the telegrams (MTU, Maximum Transmission Unit) that can be received or sent by the drive.					
- Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.39 P-0-3627.0.6, EPL: Interface Phys Address

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware						Ethernet POWERLINK
	Device parameter:						axis-specific
Function	This parameter contains the MAC address of the master communication interface.						
- Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.	
	Memory:	--	Validity ch.:	--	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
		HDx:	min./max.: --- / ---			Default value: ---	

5.17.40 P-0-3627.0.7, EPL: Interface Name

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Ethernet POWERLINK					
Device parameter:	axis-specific					

Function This parameter contains the name of the master communication interface for reference purposes. It can be used for a device driver to access the interface, for example.

P-0-3627.0.7 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---		Default value: ---	

5.17.41 P-0-3627.0.8, EPL: Interface Oper Status

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Ethernet POWERLINK				
Device parameter:		axis-specific				

Function The parameter contains the operational state of the master communication interface.

Value	Designation/function	Comment
0	Out of operation	
1	In operation	

Tab. 5-135: P-0-3627.0.8

P-0-3627.0.8 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---		Default value: ---	

5.17.42 P-0-3627.0.9, EPL: Interface Admin State

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Ethernet POWERLINK				
Device parameter:		axis-specific				

Function The parameter contains the administration status of the master communication interface.

Value	Designation/function	Comment
0	Interface out of operation	
1	Interface in operation	

Tab. 5-136: P-0-3627.0.9

P-0-3627.0.9 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---		Default value: ---	

5.17.43 P-0-3627.0.10, EPL: Valid

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Ethernet POWERLINK
	Device parameter:	axis-specific
Function	The parameter contains information, whether or not the data of parameters "P-0-3627.0.1" to "P-0-3627.0.9" (object 0x1030, NMT_InterfaceGroup) are valid.	
Structure	Value	Designation/function
	0 (FALSE)	Data in object are invalid
	1 (TRUE)	Data in object are valid
		Comment

Tab. 5-137: P-0-3627.0.10

P-0-3627.0.10 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.44 P-0-3628.0.1, EPL: Sequ Layer Timeout

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «-» «-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Timeout in milliseconds (ms) until the connection interruption of an acyclic SDO transmission sequence is recognized.					
- Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.45 P-0-3629.0.1, EPL: Cmd Layer Timeout

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Timeout in milliseconds (ms) until the connection interruption of an acyclic SDO command is recognized.					
- Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.46 P-0-3630.0.1, EPL: Rx Comm Param

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»

	Hardware		Ethernet POWERLINK	
	Device parameter:		axis-specific	
Function	This parameter contains the number of entries in object 0x1400.			
P-0-3630.0.1 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte / 1Byte
			Format:	DEC_OV
			Decim. pl.:	0
			Set-depend.:	--
	HDx:	min./max.: --- / ---		Default value: ---

5.17.47 P-0-3630.0.2, EPL: Node ID

Allocation	Contained in 16VRS:		«-»	
	Contained in 17VRS:		«-»	
	Contained in 18VRS:		«-»	«-»
	Contained in 20VRS:		«HDB»	«HDC»
			«HDE»	«HDP»
			«HDM»	«-»
Hardware	Ethernet POWERLINK			
	Device parameter: axis-specific			
Function	This parameter contains the node ID of the drive.			
P-0-3630.0.2 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte / 1Byte
			Format:	DEC_OV
			Decim. pl.:	0
			Set-depend.:	--
	HDx:	min./max.: --- / ---		Default value: ---

5.17.48 P-0-3630.0.3, EPL: Mapping Version

Allocation	Contained in 16VRS:	«-»										
	Contained in 17VRS:	«-»										
	Contained in 18VRS:	«-»	«-»			«-»						
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»						
	Hardware	Ethernet POWERLINK										
	Device parameter:	axis-specific										
Function	Mapping version of the process data received (RPDO). The drive checks the mapping version in the received PDO and compares it to the version set here. If the "main version" differs, the RPDO is ignored. If the "main version" is identical, but the "sub-version" differs, the RPDO is accepted.											
Structure	<table><tr><th>Bit</th><th>Designation/function</th></tr><tr><td>0... 3 (low-nibble)</td><td>Sub version</td></tr><tr><td>4... 7 (high-nibble)</td><td>Main version</td></tr></table>						Bit	Designation/function	0... 3 (low-nibble)	Sub version	4... 7 (high-nibble)	Main version
Bit	Designation/function											
0... 3 (low-nibble)	Sub version											
4... 7 (high-nibble)	Main version											

Tab. 5-138: P-0-3630.0.3, EPL: Mapping version

P-0-3630.0.3 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.49 P-0-3631.0.1, EPL: Rx Mapp Param

Allocation	Contained in 16VRS:		«-»	
	Contained in 17VRS:		«-»	
	Contained in 18VRS:		«-»	«-»
	Contained in 20VRS:		«HDB»	«HDC»
			«HDE»	«HDP»
			«HDM»	«-»
Hardware	Ethernet POWERLINK			
	Device parameter: axis-specific			
Function	Number of mapped objects in the RPDO. Before entries in object 0x1600 can be changed, the MN has to set this value to 0. In order that the entries can become effective again, the number of entries in this parameter must again be set to <> 0.			

Structure

Value	Designation/function
0	RPDO deactivated
1... 254	Number of mapped objects in the RPDO.

Tab. 5-139: P-0-3631.0.1, EPL: Rx Mapp Param

P-0-3631.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.50 P-0-3631.x.2, EPL: Rx Object Mapping

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Ethernet POWERLINK					
Device parameter:	axis-specific					

Function Structure

Mapping of objects in the RPDO.

Octet - offset	Name	Comment
0 - 1	Index	Index of the mapped object
2	Subindex	Subindex of the mapped object
3	Reserved	
4 - 5	Offset	Offset of the mapped object within the payload data in the PRDO (in bits)
6 - 7	Length	Length of the mapped object in the PRDO (in bits)

Tab. 5-140: Mapping structure of the objects in the RPDO

P-0-3631.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	8Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.51 P-0-3632.0.1, EPL: Tx Comm Param

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Ethernet POWERLINK					
Device parameter:	axis-specific					

Function

This parameter contains the number of entries in object 0x1800.

P-0-3632.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.52 P-0-3632.0.2, EPL: Node ID

Allocation

Contained in 16VRS:	«-»					
Contained in 17VRS:	«-»					
Contained in 18VRS:	«-»	«-»	«-»			
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»

	Hardware		Ethernet POWERLINK	
	Device parameter:		axis-specific	
Function	Node ID of the node that receives the TDO. Since the drive is a controlled node (CN), the entry is not used according to the specification (always 0).			
P-0-3632.0.2 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte / 1Byte
		Format:	DEC_OV	
		Decim. pl.:	0	
		Set-depend.:	--	
	HDx:	min./max.: --- / ---		Default value: ---

5.17.53 P-0-3632.0.3, EPL: Mapping Version

Allocation

Contained in 16VRS:

Contained in 17VRS:

Contained in 18VRS:

Contained in 20VRS:

Hardware

Device parameter:

«-»

«-»

«-»

«HDB»

«HDC»

«HDE»

«HDP»

«HDM»

«-»

Ethernet POWERLINK

axis-specific

Function Structure

Mapping version of the process data to be sent (TPDO).

Bit	Designation/function
0... 3 (low-nibble)	Sub version
4... 7 (high-nibble)	Main version

Tab. 5-141:

P-0-3632.0.3, EPL: Mapping version

P-0-3632.0.3 - Attributes

Function:

Memory:

Unit:

Cycl. tra.:

HDx:

Par

--

--

--

min./max.: --- / ---

Editable:

Validity ch.:

Extr. val. ch.:

Comb. check:

++

--

--

--

Data length:

Format:

Declm. pl.:

Set-depend.:

2Byte / 1Byte

DEC_OV

0

--

Default value:

5.17.54 P-0-3633.0.1, EPL: Tx Mapp Param

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware		Ethernet POWERLINK					
	Device parameter:		axis-specific					
Function	Number of mapped objects in the TPDO. Before the entries in object 0x1A00 can be changed, the MN must set this value to 0. In order that the entries can become effective again, the number of entries in this parameter has to be set to <> 0.							
Structure								
	Value				Designation/function			
	0				TPDO deactivated			
	1... 254				Number of mapped objects in the TPDO.			
Tab. 5-142: P-0-3633.0.1, EPL: Tx Mapp Param								
P-0-3633.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte / 1Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_OV		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

5.17.55 P-0-3633.x.2, EPL: Tx Object Mapping

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Ethernet POWERLINK
	Device parameter:	axis-specific

Function Mapping of objects in the TPDO.

Structure Structure of entries

Octet - offset	Name	Comment
0-1	Index	Index of the mapped object
2	Subindex	Subindex of the mapped object
3	Reserved	
4-5	Offset	Offset of the mapped object within the payload data in the RPDO (in bits)
6-7	Length	Length of the mapped object in the RPDO (in bits)

Tab. 5-143: Structure of mapping of objects in the TPDO, P-0-3633.000.002

P-0-3633.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	8Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.56 P-0-3634.0.1, EPL: CN Loss SoC

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Ethernet POWERLINK
	Device parameter:	axis-specific

Function Number of entries in object 0x1C0B, CN Loss SoC.

P-0-3634.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.57 P-0-3634.0.2, EPL: Loss SoC: Cumulative Cnt

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	Ethernet POWERLINK
	Device parameter:	axis-specific

Function SoC failure counter, which is increased by the value "1" whenever the controlled node (CN) detects a "loss of SoC".

P-0-3634.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.58 P-0-3634.0.3, EPL: Loss SoC: Threshold Cnt

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Hardware	Ethernet POWERLINK				
Device parameter:	axis-specific				

Function SoC threshold value counter. It is increased by the value "8" whenever the controlled node (CN) detects a "loss of SoC". It is reduced by the value "1", if no "loss of SoC" was detected within a cycle.

P-0-3634.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.59 P-0-3634.0.4, EPL: Loss SoC: Threshold

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Hardware	Ethernet POWERLINK				
Device parameter:	axis-specific				

Function If the "Loss SoC: Threshold Cnt" exceeds the threshold value set here, the drive changes to the "Pre-Operational 1" state and the threshold value counter (0x1C0Bsub2) is reset to 0.

The threshold value counter is deactivated when the threshold value is set to 0 here. In this case, the drive does not execute an error reaction upon "Loss of SoC".

P-0-3634.0.4 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.60 P-0-3635.0.1, EPL: CN CRC Error

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»
Hardware	Ethernet POWERLINK				
Device parameter:	axis-specific				

Function Number of entries in object 0x1C0F, CN CRC Error.

P-0-3635.0.1 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.61 P-0-3635.0.2, EPL: CRC Error: Cumulative Cnt

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			

	Contained in 18VRS:	«-»	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Ethernet POWERLINK					
	Device parameter:	axis-specific					
Function	SoC failure counter, which is increased by the value “1” whenever the controlled node (CN) detects a "CRC error".						
P-0-3635.0.2 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_OV	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: --- / ---			Default value: ---		

5.17.62 P-0-3635.0.3, EPL: CRC Error: Threshold Cnt

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	The parameter writes to the CRC threshold value counter. The CRC threshold value counter is increased by the value “8” whenever the controlled node (CN) detects a "CRC error". It is reduced by the value “1”, if no "CRC error" was detected within a cycle.					
P-0-3635.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.63 P-0-3635.0.4, EPL: CRC Error: Threshold

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»					
	Contained in 20VRS:					«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware					Ethernet POWERLINK					
Device parameter:					axis-specific						
Function	If the CN exceeds the set threshold value of the parameter "CRC Error: Threshold Cnt", the drive executes an error reaction and the threshold value counter (0x1C0Fsub2) is reset to the value "0".										
	The threshold value counter is deactivated when the threshold value is set to the value "0". In this case, the drive does not execute an error reaction upon a "CRC error".										
P-0-3635.0.4 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte					
	Memory:	--	Validity ch.:	--	Format:	DEC_OV					
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0					
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--					
	HDx:		min./max.: --- / ---				Default value: ---				

5.17.64 P-0-3636.0.1, EPL: CN Loss Of SoC Tolerance

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Ethernet POWERLINK					
Device parameter:	axis-specific						
Function	The drive supports a tolerance interval in ns, which is applied when the parameter "Loss of SoC" is recognized.						

P-0-3636.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.65 P-0-3637.0.1, EPL: IP Addr Table

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Number of entries in object 0x1E40, NWL_IpAddrTable.

P-0-3637.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.66 P-0-3637.0.2, EPL: If Index

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Interface index of the associated IP interface of the drive. The interface is the same as in object 0x1030sub01 (see [P-0-3627.0.2](#)).

P-0-3637.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.67 P-0-3637.0.3, EPL: Addr IPAD

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function IP address of the Ethernet POWERLINK interface of the drive. Since the Ethernet POWERLINK network is always a class-C network, the drive always has an IP address within the range of 192.168.100.x. The host ID of the IPv4 address (x) is identical to the node ID of the drive.

P-0-3637.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.68 P-0-3637.0.4, EPL: Net Mask IPAD

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»

	Hardware		Ethernet POWERLINK			
	Device parameter:		axis-specific			
Function	Subnet mask of the IP interface of master communication of the drive.					
P-0-3637.0.4 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value:	---

5.17.69 P-0-3637.0.5, EPL: Reasm Max Size

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Length of the largest IP telegram that the drive can assemble from the IP fragments arriving via Ethernet POWERLINK master communication.					
P-0-3637.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.70 P-0-3637.0.6, EPL: Default Gateway IPAD

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Default gateway of IP communication via the Ethernet POWERLINK interface of the drive.					
P-0-3637.0.6 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.71 P-0-3638.0.1, EPL: Ip Group

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Number of entries in object 0x1E4A, NWL_IpGroup.					
P-0-3638.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.72 P-0-3638.0.2, EPL: Forwarding

Allocation	Contained in 16VRS:		«-»	
	Contained in 17VRS:		«-»	
	Contained in 18VRS:		«-»	

Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Hardware	Ethernet POWERLINK					
Device parameter:	axis-specific					

Function Capability of the drive to forward IP telegrams, which are received by the drive, but are not intended for the drive.

Structure

Bit	Designation/function
0 (FALSE)	No forwarding
1 (TRUE)	Forwarding

Tab. 5-144: P-0-3638.0.2

P-0-3638.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.73 P-0-3638.0.3, EPL: Default TTL

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Default value for the time-to-live (TTL) field in the IP header of a telegram generated by the drive, if this value is not supported by the transport layer.

P-0-3638.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.74 P-0-3638.0.4, EPL: Forward Datagrams

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Number of received telegrams, the final IP destination of which is not this drive.

However, an attempt was made to find a route for forwarding to the final destination.

P-0-3638.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.75 P-0-3639.0.1, EPL: Feature Flags

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Properties, which the drive has with regard to the Ethernet POWERLINK communication profile.

Structure

Octet	Bit	Designation/function	Property
0	0	Isochronous	0 (FALSE): Drive does not support isochronous access via PReq. 1 (TRUE): Isochronous access to the drive possible via PReq.
	1	SDO via UDP/IP	0 (FALSE): Drive does not support SDO communication via POWERLINK Asnd Frames. 1 (TRUE): Drive supports SDO communication via POWERLINK Asnd Frames.
	2	SDO via Asnd	0 (FALSE): Drive does not support SDO communication via POWERLINK Asnd Frames. 1 (TRUE): Drive supports SDO communication via POWERLINK Asnd Frames.
	3	SDO via PDO	0 (FALSE): Drive does not support SDO communication by means of containers in the PDO channel. 1 (TRUE): Drive supports SDO communication by means of containers in the PDO channel.
	4	NMT info service	0 (FALSE): Drive does not support NMT info service 1 (TRUE): Drive supports NMT info service
	5	Extended NMT state commands	0 (FALSE): Drive does not support extended NMT state commands. 1 (TRUE): Drive does not support extended NMT state commands.
	6	Dynamic PDO mapping	0 (FALSE): Drive does not support dynamic PDO mapping. 1 (TRUE): Drive supports dynamic PDO mapping.
	7	NMT services via UDP/IP	0 (FALSE): Drive does not support NMT services via UDP/IP. 1 (TRUE): Drive supports NMT services via UDP/IP.

Octet	Bit	Designation/function	Property
1	8	Configuration manager	0 (FALSE): Drive does not support configuration manager functions. 1 (TRUE): Drive supports configuration manager functions.
	9	Multiplex access	0 (FALSE): Drive does not support isochronous Multiplex access. 1 (TRUE): Drive supports isochronous Multiplex access.
	10	Node ID setting by means of SW	0 (FALSE): Drive does not support node ID setting by means of SW. 1 (TRUE): Drive supports node ID setting by means of SW.
	11	MN basic Ethernet mode	0 (FALSE): MN does not support Basic Ethernet mode. 1 (TRUE): MN supports Basic Ethernet mode.
	12	Support of routing type 1	0 (FALSE): Drive does not support routing type 1. 1 (TRUE): Drive supports routing type 1.
	13	Support of routing type 2	0 (FALSE): Drive does not support routing type 2. 1 (TRUE): Drive supports routing type 2.
	14	Read/write all SDO by index	0 (FALSE): Drive does not support reading/writing all SDOs by index. 1 (TRUE): Drive supports reading/writing all SDOs by index.
	15	Read/write multiple parameters with SDO by index	0 (FALSE): Drive does not support reading/writing multiple parameters by index. 0 (FALSE): Drive supports reading/writing multiple parameters by index.
	16... 31	Reserved	

Tab. 5-145: P-0-3639.000.001

P-0-3639.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.76 P-0-3640.0.1, EPL: EPL Version

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Structure Version of the drive's Ethernet POWERLINK communication profile.

Bit	Designation/function
0... 3 (low nibble)	POWERLINK subversion
4... 7 (high nibble)	POWERLINK main version

Tab. 5-146: P-0-3640.0.1

P-0-3640.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.77 P-0-3641.0.1, EPL: Curr NMT State

Allocation	Contained in 16VRS:				«-»
	Contained in 17VRS:				«-»
	Contained in 18VRS:				«-»
	Contained in 20VRS:				«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware				Ethernet POWERLINK
	Device parameter:				axis-specific
Function	Current NMT status of the drive according to Ethernet POWERLINK specification.				
P-0-3641.0.1 - Attributes	Function:	Par	Editable:	--	Data length: 2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format: DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.: --
	HDx:				min./max.: --- / --- Default value: ---

5.17.78 P-0-3642.0.1, EPL: EPL Node ID

Allocation	Contained in 16VRS:				«-»
	Contained in 17VRS:				«-»
	Contained in 18VRS:				«-»
	Contained in 20VRS:				«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware				Ethernet POWERLINK
	Device parameter:				axis-specific
Function	Number of entries in object 0x1F93, EPLNodeID.				
P-0-3642.0.1 - Attributes	Function:	Par	Editable:	--	Data length: 2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format: DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.: --
	HDx:				min./max.: --- / --- Default value: ---

5.17.79 P-0-3642.0.2, EPL: Node ID

Allocation	Contained in 16VRS:				«-»
	Contained in 17VRS:				«-»
	Contained in 18VRS:				«-»
	Contained in 20VRS:				«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware				Ethernet POWERLINK
	Device parameter:				axis-specific
Function	Ethernet POWERLINK node ID of the drive. The node ID of the drive can only be set by means of software (e.g. IndraWorks).				
P-0-3642.0.2 - Attributes	Function:	Par	Editable:	--	Data length: 2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format: DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.: --
	HDx:				min./max.: --- / --- Default value: ---

5.17.80 P-0-3642.0.3, EPL: Node ID By HW

Allocation	Contained in 16VRS:				«-»
	Contained in 17VRS:				«-»
	Contained in 18VRS:				«-»
	Contained in 20VRS:				«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware				Ethernet POWERLINK
	Device parameter:				axis-specific
Function	The Boolean flag signals whether or not the node ID of the Ethernet POWERLINK drive can be set exclusively by means of hardware (HW) or software (SW).				
	0 (FALSE) for drives, the node ID of which can be set exclusively by means of SW.				

1 (TRUE) for drives, the node ID of which can be set exclusively by means of HW.

P-0-3642.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x0 / 0x1

Default value: ---

5.17.81 P-0-3642.0.4, EPL: SW Node ID

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Node ID of the controlled node (CN).

This parameter serves to configure the node ID of the CN by means of software.

P-0-3642.0.4 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / ---

Default value: ---

5.17.82 P-0-3643.0.1, EPL: Cycle Timing

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Number of entries in object 0x1F98, NMT_CycleTiming.

P-0-3643.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / ---

Default value: ---

5.17.83 P-0-3643.0.2, EPL: Isochr Tx Max Payload

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Maximum length of data in the isochronous telegram to be sent (in octets).

P-0-3643.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / ---

Default value: ---

5.17.84 P-0-3643.0.3, EPL: Isochr Rx Max Payload

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»

	Hardware		Ethernet POWERLINK	
	Device parameter:		axis-specific	
Function	Maximum length of data in the isochronous telegram to be received (in octets).			
P-0-3643.0.3 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte
		Format:	DEC_OV	
		Decim. pl.:	0	
		Set-depend.:	--	
	HDx:	min./max.: --- / ---		Default value: ---

5.17.85 P-0-3643.0.4, EPL: Pres Max Latency

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Maximum time in ns required by the CN to reply to a PReq.					
P-0-3643.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.86 P-0-3643.0.5, EPL: Preq Act Payload Limit

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Contains the length of the payload data in octets in the PReq to be expected by the CN. The length of payload data plus header results in the length of the PReq frames.					
P-0-3643.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.87 P-0-3643.0.6, EPL: Pres Act Payload Limit

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Contains the length of the payload data in octets in the PReq sent by the CN. The length of payload data plus header results in the length of the PReq frames. The payload data can be filled by the PDO up to this limit.					
P-0-3643.0.6 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.88 P-0-3643.0.7, EPL: Asnd Max Latency

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Maximum time in ns required by the CN to reply to an SoA.					
P-0-3643.0.7 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.89 P-0-3643.0.8, EPL: Multiple Cycle Cnt

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Describes the length of the multiplexed cycle in multiples of the POWERLINK cycle.					
P-0-3643.0.8 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.90 P-0-3643.0.9, EPL: Async MTU

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Ethernet POWERLINK
	Device parameter:					axis-specific
Function	Maximum frame size for asynchronous data in octets. The value is valid for Asnd frames as well as for UDP/IP and other Ethernet frames. The value therefore describes the length of the complete Ethernet frame minus 14 octets for Ethernet header and 4 octets of checksum.					
P-0-3643.0.9 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.91 P-0-3643.0.10, EPL: Prescaler

Allocation	Contained in 16VRS:				«-»
	Contained in 17VRS:				«-»
	Contained in 18VRS:				«-»
	Contained in 20VRS:				«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware				Ethernet POWERLINK
	Device parameter:				axis-specific
Function	Change rate of the SoC PS flag. The value represents the number of cycles until the MN toggles the flag.				
	If this value is 0, there shall be no toggling of the PS flag.				
	If this value is 1, the PS flag is to be toggled in each cycle.				

If this value is 2, the PS flag is to be toggled in every second cycle.

This toggling can take place with any optional further values.

P-0-3643.0.10 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.92 P-0-3644.0.1, EPL: CN Basic Ethernet Timeout

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function Delay time of the drive in us, before it automatically switches from state "not active" to state "Basic Ethernet".

P-0-3644.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.93 P-0-3645.0.1, EPL: Host Name

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function DNS host name of the drive.

P-0-3645.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.94 P-0-3646.0.1, EPL: Reset Cmd

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	Ethernet POWERLINK	
Device parameter:	axis-specific	

Function The parameter is used to initiate a reset transition in the POWERLINK state machine.

Structure Values

Value	Designation/function	Comment
0x28	NMTRResetNode	The drive executes the corresponding transition in the POWERLINK state machine.
0x29	NMTRResetCommunication	
0x2A	NMTRResetConfiguration	

Value	Designation/function	Comment
0x2B	NMTSwReset	The drive executes a complete reboot (S-0-1350, C6400 reboot command).
0xFF	NMTInvalidService	When the parameter is read, this value is always returned.

Tab. 5-147: P-0-3646.0.1

P-0-3646.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.95 P-0-3647.0.1, ECAT: Synchronization Type (Outputs) number of entries

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	CoE					
Device parameter:	axis-specific					

Function This parameter shows the number of supported subindices.

CAN over EtherCAT (CoE) object

Index 1C32_h - "Output Sync Manager Parameter"

Subindex 0 - "Highest subindex supported".

Supported subindices and pertaining parameters:

Subindex	Description	Parameter
0	Highest subindex supported	P-0-3647.0.1
1	Synchronization type (outputs)	P-0-3647.0.2
4	Synchronization types supported (outputs)	P-0-3647.0.5
6	Calc and copy time (outputs)	P-0-3647.0.7
9	Delay time (outputs)	P-0-3647.0.10

P-0-3647.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.96 P-0-3647.0.2, ECAT: Synchronization Type (Outputs)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Hardware	CoE					
Device parameter:	axis-specific					

Function The EtherCAT Slave Controller (ESC) Register 0981_h determines which synchronization type is used by the slave.

CAN over EtherCAT (CoE) object

Index 1C32_h - "Output Sync Manager Parameter"

Subindex 1 - "Synchronization type (outputs)"

The synchronization type used is shown:

Value	Content
00 _h	Free run (not synchronous)
03 _h	DC Sync1 (synchronized with Sync1 event)

P-0-3647.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.97 P-0-3647.0.5, ECAT: Synchronization Types Supported (Outputs)

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
Device parameter:	axis-specific						
Function	The parameter indicates the supported synchronization types (Free Run and DC Sync1).						
	CAN over EtherCAT (CoE) object						
	Index 1C32 _h - "Output Sync manager parameter"						
	Subindex 4 - "Synchronization types supported (outputs)"						

Bit	Description	Comment
0	1: Free run is supported	
1	1: SYNC mode is supported	
4/3/2	010: DC Sync1 is supported	

Tab. 5-148: P-0-3647.0.5

P-0-3647.0.5 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.98 P-0-3647.0.7, ECAT: Calc and Copy Time (Outputs)

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	CoE					
	Device parameter:	axis-specific					
Function	The command value (process data master → slave) is cyclically received by the slave from the EtherCAT FPGA and processed. This takes place one position controller cycle before the Sync1 event. For this reason, the EtherCAT telegram with the command value is to be received one position controller cycle before the Sync1 event. The time of a position controller cycle varies depending on the device derivative and performance. This is designated "Calc and copy time (outputs)". CAN over EtherCAT (CoE) object Index 1C32_h - "Output Sync manager parameter" Subindex 6 - "Calc and copy time (outputs)"						



The "Calc and copy time (outputs)" - object 1C32_h subindex 6 - before the Sync1 event and the "Calc and copy time (inputs)" - object 1C33_h subindex 6 - after the Sync1 event together form a protection time. During this protection time, the master must not send the EtherCAT telegram.

See also parameter description "[P-0-3648.0.7](#)"

P-0-3647.0.7 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	ns	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.99 P-0-3647.0.10, ECAT: Delay Time (Outputs)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function The "delay time (outputs)" in parameter "[P-0-3647.0.10](#)" is always zero, because the command value becomes effective directly after the Sync1 event.

CAN over EtherCAT (CoE) object

Index 1C32_h - "Output Sync manager parameter"

Subindex 9 - "Delay time (outputs)"

P-0-3647.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	ns	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.100 P-0-3648.0.1, ECAT: Synchronization Type (Inputs) number of entries

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function This parameter shows the number of supported subindices.

CAN over EtherCAT (CoE) object

Index 1C33_h - "Input SYNC manager parameter"

Subindex 0 - "Highest subindex supported".

Subindex	Description	Parameter
0	Highest subindex supported	P-0-3648.0.1
1	Synchronization type (inputs)	P-0-3648.0.2
4	Synchronization types supported (inputs)	P-0-3648.0.5
6	Calc and copy time (inputs)	P-0-3648.0.7
9	Delay time (inputs)	P-0-3648.0.10

P-0-3648.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte / 1Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.101 P-0-3648.0.2, ECAT: Synchronization Type (Inputs)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CoE				
Device parameter:		axis-specific				

Function The EtherCAT Slave Controller (ESC) Register 0981_h determines which synchronization type is used by the slave.
 CAN over EtherCAT (CoE) object
 Index 1C33_h - "Input Sync manager parameter"
 Subindex 1 - "Synchronization type (inputs)"
 Identical to object 1C32_h subindex 1
 See also parameter description "[P-0-3647.0.2](#)"

P-0-3648.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.102 P-0-3648.0.5, ECAT: Synchronization Types Supported (Inputs)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CoE				
Device parameter:		axis-specific				

Function The parameter indicates the supported synchronization types (Free Run and DC Sync1).
 CAN over EtherCAT (CoE) object
 Index 1C33_h - "Input Sync manager parameter"
 Subindex 4 - "Synchronization types supported (inputs)"
 Identical to object 1C32_h subindex 4
 See also parameter description "[P-0-3647.0.5](#)"

P-0-3648.0.5 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.103 P-0-3648.0.7, ECAT: Calc and Copy Time (Inputs)

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CoE				
Device parameter:		axis-specific				

Function The actual value (process data slave → master) is saved at the time of the DC Sync1 event. For the delay, until the data are ready for collection in the

EtherCAT Slave Controller (ESC) FPGA, half a position controller cycle is to be provided. This half position controller cycle is termed "Calc and copy time (inputs)".

CAN over EtherCAT (CoE) object

Index 1C33_h - "Input Sync manager parameter"

Subindex 6 - "Calc and copy time (inputs)"



The "Calc and copy time (outputs)" - object 1C32_h subindex 6 - before the Sync1 event and the "Calc and copy time (inputs)" - object 1C33_h subindex 6 - after the Sync1 event together form a protection time. During this protection time, the master must not send the EtherCAT telegram.

See also parameter description "[P-0-3647.0.7](#)"

P-0-3648.0.7 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	ns	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.104 P-0-3648.0.10, ECAT: Delay Time (Inputs)

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoE	
Device parameter:	axis-specific	

Function The "delay time (inputs)" in parameter "[P-0-3648.0.10](#)" is always zero, because the command value becomes effective directly after the Sync1 event.

CAN over EtherCAT (CoE) object

Index 1C33_h - "Input Sync manager parameter"

Subindex 9 - "Delay time (inputs)"

P-0-3648.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	ns	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.105 P-0-3700, Analog input, assignment, extended control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«-» «-» «-» «-» «-» «HDS»
Hardware	Analog-In x	
Device parameter:	axis-specific	
Property name:	ActualValue.[#SI#AnalogInput]ExtControlWord	
Alias idn:	P-0-3526 , P-0-3527 , P-0-3528 , P-0-3529 , P-0-3530 , P-0-3700	

Function Replacement parameter of "[P-0-2900.5.7](#)" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3700 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
HDB:	--- / ---	0x0

HDC:	--- / ---	0x0
HDE:	--- / ---	0x0
HDP:	--- / ---	0x0
HDM:	--- / ---	0x0
HDS:	--- / ---	0x8000

5.17.106 P-0-3701, Flow control word

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3701
Function	Replacement parameter of "P-0-2929.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3701 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0x0	

5.17.107 P-0-3702, Flow status word

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:		«HDB»					
	Contained in 18VRS:		«HDB»	«HDC»			«-»	
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3702					
Function	Replacement parameter of "P-0-2929.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3702 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

5.17.108 P-0-3703, Flow ramp time positive, acceleration

Allocation	Contained in 16VRS:		«-»											
	Contained in 17VRS:		«HDB»											
	Contained in 18VRS:		«HDB»		«HDC»		«-»							
	Contained in 20VRS:		«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«-»	
	Device parameter:		axis-specific											
	Alias idn:		P-0-3703											
Function	Replacement parameter of "P-0-2929.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).													
P-0-3703 - Attributes	Function:	Par	Editable:	++		Data length:	2Byte							
	Memory:	PARAM_SP	Validity ch.:	--		Format:	DEC_OV							
	Unit:	ms	Extr. val. ch.:	--		Decim. pl.:	1							
	Cycl. tra.:	--	Comb. check:	--		Set-depend.:	--							
	HDx:	min./max.: --- / ---					Default value: 0,0							

5.17.109 P-0-3704, Flow ramp time positive, deceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
	Alias idn:	P-0-3704				

Function Replacement parameter of "P-0-2929.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3704 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.17.110 P-0-3705, Flow ramp time negative, acceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function Replacement parameter of "P-0-2929.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3705 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.17.111 P-0-3706, Flow ramp time negative, deceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function Replacement parameter of "P-0-2929.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3706 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,0	

5.17.112 P-0-3707, Swivel angle sensor configuration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function Replacement parameter of "P-0-2949.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3707 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0x0	

5.17.113 P-0-3708, Swivel angle sensor, lower working point

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		

	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter:					
	axis-specific					
	Alias idn:					
	P-0-3708					
Function	Replacement parameter of "P-0-2949.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3708 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 2,000	

5.17.114 P-0-3709, Swivel angle sensor, upper working point

Allocation	Contained in 16VRS:					
	«-»					
	Contained in 17VRS:					
	«-»					
	Contained in 18VRS:					
	«-» «-»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter:					
	axis-specific					
	Alias idn:					
	P-0-3709					
Function	Replacement parameter of "P-0-2949.0.3" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3709 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 8,000	

5.17.115 P-0-3710, Swivel angle sensor wire rupture, lower threshold

Allocation	Contained in 16VRS:					
	«-»					
	Contained in 17VRS:					
	«-»					
	Contained in 18VRS:					
	«-» «-»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter:					
	axis-specific					
	Alias idn:					
	P-0-3710					
Function	Replacement parameter of "P-0-2949.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3710 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 0,200	

5.17.116 P-0-3711, Swivel angle sensor wire rupture, upper threshold

Allocation	Contained in 16VRS:					
	«-»					
	Contained in 17VRS:					
	«-»					
	Contained in 18VRS:					
	«-» «-»					
	Contained in 20VRS:					
	«HDB» «HDC» «HDE» «HDP» «HDM» «-»					
	Device parameter:					
	axis-specific					
	Alias idn:					
	P-0-3711					
Function	Replacement parameter of "P-0-2949.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3711 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 9,800	

5.17.117 P-0-3712, Swivel angle sensor wire rupture, timeout

Allocation	Contained in 16VRS:					«-»												
	Contained in 17VRS:					«-»												
	Contained in 18VRS:					«-»		«-»		«-»								
	Contained in 20VRS:					«HDB»		«HDC»		«HDE»		«HDP»		«HDM»		«-»		
	Device parameter:					axis-specific												
	Alias idn:					P-0-3712												
Function	Replacement parameter of "P-0-2949.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).																	
P-0-3712 - Attributes	Function:	Par			Editable:	++			Data length:	2Byte								
	Memory:	PARAM_SP			Validity ch.:	PM->OM			Format:	DEC_OV								
	Unit:	ms			Extr. val. ch.:	--			Decim. pl.:	0								
	Cycl. tra.:	--			Comb. check:	--			Set-depend.:	--								
		HDx:			min./max.: --- / ---			Default value: 50										

5.17.118 P-0-3713, Analog input of swivel angle feedback value

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3713
Function	Replacement parameter of "P-0-2949.0.7" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3713 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	3	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: ---	

5.17.119 P-0-3714, Filter time of swivel angle feedback value

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3714
Function	Replacement parameter of "P-0-2949.0.8" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3714 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: 0 / 100			Default value: 0	

5.17.120 P-0-3715, Nominal flow

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «-» «-»
	Contained in 20VRS:						«HDB» «-» «HDE» «HDP» «-» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3715
Function	Replacement parameter of "P-0-2875.0.5" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3715 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC MV	

Unit:	S-0-0845	Extr. val. ch.:	--	Decim. pl.:	S-0-0846 S-0-0847	/
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:	min./max.: --- / ---			Default value: ---		

5.17.121 P-0-3716, Nominal pressure delta p

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«HDB» «-» «-»
	Contained in 20VRS:						«HDB» «-» «HDE» «HDP» «-» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3716
Function	Replacement parameter of "P-0-2875.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3716 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 S-0-0808	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

5.17.122 P-0-3717, Outputs of position controller, compact

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Alias idn:					P-0-3717
Function	Replacement parameter of "P-0-2831.0.130" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3717 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.123 P-0-3718, Extended diagnostic message

Allocation	Contained in 16VRS:					«-»						
	Contained in 17VRS:					«-»						
	Contained in 18VRS:					«-»						
	Contained in 20VRS:					«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»	
	Hardware					ENC-Profil						
	Device parameter:					device-specific						
	Alias idn:					P-0-3718, P-0-3719						
Function	Replacement parameter of "S-0-0600.1.136" for communication interfaces which do not support any 32-bit ident numbers (EIDN).											
P-0-3718 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte						
	Memory:	--	Validity ch.:	--	Format:	BIN						
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0						
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--						
	HDx:	min./max.: --- / ---					Default value: ---					

5.17.124 P-0-3719, Extended diagnostic message

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Hardware	ENC-Profil				

	Device parameter: device-specific	
	Alias idn: P-0-3718, P-0-3719	
Function	Replacement parameter of "S-0-0600.2.136" for communication interfaces which do not support any 32-bit ident numbers (EIDN).	
P-0-3719 - Attributes	Function: Par	Editable: --
	Memory: --	Validity ch.: --
	Unit: --	Extr. val. ch.: --
	Cycl. tra.: --	Comb. check: --
	Data length: 2Byte	Format: BIN
	Decim. pl.: 0	Set-depend.: --
	HDx: min./max.: --- / ---	Default value: ---

5.17.125 P-0-3720, Default profile

Allocation	Contained in 16VRS: «-»	
	Contained in 17VRS: «-»	
	Contained in 18VRS: «-»	«-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM»	«-»
	Device parameter: axis-specific	
	Alias idn: P-0-3720	
Function	Replacement parameter of "P-0-4084.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).	
P-0-3720 - Attributes	Function: Par	Editable: --
	Memory: --	Validity ch.: --
	Unit: --	Extr. val. ch.: --
	Cycl. tra.: --	Comb. check: --
	Data length: 2Byte	Format: HEX
	Decim. pl.: 0	Set-depend.: --
	HDx: min./max.: --- / ---	Default value: ---

5.17.126 P-0-3722, Pressure controller preload, pressure change filter time

Allocation	Contained in 16VRS: «-»	
	Contained in 17VRS: «-»	
	Contained in 18VRS: «-»	«-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM»	«-»
	Device parameter: axis-specific	
	Alias idn: P-0-3722	
Function	Replacement parameter of "P-0-2806.0.17" for communication interfaces which do not support any 32-bit ident numbers (EIDN).	
P-0-3722 - Attributes	Function: Par	Editable: ++
	Memory: PARAM_SP	Validity ch.: PM->OM
	Unit: ms	Extr. val. ch.: +
	Cycl. tra.: --	Comb. check: --
	Data length: 2Byte	Format: DEC_OV
	Decim. pl.: 1	Set-depend.: Grp. 2
	HDx: min./max.: 0,0 / 100,0	Default value: 0,0

5.17.127 P-0-3727, Actual pilot value

Allocation	Contained in 16VRS: «-»	
	Contained in 17VRS: «HDB»	
	Contained in 18VRS: «HDB» «HDC»	«-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM»	«-»
	Device parameter: axis-specific	
	Alias idn: P-0-3727	
Function	Replacement parameter of "P-0-2915.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).	
P-0-3727 - Attributes	Function: Par	Editable: ++
	Memory: --	Validity ch.: --
	Unit: %	Extr. val. ch.: --
	Cycl. tra.: AT	Comb. check: --
	Data length: 4Byte	Format: DEC_MV
	Decim. pl.: 3	Set-depend.: --
	HDx: min./max.: --- / ---	Default value: ---

5.17.128 P-0-3728, Output of main stage controller

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:						«-»	
	Contained in 18VRS:		«HDB»	«HDC»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3728					
Function	Replacement parameter of "P-0-2915.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3728 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte		
	Memory:	--	Validity ch.:	--	Format:	DEC_MV		
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	3		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

5.17.129 P-0-3729, Output pressure controller P-gain

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3729
Function	Replacement parameter of "P-0-2806.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3729 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte	
	Memory:	--	Validity ch.:	--	Format:	DEC_MV	
	Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808	
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---				Default value: ---	

5.17.130 P-0-3736, Pressure controller adaptation, P-term

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»	«-»			
	Contained in 20VRS:		«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:		axis-specific					
	Alias idn:		P-0-3736					
Function	Replacement parameter of "P-0-2806.0.18" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3736 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte		
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV		
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3		
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--		
		HDx:	min./max.: -100,000 / 100,000			Default value: 1,000		

5.17.131 P-0-3737, Pressure controller adaptation, D-term

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3737					
Function	Replacement parameter of "P-0-2806.0.19" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3737 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM SP	Validity ch.:	PM->OM	Format:	DEC MV	

Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: -100,000 / 100,000			Default value: 1,000	

5.17.132 P-0-3738, Pressure controller disturbance feedforward

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3738
Function	Replacement parameter of "P-0-2806.0.20" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3738 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV	
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3	
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: -100,000 / 100,000			Default value: 0,000	

5.17.133 P-0-3739, Input of output adjustment

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
Function	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
P-0-3739 - Attributes	Device parameter:					axis-specific
	Property name:					LineAdapt.CtrlVelInputSetValue
Function	Alias idn:					P-0-3739
	Replacement parameter of "P-0-2873.0.12" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3739 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
P-0-3739 - Attributes	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:						min./max.: --- / --- Default value: ---

5.17.134 P-0-3740, Hardware control word of analog inputs and outputs

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-» «HDC» «-»
	Contained in 20VRS:						«-» «HDC» «-» «-» «HDM» «-»
	Device parameter:						device-specific
	Alias idn:						P-0-3740
Function	Replacement parameter of "P-0-2918.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3740 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:		min./max.: --- / ---			Default value: 0x0	

5.17.135 P-0-3745, Hardware control word of analog inputs and outputs

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
Function	Contained in 18VRS:					«-»
	Contained in 20VRS:					«-» «-» «HDE» «-» «-» «-»
P-0-3745 - Attributes	Device parameter:					axis-specific
	Alias idn:					P-0-3745

Function	Replacement parameter of "P-0-2915.0.4" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3745 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0x0	

5.17.136 P-0-3748, Password configuration

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Alias idn:					P-0-3748
Function	Replacement parameter of "P-0-4064.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3748 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0x0	

5.17.137 P-0-3749, Password token

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB»
	Device parameter:					axis-specific
	Alias idn:					P-0-3749
Function	Replacement parameter of "P-0-4064.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3749 - Attributes	Function:	Par	Editable:	PM	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.138 P-0-3750, Sercos: Test-IDN for Conformity purpose - configuration

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware					Sercos, SoE, SoV
	Device parameter:					axis-specific
	Alias idn:					P-0-3750
Function	"S-0-1099.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3750 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.139 P-0-3751, Sercos: Test-IDN for Conformity purpose

Allocation	Contained in 16VRS: «-»				
	Contained in 17VRS: «HDB»				

	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Sercos, SoE, SoV				
	Device parameter:	axis-specific				
	Alias idn:	P-0-3751				
Function	"S-0-1099.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3751 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.140 P-0-3752, PLC user program

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»			«-»	
	Contained in 20VRS:		«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:		device-specific					
	Alias idn:		P-0-3752					
Function	Replacement parameter of "P-0-1349.0.1" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3752 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.		
	Memory:	--	Validity ch.:	--	Format:	HEX		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
		HDx:	min./max.: --- / ---			Default value: ---		

5.17.141 P-0-3753, PLC user program

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:	«-»						
	Contained in 18VRS:	«-»	«-»					«-»
	Contained in 20VRS:	«-»	«HDC»		«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific						
	Alias idn:	P-0-3753,		P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,		P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,		P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
P-0-3771,		P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,		
P-0-3777,		P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,		
P-0-3783,		P-0-3784						
Function	Replacement parameter of "P-0-1349.0.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3753 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.		
	Memory:	--	Validity ch.:	--	Format:	HEX		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	HDx:	min./max.: --- / ---			Default value: ---			

5.17.142 P-0-3754, PLC user program

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
Alias idn:		P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
		P-0-3783, P-0-3784					

Function	Replacement parameter of "P-0-1349.1.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3754 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.143 P-0-3755, PLC user program

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-»		«-»		«-»	
	Contained in 20VRS: «-»		«HDC»		«-»	
			«HDP»		«HDM»	
	Device parameter:		device-specific			
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,					
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,					
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,					
	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,					
Alias idn:	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,					
	P-0-3783, P-0-3784					
Function	Replacement parameter of "P-0-1349.2.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3755 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.144 P-0-3756, PLC user program

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-»		«-»		«-»	
	Contained in 20VRS: «-»		«HDC»		«-»	
	Device parameter:		«HDP»		«HDM»	
	device-specific					
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,					
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,					
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,					
	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,					
Alias idn:	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,					
	P-0-3783, P-0-3784					
Function	Replacement parameter of "P-0-1349.3.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3756 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.145 P-0-3757, PLC user program

Allocation	Contained in 16VRS: «-»				
	Contained in 17VRS: «-»				
	Contained in 18VRS: «-» «-»				
	Contained in 20VRS: «-» «HDC» «-» «HDP» «HDM» «-»				
	Device parameter: device-specific				
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,				
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,				
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,				
Alias idn:	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,				
	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,				
	P-0-3783, P-0-3784				

Function Replacement parameter of "P-0-1349.4.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3757 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.146 P-0-3758, PLC user program

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
P-0-3783,		P-0-3784					

Function Replacement parameter of "P-0-1349.5.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3758 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.147 P-0-3759, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
P-0-3783,		P-0-3784					

Function Replacement parameter of "P-0-1349.6.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3759 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.148 P-0-3760, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
P-0-3783,		P-0-3784					

Function	Replacement parameter of "P-0-1349.7.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3760 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.149 P-0-3761, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Device parameter:						device-specific
	Alias idn:						P-0-3753, P-0-3759, P-0-3765, P-0-3771, P-0-3777, P-0-3783,
							P-0-3754, P-0-3760, P-0-3766, P-0-3772, P-0-3778, P-0-3784
P-0-3755, P-0-3761, P-0-3767, P-0-3773, P-0-3779,							
P-0-3756, P-0-3762, P-0-3768, P-0-3774, P-0-3780,							
P-0-3757, P-0-3763, P-0-3769, P-0-3775, P-0-3781,							
						P-0-3758, P-0-3764, P-0-3770, P-0-3776, P-0-3782,	
Function	Replacement parameter of "P-0-1349.8.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3761 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.	
	Memory:	--	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:		min./max.: --- / ---			Default value: ---		

5.17.150 P-0-3762, PLC user program

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»		«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
P-0-3783,		P-0-3784					
Function	Replacement parameter of "P-0-1349.9.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3762 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.	
	Memory:	--	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:	min./max.: --- / ---			Default value: ---		

5.17.151 P-0-3763, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Device parameter:	device-specific				
Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
	P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
	P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
	P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
	P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
	P-0-3783,	P-0-3784				

Function	Replacement parameter of "P-0-1349.10.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3763 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.152 P-0-3764, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Device parameter:						device-specific
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,						
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,						
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,						
	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,						
	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,						
P-0-3783, P-0-3784							
Alias idn:							
Function	Replacement parameter of "P-0-1349.11.2" for communication interfaces						
	which do not support any 32-bit ident numbers (EIDN).						
P-0-3764 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.	
	Memory:	--	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	HDx:						min./max.: --- / ---
	Default value:						---

5.17.153 P-0-3765, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«-»
	Device parameter:						device-specific
	P-0-3753,						P-0-3754,
	P-0-3759,						P-0-3760,
	P-0-3765,						P-0-3766,
	P-0-3771,						P-0-3772,
	P-0-3777,						P-0-3778,
Alias idn:	P-0-3783,						P-0-3784
	P-0-3755,						P-0-3756,
	P-0-3761,						P-0-3762,
	P-0-3767,						P-0-3768,
	P-0-3773,						P-0-3774,
	P-0-3779,						P-0-3780,
	P-0-3781,						P-0-3782,
	P-0-3757,						P-0-3758,
	P-0-3763,						P-0-3764,
	P-0-3769,						P-0-3770,
P-0-3775,						P-0-3776,	
P-0-3781,						P-0-3782,	

Function	Replacement parameter of "P-0-1349.12.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					

P-0-3765 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.154 P-0-3766, PLC user program

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «-»					
	Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-»					
	Device parameter: device-specific					
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,					
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,					
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,					
Alias idn:	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,					
	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,					
	P-0-3783, P-0-3784					

Function	Replacement parameter of "P-0-1349.13.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
P-0-3766 - Attributes	Function: Par	Editable: PM	Data length: 4Byte var.		
	Memory: --	Validity ch.: --	Format: HEX		
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0		
	Cycl. tra.: --	Comb. check: --	Set-depend.: --		
	HDx:	min./max.: --- / ---	Default value: ---		

5.17.155 P-0-3767, PLC user program

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «-» «-» Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-» Device parameter: device-specific				
Alias idn:	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758, P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764, P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770, P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776, P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782, P-0-3783, P-0-3784				
Function	Replacement parameter of "P-0-1349.14.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
P-0-3767 - Attributes	Function: Par	Editable: PM	Data length: 4Byte var.		
	Memory: --	Validity ch.: --	Format: HEX		
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0		
	Cycl. tra.: --	Comb. check: --	Set-depend.: --		
	HDx:	min./max.: --- / ---	Default value: ---		

5.17.156 P-0-3768, PLC user program

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «-» «-» Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-» Device parameter: device-specific				
Alias idn:	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758, P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764, P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770, P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776, P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782, P-0-3783, P-0-3784				
Function	Replacement parameter of "P-0-1349.15.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).				
P-0-3768 - Attributes	Function: Par	Editable: PM	Data length: 4Byte var.		
	Memory: --	Validity ch.: --	Format: HEX		
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0		
	Cycl. tra.: --	Comb. check: --	Set-depend.: --		
	HDx:	min./max.: --- / ---	Default value: ---		

5.17.157 P-0-3769, PLC user program

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «-» «-» Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-» Device parameter: device-specific				
Alias idn:	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758, P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764, P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770, P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776, P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782, P-0-3783, P-0-3784				

Function Replacement parameter of "P-0-1349.16.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3769 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.158 P-0-3770, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
P-0-3783,		P-0-3784					

Function Replacement parameter of "P-0-1349.17.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3770 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.159 P-0-3771, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
P-0-3783,		P-0-3784					

Function Replacement parameter of "P-0-1349.18.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3771 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.160 P-0-3772, PLC user program

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«-»
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					
	Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
P-0-3783,		P-0-3784					

Function	Replacement parameter of "P-0-1349.19.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3772 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.161 P-0-3773, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Device parameter:	device-specific				
Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
	P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
	P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
	P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
	P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
Function	Replacement parameter of "P-0-1349.20.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
P-0-3773 - Attributes	HDx:	min./max.: --- / ---			Default value: ---	

5.17.162 P-0-3774, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Device parameter:	device-specific				
Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
	P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
	P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
	P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
	P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
Function	Replacement parameter of "P-0-1349.21.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
P-0-3774 - Attributes	HDx:	min./max.: --- / ---			Default value: ---	

5.17.163 P-0-3775, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM»
	Device parameter:	device-specific				
Alias idn:	P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757,	P-0-3758,
	P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763,	P-0-3764,
	P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769,	P-0-3770,
	P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775,	P-0-3776,
	P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781,	P-0-3782,
Function	Replacement parameter of "P-0-1349.22.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
P-0-3775 - Attributes	HDx:	min./max.: --- / ---			Default value: ---	

Function Replacement parameter of "P-0-1349.22.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3775 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.164 P-0-3776, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				
		P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757, P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763, P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769, P-0-3770,
Alias idn:		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775, P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781, P-0-3782,
		P-0-3783,	P-0-3784			

Function Replacement parameter of "P-0-1349.23.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3776 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.165 P-0-3777, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				
		P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757, P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763, P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769, P-0-3770,
Alias idn:		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775, P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781, P-0-3782,
		P-0-3783,	P-0-3784			

Function Replacement parameter of "P-0-1349.24.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3777 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.166 P-0-3778, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				
		P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757, P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763, P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769, P-0-3770,
Alias idn:		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775, P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781, P-0-3782,
		P-0-3783,	P-0-3784			

Function	Replacement parameter of "P-0-1349.25.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3778 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.167 P-0-3779, PLC user program

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-»		«-»		«-»	
	Contained in 20VRS: «-»		«HDC»		«HDM»	
	Device parameter: device-specific					
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,					
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,					
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,					
	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,					
	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,					
P-0-3783, P-0-3784						
Alias idn:						
Function	Replacement parameter of "P-0-1349.26.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3779 - Attributes						
Function:	Par	Editable:	PM	Data length:	4Byte var.	
Memory:	--	Validity ch.:	--	Format:	HEX	
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
HDx:	min./max.: --- / ---			Default value: ---		

5.17.168 P-0-3780, PLC user program

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-»		«-»		«-»	
	Contained in 20VRS: «-»		«HDC»		«-»	«-»
	Device parameter:		device-specific			
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,					
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,					
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,					
	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,					
	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,					
P-0-3783, P-0-3784						
Alias idn:						
Function	Replacement parameter of "P-0-1349.27.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3780 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.17.169 P-0-3781, PLC user program

Allocation	Contained in 16VRS: «-»				
	Contained in 17VRS: «-»				
	Contained in 18VRS: «-» «-»				
	Contained in 20VRS: «-» «HDC» «-» «-» «HDM» «-»				
	Device parameter: device-specific				
	P-0-3753, P-0-3754, P-0-3755, P-0-3756, P-0-3757, P-0-3758,				
	P-0-3759, P-0-3760, P-0-3761, P-0-3762, P-0-3763, P-0-3764,				
	P-0-3765, P-0-3766, P-0-3767, P-0-3768, P-0-3769, P-0-3770,				
Alias idn:	P-0-3771, P-0-3772, P-0-3773, P-0-3774, P-0-3775, P-0-3776,				
	P-0-3777, P-0-3778, P-0-3779, P-0-3780, P-0-3781, P-0-3782,				
	P-0-3783, P-0-3784				

Function Replacement parameter of "P-0-1349.28.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3781 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.170 P-0-3782, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				
		P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757, P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763, P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769, P-0-3770,
Alias idn:		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775, P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781, P-0-3782,
		P-0-3783,	P-0-3784			

Function Replacement parameter of "P-0-1349.29.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3782 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.171 P-0-3783, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				
		P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757, P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763, P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769, P-0-3770,
Alias idn:		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775, P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781, P-0-3782,
		P-0-3783,	P-0-3784			

Function Replacement parameter of "P-0-1349.30.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3783 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.172 P-0-3784, PLC user program

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«-»	«HDC»	«-»	«-»	«HDM» «-»
	Device parameter:	device-specific				
		P-0-3753,	P-0-3754,	P-0-3755,	P-0-3756,	P-0-3757, P-0-3758,
		P-0-3759,	P-0-3760,	P-0-3761,	P-0-3762,	P-0-3763, P-0-3764,
		P-0-3765,	P-0-3766,	P-0-3767,	P-0-3768,	P-0-3769, P-0-3770,
Alias idn:		P-0-3771,	P-0-3772,	P-0-3773,	P-0-3774,	P-0-3775, P-0-3776,
		P-0-3777,	P-0-3778,	P-0-3779,	P-0-3780,	P-0-3781, P-0-3782,
		P-0-3783,	P-0-3784			

Function	Replacement parameter of "P-0-1349.31.2" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3784 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.173 P-0-3785, Valve monitoring delay

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					ActualValue.ValveMonitoringDelayTime
	Alias idn:					P-0-3785
Function	Replacement parameter of "P-0-2880.0.6" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3785 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 0	

5.17.174 P-0-3786, Control variable adjustment of command value, maintenance

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«HDB» «HDC»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					OutputData.SetValueValveService
	Alias idn:					P-0-3786
Function	Replacement parameter of "P-0-2873.0.17" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3786 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	HDB:	-100,000 / 100,000			---	
	HDC:	-100,000 / 100,000			---	
	HDE:	-100,000 / 100,000			---	
	HDP:	-100,000 / 100,000			---	
	HDM:	-100,000 / 100,000			---	
	HDS:	-0,100 / 0,100			---	

5.17.175 P-0-3789, Velocity controller integrator feedback threshold

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3789
Function	Replacement parameter of "P-0-2832.0.11" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3789 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM SP	Validity ch.:	PM->OM	Format:	DEC OV

Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: 0,0000	

5.17.176 P-0-3790, Velocity controller integrator feedback time constant

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«-»
	Contained in 18VRS:						«-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
	Alias idn:						P-0-3790
Function	Replacement parameter of "P-0-2832.0.12" for communication interfaces which do not support any 32-bit ident numbers (EIDN).						
P-0-3790 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV	
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2	
	HDx:		min./max.: --- / ---			Default value: 0	

5.17.177 P-0-3792, Active damping: Acceleration gain ramp time

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
P-0-3792 - Attributes	Property name:					StateControl.AccGainRampTime
	Alias idn:					P-0-3792
	Replacement parameter of "P-0-2832.0.15" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
Function	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:		min./max.: --- / ---		Default value: 0	

5.17.178 P-0-3793, Active damping: Velocity gain ramp time

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «HDS»
	Device parameter:					axis-specific
Function	Property name:					StateControl.VelGainRampTime
	Alias idn:					P-0-3793
	Replacement parameter of "P-0-2832.0.16" for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3793 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:		min./max.: --- / ---		Default value: 0	

5.17.179 P-0-3818, Master communication: List of available protocols

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
Function	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»

	Device parameter: axis-specific		
	Alias idn: P-0-3818		
Function	"P-0-4089.0.17" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).		
P-0-3818 - Attributes	Function: Par	Editable: --	Data length: 4Byte var.
	Memory: --	Validity ch.: --	Format: DEC_OV
	Unit: --	Extr. val. ch.: --	Decim. pl.: 0
	Cycl. tra.: --	Comb. check: --	Set-depend.: --
	HDx:	min./max.: --- / ---	Default value: ---

5.17.180 P-0-3820, Filter time of pressure feedback value

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3820
Function	"P-0-2806.0.21" replacement parameter for communication interfaces which do not support 32-bit IDNs (EIDN).					
P-0-3820 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: 0,0 / 6500,0			Default value: 0,0	

5.17.181 P-0-3821, Derivative action time, actual pressure value DT1

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-»		«-»		«-»	
	Contained in 20VRS: «HDB»		«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:		axis-specific			
	Alias idn:		P-0-3821			
Function	"P-0-2806.0.22" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3821 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: 0,0 / 6500,0			Default value: 0,0	

5.17.182 P-0-3822, Filter time of pressure feedback value DT1

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3822
Function	"P-0-2806.0.23" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3822 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
	HDx:	min./max.: 0,0 / 6500,0			Default value: 0,0	

5.17.183 P-0-3844, Additive velocity command value

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					axis-specific
	Alias idn:					P-0-3844
Function	"P-0-2832.0.17" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3844 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: S-0-0044 / S-0-0044				Default value: ---

5.17.184 P-0-3845, Synchronization control word

Allocation	Contained in 16VRS:					«-»					
	Contained in 17VRS:					«-»					
	Contained in 18VRS:					«-»		«-»		«HDS»	
	Contained in 20VRS:					«-»		«-»		«HDM»	
	Device parameter:					axis-specific					
Function	Property name:					SynchBase.ControlWord					
	Alias idn:					P-0-3845					
	"P-0-2860.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).										
P-0-3845 - Attributes											
Function	Function:	Par	Editable:	++		Data length:	2Byte				
	Memory:	PARAM_SP	Validity ch.:	--		Format:	BIN				
	Unit:	--	Extr. val. ch.:	--		Decim. pl.:	0				
	Cycl. tra.:	MDT	Comb. check:	--		Set-depend.:	--				
	HDx:		min./max.: --- / ---				Default value: 0x0				

5.17.185 P-0-3846, Synchronization status word

Allocation	Contained in 16VRS:						«-»	
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»	«-»				«HDS»
	Contained in 20VRS:		«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:		axis-specific					
Function	Property name:		SynchBase.StatusWord					
	Alias idn:		P-0-3846					
	"P-0-2860.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).							
P-0-3846 - Attributes								
P-0-3846 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte		
	Memory:	--	Validity ch.:	--	Format:	BIN		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--		
	HDx:		min./max.: --- / ---			Default value: ---		

5.17.186 P-0-3847, Synchronization position P-gain

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»				«HDS»
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«HDS»
	Device parameter:	axis-specific					
	Property name:	PosControl.PosPGain					
	Alias idn:	P-0-3847, P-0-3849					
Function	"P-0-2862.1.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).						

P-0-3847 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,00	

5.17.187 P-0-3848, Synchronization position integral time

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	PosControl.PosIGain				
Alias idn:	P-0-3848, P-0-3850				

Function "P-0-2862.1.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3848 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 1000	

5.17.188 P-0-3849, Synchronization position P-gain

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	PosControl.PosPGain				
Alias idn:	P-0-3847, P-0-3849				

Function "P-0-2862.2.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3849 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,00	

5.17.189 P-0-3850, Synchronization position integral time

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	
	Contained in 20VRS:	«-»	«-»	«-»	«HDM» «HDS»
Device parameter:	axis-specific				
Property name:	PosControl.PosIGain				
Alias idn:	P-0-3848, P-0-3850				

Function "P-0-2862.2.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3850 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 1000	

5.17.190 P-0-3851, Synchronization force P-gain

Allocation	Contained in 16VRS:	«-»			
	Contained in 17VRS:	«-»			
	Contained in 18VRS:	«-»	«-»	«HDS»	

	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: ForceControl.ForcePGain					
	Alias idn: P-0-3851, P-0-3853					
Function	"P-0-2863.1.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3851 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 1,00	

5.17.191 P-0-3852, Synchronization force integration time

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «HDS»					
	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: ForceControl.ForceIGain					
	Alias idn: P-0-3852, P-0-3854					
Function	"P-0-2863.1.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3852 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 300	

5.17.192 P-0-3853, Synchronization force P-gain

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «HDS»					
	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: ForceControl.ForcePGain					
	Alias idn: P-0-3851, P-0-3853					
Function	"P-0-2863.2.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3853 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 1,00	

5.17.193 P-0-3854, Synchronization force integration time

Allocation	Contained in 16VRS: «-»					
	Contained in 17VRS: «-»					
	Contained in 18VRS: «-» «-» «HDS»					
	Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS»					
	Device parameter: axis-specific					
	Property name: ForceControl.ForceIGain					
	Alias idn: P-0-3852, P-0-3854					
Function	"P-0-2863.2.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3854 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: 1,00	

HDx:	min./max.: --- / ---	Default value: 300

5.17.194 P-0-3855, Synchronization velocity P-gain

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-» «-» «HDS»
	Contained in 20VRS:					«-» «-» «-» «-» «HDM» «HDS»
	Device parameter:					axis-specific
	Property name:					VelControl.VelPGain
	Alias idn:					P-0-3855, P-0-3857
Function	"P-0-2864.1.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3855 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 1,00	

5.17.195 P-0-3856, Synchronization velocity integration time

Allocation	Contained in 16VRS:				«-»	
	Contained in 17VRS:				«-»	
	Contained in 18VRS:				«-» «-» «HDS»	
	Contained in 20VRS:				«-» «-» «-» «-» «HDM» «HDS»	
	Device parameter:				axis-specific	
	Property name:				VelControl.VelIGain	
	Alias idn:				P-0-3856, P-0-3858	
Function	"P-0-2864.1.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3856 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 100	

5.17.196 P-0-3857, Synchronization velocity P-gain

Allocation	Contained in 16VRS:				«-»	
	Contained in 17VRS:				«-»	
	Contained in 18VRS:				«-» «-» «HDS»	
	Contained in 20VRS:				«-» «-» «-» «-» «HDM» «HDS»	
	Device parameter:				axis-specific	
	Property name:				VelControl.VelPGain	
	Alias idn:				P-0-3855, P-0-3857	
Function	"P-0-2864.2.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
P-0-3857 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: 1,00	

5.17.197 P-0-3858, Synchronization velocity integration time

Allocation	Contained in 16VRS: «-» Contained in 17VRS: «-» Contained in 18VRS: «-» «-» «HDS» Contained in 20VRS: «-» «-» «-» «-» «HDM» «HDS» Device parameter: axis-specific Property name: VelControl.VelIGain Alias idn: P-0-3856, P-0-3858

Function "P-0-2864.2.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3858 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** 100

5.17.198 P-0-3859, Pressure feedback value, filtered

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-3859

Function "P-0-2806.0.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

P-0-3859 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0806	Extr. val. ch.:	--	Decim. pl.:	S-0-0807 / S-0-0808
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.199 P-0-3862, Oil temperature

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific
	Alias idn:	P-0-3862

Function "P-0-2885.000.012" replacement parameter for communication interfaces which do not support 32-bit IDNs (EIDN).

P-0-3862 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0208	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.200 P-0-3915.0.1, Module/firmware history, time stamp

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function The parameter logs the system time of recognized hardware/firmware modifications. The associated changes are logged in parameter "P-0-3915.0.2 Module/firmware history, component designation".

P-0-3915.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	8Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	TIME
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- **Default value:** ---

5.17.201 P-0-3915.0.2, Module/firmware history, component designation

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»

Contained in 18VRS:	«-»	«-»	«-»	«-»	«-»	«-»
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
Device parameter:	device-specific					

Function This parameter logs recognized hardware/firmware modifications. In the case of a firmware change, the firmware version ([S-0-1300.0.9](#)) recognized last is logged in short form. In the case of hardware changes, the serial number of the new component is logged. The time of changes is entered in parameter "[P-0-3915.0.1](#), Module/firmware history, time stamp".

P-0-3915.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.202 P-0-3915.0.3, Module/firmware history, cause of error

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific

Function This parameter logs the error occurred last before a change was recognized. This corresponds to list index 0 of parameter "[P-0-0192](#), Error memory of diagnostic numbers". The points in time as well as the associated firmware/hardware change are entered in parameters "[P-0-3915.0.1](#), Module/firmware history, time stamp" und "[P-0-3915.0.2](#), Module/firmware history, component designation".

P-0-3915.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.17.203 P-0-3915.0.130, Module/firmware history, compact

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific
	Alias idn:	P-0-3591

Function This parameter merges the information from the following parameters in one compact parameter:

- [P-0-3915.0.1](#), Module/firmware history, time stamp
- [P-0-3915.0.2](#), Module/firmware history, component designation
- [P-0-3915.0.3](#), Module/firmware history, cause of error

P-0-3915.0.130 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	s. Text

5.17.204 P-0-4006, Positioning block target position

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In operation mode "positioning block mode", this parameter is used to define the target positions of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).



The significance and internal interpretation of the entered value depends on "P-0-4019, Positioning block mode".

See also Functional Description "Positioning Block Mode"

P-0-4006 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0076 / S-0-0076			Default value: s. Text	

5.17.205 P-0-4007, Positioning block velocity

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In operation mode positioning block mode, this parameter is used to define the travel velocity of the max. 64 positioning blocks individually and in different form (list parameter with 64 elements).

See also Functional Description "Positioning Block Mode"

P-0-4007 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0044 / S-0-0044			Default value: s. Text	

5.17.206 P-0-4008, Positioning block acceleration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Device parameter:	axis-specific				

Function In operation mode positioning block mode, this parameter is used to define the position acceleration of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).



In conjunction with the corresponding jerk value entered in "P-0-4009, Positioning block jerk ", the positioning acceleration entered in "P-0-4008" defines the parameter content of "P-0-0042, Current position command average value filter order".

See also Functional Description "Positioning Block Mode"

P-0-4008 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: s. Text	

5.17.207 P-0-4009, Positioning block jerk

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
Function	In the operation mode "positioning block mode", this parameter is used to define the positioning jerk values of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).						



In conjunction with the corresponding jerk value entered in [P-0-4009](#), the positioning acceleration entered in [P-0-4008](#) defines the parameter content of "[P-0-0042](#), Current position command average value filter order".

See also Functional Description "Positioning Block Mode"

Record of Revisions

Version	Attribute	Comment
GEN-02VRS	Cycl. tra.: no	

P-0-4009 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: S-0-0160 / S-0-0160			Default value: s. Text	

5.17.208 P-0-4014, Type of construction of motor/cylinder

Allocation	Contained in 16VRS:	«-»											
	Contained in 17VRS:	«HDB»											
	Contained in 18VRS:	«HDB»	«HDC»		«-»								
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«-»	«-»						
	Device parameter:	axis-specific											
Function	This parameter is used to inform the controller of activation-relevant features of the connected cylinder. See also Functional Description "Drive, Mechanical Axis System, Measuring Systems"												
Structure	<table><tr><th>Bit</th><th>Designation/function</th><th>Comment</th></tr><tr><td>9</td><td>Type of construction 0: Rotary 1: Linear</td><td>Always 1 and cannot be changed.</td></tr></table>							Bit	Designation/function	Comment	9	Type of construction 0: Rotary 1: Linear	Always 1 and cannot be changed.
Bit	Designation/function	Comment											
9	Type of construction 0: Rotary 1: Linear	Always 1 and cannot be changed.											

Tab. 5-149: P-0-4014, Type of construction of motor / cylinder

Use Units, decimal places

For some parameters it is necessary that the drive firmware adjusts the units and decimal places to the type of construction of the actuator (rotary or linear). In this case, the respective units and decimal places are indicated directly for the concerning parameter.

P-0-4014 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	Grp. 5
HDx:	min./max.: --- / ---			Default value: 0x200	

5.17.209 P-0-4018, Positioning block delay time

Allocation	Contained in 16VRS:							«-»
	Contained in 17VRS:	«HDB»						
	Contained in 18VRS:	«HDB»	«HDC»				«-»	
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»	
	Device parameter:	axis-specific						

Function In the positioning block mode, parameter **P-0-4018** is used to parameterize a defined delay time between the individual positioning blocks.

See also Functional Description "Positioning Block Mode"

Use As this is a list parameter with 64 elements, you can define individual and different delay times at block transition for all 64 positioning blocks.

Observe the following aspects for parameterization:

- The positioning block mode delay time only takes effect for a sequential block with intermediate stop.
- When the programmed target position of the block has been reached, the drive waits for the delay time **P-0-4018[n]** until the sequential block block[n+1] is started.

P-0-4018 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0 / 60000 **Default value:** s. Text

5.17.210 P-0-4019, Positioning block mode

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function In the operation mode "positioning block mode", this parameter is used to define the positioning block mode. It is possible to define the mode for each of the max. 64 available positioning locks individually and in different form.

See also Functional Description "Positioning Block Mode"

Structure The following table illustrates the operating principle of the individual bits:

Bit	Designation/function	Comment
1	0 = abs. 1= rel.	
2	Infinite travel in positive direction	
3	Infinite travel in negative direction	
4	Sequential block without halt mode 1	
5	Sequential block without halt mode 2	
6	Sequential block with halt	
7	Sequential block at switch signal	
8	Residual path processing for relative travel blocks	

Tab. 5-150: P-0-4019, Positioning block mode



Bit 0 of "P-0-4019" is not relevant for IndraDrive. Bit 1 controls whether if the block is absolute or relative. For reasons of compatibility with Ecodrive, old "parameter settings" are still accepted!

P-0-4019 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	+	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: s. Text	

5.17.211 P-0-4020, Multi-axis device: Active axes

Allocation	Contained in 16VRS:	«-»													
	Contained in 17VRS:	«-»													
	Contained in 18VRS:	«-»	«-»	«-»											
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM» «-»									
	Device parameter:	device-specific													
Function	The parameter shows, which axes of the multi-axis device VT-HMC-2-1X/.. (-> HMC with 2 axes) are active. Via parameter "P-0-4030, Axis configuration for multi-axis device", an axis can be activated or deactivated.														
Structure															
<table><tr><th>Bit</th><th>Designation/function</th><th>Comment</th></tr><tr><td>0</td><td>Axis 1 0: Not active 1: Active</td><td></td></tr><tr><td>1</td><td>Axis 2 0: Not active 1: Active</td><td></td></tr></table>							Bit	Designation/function	Comment	0	Axis 1 0: Not active 1: Active		1	Axis 2 0: Not active 1: Active	
Bit	Designation/function	Comment													
0	Axis 1 0: Not active 1: Active														
1	Axis 2 0: Not active 1: Active														

Tab. 5-151: P-0-4020.0.0, Multi-axis device: active axes

P-0-4020 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.17.212 P-0-4023, C0400 Communication phase 2 transition

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»				«-»
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Offline					
	Device parameter:	axis-specific					
Function	Transition command from operating mode or from phase 3 (P3) to the parameterization mode or phase 2 (P2). The command can only be executed when the drive enable has been disabled.						
	See also Functional Description "Parameters, Basics"						

P-0-4023 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:			min./max.: --- / ---	Default value: ---	

5.17.213 P-0-4026, Positioning block selection

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	Selected positioning block 0 to 63						

P-0-4026 - Attributes

See also Functional Description "Positioning Block Mode"

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0 / 63	Default value: ---

5.17.214 P-0-4028, Device control word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function For devices with analog or parallel master communication, this parameter is used to control the drive. Bit 15 of the parameter must be configured to a digital input.



It is not absolutely necessary to apply the bits 14 and 13; they have 1-signal by default value.

See also Functional Description "Master Communication"

See also Functional Description "Operation Modes"

Structure

Bit	Designation/function	Comment
11/9/8	Command operation mode 000: Primary operation mode 001: Secondary operation mode 1 010: Secondary operation mode 2 011: Secondary operation mode 3 100: Secondary operation mode 4 101: Secondary operation mode 5 110: Secondary operation mode 6 111: Secondary operation mode 7	
13	Drive Halt, 1-0 change Deceleration of drive while maintaining max. acceleration (S-0-0372) (only possible when bits 14 and 15 = 1)	
14	Drive enable 1-0 change: Torque disable without delay (independent of bit 15 or 13)	
15	Drive ON 1-0 change: Best possible deceleration (only possible if bit 14 = 1)	

Tab. 5-152: Relevant Bits of P-0-4028, Device control word

P-0-4028 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.215 P-0-4029, Diagnostic report SCSB module

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»		«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Sercos, SoE, SoV					

Device parameter: axis-specific

Function Parameter for reading master communication settings and states (with SERCOS interface).



This parameter is only relevant for the development staff! It is irrelevant for the application side!

P-0-4029 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: ---

5.17.216 P-0-4030, Axis configuration for multi-axis device

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«-»	«-»	«-»	«-»	«HDM»	«-»
	Device parameter:	device-specific					

Function This parameter can be used to deactivate an axis of the multi-axis device VT-HMC-2-1X/.. (-> HMC with 2 axes). This means that the axis is not existent for the firmware. The number of axes present therefore is reduced.

Function



Should an axis be deactivated or reactivated via this parameter, the device has to be switched off and on again or "S-0-1350, C6400 Reboot command" has to be executed after the parameter was written. Afterwards, the parameters of the existing axes are invalid. This requires the existing axes to be parameterized again.

As default value, all existing axes are activated. At least one axis has to remain active.

Function



At present, only the second axis can be deactivated!

Structure

Bit	Designation/function	Comment
0	Axis 1 0: Do not activate 1: Activate	
1	Axis 2 0: Do not activate 1: Activate	

Tab. 5-153: Axis configuration of the multi-axis device VT-HMC-2-1X/.. (-> HMC with 2 axes)

P-0-4030 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	FIX_IDN_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: 0x1 / 0x3 Default value: s. Text

5.17.217 P-0-4031, Overview of device addresses

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Function Parameter "P-0-4031, Overview of device addresses" serves to display the following addresses in a clear and integrated manner and is, above all, relevant for multi-axis devices:

- Effective drive address of the master communication, which was set via parameter "P-0-4025"
- Effective drive address of the serial interface, which was set via parameter "P-0-4022"



This parameter provides a simple and quick overview of the axis addresses that are effective in the device, above all for multi-axis devices (e.g., HMD01.1).

Use Taking a double-axis device as an example, the following figure shows the fundamental structure of the parameter and its relation to the other address parameters (S-0-0096, P-0-4022 and P-0-4025):

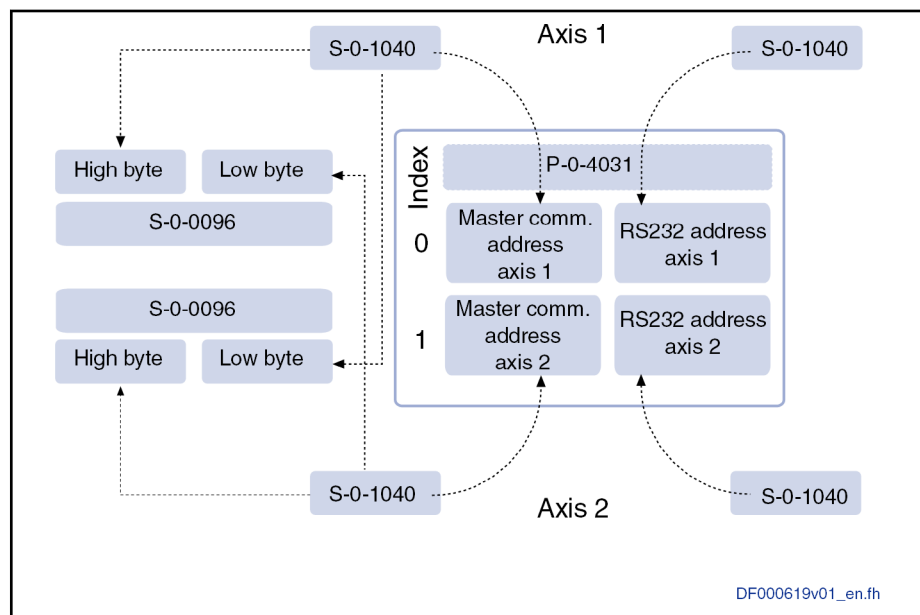


Fig. 5-17: Structure and function of "P-0-4031, Overview of device addresses"

Example:

The following parameter settings have been made in the example below:

- **Axis 1:** P-0-4022 = 5, P-0-4025 = 5
- **Axis 2:** P-0-4022 = 8, P-0-4025 = 4

This results in the following parameter content for "P-0-4031":

	High word	Low word
List index (log. axis number)	Effective master communication address	Effective serial interface address
0	0x0005	0x0005
1	0x0004	0x0008

Tab. 5-154: Structure of P-0-4031 (e.g. double-axis module)



In this case, "0x0504" (axis 1) or **0x0405** (axis 2) would then be accordingly specified in **S0-0096**!

P-0-4031 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.218 P-0-4051, Positioning block acknowledgment

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Acknowledgment of the accepted positioning block

See also Functional Description "Positioning Block Mode"

P-0-4051 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.219 P-0-4052, Positioning block, last accepted

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Last accepted positioning block (retain data). In the case of sequential block chains, this is the first block with which the sequential block chain was started.

See also Functional Description "Positioning Block Mode"

P-0-4052 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.220 P-0-4053, Positioning block, last active

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function Last accepted positioning block (retain data). For sequential block chains this is the last active block of the sequential block chain. For individual blocks [P-0-4052](#) and [P-0-4053](#) are always equal.

See also Functional Description "Positioning Block Mode"

P-0-4053 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.221 P-0-4057, Positioning block, input linked blocks

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function Parameter "[P-0-4057](#)" is an image of the sequential block inputs.

Triggered by an external switching signal, the switching signal-dependent block advance allows the transition to a sequential block.

Two sequential block inputs are available as input for this switching signal:

[P-0-4057](#); Bit 0 -> sequential block cam 1

The drive switches to the next travel block n+1 as soon as the input for sequential block cam 1 changes from "0" to "1".

[P-0-4057](#); Bit 1 -> sequential block cam 2

The drive switches to the block following the next travel block n+2 as soon as the input for sequential block cam 2 changes from "0" to "1".

See also functional description "Positioning block mode"

P-0-4057 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.17.222 P-0-4060, Positioning block control word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	axis-specific				

Function This parameter is used as control word for positioning block mode and has the following structure:

Parameter structure:

Bit	Designation/function	Comment
0	acceptance of the positioning block selected in P-0-4026 by a 0 → 1 edge (Is only relevant for parallel interface and field bus I/O mode!)	
1	0: traveling with the velocity of the current positioning block 1: limitation of the velocity to " S-0-0259 , Positioning velocity" Bit 0 is only relevant in positioning block mode!	

Tab. 5-155: P-0-4060, Positioning block control word

See also Functional Description "Positioning Block Mode"

P-0-4060 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: 0x0 / 0x3	Default value: 0x2

5.17.223 P-0-4061, Positioning block status word

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The parameter contains the status bits that are only valid for the positioning block mode operating mode. All other general status bits on positioning are contained in parameter "[S-0-0437](#), Positioning status word".

See also Functional Description "Positioning block mode"

Structure In this respect, the bits in "[P-0-4061](#)" have the following meaning:

Bit 4: "End position reached" is set if a positioning set was completed. In case of sequential block chains, the bit is set if the end of the sequential block chain is reached. Additionally, the "In Standstill" message is queried if the following applies:

[|S-0-0430 - S-0-0051/S-0-0053|](#) < [S-0-0057](#) (In Position)

AND

[|S-0-0040|](#) < [S-0-0124](#) (In Standstill)

AND

No sequential block selected

P-0-4061 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.224 P-0-4063, Positioning block deceleration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function In operation mode positioning block mode, this parameter is used to define the position deceleration of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).



In conjunction with the corresponding jerk value entered in "P-0-4063, Positioning block jerk ", the positioning deceleration entered in "P-0-4008" defines the parameter content of "P-0-0042, Current position command average value filter order".

See also Functional Description "Positioning Block Mode"

P-0-4063 - Attributes

Function: Par	Editable: ++	Data length: 4Byte var.
Memory: PARAM_SP	Validity ch.: PM->OM	Format: DEC_MV
Unit: S-0-0160	Extr. val. ch.: +	Decim. pl.: S-0-0161 / S-0-0162
Cycl. tra.: AT + MDT	Comb. check: --	Set-depend.: --
HDx:	min./max.: S-0-0160 / S-0-0160	Default value: s. Text

5.17.225 P-0-4064, Password level

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function The user or service staff can use this parameter to read the current password protection. All passwords mentioned in the table are entered via "S-0-0267, Password"

See also Functional Description "Using a Password"

Structure

Content of P-0-4064	Content of S-0-0267	Description	Parameter acc. to S-0-0279	Management parameter	Remaining parameters
0	"007"	No password available	W, R	R	W, R
1	"\$\$\$"	Customer password available but deactivated	W, R	R	W, R
2	"***"	Customer password available and activated	R	R	W, R
3	"\$\$\$"	Control password entered	W, R	R	W, R

w Write access

R Read access

Tab. 5-156: Overview of Password Levels



"Management parameters" are device parameters (e.g. P-0-1509, P-0-3000, ...), encoder parameters (e.g., P-0-1000, ...), error memories (e.g., P-0-0192, ...), etc.

P-0-4064 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.17.226 P-0-4064.0.1, Password configuration**Allocation**

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific				
Alias idn:	P-0-3748				

Function

With this parameter, the following configuration can be set:

- a firmware download can only be carried out if the correct customer password has been entered (bit 0)
- for standard access `boschrexroth` via FTP and Telnet, the "User" customer password (S-0-0267) has to be entered instead of the standard customer password (bit 1)

See also Functional Description "Using a password"

Structure

Bit	Designation/function
0	Activation of firmware download lock 0: Firmware download possible independently from the password level (default) 1: Firmware download at locked device not admissible; a firmware replacement can only be carried out if the correct customer password has been entered
1	"User" customer password for FTP and Telnet 0: Standard customer password <code>boschrexroth</code> active for FTP and Telnet (default) 1: "User" customer password (S-0-0267) active as password for FTP and Telnet; for standard access <code>boschrexroth</code> , the customer password assigned via S-0-0267 is accepted if it was set. If no customer password has been set, the standard password remains effective.

P-0-4064.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x0	

5.17.227 P-0-4064.0.2, Password token**Allocation**

Contained in 16VRS:	«-»				
Contained in 17VRS:	«-»				
Contained in 18VRS:	«-»	«-»	«-»		
Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific				
Alias idn:	P-0-3749				

Function

For internal use only.

P-0-4064.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.17.228 P-0-4065, Active non-volatile memory

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«HDB»
	Contained in 18VRS:					«-» «-» «-»
	Contained in 20VRS:					«-» «-» «-» «-» «-» «-»
	Device parameter:					device-specific
Function	The active memory is displayed in this parameter.					
	See Functional Description "Loading, Storing and Saving Parameters"					
P-0-4065 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	ON_BOARD_S	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					
	min./max.: --- / ---					
Default value: ---						

5.17.229 P-0-4066, Card Identification Data

Allocation	Contained in 16VRS:		«-»					
	Contained in 17VRS:		«-»					
	Contained in 18VRS:		«-»		«HDC»		«-»	
	Contained in 20VRS:		«-»		«HDC»		«-»	
	Device parameter:		device-specific					
Function	If the parameter contains identification data (CID), the memory card was successfully initialized.							
	The absence of the CID (parameter content 0xFF) means that either no memory card was plugged into the slot or the initialization has not been completed successfully.							
	If it is impossible to access the file system of the memory card, the first element of the CID is set to 0x0000.							
	 This parameter is used for servicing purposes only and is irrelevant for the application.							

P-0-4066 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:					
min./max.: --- / ---						
Default value: ---						

5.18 P-0-4068 - P-0-4095

5.18.1 P-0-4068, Field bus: Control word IO

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	Rexroth-Profil					
Device parameter:	axis-specific						
Function	Parameter "P-0-4068" is used as field bus control word (16 bits) in the I/O mode. We distinguish the following profile types, each with freely expandable real-time data and configurable field bus status word: • "I/O mode - positioning (P-0-4084, Field bus: profile type = 0xFF82). • "I/O mode - preset velocity" (P-0-4084, Field bus: profile type = 0xFF92) See also functional description "Supported profile types"						

Structure Parameter "P-0-4068" has a profile-type-dependent bit string structure:

Bit	Function in I/O mode positioning	Function in I/O mode	Comment
0	Controller enable (P-0-0116, bit 15) 0 -> 1: Controller enable 1 -> 0: Best possible deceleration according to "P-0-0119" (Remark: Bit 14 of "P-0-0116" is automatically set as soon as the field bus is active!)		
1	Drive Halt (P-0-0116, bit 13) 0 -> 1: Drive start 1 -> 0: Drive Halt, i.e., the drive is immediately decelerated (speed command value reset)		
2	Going to zero (S-0-0148) 0 -> 1: Start homing command "C6" 1 -> 0: Terminate homing command "C6"	Bit 4... 2: Run-up stop (P-0-1200)	
3	Strobe (P-0-4060, bit 0) 0->1: Apply travel block	000: Deactivated xx1 Always (unconditionally) active x10 Only if command value limitation is active 1x0 Only if torque limitation is active	
4	Positioning with limited velocity (P-0-4060, bit 1) 1: Limited velocity with "positioning velocity" (S-0-0259) as limit		
5	Clear error (S-0-0099) 0->1: Start error clearing command "C5" 1->0: Terminate command "C5"		

Bit	Function in I/O mode positioning	Function in I/O mode	Comment
13-6	Bit 7,6: Positioning / jogging (S-0-0346, bit 2...1): 00: Positioning active, started by toggling bit 0, positioning aborted by: 01: Infinite travel in positive direction (jog+) 10: Infinite travel in negative direction (jog-) 11: Stopping of the axis (positioning stop)	Bit 10... 6: Activation of a fixed command value (P-0-1200) 00000: Command value S-0-0036 active xxxx1: Command value P-0-1206 element 1 active xxx10: Command value P-0-1206 element 2 active xx100: Command value P-0-1206 element 3 active x1000: Command value P-0-1206 element 4 active 10000: Command value P-0-1206 element 5 active	
	Bit 13... 8: Travel block select "Positioning block selection" P-0-4026, bit 0... 5)	Bit 12... 11: Ramp inputs for motor potentiometer (P-0-1200) 00: Command value is maintained 01: Command value is increased 10: Command value is reduced 11: Command value is maintained	
		Bit 13: Inversion of velocity command value (P-0-1200)	
14	—	Enabling of motor potentiometer (P-0-1214) 0: Disabled, (S-0-0036 or fixed command value active) 1: Motor potentiometer is active	

Tab. 5-157: Structure of P-0-4068

Use Observe the following aspects for using the parameter:

- The field bus control word "P-0-4068" cannot be configured and has been preconfigured with the control bits required for IO mode.
- "P-0-4068" does not allow phase switching via a bit, for which reason, in IO mode, phases must be switched by starting the transition commands (C0200, C0400) over the parameter channel.
- When changing from parameter mode to operating mode, a check is run to ensure that the control word is always listed once in "P-0-4081, Field bus: Config. list of cyclic command value data ch."



The content of this parameter is only relevant for profile type "I/O mode" (P-0-4084 = 0xFF82 and 0xFF92).

P-0-4068 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.18.2 P-0-4069, Field bus: Module diagnosis

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET
	Device parameter:	axis-specific

Function Parameter for reading master communication settings and status (in case of field buses).



This parameter is only relevant for development staff. It is of no relevance for the application!

See also Functional Description "PROFIBUS-DP"

P-0-4069 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.18.3 P-0-4071, Field bus: Length of cyclic command value data channel

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET
	Device parameter:	axis-specific

Function This parameter reflects the number of bytes of the process data channel parameterized in "P-0-4081, Field bus: Config. list of cyclic command value data ch. "

This length does not contain the length parameterized in "P-0-4083, Field bus: Length of parameter channel " of a possibly available parameter channel. The graduation takes place in word boundaries, i.e. possible values are 2, 4, 6,... 32.

P-0-4071 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.18.4 P-0-4073, Field bus: Diagnostic message

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET
	Device parameter:	device-specific

Function In this parameter the state of the field bus state machine is stored in clear text. The diagnostic message depends on the field bus used and closely follows the designations used in the standard.

See also Functional Description "PROFIBUS"

Use Meaning of the diagnostic messages with PROFIBUS DP

Display texts with PROFIBUS master communication:

Text	Significance
"OFFLINE":	Initialization value of diagnostics.
"Power On":	A PROFIBUS-DP card was recognized as master communication and hardware is checked.
"Baud search":	The hardware is ok; PROFIBUS is monitored in order to recognize the baud rate used.
"Wait-Prm":	The baud rate was found; the drive is waiting for a parameterization telegram of the master, which contains its IDN (is stored in the GSD).
"Wait-Cfg":	The IndraDrive has received a valid parameterization telegram and now waits for the configuration telegram in which the master informs the drive on which modules it is expecting for input/output configuration.
"Data-Exch WD+":	The drive has received a valid configuration and exchanges real-time data with the master and the communication is monitored by a watchdog.
"Data-Exch WD-":	The drive has received a valid configuration and exchanges real-time data with the master, without the communication being monitored by a watchdog.

Tab. 5-158: Significance of entries in parameter P-0-4073.



The states "Data-Exch WD+" and "Data-Exch WD-" are signaled additionally by illumination of H30!

Meaning of the diagnostic messages with PROFINET/EtherNet/IP (Multi-Ethernet interface)

Display texts with PROFINET/EtherNet/IP master communication:

Text	Significance
INIT: Initialize after BootUp	The Multi-Ethernet interface is booting
NO IP: IP address not configured	The IP address settings are not valid
DUP IP: IP address conflicted	The Duplicate IP Address Check detected that the set IP address already exists in the network.
ERROR: Error while starting up	Multi-Ethernet interface detected a fatal error
NO IO: No IO communication after bootup	The master/controller has not yet established an I/O connection.
CONF DIFF: Configuration different	The configuration of the cyclic telegram in the drive differs from that of the master/controller.
RUN: Data exchange active	The I/O connection operates trouble-free

IDLE: Master in stop mode	A cyclic connection had been established and was switched by the master/controller to the idle state
CLOSED: Closed from master	A cyclic connection had been established and was terminated by the master/controller:
TIMEOUT: Master/slave timed out	A cyclic connection had been established, but no data were exchanged within address monitoring.
Watchdog: Master comm. option	The Multi-Ethernet interface is overloaded and cannot pass I/O data to the drive.
Watchdog: IndraDrive	The IndraDrive is overloaded and cannot pass I/O data to the Multi-Ethernet interface.

Tab. 5-159: Clear text and significance of entries in parameter P-0-4073 with PROFINET and EtherNet/IP.

Meaning of the diagnostic messages with CANopen

Display texts with CANopen master communication (as of firmware version 17V06)

Diagnostic message	Significance
CANopen: Offline	The CANopen task is initialized.
CANopen: Auto baud rate detection	The drive is searching for the baud rate
CANopen: Initialized	The initialization was run after switching on or after a reset.
CANopen: Initialized CAN warning	In the status "initialized" too many errors were detected on the CAN bus; the CAN interface is in the "warning" state. In most of the cases, this state indicates that the boot-up telegram was not sent. Possible causes: The drive is (at present) the only station at the bus or there is another station with another baud rate connected to the bus.
CANopen: Pre-Operational	The device switches automatically from the "initialized" to the "Pre-Operational" state. The boot-up telegram is sent as soon as the baud rate was recognized (or a fixed baud rate has been entered). In this state, SDO communication can be started.
CANopen: Pre-Operational CAN warning	In the status "Pre-Operational" too many errors were detected on the CAN bus; the CAN interface is in the "warning" state.
CANopen: Operational	The drive exchanges cyclic data (see "List of transmission types").
CANopen: Operational (producer only)	On the basis of the heartbeat telegram it was recognized that the heartbeat sender does not send PDOs due to the state of the network.
CANopen: Operational CAN warning	In the state "Operational" too many errors were detected on the CAN bus; the CAN interface is in the "warning" state.

CANopen: Stopped	Drive is in status "stopped". In this state the drive only accepts NMT commands. Now, fundamental communication parameters such as baud rate or address may be changed.
CANopen: Initialized CAN warning	In the state "stopped" too many errors were detected on the CAN bus; the CAN interface is in the "warning" state.
CANopen: BUS OFF	The CAN interface recognized too many send errors and also received invalid telegrams. Possible causes for this can be, among others, faults in the bus cable, short-circuits, interruptions of the bus cable or stations with a different baud rate connected to the bus.
CANopen: BUS OFF (RxCounter = 0)	The CAN interface recognized too many send errors. Most likely, no telegrams were received, or telegrams received were not error-free.

Tab. 5-160: Overview of diagnostic messages for CANopen communication

P-0-4073 - Attributes

Function: Par	Editable: --	Data length: 1Byte var.
Memory: --	Validity ch.: --	Format: ASCII
Unit: --	Extr. val. ch.: --	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --
HDx:	min./max.: --- / ---	Default value: ---

5.18.5 P-0-4074, Field bus: Data format

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «HDB»
	Contained in 18VRS: «HDB» «HDC» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET
Device parameter:	device-specific

Function Parameter "P-0-4074, Field bus: Data format" is used to swap the data content word by word if there are 32-bit values in the process data channel.

The default value of the parameter is zero and should only be modified in special cases.

See also Functional Description "PROFIBUS-DP"

See also Functional Description "PROFINET"

P-0-4074 - Attributes

Function: Par	Editable: PM	Data length: 2Byte
Memory: PARAM_SP	Validity ch.: PM->OM	Format: BIN
Unit: --	Extr. val. ch.: +	Decim. pl.: 0
Cycl. tra.: --	Comb. check: --	Set-depend.: --
HDx:	min./max.: 0x0 / 0x1	Default value: 0x0

5.18.6 P-0-4075, Field bus: Watchdog

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «HDB»
	Contained in 18VRS: «HDB» «HDC» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET
Device parameter:	device-specific

Function This parameter is used to store the watchdog time in ms which the master delivers in the parameterizing telegram. If the master communication is interrupted for an interval exceeding this time, a communication error is generated.

P-0-4075 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: --- / ---			Default value: ---	

5.18.7 P-0-4076, Field bus: Process data - updating clock

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET				

Device parameter: device-specific

Function Up to firmware version 16: Field bus: Cycle time (Tcyc)

The content of "P-0-4076" determines, at which time intervals the cyclic real-time data (command and actual values) are processed and updated in the field bus drive.

See also Functional Description "PROFIBUS-DP"

See also Functional Description "ProfiNet"

See also Functional Description "CANopen interface"

See also Functional Description "Ethernet/IP interface"

Use Permissible input values in "P-0-4076":

- Minimum "Field bus: Process data update cycle (Tcyc)": 2 ms
- Minimum "Field bus: Process data update cycle (Tcyc)": with MPC: 0.5 ms
- Step width of permissible entries: 1 ms
- Maximum "Field bus: Process data update cycle (Tcyc)": 65 ms

P-0-4076 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:	min./max.: s. Text / s. Text			Default value: s. Text	

5.18.8 P-0-4077, Field bus: Control word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	Rexroth-Profil				

Device parameter: axis-specific

Function The parameter "P-0-4077" is used as field bus control word for the Rexroth profiles "freely configurable operation" (0xFFFE) and "freely configurable mode "operation mode neutral" (0xFFFD).



The significance and function of the control bit cannot be configured and is not defined or determined through the profile selection!

See also Functional Description "Supported profile types"

Structure	Bit	Designation/function	Comment
	0	Command value acceptance Upon a change (S-0-0346; bit 0) - a positioning block is activated - or the preset position is taken over	Is not supported in profile 0xFFFFD (see P-0-4084)
	1	Operating mode setting 0->1: Changeover to operating mode 1->0: Changeover to parameter mode	
	2	Homing (S-0-0148) 0->1: Start homing command "C6" 1->0: Terminate homing command "C6"	Is not supported in profile 0xFFFFD (see P-0-4084)
	3	Absolute / relative (S-0-0346; bit 3) (effective only when using "positioning command value" (S-0-0282) 0: "S-0-0282, Positioning command value" is processed as absolute target position in the drive 1: "S-0-282, Positioning command value" is processed as relative travel distance in the drive	Is not supported in profile 0xFFFFD (see P-0-4084)
	4	Immediate block change (S-0-0346; bit 5) (effective only when using "S-0-0282, Positioning command value") 0: "S-0-0282, Positioning command value" is only taken over after the target position last active was reached 1: "S-0-0282, Positioning command value" is taken over immediately as the command value acceptance toggles	Is not supported in profile 0xFFFFD (see P-0-4084)
	5	Clear errors (S-0-0099) 0->1: Start error clearing command "C5" 1->0: Terminate command "C5"	
	7/6	Positioning/jogging (S-0-0346; bit 2 + S-0-0346; bit 1) Activation of positioning by: 00: Positioning active, start upon toggling of bit 0 Interruption of positioning by: 01: Infinite travel in positive direction (jog+) 10: Infinite travel in negative direction (jog-) 11: Stopping of axis (positioning halt)	Is not supported in profile 0xFFFFD (see P-0-4084)
	9/8	Command operation mode (with sercos: S-0-0134; bit 8... 9) 00: Primary operation mode 01: Secondary operation mode 1 (e.g. jogging) 10: Secondary operation mode 2 11: Secondary operation mode 3	
	12	IPOSYNC Interpolator clock cycle: (only with cyclic position control) toggles when new command values are transmitted.	

Bit	Designation/function	Comment
13	Drive Halt (P-0-0116; bit 13) 0->1: Drive Start 1->0: Drive Halt, i.e. the drive is shut down immediately (zeroing of speed command value!)	
14	Drive enable (P-0-0116; bit 14) Bit 14 of "P-0-0116" is automatically set internally irrespective of "P-0-4077" as soon as field bus communication is active.	
15	Drive ON (P-0-0116; bit 15) 0->1: Controller enable 1->0: Best possible deceleration according to "P-0-0119"	

Tab. 5-161: P-0-4077: Field bus: Control word



The parameter must not be parameterized simultaneously with "P-0-4068, Field bus: Control word IO" in "P-0-4081, Field bus: Config. list of cyclic command value data ch.". In addition, in "P-0-4081" parameter "P-0-4077" (if used) has always to be in the first position.

P-0-4077 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.9 P-0-4078, Field bus: Status word

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
Hardware	Rexroth-Profil					
Device parameter:	axis-specific					

Function "P-0-4078" is used as status word for feedback of the drive status to the field bus master in the case of field bus drives that are operated in the freely configurable profile type (P-04084 = 0xFFFE).



The configuration of "P-0-4078" cannot be changed, i.e. the bit assignment cannot be parameterized.

In parameter "P--0--4080" must the parameter "P--0--4078" (when using), be on the first place.

See also Functional Description "Supported Profile Types"

Structure The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
1/0	Operating mode acknowledgment 10: Operating mode 01: Not relevant 00: Parameter mode	
2	In reference (status of reference encoder) (S-0-0403, Bit 0) actual position value (encoder 1 or 2) is 0: Relative 1: Homed	
3	In standstill (S-0-0331, bit 0) 1: Actual velocity < standstill window S-0-0040 < S-0-0124	
4	Command value reached for Velocity control 1: Command speed reached (S-0-0330, bit 0) ... Cyclic position control 1: In position (S-0-0336, bit 0) ... Drive-internal interpolation 1: (S-0-0258) - (S-0-0051/53) S-0-0057 (S-0-0437, Bit 1) ... Drive-controlled positioning: 1: (S-0-0430) - (S-0-0051/53) S-0-0057 and in "position" (S-0-0336, Bit 0) and "Nfeedback = 0" (S-0-0331, Bit 0); (S-0-0437, Bit 2) ... Positioning block mode 1: "End position reached" P-0-4061, Bit 4 Other operation modes: 1. Target position attained" (S-0-0342, Bit 0)	
5	Command change bit 1: If command status has changed 0: If command status has not changed	
6	Operating mode error 1: Error in transition command 0: No error in transition command	
7	Status of command value processing 1: Drive does not follow command value input (e.g., when Drive Halt is active) 0: Drive follows command value input (e.g., "AF" active)	

Bit	Designation/function	Comment
9/8	Actual operation mode (P-0-0116 Bit 8...9) 00: Primary operation mode 01: Secondary oper. mode 1 10: Secondary oper. mode 2 11: Secondary oper. mode 3	
10	Command value acknowledgment By toggling the bit (S-0-0419, Bit 0), the drive acknowledges the acceptance of the "positioning command value" (S-0-0282).	
11	Class 3 diagnostics message (cf. S-0-0013) The bit is set if a class 3 diagnostics message is present.	
12	Class 2 diagnostics warning (cf. S-0-0012) The bit is set if a class 2 diagnostics warning is present.	
13	Class 1 diagnostics drive error (cf. S-0-0011) The bit is set if a class 1 diagnostics error is present (drive interlock).	
15/14	Ready for operation (P-0-0116, Bit 14/15) 00: Not ready for power on (e.g. "P2") 01: Ready for power on ("bb") 10: Control section and power section ready for op. ("Ab") 11: In operation, with torque (e.g. "AF")	

Tab. 5-162: P-0-4078, Field bus: Status word

P-0-4078 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.10 P-0-4079, Field bus: Baud rate

Allocation	Contained in 16VRS: «-»
	Contained in 17VRS: «HDB»
	Contained in 18VRS: «HDB» «HDC» «-»
	Contained in 20VRS: «HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, EtherNet/IP, PROFIBUS, PROFINET
Device parameter:	device-specific
Function	This parameter contains the active baud rate of the field bus interface. There are the following cases: PROFIBUS DP: The baud rate used by the field bus is automatically determined and displayed in this parameter. DeviceNet and CANopen: The baud rate used by the field bus is set in parameter "P-0-4079".



By entering a baud rate of "0", automatic baud rate detection can be activated. In exceptional cases, however, this might not work correctly so that we recommend manual input.

See also Functional Description "PROFIBUS-DP"

See also Functional Description "CANopen Interface"

See also Functional Description "DeviceNet Interface"

P-0-4079 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	kBaud	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0,00	

5.18.11 P-0-4080, Field bus: Config. list of cyclic actual value data ch.

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET	
Device parameter:	axis-specific	

Function This parameter is used to configure the process input data channel (slave-master, i.e., "AT") irrespective of the field bus used.

Use The only operating data that can be entered in parameter "P-0-4080" is the operating data listed in parameter "S-0-0187, List of configurable data in the AT". Otherwise, transition command error "C0231 Field bus: IDN for cycl. actual val. not configurable" is generated. Based on parameter "P-0-4080", the field-bus-specific configuration of the real-time data channel is generated for the slave-master direction. By reading the field-bus-specific object or by reading "P-0-4080", the master can obtain information on the position of the individual real-time data (parameters or objects) at the field bus. Changes in parameter "P-0-4080" only take effect after progression of the drive to operating mode.

P-0-4080 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.18.12 P-0-4081, Field bus: Config. list of cyclic command value data ch.

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET	
Device parameter:	axis-specific	

Function This parameter is used to configure the process output data channel (master-slave, i.e., "MDT") irrespective of the field bus used.

Use The only operating data that can be entered in parameter "P-0-4081" is the operating data listed in parameter "S-0-0188, List of configurable data in the MDT". Otherwise, transition command error "C0229 Field bus: IDN for cycl. command val. not configurable" is generated. Based on parameter "P-0-4081", the field-bus-specific configuration of the real-time data channel is generated for the master-slave direction. By reading the field-bus-specific object or by reading "P-0-4081", the master can obtain information on the po-

sition of the individual real-time data (parameters or objects) at the field bus. Changes in parameter "P-0-4081" only take effect after progression of the drive to operating mode.

P-0-4081 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: s. Text

5.18.13 P-0-4082, Field bus: Length of cyclic actual value data channel

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CoC, CoE, CoV, EtherNet/IP, Ethernet POWERLINK, PROFIBUS, PROFINET	
Device parameter:	axis-specific	

Function This parameter reflects the number of bytes of the process data channel parameterized in P-0-4080, Field bus: Config. list of cyclic actual value data ch. This length does not contain the length parameterized in "P-0-4083, Field bus: Length of parameter channel" of a possibly available parameter channel. The graduation takes place in word boundaries, i.e. possible values are 2, 4, 6,... 32.

P-0-4082 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.18.14 P-0-4083, Parameter channel: Length

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	EtherNet/IP, PROFIBUS, PROFINET	
Device parameter:	device-specific	

Function The parameter indicates the length of the parameter channel. Communication over a field bus requires, apart from the transmission of real-time data (also called process data), the transmission of parameters which are not bound by a real-time cycle. With PROFIBUS and PROFINET, these data can be exchanged via a parameter channel.

See also Functional Description "PROFINET"

See also Functional Description "PROFIBUS-DP"

Use The parameter channel is set by selecting the respective I/O modules in the configuration software of the PROFIBUS. The following parameter channel modules can be selected.

ParamCh EIDN: Used for accessing EIDN parameters (length of 6 words).

ParamCh IDN: Used for accessing IDN parameters/EIDN replacement parameters (length 5 words).

ParamCh not used: No parameter channel selected (length 0 words)

With PROFIBUS, the set length is shown in parameter "P-0-4083" in bytes, after the drive reached the state "Data-Exch".

With PROFINET in firmware version 16VRS, the user determines the length of the parameter channel with this parameter. As of firmware version 17VRS

in conjunction with PROFINET the length is determined via the configuration of parameter "P-0-4083.0.1, Parameter channel: Configuration".



The parameter channel module always has to be plugged in the first slot.

P-0-4083 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / 16			Default value: ---	

5.18.15 P-0-4083.0.1, Parameter channel: Configuration

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	EtherNet/IP, PROFIBUS, PROFINET	
Device parameter:	device-specific	
Alias idn:	P-0-2339	

Function Replacement parameter "P-0-2339" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter can be used to configure the parameter channel.

Structure

Content of P-0-4083.0.1	Designation/ function	Comment
0	Deactivated	The parameter channel is deactivated.
1	IDN access	The parameter channel is used to access IDN parameters of the drive.
2	EIDN access	IDN and EIDN parameters can be accessed via "EIDN parameter channel access".

Tab. 5-163: Options of P-0-4083.0.1, Parameter channel: Connection setup

P-0-4083.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / 2			Default value: 0	

5.18.16 P-0-4083.0.2, Application: Allocation of object ID to Sercos EIDN

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Device parameter:	device-specific	

Function The CANopen application objects within the range from 6000_h to 6FFF_h (specification CiA402) are always internally mapped to a sercos EIDN. The parameter represents a mapping list.

P-0-4083.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.17 P-0-4083.0.3, Master communication: Allocation object ID to Sercos EIDN

Allocation	Contained in 16VRS:					«-»
	Contained in 17VRS:					«-»
	Contained in 18VRS:					«-»
	Contained in 20VRS:					«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:					device-specific
Function	The CANopen communication objects within the range from 1000 _h to 1FFF _h (specification CiA301) are always internally mapped to a sercos EIDN. The parameter represents a mapping list, which is initialized during booting depending on the master communication used.					
	Master communication is determined in parameter "P-0-4089.0.1".					
P-0-4083.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	HDx:		min./max.: --- / ---		Default value: ---	

5.18.18 P-0-4084, Application: Profile type

Allocation	Contained in 16VRS:						«-»
	Contained in 17VRS:						«HDB»
	Contained in 18VRS:						«HDB» «HDC» «-»
	Contained in 20VRS:						«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:						axis-specific
Function	The application profile active in the drive is selected by means of the setting in "P-0-4084".						
	The active profile activates various profile-specific functions in the drive and makes the associated parameters visible. A change of the active application profile after power-on may require a restart of the drive. This is signaled by command error C0299 not later than when changing over to the operating mode "OM" takes place.						
	The selected application profile determines the active control word and status word of the drive. Moreover, further functionalities can be added (profile CiA402) or the behavior of functions may change.						
	Through the selected profile, pre-assignments for various parameters can be made:						
	• Pre-selection of the operation modes set in the drive or default values • Pre-assignment of the process data channel or of the default values						
	See also Functional Description "Profile types"						
Use	The following settings can be made:						
	0x0000: No profile selected						
	0x0102: FSP drive profile (as of firmware version 20VRS)						
	0x0113: Fluid Power profile according to CiA408						
	0x0114: ServoDrive profile						
	0x0402: CiA402 drive profile (as of firmware version 20VRS)						
	0xF002: ServoDrive profile without evaluation of bit 14 "drive enable" (as of firmware version 20VRS)						
	0xF102: FSP profile without evaluation of bit 14 "drive enable" (as of firmware version 20VRS)						
	0xFF00: Analog profile (as of firmware version 20VRS)						
	0xFF82: I/O mode "positioning" (with configurable real-time data)						

0xFF92: I/O mode "preset velocity" (with configurable real-time data)

0xFFFFD: Freely configurable mode "operation mode neutral"

0xFFFFE: Freely configurable mode

Remark: The possible settings are restricted depending on the configuration of the "P-0-4089.0.1, Master communication: Protocol" (see table below).



If profiles are switched, which forces the activation of new parameters and deactivation of current parameters, the drive needs to be restarted. An attempt to switch to "OM" without a restart causes command error C0299.

Possible combinations of "P-0-4084, Application profile type" with active master communication (P-0-4089.0.1) are listed in the following table:

P-0-4089.0.1, Master communication: Protocol		P-0-4084, Field bus: Profile type axis											
				Standard profiles			Bosch Rexroth profiles						
		No profile	CiA408 FluidPower profile	ServoDrive profile	CiA402 drive profile	FSP Drive (sercos profile) DEFAULT	ServoDrive profile without evaluation of bit 14 "drive enable"	FSP Drive without evaluation of bit 14 "drive enable"	Analog	I/O mode positioning	I/O mode preset velocity	Freely configurable mode "operation modes neutral"	Freely configurable mode
Value	Significance	0x0000	0x0113	0x0114	0x0402	0x0102	0xF002	0xF102	0xFF00	0xFF82	0xFF92	0xFFFFD	0xFFFFE
1	No master communication hardware available	x	-	-	-	x	-	x	x	-	-	-	-
2	Master communication not active	x	-	-	-	x	-	x	x	-	-	-	-
3	EtherNet/IP™	x	-	-	-	-	-	-	-	x	x	x	x
4	PROFINET®	x	-	-	-	-	-	-	-	x	x	x	x
5	EtherCAT® (SoE)	-	-	x	-	-	x	-	-	-	-	-	-
6	sercos → DEFAULT	x	-	-	-	x	-	x	x	-	-	-	-
7	VARAN (SoV)	-	-	x	-	-	x	-	-	-	-	-	-

8	EtherCAT (CoE)	x	x	-	x	-	-	-	-	-	-	-	-
9	Ethernet POWERLINK	x	x	x	x	-	x	-	-	x	x	x	x
16	PROFIBUS®	x	-	-	-	-	-	-	-	x	x	x	x

Tab. 5-164: Application profile type

P-0-4084 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: 0x102	

5.18.19 P-0-4084.0.1, List of available profile types

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3581					

Function This parameter lists all profile types which are supported by the master communication configured in the drive. The codes (hexadecimal) of the profile types, which can be entered in parameter [P-0-4084](#), are displayed.

P-0-4084.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.20 P-0-4084.0.2, Default profile

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«-»	«-»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					
	Alias idn:	P-0-3720					

Function The parameter contains the default profile of the master communication configured in "P-0-4089.0.1, Master communication: Protocol".

P-0-4084.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.21 P-0-4085, C4700 Command Activate easy startup mode

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	axis-specific					

Function **P-0-4088, Master communication: Drive configuration : bit 5 = 0:**

The drive configuration switches in the parameter mode and reconfigures the I/O according to the described configuration. The configuration is not stored. By deactivating the command, the originally I/O configuration and the originally master communication are active again.

P-0-4088, Master communication: Drive configuration : bit 5 = 1:

The drive does not reconfigures the I/O assignment.

Is the drive in parameter mode, it switches automatically into the operation mode. The master communication is active again., by deactivating the command.

P-0-4085 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.18.22 P-0-4086, Master communication status

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	axis-specific

Function This parameter contains important status information regarding the current state of master communication or device control. Dependent thereof some control information for handling the communication phase switch, as well as for enabling the hardware inputs for drive enable and drive halt, is controlled.



The parameter cannot be written by the user, but is therefore used for diagnostic message.

See also Functional Description "Initial Start in Easy Startup Mode"

See also Functional Description "Device Control and State Machine"

See also Functional Description: "Master communication"

Structure

Bit	Designation/function	Comment
0	communication phase switching 0: not allowed, i.e. executing the transition command does not cause the communication phase to be switched 1: allowed, i.e. executing the transition command causes the communication phase to be switched	
2	phase progression after control voltage ON 0: no phase progression after control voltage ON 1: phase progression after control voltage ON	
3	Master communication synchronizes the drive 0: No 1: yes, master communication synchronizes the drive	
4	reserved (for internal use)	
8	easy startup mode active 0: normal operation (NO) 1: easy startup mode active	

Tab. 5-165: Master communication status

P-0-4086 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value: ---

5.18.23 P-0-4088, Master communication: Drive configuration

Allocation	Contained in 16VRS:		«-»
	Contained in 17VRS:	«HDB»	
	Contained in 18VRS:	«HDB»	«HDC»
	Contained in 20VRS:	«HDB»	«HDC»
	Device parameter:	axis-specific	

Function The parameter contains configuration bits of master communication or the device control. It is used to configure the functions and the behavior of the master communication interface.

Structure

Bit	Designation/function	Comment
0	Connection of operating states of the axis to the communication phases Sercos, EtherCAT and VARAN: up to FW 19VRS 0: With communication phase 4 transition check (S-0-0128), the axis is automatically switched to the operating mode (communication phase is connected to axis control; S-0-0128 internally starts S-0-0422). 1: Switching of the communication phase does not automatically lead to initialization of the axis, i.e., the axis remains in parameter mode. Field bus/analog operation: up to FW 19VRS Target state of subdevice state machine in the case of "not connected": as of FW 20VRS 0: Device carries out axis initialization independently of bus communication. This means that the axis is automatically switched to the operating mode (OM). 1: Device does not automatically carry out axis initialization. The axis remains in parameterization mode (PM).	Special case for Sercos, EtherCAT und VARAN up to FW 19VRS
2/1	Reaction to failure of cyclic communication (bus failure, bus stop and PLC stop) 00: Bus failure as error (F4xxx) and config. error reaction of the drive (P-0-0119) 01: Bus failure as warning (E4xxx) and last command value input is retained 11: Bus failure as warning with automatic switching to setting-up mode (local mode) 10: Reserved	
3	Readiness for operation without active master communication Relevant only with Sercos in the case of "connected by default" (Sercos:, EtherCAT, VARAN). With all other master communication interfaces, the axis is always initialized automatically. 0: Readiness for operation only possible with active Sercos or EtherCAT master (remote operation). Axis initialization is not carried out automatically. The axis is triggered with the "communication phase 4 transition check" command by the Sercos interface. 1: Readiness for operation also without Sercos or EtherCAT communication. This means that the axis automatically switches to operating mode when the control voltage is switched on, even if there is no Sercos communication (automatic initialization of the axis). This is required for temporary operation of a Sercos device with MLD as the only control unit. As soon as Sercos communication becomes active, the Sercos interface assumes control of the axis. This means, when the Sercos interface is activated, the master sets communication phase 0.	

4	Apply master communication cycle time to application When writing to object 0x1006 of the master communication cycle time, it can be additionally applied to the application. In standard cases, it is applied to the internal NC cycle time (S-0-0001); with active CiA402 profile it is also applied to object 0x60C2. 0: Is applied (default) 1: Is not applied	Only for field buses with CANopen profile
5	Automatic I/O configuration for setting-up mode 0: Digital inputs are configured automatically (permanent command value memory, drive enable). For this reason, operation of the axis is only possible via the digital inputs. Control with the commissioning software (IndraWorks) is impossible. 1: No automatic configuration. For this reason, the axis can be controlled and operated in the setting-up mode via the commissioning software (IndraWorks).	
7/6	Selection of PLL algorithm for synchronous master communication: 00: Hard-synchronous PLL control (default), (Sercos II) 10: Soft-synchronous PLL control (Sercos, CANopen) X1: Very soft-synchronous PLL control (Sercos, Softmaster)	As of FW 18V08 up to FW 20V04 As of FW 20V06 migrated to P-0-4089.0.5
8	PLL offset for CANopen: 0: PLL offset switched off (default) 1: PLL offset activated	As of FW 17 up to FW 20V04 As of FW 20V06 migrated to P-0-4089.0.5
11	Event type for CANopen: 0: ChangeOfState (default) 1: Cyclic	
12	Timing for CANopen: 0: Timing compliant with standard (DS301) (default) 1: Manufacturer-specific timing	As of FW 17V10 as of FW 18

Tab. 5-166: P-0-4088, Master communication: Drive configuration

Use Consider the following cases when configuring the bits:

Bit 0: It makes sense to set bit 0, if the axis is to be parameterized by the control unit before initialization is carried out.

Bit 2/1: These bits can be used to define how the drive behaves in case a communication error occurs (bus failure, bus stop and PLC stop). The last valid command values received can be frozen, which makes sense, for example, in process technology, or it is possible to automatically change to a flexible local mode to move the drive via digital/analog I/Os.

Bit 8: When a drive is set as Sync producer in the network, the PLL can be offset via this bit in order to balance the telegram runtime of the Sync telegram and thereby synchronize the Sync consumer and Sync producer in a better way.

Bit 11: When the acyclic CANopen transmission modes are set (0, 254) and event type "ChangeOfState" is selected, the PDO is sent only in case of a change. However, only the parameters in "P-0-3613" are monitored. If event type "Cyclic" is selected, transmission of the PDO is triggered with process data updating clock cycle ([P-0-4076](#)).

P-0-4088 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: 0x0

5.18.24 P-0-4089.0.1, Master communication: Protocol

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«-»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Device parameter:	device-specific					

Alias idn: P-0-2310

Function Replacement parameter "P-0-2310" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter is used for the selection of master communication protocols which the hardware supports.

Make the setting by means of the corresponding number according to the following table:

Selected master communication	Associated number
Master communication not active	2
EtherNet/IP	3
PROFINET	4
Servodrive over EtherCAT	5
Sercos III	6
Servodrive over VARAN (optional)	7
CANopen Over EtherCAT:	8
Ethernet POWERLINK	9
PROFIBUS (optional)	16



The setting is only applied after the drive has been restarted.

P-0-4089.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: s. Text / s. Text Default value: s. Text

5.18.25 P-0-4089.0.2, Master communication: Device name

Allocation	Contained in 16VRS:	«-»					
	Contained in 17VRS:	«HDB»					
	Contained in 18VRS:	«HDB»	«HDC»	«-»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»	«-»
	Hardware	EtherNet/IP, Ethernet POWERLINK, PROFINET					

Device parameter: device-specific

Alias idn: P-0-2311

Function Replacement parameter "P-0-2311" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains an unequivocal device name which is used for master communication. A device can be identified by this name. This is the "station name" in case of PROFINET.

Structure



The device name must be unequivocal within an installation.

The following device name requirements must be met:

- No more than 240 characters (letters, numerals, hyphen or dot)
- The length of a character string between two dots may not exceed 63 characters.

- No special characters except for hyphens (umlauts, brackets, underscore, slash, blank, etc.).
- Neither the first nor the last character of the device name may be "-".
- The device name may not have format n.n.n.n (n = 0...999).
- The device name may not begin with string "port-xyz-" (x,y,z = 0...9).

P-0-4089.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.18.26 P-0-4089.0.3, Device address

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				
	Alias idn:	P-0-2303				

Function This parameter is used to identify the device in case of remote address assignment and for master communication with device addressing. If an address selector switch is available, the value set via this switch is displayed, but cannot be changed.

With EtherCAT this value is used as "Device Identification Value".

P-0-4089.0.3 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: 0 / 250			Default value: 1	

5.18.27 P-0-4089.0.4, Active device address

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				
	Alias idn:	P-0-2304				

Function In case of EtherCAT, this parameter displays the effective device address depending on the addressing method. In case of EtherCAT, either the "Configured Station Address" or the "Configured Station Alias" is displayed. In case of all other buses, the value set here in parameter "P-0-4089.0.3" is displayed.

P-0-4089.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.28 P-0-4089.0.5, Master communication: Configuration

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM» «-»
	Device parameter:	device-specific				
	Alias idn:	P-0-2318				

Function Replacement parameter "P-0-2318" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains configuration bits of master communication. It is used to configure the functions and the behavior of the master communication interface.

Structure The parameter is structured as follows:

Bit	Designation/function	Comment
0	PLL synchronization for CANopen/CAN: 0: PLL is synchronized by the Sync signal of master communication 1: PLL is not synchronized by the Sync signal of master communication	As of FW 17VRS
2/1	Selection of PLL algorithm for synchronous master communication 00: Hard-synchronous PLL control (default), (Sercos II, EtherCAT) 01: Soft-synchronous PLL control (Sercos, CANopen/CAN) 10: Very soft-synchronous PLL control (Sercos Softmaster) 11: Invalid bit combination	As of FW 20V04
8-3	Reserved	
9	Multicast-TTL for EtherNet/IP 0: TTL takes the value 1 (default) 1: TTL takes the value 64 (Multicast telegrams are routed) A change in the configuration requires the drive to be restarted.	As of FW 20V10

Tab. 5-167: P-0-4089.0.5, Master communication: Configuration

Use Consider the following cases when configuring the bits:

Bit 0: It makes sense to set bit 0, if the axis is to be parameterized by the control unit via master communication. This mode is indispensable for all synchronous operation modes. If this mode is used, the Sync signal of master communication has to have a relatively low jitter (< 30 µs). Otherwise, synchronization errors will occur.

P-0-4089.0.5 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.18.29 P-0-4089.0.7, ECAT: SII Configured Station Alias

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«-»
	Contained in 18VRS:	«-» «-» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
	Device parameter:	device-specific
	Alias idn:	P-0-2757

Function With EtherCAT, the parameter shows the "SII Configured Station Alias" (from the slave EEPROM). For compatibility reasons, this value can be used for "Device Identification". It is, however, recommended that parameter "P-0-4089.0.3" be used instead for the "Device Identification".

P-0-4089.0.7 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.30 P-0-4089.0.13, Master communication: IP address

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	EtherNet/IP, PROFINET	
Device parameter:	device-specific	
Alias idn:	P-0-2315	

Function For communication interfaces which do not support any 32-bit ident numbers (EIDN), replacement parameter "P-0-2315" is to be used.

This parameter contains the IP address which is required within the scope of IP communication for Ethernet-based master communication (EtherNet/IP and PROFINET).

The IP address (Internet Protocol) is used to clearly identify a node in the network.



Parameter changes do not become effective before the 24-volt supply of the drive is switched on again.

Structure The IP address is a list parameter with the following structure:

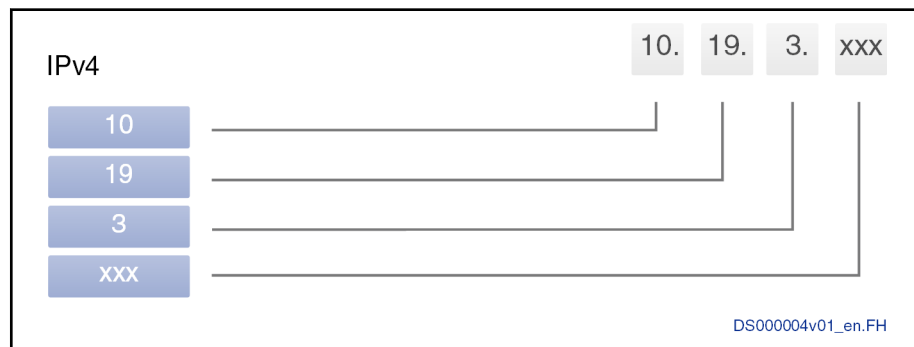


Fig. 5-18: "P-0-4089.0.13, Master communication: IP address"

P-0-4089.0.13 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.18.31 P-0-4089.0.14, Master communication: Network mask

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	EtherNet/IP, PROFINET	
Device parameter:	device-specific	
Alias idn:	P-0-2316	

Function Replacement parameter "P-0-2316" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the network mask which is required within the scope of IP communication for the Ethernet-based master communication

(EtherNet/IP and PROFINET). The network mask is used to distinguish between the network and device parts.



Parameter changes do not become effective before the 24-volt supply of the drive is switched on again.

Structure The network mask is a list parameter with the following structure:

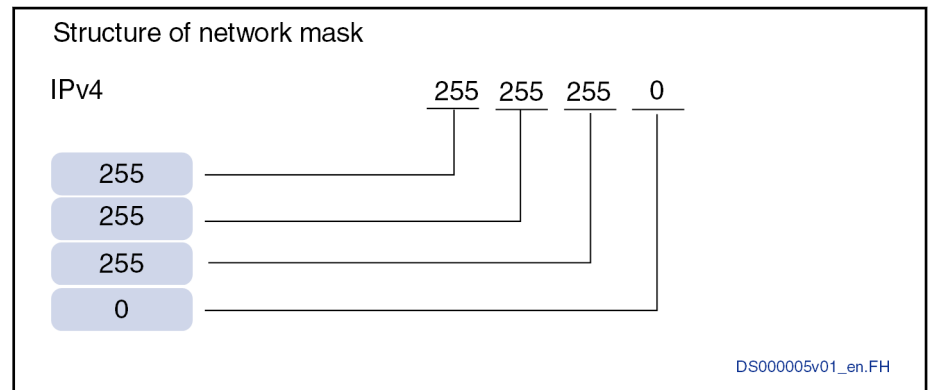


Fig. 5-19: P-0-4089.0.14, Master communication: Network mask

P-0-4089.0.14 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

HDx: min./max.: --- / --- Default value: s. Text

5.18.32 P-0-4089.0.15, Master communication: Gateway address

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	EtherNet/IP, PROFINET	
Device parameter:	device-specific	
Alias idn:	P-0-2317	

Function Replacement parameter "P-0-2317" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the gateway address which is required within the scope of IP communication for the Ethernet-based master communication (EtherNet/IP and PROFINET).

When an IP package (Internet Protocol) is transmitted, the network part of the target IP address and the network mask are compared. If they do not match, the IP package is transmitted to the gateway IP address.



Parameter changes do not become effective before the 24-volt supply of the drive is switched on again.

Structure The gateway address is a list parameter with the following structure:

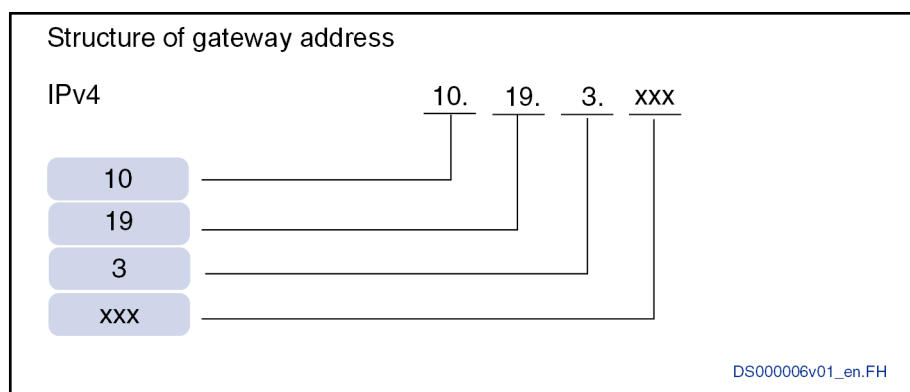


Fig. 5-20: P-0-4089.0.15, Master communication: Gateway address

P-0-4089.0.15 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: s. Text	

5.18.33 P-0-4089.0.17, Master communication: List of available protocols

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«-»				
	Contained in 18VRS:	«-»	«-»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					
Alias idn:	P-0-3818					

Function This parameter lists all master communication protocols supported by the device. Each entry in this list corresponds to a possible value of parameter "P-0-4089.0.1, Master communication: Protocol".

P-0-4089.0.17 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.34 P-0-4089.0.127, Master communication: Master debugging

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«-»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	device-specific					

Function This parameter is used for the commissioning of SERCOS III master communications. It allows switching off individual monitoring functions for debug operation.

P-0-4089.0.127 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

5.18.35 P-0-4090, Configuration for loading default values

Allocation	Contained in 16VRS:	«HDS»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»	«HDS»		
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
Device parameter:	axis-specific					

Function The effects of command "S-0-0262, C07_x Load defaults procedure command" depend on the configuration that is set in "P-0-4090" when the command is started.

Structure The bits of the parameter have the following significance:

Bit	Designation/ Function	Load default values (factory settings)	Load default values (MLD)	Activate field bus profile settings
2: 0	Command selection			
	0x0001: Load factory settings	C0750		
	0x0002: Load MLD default values		C0730	
	0x0004: Activate field bus profile settings			C0740
3	Reserved			
6... 4	Scaling of command execution on "loading factory settings"	Bit 4: Master communication 0: Master communication parameters are set to their default values. 1: Master communication parameters are maintained.		
		Bit 5: IndraMotion MLD 0: MLD parameters are set to their default values. 1: MLD parameters are maintained.		
		Bit 6: Engineering interface 0: Engineering interface parameters are set to their default values. 1: Engineering interface parameters are maintained.		
15... 7	Reserved			

Tab. 5-168: Significance of the bits in P-0-4090

Use The following settings can be made:

Value of P-0-4090	Effect	Diagnostic message name	Diagnostic message number	Comment
0x0001	Set all parameters to default values	Load defaults procedure command (factory settings)	C0750	
0x0011	Set all parameters to default values, except for master communication parameters			
0x0021	Set all parameters to default values, except for MLD parameters			HDC, HDP and HDM only
0x0031	Set all parameters to default values, except for MLD and master communication parameters			
0x0041	Set all parameters to default values, except for engineering interface parameters			
0x0051	Set all parameters to default values, except for master communication and engineering interface parameters			
0x0061	Set all parameters to default values, except for engineering interface and MLD parameters			HDC, HDP and HDM only
0x0071	Set all parameters to default values, except for engineering interface, MLD and master communication parameters			
0x0002	Set entire drive PLC to default values (RE6) incl. deletion of boot project	Load defaults procedure command (MLD)	C0730	HDC only HDP and HDM
0x0004	Set parameters depending on field bus profile to default values	Command Activate field bus profile settings	C0740	

Tab. 5-169: Values for P-0-4090



After "S-0-0262, C07_x Load defaults procedure command" has been completed, parameter "P-0-4090" is always reset to its default value.

P-0-4090 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
HDx:		min./max.: --- / ---		Default value: ---	

5.18.36 P-0-4094.0.1, Field bus: control word fluid power

Allocation	Contained in 16VRS:	«-»				
	Contained in 17VRS:	«HDB»				
	Contained in 18VRS:	«HDB»	«HDC»			
	Contained in 20VRS:	«HDB»	«HDC»	«HDE»	«HDP»	«HDM»
	Hardware	CiA408				
Function	Device parameter:	axis-specific				
	Alias idn:	P-0-3524				
Function		This parameter contains the control word according to the Fluid Power profile.				

Structure

Bit	Designation / function	Comment
0	Activation of Fluid Power bit "disabled (D)"	
1	Activation of Fluid Power bit "hold enable (H)"	
2	Activation of Fluid Power bit "device mode active enable (M)"	
3	Activation of Fluid Power bit "reset fault ®)"	
5-4	Reserved	
7-6	Switch parameter set 00: Selection of parameter set 0 01: Selection of parameter set 1 10: Selection of parameter set 2 11: Selection of parameter set 3	as of HDx19 cf. S-0-0217 cf. P-0-2216
8	Enable pressure controller 0: Deactivate pressure controller 1: Activate pressure controller	Variant of pump controller cf. P-0-2950 bit 6
	Enable pressure controller 0: Activate primary operation mode 1: Activate secondary operation mode 1	Other variants
9	Pressure controller master / slave mode 0: Controller configured as master 1: Controller configured as slave	Variant of pump controller cf. P-0-2950 bit 5
	Reserved	Other variants
10	Enable leakage compensation 0: Leakage compensation is not active 1: Leakage compensation is active	Variant of pump controller cf. P-0-2950 bit 0
	Reserved	Other variants
11	Enable power limitation 0: Torque limitation is not active 1: Torque limitation is active	Variant of pump controller cf. P-0-2950 bit 1
	Reserved	Other variants
12	Reserved	
13	Enable swivel angle control 0: Deactivate swivel angle controller 1: Activate swivel angle controller	Variant of pump controller cf. P-0-2950 Bit 7
		Other variants
14	Enable pressure feedback for swivel angle control 0: p-point feedback is not active 1: p-point feedback is active	Variant of pump controller cf. P-0-2950 bit 2
	Reserved	Other variants

Bit	Designation / function	Comment
15	Enable extended pressure control structure 0: Standard pressure controller without inflected characteristic curve is active 1: Extended pressure controller with inflected characteristic curve is active	Variant of pump controller cf. P-0-2950 bit 3
	Reserved	Other variants
16	Switchover pressure cell 0: Actual pressure value 1 is active 1: Actual pressure value 2 is active	Variant of pump controller cf. P-0-2950 bit 8
	Reserved	Other variants
17	Enable feedforward 0: Feedforward deactivated 1: Feedforward activated	Variant of pump controller cf. P-0-2950 bit 14
	Reserved	Other variants
31-18	Reserved	

Tab. 5-170: Structure of P-0-4994.0.1

P-0-4094.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

HDx:	min./max.: --- / ---	Default value:	---

5.18.37 P-0-4094.0.2, Field bus: status word fluid power

Allocation	Contained in 16VRS:	«-»
	Contained in 17VRS:	«HDB»
	Contained in 18VRS:	«HDB» «HDC» «-»
	Contained in 20VRS:	«HDB» «HDC» «HDE» «HDP» «HDM» «-»
Hardware	CiA408	
Device parameter:	device-specific	
Alias idn:	P-0-3525	

Function Structure This parameter contains the status word according to the Fluid Power profile.

Bit	Designation / function	Comment
0	Status Fluid Power bit "disabled (D)"	
1	Status Fluid Power bit "hold enable (H)"	
2	Status Fluid Power bit "device mode active enable (M)"	
3	Status Fluid Power bit "ready ®)"	
4	Local control 0: Bus control word active 1: Local control word active	as of HDx19
5	Warning 0: No warning active 1: Manufacturer-specific warning active	

Bit	Designation / function	Comment
6	Reserved	
7	Power limitation active 0: Torque limitation inactive 1: Torque limitation active	Variant of pump controller cf. P-0-2951 bit 2
	Reserved	Other variants
8	Pressure controller active 0: Pressure control is inactive 1: Pressure control is active	cf. P-0-2951 bit 0
12-9	Reserved	
13	Swivel angle control active 0: Swivel angle controller is inactive 1: Swivel angle controller is active	Variant of pump controller cf. P-0-2951 bit 1
	Reserved	Other variants
14	Leakage compensation active 0: Leakage compensation is inactive 1: Leakage compensation is active	Variant of pump controller cf. P-0-2951 bit 3
	Reserved	Other variants
15	p-point feedback active 0: p-point feedback is inactive 1: p-point feedback is active	Variant of pump controller cf. P-0-2951 bit 4
	Reserved	Other variants
16	Enable P → A	as of HDx19
17	Enable P → B	as of HDx19
18	Enable acknowledge P → A	as of HDx19
19	Enable acknowledge P → B	as of HDx19
31-20	Reserved	

Tab. 5-171: Structure of P-0-4094.0.2

P-0-4094.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
HDx:	min./max.: --- / ---			Default value: ---	

6 Service and Support

Contact for repairs

Bosch Rexroth AG
Service industrial hydraulics
Burgermeister-Dr.-Nebel-Strasse 8
97816 Lohr am Main
Phone +49 (93 52) 40 50 60
Germany

E-mail: service@boschrexroth.de

Internet: <http://www.boschrexroth.com/service>

Contact for support

Bosch Rexroth AG
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97816 Lohr am Main
Germany

Phone: **+49 9352 18 1132**

E-mail: support.nc-system@boschrexroth.de

Helpful Information

For quick and efficient help please have the following information ready:

- Detailed description of the fault and the circumstances
- Information on the nameplate of the affected products, especially type codes and serial numbers
- Your contact data (phone, fax number and e-mail address)

Index

A

Appropriate Use.....	9
Applications.....	9
Assignment.....	3
Attributes.....	3

C

Combination check.....	7
Cyclically transmittable.....	6

D

Data length.....	5
Decimal place.....	6
Derivatives.....	7
Document structure.....	2
Drive system.....	11
Drive System.....	11

E

Editability of the operating datum.....	5
Electric drive system.....	11
Extreme value check.....	6

F

Format of the operating datum.....	6
Function.....	5
Function, structure, use.....	3

H

Hydraulic Drive System.....	11

I

Improper use	
Consequences, liability exclusion.....	9
Inappropriate Use.....	10

M

Memory.....	6
Minimum value/maximum value.....	7

N

NC cycle time (TNcyc).....	23

P

P-0-0003, Status of parameter buffering.....	279
P-0-0006, Diagnostic message configuration... ..	280
P-0-0007, Display text of diagnostic message.....	280
P-0-0008, Activation E-Stop function.....	280
P-0-0009, Error number.....	281
P-0-0010, Excessive position command value.....	282
P-0-0011, Last valid position command value.....	282

P-0-0013, List of all IDNs not corresponding to default value.....	282
P-0-0014, C1400 Command Get marker position.....	283
P-0-0019, Initial position value.....	283
P-0-0020, Oscilloscope: Operation mode.....	284
P-0-0021, Oscilloscope: List of measured values 1.....	285
P-0-0022, Oscilloscope: List of measured values 2.....	285
P-0-0023, Oscilloscope: Signal selection 1.....	285
P-0-0024, Oscilloscope: Signal selection 2.....	286
P-0-0025, Oscilloscope: Trigger mask.....	286
P-0-0026, Oscilloscope: Trigger signal selection.....	287
P-0-0027, Oscilloscope: Trigger level.....	287
P-0-0028, Oscilloscope: Control word.....	288
P-0-0029, Oscilloscope: Status word.....	288
P-0-0030, Oscilloscope: Trigger edge.....	289
P-0-0031, Oscilloscope: Time resolution.....	290
P-0-0032, Oscilloscope: Size of memory.....	291
P-0-0033, Oscilloscope: Number of measured values after trigger event.....	291
P-0-0035, Oscilloscope: Trigger control offset.....	292
P-0-0035.0.1, Oscilloscope: Trigger time.....	292
P-0-0036, Oscilloscope: External trigger signal.....	292
P-0-0037, Oscilloscope: Internal trigger signal.....	293
P-0-0040, Velocity feedforward.....	293
P-0-0041, Position command average value filter time constant.....	294
P-0-0042, Current position command average value filter order.....	295
P-0-0047, Position command value of controller.....	296
P-0-0048, Velocity command value of controller.....	296
P-0-0049, Torque/force command value of controller (2 Byte).....	297
P-0-0055, Return distance.....	297
P-0-0056, Return velocity.....	298
P-0-0057, Return acceleration.....	298
P-0-0058, Return jerk.....	299
P-0-0059, Additive position command value, controller.....	299
P-0-0069, Torque/force command value of controller.....	300
P-0-0070, Effective additive torque/force command value.....	300
P-0-0074, Encoder type 1.....	301
P-0-0075, Encoder type 2 (optional encoder).....	301

P-0-0077, Assignment of encoder 1->inter-face.....	302	P-0-0187.0.1, Maximum allowed command value failures.....	326
P-0-0090, Travel range limit parameter.....	303	P-0-0188, Encoder 1 control word.....	326
P-0-0098, Max. deviation.....	303	P-0-0190, Operating hours control section.....	326
P-0-0099, Position command smoothing time constant.....	304	P-0-0192, Error memory of diagnostic numbers.....	327
P-0-0100, Position command value extension.....	304	P-0-0193, Error memory operating hours of control section.....	328
P-0-0105, Time stamp for list of diagnostic message numbers.....	305	P-0-0195, IDN list of retain data (replacement of devices).....	328
P-0-0115, Device control: Status word.....	305	P-0-0196, Additional information of control section firmware.....	329
P-0-0116, Device control: Control word.....	307	P-0-0197, System time.....	329
P-0-0117, Activation of control unit reaction on error.....	308	P-0-0198, System time error memory.....	330
P-0-0119, Best possible deceleration.....	309	P-0-0199, System time error code.....	331
P-0-0120, Control word easy startup.....	310	P-0-0208, Analog input 5.....	331
P-0-0121, Encoder 1 gearbox revolutions, mechanical side.....	312	P-0-0209, Analog input 6.....	331
P-0-0122, Encoder 1 gearbox revolutions, encoder side.....	313	P-0-0210, Analog input 1.....	332
P-0-0139, Analog output 1.....	313	P-0-0211, Analog input 2.....	332
P-0-0140, Analog output 2.....	313	P-0-0212, Analog input, list of assignable parameters.....	333
P-0-0142, Synchronization acceleration.....	314	P-0-0221, Analog input 7.....	333
P-0-0143, Synchronization velocity.....	314	P-0-0222, Travel range limit switch inputs.....	334
P-0-0145, Oscilloscope: List of measured values 3.....	315	P-0-0223, E-Stop input.....	334
P-0-0146, Oscilloscope: List of measured values 4.....	315	P-0-0228, Analog input 3.....	335
P-0-0147, Oscilloscope: Signal selection 3.....	315	P-0-0229, Analog input 4.....	335
P-0-0148, Oscilloscope: Signal selection 4.....	316	P-0-0250, System identification.....	336
P-0-0149, Oscilloscope: Signal selection list....	316	P-0-0250.0.1, System data.....	336
P-0-0150, Oscilloscope: Number of valid measured values.....	317	P-0-0250.0.10, IndraWorks view manager.....	336
P-0-0151, Synchronization window for modulo format.....	317	P-0-0256, Analog input 8.....	337
P-0-0152, Synchronization completed.....	317	P-0-0260, C99 Service function command.....	337
P-0-0153, Optimum distance home switch-reference mark.....	318	P-0-0269, Oscilloscope: Channel number setting.....	337
P-0-0154, Synchronization direction.....	319	P-0-0270, Oscilloscope: Signal selection 5.....	338
P-0-0162, C1800 Axis optimization procedure command.....	319	P-0-0271, Oscilloscope: Signal selection 6.....	338
P-0-0165, Axis optimization, control word.....	320	P-0-0272, Oscilloscope: Signal selection 7.....	338
P-0-0166, Optimization of axis, end position negative.....	321	P-0-0273, Oscilloscope: Signal selection 8.....	339
P-0-0167, Optimization of axis, end position positive.....	321	P-0-0274, Oscilloscope: List of measured values 5.....	339
P-0-0170, Drive optimization, acceleration.....	322	P-0-0275, Oscilloscope: List of measured values 6.....	340
P-0-0171, Optimization of axis, maximum velocity.....	322	P-0-0276, Oscilloscope: List of measured values 7.....	340
P-0-0177, Encoder 1, absolute encoder buffer.....	322	P-0-0277, Oscilloscope: List of measured values 8.....	341
P-0-0178, Encoder 2, absolute encoder buffer.....	323	P-0-0279, Oscilloscope: Trend mode, time resolution.....	341
P-0-0180, Acceleration feedforward smoothing time constant.....	323	P-0-0280, Oscilloscope: Trend mode, list of measured values.....	341
P-0-0187, Position command processing mode.....	323	P-0-0300, Digital inputs, assignment list.....	342
		P-0-0301, Digital inputs, bit numbers.....	343
		P-0-0303, Digital inputs, input image of device.....	343
		P-0-0304, Digital outputs, output image of device.....	344
		P-0-0310, Digital outputs, assignment list.....	344
		P-0-0311, Digital outputs, bit numbers.....	345
		P-0-0322, Task load.....	345

P-0-0322.0.1, Task load config.....	346	P-0-0454, Velocity feedforward actual value....	362
P-0-0322.0.2, Prewarning threshold - performance utilization.....	346	P-0-0456, Position command value delay.....	362
P-0-0322.x.4, Task Trace.....	346	P-0-0457, Position command value generator.....	363
P-0-0391, Actual position value difference encoder1 - encoder2.....	347	P-0-0458, Delay of add. command values.....	363
P-0-0393, IDN groups: Control word.....	347	P-0-0470, Block patch: Block selection.....	364
P-0-0394, IDN groups: List.....	348	P-0-0471, Block patch: Block data.....	364
P-0-0395, Average value filter for display: Signal selection.....	348	P-0-0478, Logbook event.....	364
P-0-0396, Average value filter for display: Signal selection list.....	349	P-0-0479, Logbook time stamp.....	365
P-0-0397, Average value filter for display: Time constant.....	350	P-0-0480, Patch function 1, source pointer.....	365
P-0-0400, Axis correction external correction value.....	351	P-0-0481, Patch function 1, attribute.....	366
P-0-0401, Axis correction active correction value.....	352	P-0-0482, Patch function 1, bit mask.....	367
P-0-0408, Axis correction start position.....	352	P-0-0483, Patch function 1, exponent.....	367
P-0-0409, Axis correction end position.....	352	P-0-0485, Patch function 1, display.....	367
P-0-0410, Axis correction support point distance.....	353	P-0-0486, Patch function 2, source pointer.....	368
P-0-0411, Axis correction, correction table positive.....	353	P-0-0487, Patch function 2, attribute.....	368
P-0-0412, Axis correction, correction table negative.....	354	P-0-0488, Patch function 2, bit mask.....	369
P-0-0413, Axis correction control word.....	355	P-0-0489, Patch function 2, exponent.....	370
P-0-0414, Analog output 3.....	355	P-0-0491, Patch function 2, display.....	370
P-0-0415, Analog output 4.....	356	P-0-0492, Symbol-based patch function 1, data source.....	371
P-0-0418, Analog output, assignment A, signal value at 0V.....	356	P-0-0493, Symbol-based patch function 1, display.....	372
P-0-0419, Analog output, assignment B, signal value at 0V.....	357	P-0-0494, Symbol-based patch function 2, data source.....	372
P-0-0420, Analog output, assignment A, signal selection.....	357	P-0-0495, Symbol-based patch function 2, display.....	373
P-0-0422, Analog output, assignment A, scaling [1/V].....	357	P-0-0496, Symbol-based patch function 3, data source.....	373
P-0-0423, Analog output, assignment B, signal selection.....	358	P-0-0497, Symbol-based patch function 3, display.....	374
P-0-0425, Analog output, assignment B, scaling [1/V].....	358	P-0-0498, Symbol-based patch function 4, data source.....	374
P-0-0426, Analog output IDN list of assignable parameters.....	358	P-0-0499, Symbol-based patch function 4, display.....	376
P-0-0427, Control parameter of analog output.....	359	P-0-0501, Dynamic alias mapping, mapping EIDN.....	376
P-0-0432, Correction value: position controller quadrant correction.....	359	P-0-0502, Dynamic alias mapping, mapping EIDN content.....	376
P-0-0434, Position command value of controller.....	360	P-0-0503, EIDN-list of invalid data for parameterization levels.....	376
P-0-0435, Control word of position controller....	360	P-0-0555, Axis controller messages.....	377
P-0-0436, Reference radius for quadrant error correction.....	361	P-0-0556, Config word of axis controller.....	377
P-0-0437, Velocity time range for quadrant error correction.....	361	P-0-0560, Configuration of actuator.....	379
P-0-0438, Table of path velocities for quadrant error correction.....	361	P-0-0641, Interpolation cmd value average value filter time constant.....	380
P-0-0439, Table of velocity pulse for quadrant error correction.....	362	P-0-0660, C6300 Generate type plate command.....	381
		P-0-0660.0.2, Generate type plate, IDN list of type plates.....	381
		P-0-0660.0.3, Generate type plate, configuration list.....	382
		P-0-0660.0.129, Instance parameter diagnostics.....	382
		P-0-0660.x.1, Configurable factory default values.....	381
		P-0-0664, C6800 Control command device data archiving.....	383

P-0-0665, C6500 Command Archive device data.....	383	P-0-1211, Deceleration ramp 1.....	407
P-0-0666, C6600 Command Restore device data.....	384	P-0-1213, Deceleration ramp 2.....	407
P-0-0667, C6700 Command update of device data.....	385	P-0-1214, Control word 2 velocity control.....	407
P-0-0668, Device data archiving, configuration.....	386	P-0-1222, Velocity command filter.....	408
P-0-0669, Device data archiving, status.....	387	P-0-1270, PLC Global Register A0.....	409
P-0-0669.0.1, Device data update files date.....	388	P-0-1271, PLC Global Register A1.....	410
P-0-0792, Symbol-based patch function 5, data source.....	388	P-0-1272, PLC Global Register A2.....	410
P-0-0793, Symbol-based patch function 5, display.....	389	P-0-1273, PLC Global Register A3.....	410
P-0-0794, Symbol-based patch function 6, data source.....	390	P-0-1274, PLC Global Register A4.....	410
P-0-0795, Symbol-based patch function 6, display.....	391	P-0-1275, PLC Global Register A5.....	411
P-0-0796, Symbol-based patch function 7, data source.....	391	P-0-1276, PLC Global Register A6.....	411
P-0-0797, Symbol-based patch function 7, display.....	392	P-0-1277, PLC Global Register A7.....	411
P-0-0798, Symbol-based patch function 8, data source.....	392	P-0-1278, PLC Global Register A8.....	411
P-0-0799, Symbol-based patch function 8, display.....	393	P-0-1279, PLC Global Register A9.....	412
P-0-0861, Power supply status word.....	393	P-0-1280, PLC Global Register A10.....	412
P-0-0910, SSI control parameter.....	394	P-0-1281, PLC Global Register A11.....	412
P-0-1044, Master comm. engineering over IP: Status IP communication.....	395	P-0-1282, PLC Global Register A12.....	413
P-0-1150, Command value generator output....	397	P-0-1283, PLC Global Register A13.....	413
P-0-1151, Command value generator, list of possible target parameters.....	397	P-0-1284, PLC Global Register A14.....	413
P-0-1152, Command value generator, target parameter assignment.....	398	P-0-1285, PLC Global Register A15.....	413
P-0-1153, Command value generator, control word.....	398	P-0-1286, PLC Global Register A16.....	414
P-0-1154, Command value generator, offset....	400	P-0-1287, PLC Global Register A17.....	414
P-0-1155, Command value generator, amplitude.....	400	P-0-1288, PLC Global Register A18.....	414
P-0-1156, Command value generator, duration 1.....	401	P-0-1289, PLC Global Register A19.....	415
P-0-1157, Command value generator, duration 2.....	401	P-0-1290, PLC Global Register A20.....	415
P-0-1158, Command value generator, periodic time.....	401	P-0-1291, PLC Global Register A21.....	415
P-0-1159, Command value generator, sine sweep start frequency.....	402	P-0-1292, PLC Global Register A22.....	415
P-0-1160, Command value generator, sine sweep end frequency.....	402	P-0-1293, PLC Global Register A23.....	416
P-0-1200, Control word 1 velocity control.....	402	P-0-1294, PLC Global Register A24.....	416
P-0-1201, Ramp 1 pitch.....	404	P-0-1295, PLC Global Register A25.....	416
P-0-1202, Final speed ramp 1.....	404	P-0-1296, PLC Global Register A26.....	417
P-0-1203, Ramp 2 pitch.....	404	P-0-1297, PLC Global Register A27.....	417
P-0-1206, Memory of velocity command values.....	405	P-0-1298, PLC Global Register A28.....	417
P-0-1210, Status word of velocity control mode.....	406	P-0-1299, PLC Global Register A29.....	417
		P-0-1300, PLC Global Register A30.....	418
		P-0-1301, PLC Global Register A31.....	418
		P-0-1311, PLC Global Register GL1.....	418
		P-0-1312, PLC Global Register GL2.....	419
		P-0-1316, PLC Global Register G16.....	419
		P-0-1317, PLC Global Register G17.....	419
		P-0-1318, PLC Global Register G18.....	420
		P-0-1319, PLC Global Register G19.....	420
		P-0-1320, PLC Global Register G20.....	420
		P-0-1321, PLC Global Register G21.....	421
		P-0-1322, PLC Global Register G22.....	421
		P-0-1323, PLC Global Register G23.....	421
		P-0-1324, PLC Global Register G24.....	421
		P-0-1325, PLC Global Register G25.....	422
		P-0-1326, PLC Global Register G26.....	422
		P-0-1327, PLC Global Register G27.....	422
		P-0-1328, PLC Global Register G28.....	422
		P-0-1329, PLC Global Register G29.....	423
		P-0-1330, PLC Global Register G30.....	423
		P-0-1331, PLC Global Register G31.....	423
		P-0-1349.0.1, PLC user program.....	424
		P-0-1349.x.2, PLC user program.....	424
		P-0-1350, PLC control word.....	425
		P-0-1351, PLC status word.....	425

P-0-1352, PLC user program administration data.....	426	P-0-1417, PLC output WORD7 AT %QB14.....	453
P-0-1359, PLC retain data.....	427	P-0-1418, PLC output WORD8 AT %QB16.....	453
P-0-1360, PLC program identifier.....	427	P-0-1419, PLC output WORD9 AT %QB18.....	453
P-0-1361, PLC program name.....	428	P-0-1420, PLC output WORD10 AT %QB20.....	453
P-0-1363, PLC project info.....	428	P-0-1421, PLC output WORD11 AT %QB22.....	454
P-0-1364, PLC idle time.....	429	P-0-1422, PLC output WORD12 AT %QB24.....	454
P-0-1365, PLC error message.....	429	P-0-1423, PLC output WORD13 AT %QB26.....	455
P-0-1367, PLC configuration.....	433	P-0-1424, PLC output WORD14 AT %QB28.....	455
P-0-1368, PLC Global Register AL0.....	434	P-0-1425, PLC output WORD15 AT %QB30.....	455
P-0-1370, PLC Global Register G0.....	435	P-0-1426, PLC output WORD16 AT %QB32.....	456
P-0-1371, PLC Global Register G1.....	435	P-0-1427, PLC output WORD17 AT %QB34.....	456
P-0-1372, PLC Global Register G2.....	436	P-0-1428, PLC output WORD18 AT %QB36.....	456
P-0-1373, PLC Global Register G3.....	436	P-0-1429, PLC output WORD19 AT %QB38.....	457
P-0-1374, PLC Global Register G4.....	436	P-0-1440, PLC input DWORD25 AT %IB100...	457
P-0-1375, PLC Global Register G5.....	437	P-0-1441, PLC input DWORD26 AT %IB104...	458
P-0-1376, PLC Global Register G6.....	437	P-0-1442, PLC input DWORD27 AT %IB108...	459
P-0-1377, PLC Global Register G7.....	437	P-0-1443, PLC input DWORD28 AT %IB112...	459
P-0-1378, PLC Global Register G8.....	438	P-0-1444, PLC input DWORD29 AT %IB116...	459
P-0-1379, PLC Global Register G9.....	438	P-0-1445, PLC input DWORD30 AT %IB120...	460
P-0-1380, PLC Global Register G10.....	438	P-0-1446, PLC input DWORD31 AT %IB124...	460
P-0-1381, PLC Global Register G11.....	438	P-0-1447, PLC input DWORD32 AT %IB128...	460
P-0-1382, PLC Global Register G12.....	439	P-0-1449, C4900 PLC command.....	461
P-0-1383, PLC Global Register G13.....	439	P-0-1450, PLC/setting-up mode Positioning command value.....	461
P-0-1384, PLC Global Register G14.....	439	P-0-1451, PLC/setting-up mode, positioning velocity.....	461
P-0-1385, PLC Global Register G15.....	440	P-0-1452, PLC/setting-up mode, positioning acceleration.....	462
P-0-1386, PLC display format Global Register.....	440	P-0-1453, PLC/setting-up mode, positioning deceleration.....	462
P-0-1387, PLC Global Register AT0.....	441	P-0-1454, PLC/setting-up mode, positioning command value acceptance.....	463
P-0-1388, PLC Global Register AT1.....	441	P-0-1455, PLC/setting-up mode, positioning command value acknowledge.....	463
P-0-1389, PLC Global Register GL0.....	442	P-0-1460, PLC/setting-up mode, velocity command value.....	464
P-0-1390, PLC input WORD0 AT %IB0.....	442	P-0-1461, PLC/setting-up mode Ramp pitch....	464
P-0-1391, PLC input WORD1 AT %IB2.....	444	P-0-1463, PLC/setting-up mode Deceleration ramp.....	464
P-0-1392, PLC input WORD2 AT %IB4.....	444	P-0-1465, PLC/setting-up mode Torque/force command value.....	465
P-0-1393, PLC input WORD3 AT %IB6.....	444	P-0-1466, PLC Torque/force ramp.....	465
P-0-1394, PLC input WORD4 AT %IB8.....	444	P-0-1467, PLC/setting-up mode, torque/force ramp time.....	466
P-0-1395, PLC input WORD5 AT %IB10.....	445	P-0-1468, PLC/setting-up mode, valve command value.....	466
P-0-1396, PLC input WORD6 AT %IB12.....	445	P-0-1469, PLC/setting-up mode, valve ramp time.....	466
P-0-1397, PLC input WORD7 AT %IB14.....	445	P-0-1520, Control section type.....	467
P-0-1398, PLC input WORD8 AT %IB16.....	446	P-0-1534, C6100 Command Activate IP settings.....	467
P-0-1399, PLC input WORD9 AT %IB18.....	446	P-0-1535, Setting of IP communication.....	468
P-0-1400, PLC input WORD10 AT %IB20.....	446	P-0-1804.x.130, Assignment signal status/control word, compact.....	469
P-0-1401, PLC input WORD11 AT %IB22.....	447	P-0-1805.x.130, Configuration master/slave command/actual values, compact.....	470
P-0-1402, PLC input WORD12 AT %IB24.....	447	P-0-1901.0.1, CiA402: Controlword.....	470
P-0-1403, PLC input WORD13 AT %IB26.....	447	P-0-1901.0.2, CiA402: Statusword.....	471
P-0-1404, PLC input WORD14 AT %IB28.....	448		
P-0-1405, PLC input WORD15 AT %IB30.....	448		
P-0-1406, PLC input WORD16 AT %IB32.....	448		
P-0-1407, PLC input WORD17 AT %IB34.....	449		
P-0-1408, PLC input WORD18 AT %IB36.....	449		
P-0-1409, PLC input WORD19 AT %IB38.....	449		
P-0-1410, PLC output WORD0 AT %QB0.....	450		
P-0-1411, PLC output WORD1 AT %QB2.....	451		
P-0-1412, PLC output WORD2 AT %QB4.....	451		
P-0-1413, PLC output WORD3 AT %QB6.....	451		
P-0-1414, PLC output WORD4 AT %QB8.....	452		
P-0-1415, PLC output WORD5 AT %QB10.....	452		
P-0-1416, PLC output WORD6 AT %QB12.....	452		

P-0-1901.0.3, CiA402: Abort connection option code.....	472	P-0-1901.0.50, CiA402: Max position limit.....	486
P-0-1901.0.4, CiA402: Quick stop option code.....	472	P-0-1901.0.51, CiA402: Position actual internal value.....	487
P-0-1901.0.5, CiA402: Shutdown option code.....	472	P-0-1901.0.52, CiA402: Position demand internal value.....	487
P-0-1901.0.6, CiA402: Disable operation option code.....	473	P-0-1901.0.53, CiA402: Homing method.....	487
P-0-1901.0.7, CiA402: Halt option code.....	473	P-0-1901.0.54, CiA402: Homing speeds.....	488
P-0-1901.0.8, CiA402: Fault reaction option code.....	474	P-0-2004, Active functional packages.....	490
P-0-1901.0.9, CiA402: Modes of operation.....	474	P-0-2002, Oper. hours of contr. sect. at change of functional packages.....	489
P-0-1901.0.10, CiA402: Modes of operation display.....	475	P-0-2003, Selection of functional packages.....	489
P-0-1901.0.11, CiA402: Supported drive modes.....	475	P-0-2216, Parameter set switching, configuration.....	491
P-0-1901.0.12, CiA402: Error Code.....	475	P-0-2217, Parameter set switching, preselection range.....	492
P-0-1901.0.21, CiA402: Position encoder resolution.....	476	P-0-2300, List of 32-bit IDNs.....	492
P-0-1901.0.22, CiA402: Position encoder resolution, Encoder increments.....	476	P-0-2301, List of 16-bit alias IDNs.....	493
P-0-1901.0.23, CiA402: Position encoder resolution, Motor revolutions.....	476	P-0-2303, Device address.....	493
P-0-1901.0.24, CiA402: Gear ratio.....	477	P-0-2304, Active device address.....	493
P-0-1901.0.25, CiA402: Feed constant.....	477	P-0-2310, Master communication: Protocol.....	494
P-0-1901.0.26, CiA402: Feed constant, feed.....	477	P-0-2311, Master communication: Device name.....	494
P-0-1901.0.27, CiA402: Feed constant, shaft revolutions.....	478	P-0-2315, Master communication: IP address.....	494
P-0-1901.0.28, CiA402: Velocity factor.....	478	P-0-2316, Master communication: Network mask.....	494
P-0-1901.0.29, CiA402: Velocity factor, numerator.....	479	P-0-2317, Master communication: Gateway address.....	495
P-0-1901.0.30, CiA402: Velocity factor, divisor.....	479	P-0-2318, Master communication: Configuration.....	495
P-0-1901.0.31, CiA402: Acceleration factor.....	479	P-0-2320, System data.....	495
P-0-1901.0.32, CiA402: Acceleration factor, numerator.....	480	P-0-2339, Parameter channel: Configuration... ..	495
P-0-1901.0.33, CiA402: Acceleration factor, divisor.....	480	P-0-2406, Assignment signal status/control word, compact.....	496
P-0-1901.0.34, CiA402: Polarity.....	480	P-0-2407, Assignment signal status/control word, compact.....	496
P-0-1901.0.35, CiA402: SI unit position.....	481	P-0-2412, Instance parameter diagnostics.....	496
P-0-1901.0.36, CiA402: SI unit velocity.....	481	P-0-2560, Configuration master/slave command/actual values, compact.....	497
P-0-1901.0.37, CiA402: SI unit acceleration.....	482	P-0-2561, Configuration master/slave command/actual values, compact.....	497
P-0-1901.0.41, CiA402: Target Position.....	483	P-0-2578, Type plate, compact.....	497
P-0-1901.0.42, CiA402: Interpolation time period.....	483	P-0-2584, Serial Number.....	497
P-0-1901.0.43, CiA402: Interpolation time period value.....	483	P-0-2588, Diagnostic trace configuration.....	498
P-0-1901.0.44, CiA402: Interpolation time index.....	484	P-0-2589, Diagnostic trace control.....	498
P-0-1901.0.45, CiA402: Position Range Limit.....	484	P-0-2590, Diagnostic trace state.....	498
P-0-1901.0.46, CiA402: Min position range limit.....	485	P-0-2591, Diagnostic trace main diagnostics....	498
P-0-1901.0.47, CiA402: Max position range limit.....	485	P-0-2593, Diagnostic trace detailed diagnostics.....	499
P-0-1901.0.48, CiA402: Software Position Limit.....	485	P-0-2594, Diagnostic trace system time fine....	499
P-0-1901.0.49, CiA402: Min position limit.....	486	P-0-2595, Diagnostic trace system time coarse.....	499
		P-0-2660, Configurable factory default values.....	499
		P-0-2729, Detailed diagnostic message.....	500
		P-0-2730, Generate type plate, IDN list of type plates.....	500

P-0-2738, Generate type plate, configuration list.....	500	P-0-2806.0.19, Pressure controller adaptation, D-term.....	515
P-0-2755, System fine time.....	501	P-0-2806.0.20, Pressure controller disturbance feedforward.....	515
P-0-2756, System coarse time.....	501	P-0-2806.0.21, Filter time of pressure feedback value.....	515
P-0-2757, ECAT: SII Configured Station Alias.....	501	P-0-2806.0.22, Derivative action time, actual pressure value DT1.....	516
P-0-2759, IndraWorks view manager.....	501	P-0-2806.0.23, Filter time of pressure feedback value DT1.....	516
P-0-2768, Encoder status.....	502	P-0-2806.0.24, Pressure feedback value, filtered.....	516
P-0-2769, Marker position.....	502	P-0-2806.0.25, Pressure control deviation, filtered.....	517
P-0-2770, Position.....	502	P-0-2806.0.26, Output pressure controller in PD branch.....	517
P-0-2771, Encoder status.....	502	P-0-2806.0.27, Lower speed limit of P-term adaptation.....	517
P-0-2772, Marker position.....	503	P-0-2806.0.28, Upper speed limit of P-term adaptation.....	517
P-0-2773, Position.....	503	P-0-2806.0.29, P-term gain factor for lower speed limit.....	518
P-0-2786, Encoder status (input).....	503	P-0-2806.0.30, Lower speed limit of D-term adaptation.....	518
P-0-2787, Marker position not scaled (input)....	504	P-0-2806.0.31, Upper speed limit of D-term adaptation.....	518
P-0-2788, Position unscaled (input).....	504	P-0-2806.0.32, D-term gain factor for lower speed limit.....	519
P-0-2790, Prewarning threshold - performance utilization.....	504	P-0-2807, Pressure controller pilot flow control command value.....	519
P-0-2800, p/Q controller control word.....	504	P-0-2809, Pressure controller P-gain, cascade structure.....	519
P-0-2801, p/Q controller status word.....	505	P-0-2810, List of easy-startup operating modes.....	520
P-0-2802, Flow command value internal.....	506	P-0-2811, Setting of base clock cycle.....	520
P-0-2803, Pressure command value of controller.....	506	P-0-2812, Feedback of actual pressure value derivative to integrator.....	520
P-0-2804, Pressure controller P-gain.....	507	P-0-2813, Pressure controller dead volume.....	520
P-0-2805, Output of pressure controller.....	507	P-0-2814, Output of pump pressure controller, cascade structure.....	521
P-0-2806.0.2, Output pressure controller P-gain.....	507	P-0-2815, Pressure controller output signal, negative limit, cascade.....	521
P-0-2806.0.3, Pressure controller integrator enable lowpass filter.....	508	P-0-2816, Pressure controller positive factor for D-component, cascade.....	521
P-0-2806.0.4, Pressure controller integration time constant.....	508	P-0-2817, Pressure controller negative factor for D-component, cascade.....	522
P-0-2806.0.5, Pressure controller integrator pressure change threshold.....	508	P-0-2818, Pressure controller upper integrator limit, cascade.....	522
P-0-2806.0.6, Pressure controller integrator accuracy window.....	509	P-0-2819, Error suppression control word.....	522
P-0-2806.0.7, Pressure controller integrator limit.....	509	P-0-2820, Control word of position controller...	524
P-0-2806.0.9, Output pressure controller I-part.....	509	P-0-2821, Position controller status word.....	525
P-0-2806.0.10, Correction value: pressure controller D-component.....	510	P-0-2822, Velocity controller control word.....	525
P-0-2806.0.11, Pressure controller feedback to integrator.....	510	P-0-2823, Velocity controller status word.....	526
P-0-2806.0.12, Output pump pressure controller I-part.....	510	P-0-2824, Active damping: Control word.....	526
P-0-2806.0.13, Pressure controller calculation p->Q value side A.....	511	P-0-2826, Output of velocity controller.....	527
P-0-2806.0.14, Pressure controller calculation p->Q value side B.....	511	P-0-2827, Pump changeover logic control word.....	527
P-0-2806.0.15, Pressure controller preload integrator, threshold 1.....	511		
P-0-2806.0.16, Pressure controller preload integrator, threshold 2.....	512		
P-0-2806.0.17, Pressure controller preload, pressure change filter time.....	514		
P-0-2806.0.18, Pressure controller adaptation, P-term.....	514		

P-0-2828, Pressure feedback value A (applicative).....	528	P-0-2832.0.9, Active damping: Velocity gain....	539
P-0-2829, Pressure feedback value B (applicative).....	529	P-0-2832.0.10, Moved mass.....	540
P-0-2830.0.1, Position controller Kv-factor change ramp.....	529	P-0-2832.0.11, Velocity controller integrator feedback threshold.....	540
P-0-2830.0.2, Position loop time constant D-component.....	529	P-0-2832.0.12, Velocity controller integrator feedback time constant.....	540
P-0-2830.0.3, Position controller filter time D-component.....	530	P-0-2832.0.13, Velocity command filter time....	541
P-0-2830.0.4, Position controller integration time constant.....	530	P-0-2832.0.14, Velocity command dead time.....	541
P-0-2830.0.5, Position controller integrator velocity threshold.....	530	P-0-2832.0.15, Active damping: Acceleration gain ramp time.....	541
P-0-2830.0.6, Position controller integrator position window.....	531	P-0-2832.0.16, Active damping: Velocity gain ramp time.....	542
P-0-2830.0.7, Position controller integrator limit.....	531	P-0-2832.0.17, Additive velocity command value.....	542
P-0-2830.0.8, Position controller integrator washout ramp.....	531	P-0-2833.0.1, Output velocity controller.....	542
P-0-2830.0.9, Position command filter time.....	532	P-0-2833.0.2, Portion of active damping: Velocity.....	542
P-0-2830.0.10, Position command dead time.....	532	P-0-2833.0.3, Portion of active damping: Acceleration/force.....	543
P-0-2830.0.11, Velocity feedforward change ramp.....	533	P-0-2833.0.5, Velocity command value of controller, delayed.....	543
P-0-2830.0.12, Filter time of position feedback value.....	533	P-0-2833.0.6, Output velocity controller P-part.....	543
P-0-2831.0.1, Output position controller Kv-part.....	533	P-0-2833.0.7, Output velocity controller I-part.....	544
P-0-2831.0.2, Output position controller D-part.....	534	P-0-2833.0.8, Correction value: Velocity controller feedforward control.....	544
P-0-2831.0.3, Output position controller I-part.....	534	P-0-2835, Pump pressure controller status word.....	544
P-0-2831.0.4, Output of position controller.....	534	P-0-2836, Pump changeover logic swivel angle, cascade.....	545
P-0-2831.0.5, Correction value: velocity feedforward control.....	535	P-0-2837, Pump changeover logic output pressure controller, cascade.....	545
P-0-2831.0.6, Position command value of controller, delayed.....	535	P-0-2838, Pressure controller lower integrator limit, cascade.....	545
P-0-2831.0.7, Actual position value model.....	535	P-0-2840, Force controller control word.....	546
P-0-2831.0.8, Following distance for monitoring.....	536	P-0-2841, Force controller status word.....	547
P-0-2831.0.9, Position feedback value, filtered.....	536	P-0-2842, Force control deviation.....	547
P-0-2831.0.130, Outputs of position controller, compact.....	536	P-0-2843, Output of force controller.....	547
P-0-2832.0.1, Velocity controller P-gain.....	537	P-0-2844, Force controller velocity feedforward control.....	548
P-0-2832.0.2, Velocity controller integration time constant.....	537	P-0-2845.0.1, Force controller P-gain.....	548
P-0-2832.0.3, Velocity controller integrator acceleration threshold.....	537	P-0-2845.0.2, Scaling force to velocity.....	549
P-0-2832.0.4, Velocity controller integrator velocity window.....	538	P-0-2845.0.3, Force controller integration time.....	549
P-0-2832.0.5, Velocity controller integrator limit.....	538	P-0-2845.0.4, Force controller integrator force change threshold.....	550
P-0-2832.0.7, Active damping: Force/time constant.....	538	P-0-2845.0.5, Force controller integrator force window.....	550
P-0-2832.0.8, Active damping: Acceleration gain.....	539	P-0-2845.0.6, Force controller limitation integrator.....	550
		P-0-2845.0.8, Force controller scaling of velocity feedforward control.....	551
		P-0-2845.0.9, Force feedback filter time.....	551
		P-0-2845.0.10, Derivative action time, actual force value DT1.....	551

P-0-2845.0.11, Filter time of force feedback value DT1.....	552	P-0-2860.0.2, Synchronization status word.....	567
P-0-2846.0.1, Output force controller P-part.....	552	P-0-2860.0.3, Synchronization list slave axes.....	567
P-0-2846.0.2, Output force controller I-part.....	552	P-0-2860.0.4, Synchronization mode.....	568
P-0-2846.0.3, Output force controller velocity feedforward part.....	553	P-0-2860.0.5, Synchronization integrator accuracy window.....	568
P-0-2846.0.5, Torque/force feedback value, filtered.....	553	P-0-2860.0.6, Synchronization down ramp integrator position.....	569
P-0-2846.0.6, Force control deviation, unfiltered.....	553	P-0-2860.0.7, Synchronization down ramp integrator velocity.....	569
P-0-2846.0.7, Output of force controller in flow.....	554	P-0-2860.0.8, Synchronization down ramp integrator force.....	569
P-0-2850, p/Q changeover logic control word.....	554	P-0-2860.0.9, Synchronization monitoring window.....	569
P-0-2851, p/Q changeover logic status word....	555	P-0-2860.0.10, Synchronization current fault absolute.....	570
P-0-2852.0.3, Pressure controller switch-on threshold, relative.....	556	P-0-2860.0.11, Synchronization deviation actual reference value.....	570
P-0-2852.0.4, Pressure controller switch-on threshold, absolute.....	556	P-0-2860.0.12, Synchronization actual reference position.....	570
P-0-2852.0.5, Pressure controller active switch-on threshold.....	557	P-0-2860.0.13, Synchronization break distance.....	571
P-0-2852.0.6, Pressure controller switch-off threshold, relative.....	557	P-0-2860.0.14, Synchronization model loop gain.....	571
P-0-2852.0.7, Pressure controller switch-off threshold, absolute.....	557	P-0-2860.0.15, Synchronization model scaling velocity feedforward control.....	571
P-0-2852.0.8, Pressure controller active switch-off threshold.....	558	P-0-2860.0.16, Synchronization threshold command value follow-up.....	572
P-0-2852.0.9, Pressure controller ramp time switching logic.....	558	P-0-2860.0.20, Synchronization slave axis status word.....	572
P-0-2852.0.10, Correction value: pressure controller changeover logic ramp.....	558	P-0-2860.0.21, Synchronization model deviation.....	573
P-0-2852.0.11, Correction value: Changeover logic p/Q pressure controller.....	559	P-0-2860.0.22, Synchronization maximum model deviation.....	573
P-0-2852.0.12, Pressure change at changeover time.....	559	P-0-2860.0.23, Synchronization break delay ramp.....	573
P-0-2852.0.13, Output of pump changeover logic, cascade structure.....	559	P-0-2861.x.1, Synchronization slave axes control word.....	574
P-0-2852.0.14, Output ramp of pump changeover logic, cascade structure.....	559	P-0-2861.x.2, Synchronization slave axes status word.....	574
P-0-2852.0.15, Pump changeover logic ramp time, cascade.....	560	P-0-2861.x.3, Synchronization deviation actual reference value.....	575
P-0-2853, Alternating control, control word 1....	560	P-0-2861.x.4, Synchronization factor relative synchronism.....	575
P-0-2854, Alternating control, control word 2....	561	P-0-2861.x.5, Synchronization command value, additive.....	576
P-0-2855, Alternating control, status word.....	562	P-0-2861.x.6, Synchronization slave axis feedback value.....	576
P-0-2856.0.1, Alternating control, changeover threshold.....	563	P-0-2862.x.1, Synchronization position P-gain.....	576
P-0-2856.0.2, Alternating control, relative changeover window.....	563	P-0-2862.x.2, Synchronization position integral time.....	577
P-0-2856.0.3, Alternating control, active changeover threshold.....	564	P-0-2862.x.3, Synchronization position limitation integrator.....	577
P-0-2856.0.4, Alternating control, switch-on delay.....	564	P-0-2862.x.10, Correction value: synchronization position P-gain.....	577
P-0-2856.0.5, Alternating control, ramp time....	565	P-0-2862.x.11, Correction value: synchronization position integrator.....	578
P-0-2856.0.6, Alternating control, ramp value.....	565		
P-0-2857, Output of changeover logic p/Q.....	565		
P-0-2858, Output of alternating control.....	566		
P-0-2860.0.1, Synchronization control word.....	566		

P-0-2862.x.12, Output of synchronization position.....	578	P-0-2873.0.8, Characteristic of type.....	591
P-0-2863.x.1, Synchronization force P-gain.....	579	P-0-2873.0.9, Characteristic of flow.....	591
P-0-2863.x.2, Synchronization force integration time.....	579	P-0-2873.0.10, Characteristic of control variable.....	592
P-0-2863.x.3, Synchronization force limitation integrator.....	579	P-0-2873.0.11, Valve standard velocity (negative).....	592
P-0-2863.x.4, Synchronization force factor conversion position force.....	580	P-0-2873.0.12, Input of output adjustment.....	593
P-0-2863.x.5, Synchronization force minimum force value.....	580	P-0-2873.0.13, Valve control variable offset.....	593
P-0-2863.x.6, Synchronization force base value.....	581	P-0-2873.0.14, Control disabled offset.....	593
P-0-2863.x.10, Correction value: synchronization force P-gain.....	581	P-0-2873.0.15, Filter time of valve control output.....	594
P-0-2863.x.11, Correction value: synchronization force integrator.....	581	P-0-2873.0.16, Output adjustment command value.....	594
P-0-2863.x.12, Output of synchronization force.....	582	P-0-2873.0.17, Control variable adjustment of command value, maintenance.....	594
P-0-2864.x.1, Synchronization velocity P-gain.....	582	P-0-2873.0.18, Valve standard velocity ramp.....	595
P-0-2864.x.2, Synchronization velocity integration time.....	582	P-0-2873.0.20, Control variable adjustment control word.....	595
P-0-2864.x.3, Synchronization velocity limitation integrator.....	583	P-0-2873.0.23, Selection of controller output....	596
P-0-2864.x.4, Synchronization velocity factor conversion position velocity.....	583	P-0-2873.0.24, Limitation of valve control variable, A-side.....	597
P-0-2864.x.10, Correction value: synchronization velocity P-gain.....	584	P-0-2873.0.25, Limitation of valve control variable, B-side.....	597
P-0-2864.x.11, Correction value: synchronization velocity integrator.....	584	P-0-2874.0.1, Q calculation delta p limitation...	597
P-0-2864.x.12, Output of synchronization velocity.....	584	P-0-2874.0.2, Q calculation time constant 1.....	598
P-0-2865.0.1, Synchronization target integrator accuracy window.....	585	P-0-2874.0.4, Output of Q calculation.....	598
P-0-2865.0.2, Synchronization target integrator integral time.....	585	P-0-2874.0.5, Delta p of pressure feedback value.....	598
P-0-2865.0.3, Synchronization target integrator limitation.....	585	P-0-2874.0.6, Q calculation factor of characteristic curve, A-side.....	599
P-0-2865.0.4, Synchronization target integrator enable speed.....	586	P-0-2874.0.7, Q calculation offset characteristic curve, A-side.....	599
P-0-2865.0.5, Synchronization target integrator down ramp.....	586	P-0-2874.0.8, Q calculation factor of characteristic curve, B-side.....	599
P-0-2865.0.10, Correction value: synchronization target integrator.....	586	P-0-2874.0.9, Q calculation offset characteristic curve, B-side.....	600
P-0-2870, Control variable adjustment control word.....	586	P-0-2875.0.1, Nominal flow.....	600
P-0-2871, Control variable adjustment status word.....	587	P-0-2875.0.2, Nominal pressure delta p.....	600
P-0-2872, Output of valve characteristic curve.....	588	P-0-2875.0.3, Maximum flow.....	601
P-0-2873.0.1, Valve standard velocity.....	588	P-0-2875.0.4, Maximum pressure.....	601
P-0-2873.0.2, Direction-dependent gain.....	588	P-0-2875.0.5, Nominal flow.....	601
P-0-2873.0.3, Control variable inversion.....	589	P-0-2875.0.6, Nominal pressure delta p.....	602
P-0-2873.0.4, Valve overlap type.....	589	P-0-2876, Output control variable adjustment.....	602
P-0-2873.0.5, Valve overlap A-side.....	590	P-0-2877, Input of output adjustment p/Q.....	602
P-0-2873.0.6, Valve overlap B-side.....	590	P-0-2880.0.1, Valve monitoring control word....	603
P-0-2873.0.7, Valve overlap threshold.....	590	P-0-2880.0.3, Valve monitoring filter time.....	603
		P-0-2880.0.4, Valve monitoring threshold.....	604
		P-0-2880.0.5, Valve monitoring maximum valve error.....	604
		P-0-2880.0.6, Valve monitoring delay.....	604
		P-0-2880.0.7, Pilot pressure monitoring, spring pressure.....	605
		P-0-2880.0.8, Pilot pressure monitoring, area ratio.....	605
		P-0-2880.0.9, Pilot pressure monitoring, minimum pilot pressure.....	605

P-0-2880.0.10, Pilot pressure monitoring, delay time.....	606	P-0-2910.0.4, Analog encoder, lower limit of position range.....	625
P-0-2885.0.1, Control section temperature.....	606	P-0-2910.0.5, Analog encoder, upper limit of position range.....	626
P-0-2885.0.2, Temperature monitoring of control section.....	606	P-0-2910.0.6, Analog encoder, filter time.....	626
P-0-2885.0.3, Supply voltage, actual value.....	607	P-0-2911.x.1, Analog output, assignment, control word.....	626
P-0-2885.0.4, Sensor supply, actual value.....	608	P-0-2911.x.2, Analog output, assignment, status word.....	627
P-0-2885.0.5, Sensor supply, analog, actual value.....	608	P-0-2911.x.3, Analog output, assignment, source parameter.....	628
P-0-2885.0.6, Load current, actual value.....	608	P-0-2911.x.4, Analog output, assignment, offset.....	629
P-0-2885.0.7, Sensor supply, extension card, actual value.....	608	P-0-2911.x.5, Analog output, assignment, value range.....	629
P-0-2885.0.8, Sensor supply, analog, extension card, actual value.....	609	P-0-2911.x.6, Analog output, assignment, signal range, lower limit.....	630
P-0-2885.0.9, Load current extension card, actual value.....	609	P-0-2911.x.7, Analog output, assignment, signal range, upper limit.....	631
P-0-2885.0.10, Cycle time deviation.....	609	P-0-2912.0.1, Valve and flow controller settings.....	631
P-0-2885.0.11, Supply voltage, actual value....	610	P-0-2912.0.3, Advanced settings for valve controller.....	632
P-0-2885.0.12, Oil temperature.....	610	P-0-2914, Effective valve command value.....	632
P-0-2887, C90xx Condition Monitoring command parameter.....	610	P-0-2915.0.1, Actual pilot value.....	632
P-0-2888, Condition monitoring control word....	611	P-0-2915.0.3, Actual current value of solenoid A.....	632
P-0-2891, Condition monitoring status word....	611	P-0-2915.0.4, Actual current value of solenoid B.....	633
P-0-2900.x.1, Analog input, assignment, control word.....	612	P-0-2915.0.5, Output of pilot controller.....	633
P-0-2900.x.2, Analog input, assignment, target parameter.....	614	P-0-2915.0.6, Output of main stage controller.....	633
P-0-2900.x.3, Analog input, assignment, nominal value.....	614	P-0-2917.0.1, Simulation of control word.....	633
P-0-2900.x.4, Analog input, assignment, offset.....	615	P-0-2917.0.3, Natural frequency of axis.....	634
P-0-2900.x.5, Analog input, assignment, filter time.....	616	P-0-2917.0.4, Simulation of positive limit stop.....	634
P-0-2900.x.6, Analog input, assignment, status word.....	617	P-0-2917.0.5, Simulation of negative limit stop.....	635
P-0-2900.x.7, Analog input, assignment, extended control word.....	618	P-0-2917.0.6, Simulation of spring length.....	635
P-0-2900.x.8, Analog input, assignment, signal range lower limit.....	619	P-0-2917.0.7, Moved mass.....	636
P-0-2900.x.9, Analog input, assignment, signal range upper limit.....	620	P-0-2917.0.130, Simulation parameter, compact.....	636
P-0-2901.0.1, Analog input, adjustment control word.....	620	P-0-2918.0.1, Hardware control word of analog inputs and outputs.....	636
P-0-2901.0.2, Analog input, assignment, adjustment command C2700.....	621	P-0-2918.0.2, Hardware control word of analog inputs and outputs.....	637
P-0-2901.0.3, Analog input, assignment, maximum value for adjustment.....	621	P-0-2918.0.3, Sensor supply via digital outputs.....	639
P-0-2902, Line length A.....	622	P-0-2918.0.4, Hardware control word of analog inputs and outputs.....	639
P-0-2903, Line length B.....	622	P-0-2919, Inclination angle of axis.....	640
P-0-2904, Line diameter A.....	623	P-0-2921, Load pressure.....	640
P-0-2905, Line diameter B.....	623	P-0-2923, Configuration of system data.....	641
P-0-2906, System pressure 2.....	623	P-0-2923.0.1, Configuration of system data 2.....	642
P-0-2910.0.1, Analog encoder, control word....	624	P-0-2925, Natural frequency of valve.....	643
P-0-2910.0.2, Analog encoder, lower limit of signal range.....	624	P-0-2928.0.1, Valve command value control word.....	643
P-0-2910.0.3, Analog encoder, upper limit of signal range.....	625		

P-0-2928.0.3, Output of valve command value generator.....	644	P-0-2949.0.2, Swivel angle sensor, lower working point.....	660
P-0-2928.0.4, Valve command value ramp time positive, acceleration.....	644	P-0-2949.0.3, Swivel angle sensor, upper working point.....	660
P-0-2928.0.5, Valve command value ramp time positive, deceleration.....	644	P-0-2949.0.4, Swivel angle sensor wire rupture, lower threshold.....	660
P-0-2928.0.6, Valve command value ramp time negative, acceleration.....	644	P-0-2949.0.5, Swivel angle sensor wire rupture, upper threshold.....	661
P-0-2928.0.7, Valve command value ramp time negative, deceleration.....	645	P-0-2949.0.6, Swivel angle sensor wire rupture, timeout.....	661
P-0-2928.0.8, Valve command value emergency ramp.....	645	P-0-2949.0.7, Analog input of swivel angle feedback value.....	661
P-0-2929.0.1, Flow control word.....	645	P-0-2949.0.8, Filter time of swivel angle feedback value.....	662
P-0-2929.0.2, Flow status word.....	646	P-0-2950, Pump controller control word.....	662
P-0-2929.0.3, Flow ramp time positive, acceleration.....	646	P-0-2951, Pump controller status word.....	664
P-0-2929.0.4, Flow ramp time positive, deceleration.....	647	P-0-2952, Torque limitation of pump, relative.....	665
P-0-2929.0.5, Flow ramp time negative, acceleration.....	647	P-0-2953, Output of swivel angle controller.....	665
P-0-2929.0.6, Flow ramp time negative, deceleration.....	647	P-0-2954, Pump changeover logic output pressure controller, parallel.....	666
P-0-2930.0.1, Feedforward control setpoint velocity.....	647	P-0-2955, Output of pump changeover logic, parallel structure.....	666
P-0-2930.0.2, Feedforward control setpoint acceleration.....	648	P-0-2956, Pump changeover logic swivel angle, parallel.....	666
P-0-2930.0.3, Synchronization of velocity ramp.....	648	P-0-2957.0.1, Pressure normalization.....	666
P-0-2935, Swivel angle command value for master/slave function.....	648	P-0-2957.0.2, Output pressure controller P-gain.....	667
P-0-2936.0.1, Encoder control word extended.....	649	P-0-2957.0.3, Correction value: pressure controller D-component.....	667
P-0-2936.0.2, Encoder status word extended.....	649	P-0-2957.0.4, Correction value: swivel angle feedback.....	667
P-0-2936.0.6, Maximum number of cycles of encoder jump suppression.....	650	P-0-2957.0.6, Derivation pressure feedback value.....	667
P-0-2936.0.7, Actual velocity filter time.....	651	P-0-2957.0.7, Pressure feedback value, delayed.....	668
P-0-2936.0.8, Velocity feedback value, not filtered.....	651	P-0-2957.0.8, Output of pump pressure controller, parallel structure.....	668
P-0-2936.0.9, Actual acceleration filter time.....	651	P-0-2958.0.1, Derivation swivel angle feedback value.....	668
P-0-2936.0.10, Acceleration feedback value, not filtered.....	651	P-0-2958.0.3, Correction value: torque limitation.....	668
P-0-2937.0.1, Force acquisition control word...	652	P-0-2958.0.4, Swivel angle command value after leakage compensation.....	669
P-0-2937.0.3, Input of force feedback value.....	653	P-0-2958.0.5, Feedback of actual pressure value derivative.....	669
P-0-2938.0.1, Underclocking control word.....	653	P-0-2958.0.6, Correction value: leakage compensation offset value.....	669
P-0-2940, Pressure feedback value 1.....	654	P-0-2958.0.7, Output of swivel angle command value processing.....	669
P-0-2941, Pressure feedback value 2.....	654	P-0-2958.0.8, Torque limitation, field weakening operation.....	670
P-0-2943, Pump displacement volume.....	654	P-0-2958.0.9, Effective torque limitation.....	670
P-0-2944, Motor nominal speed.....	654	P-0-2959.0.1, Correction value: output adjustment after feedforward.....	670
P-0-2945, Configuration of analog mode.....	655	P-0-2959.0.2, Correction value: valve correction.....	670
P-0-2946, Enable signal.....	656		
P-0-2946.0.1, Valve type.....	657		
P-0-2947.0.16, Reference pressure for pump controller calibration.....	659		
P-0-2948, Selection of swivel angle sensor type.....	659		
P-0-2949.0.1, Swivel angle sensor configuration.....	659		

P-0-2960, Gate time derivation actual pressure value 1 or A.....	671	P-0-2992, Swivel angle command value, internal.....	681
P-0-2961, Filter time of swivel angle feedback value derivative.....	671	P-0-2993, Current drive speed.....	682
P-0-2963, Pressure controller P-gain 1 positive.....	672	P-0-2994, Established calibration swivel angle zero point.....	682
P-0-2964, Pressure controller P-gain 1 negative.....	672	P-0-2995, Established calibration swivel angle factor.....	682
P-0-2965, Pressure controller P-gain 2 positive.....	672	P-0-2996, Pressure command value for leakage calibration.....	683
P-0-2966, Pressure controller P-gain 2 negative.....	672	P-0-2997.0.1, EnDat 2.2: Encoder data.....	683
P-0-2967, Pressure controller control deviation threshold positive.....	673	P-0-2997.0.2, EnDat 2.2: clock frequency.....	684
P-0-2968, Pressure controller control deviation threshold negative.....	673	P-0-2998.0.1, Maximum values of write counter, SPI flash memory.....	684
P-0-2969, Pressure controller pos. Factor for D-component, parallel.....	673	P-0-3400, Pressure controller integrator enable lowpass filter.....	684
P-0-2970, Pressure controller neg. factor for D-component, parallel.....	674	P-0-3401, Pressure controller integration time constant.....	684
P-0-2971, Pressure controller time constant swivel angle feedback.....	674	P-0-3402, Pressure controller integrator pressure change threshold.....	685
P-0-2972, Swivel angle command value of controller.....	674	P-0-3403, Pressure controller integrator accuracy window.....	685
P-0-2973, Filter time for feedback of actual pressure value derivative.....	674	P-0-3404, Pressure controller integrator limit.....	685
P-0-2974, Time constant for feedback of act. pressure value derivative.....	675	P-0-3405, Output pressure controller I-part.....	686
P-0-2975, Pressure command value (without controller enable).....	675	P-0-3406, Pressure controller calculation p->Q value side A.....	686
P-0-2976, Swivel angle command value (without controller enable).....	675	P-0-3407, Pressure controller calculation p->Q value side B.....	686
P-0-2977, Swivel angle controller P-gain.....	676	P-0-3408, Position controller Kv-factor change ramp.....	686
P-0-2978, Swivel angle controller time constant D-component.....	676	P-0-3409, Position loop time constant D-component.....	687
P-0-2979, Gate time derivation actual pressure value 2 or B.....	676	P-0-3410, Position controller filter time D-component.....	687
P-0-2980, Leakage compensation calibration value.....	677	P-0-3411, Position controller integration time constant.....	687
P-0-2981, Valve correction pressure stage.....	677	P-0-3412, Position controller integrator velocity threshold.....	688
P-0-2982, Valve correction pressure offset.....	677	P-0-3413, Position controller integrator position window.....	688
P-0-2983, Output adjustment, feedforward valve.....	678	P-0-3414, Position controller integrator limit.....	688
P-0-2984, Control variable adjustment, scaling feedforward positive.....	678	P-0-3415, Position controller integrator washout ramp.....	688
P-0-2985, Control variable adjustment, scaling feedforward negative.....	678	P-0-3416, Position command filter time.....	689
P-0-2986, Output adjustment of pump command value.....	679	P-0-3417, Position command dead time.....	689
P-0-2987, Maximum drive speed.....	679	P-0-3418, Velocity feedforward change ramp.....	689
P-0-2988, Control variable adjustment, swivel angle minimum value.....	679	P-0-3419, Velocity controller P-gain.....	690
P-0-2989, Configuration of pump controller.....	679	P-0-3420, Velocity controller integration time constant.....	690
P-0-2990, C79xx Calibration command parameter.....	680	P-0-3421, Velocity controller integrator acceleration threshold.....	690
P-0-2991, Calibration command control word.....	681	P-0-3422, Velocity controller integrator velocity window.....	690
		P-0-3423, Velocity controller integrator limit.....	691
		P-0-3424, Active damping: Force/time constant.....	691
		P-0-3425, Active damping: Acceleration gain.....	691

P-0-3426, Active damping: Velocity gain.....	692	P-0-3468, Q calculation offset characteristic curve, B-side.....	704
P-0-3427, Moved mass.....	692	P-0-3471, Nominal flow.....	704
P-0-3428, Velocity command filter time.....	692	P-0-3472, Nominal pressure delta p.....	704
P-0-3429, Velocity command dead time.....	692	P-0-3473, Maximum flow.....	705
P-0-3430, Force controller P-gain.....	693	P-0-3474, Maximum pressure.....	705
P-0-3431, Scaling force to velocity.....	693	P-0-3475, Valve monitoring control word.....	705
P-0-3432, Force controller integration time.....	693	P-0-3477, Valve monitoring filter time.....	706
P-0-3433, Force controller integrator force change threshold.....	694	P-0-3478, Valve monitoring threshold.....	706
P-0-3434, Force controller integrator force window.....	694	P-0-3479, Valve monitoring maximum valve error.....	706
P-0-3435, Force controller limitation integrator.....	694	P-0-3480, Analog input, assignment, control word.....	706
P-0-3436, Force controller scaling of velocity feedforward control.....	694	P-0-3481, Analog input, assignment, control word.....	707
P-0-3437, Force feedback filter time.....	695	P-0-3482, Analog input, assignment, control word.....	707
P-0-3438, Pressure controller preload integrator, threshold 1.....	695	P-0-3483, Analog input, assignment, control word.....	707
P-0-3439, Pressure controller switch-on threshold, relative.....	695	P-0-3484, Analog input, assignment, control word.....	708
P-0-3440, Pressure controller switch-on threshold, absolute.....	696	P-0-3485, Analog input, assignment, control word.....	708
P-0-3441, Pressure controller switch-off threshold, relative.....	696	P-0-3486, Analog input, assignment, control word.....	708
P-0-3442, Pressure controller switch-off threshold, absolute.....	696	P-0-3487, Analog input, assignment, target parameter.....	708
P-0-3443, Pressure controller ramp time switching logic.....	696	P-0-3488, Analog input, assignment, target parameter.....	709
P-0-3444, Alternating control, changeover threshold.....	697	P-0-3489, Analog input, assignment, target parameter.....	709
P-0-3445, Alternating control, relative changeover window.....	697	P-0-3490, Analog input, assignment, target parameter.....	709
P-0-3446, Alternating control, switch-on delay.....	697	P-0-3491, Analog input, assignment, target parameter.....	710
P-0-3447, Alternating control, ramp time.....	697	P-0-3492, Analog input, assignment, target parameter.....	710
P-0-3448, Valve standard velocity.....	698	P-0-3493, Analog input, assignment, target parameter.....	710
P-0-3449, Direction-dependent gain.....	698	P-0-3494, Analog input, assignment, nominal value.....	711
P-0-3450, Control variable inversion.....	698	P-0-3495, Analog input, assignment, nominal value.....	711
P-0-3451, Valve overlap type.....	699	P-0-3496, Analog input, assignment, nominal value.....	711
P-0-3452, Valve overlap A-side.....	699	P-0-3497, Analog input, assignment, nominal value.....	711
P-0-3453, Valve overlap B-side.....	699	P-0-3498, Analog input, assignment, nominal value.....	712
P-0-3454, Valve overlap threshold.....	700	P-0-3499, Analog input, assignment, nominal value.....	712
P-0-3455, Characteristic of type.....	700	P-0-3500, Analog input, assignment, scaling....	712
P-0-3456, Characteristic of flow.....	700	P-0-3501, Analog input, assignment, offset.....	713
P-0-3457, Characteristic of control variable.....	701	P-0-3502, Analog input, assignment, offset.....	713
P-0-3458, Valve control variable offset.....	701	P-0-3503, Analog input, assignment, offset.....	713
P-0-3459, Control disabled offset.....	701		
P-0-3460, Filter time of valve control output....	702		
P-0-3461, Output adjustment command value.....	702		
P-0-3462, Q calculation delta p limitation.....	702		
P-0-3463, Q calculation time constant 1.....	702		
P-0-3465, Q calculation factor of characteristic curve, A-side.....	703		
P-0-3466, Q calculation offset characteristic curve, A-side.....	703		
P-0-3467, Q calculation factor of characteristic curve, B-side.....	703		

P-0-3504, Analog input, assignment, offset.....	714	P-0-3533, Analog output, assignment, status word.....	722
P-0-3505, Analog input, assignment, offset.....	714	P-0-3534, Analog output, assignment, source parameter.....	723
P-0-3506, Analog input, assignment, offset.....	714	P-0-3535, Analog output, assignment, offset....	723
P-0-3507, Analog input, assignment, signal value at zero.....	714	P-0-3536, Analog output, assignment, value range.....	723
P-0-3508, Analog input, assignment, filter time.....	715	P-0-3537, Analog output, assignment, signal range, lower limit.....	724
P-0-3509, Analog input, assignment, filter time.....	715	P-0-3538, Analog output, assignment, signal range, upper limit.....	724
P-0-3510, Analog input, assignment, filter time.....	715	P-0-3539, Analog output, assignment, control word.....	724
P-0-3511, Analog input, assignment, filter time.....	716	P-0-3540, Analog output, assignment, status word.....	724
P-0-3512, Analog input, assignment, filter time.....	716	P-0-3541, Analog output, assignment, source parameter.....	725
P-0-3513, Analog input, assignment, filter time.....	716	P-0-3542, Analog output, assignment, offset....	725
P-0-3514, Analog input, assignment, filter time.....	717	P-0-3543, Analog output, assignment, value range.....	725
P-0-3515, Analog input, assignment, status word.....	717	P-0-3544, Analog output, assignment, signal range, lower limit.....	725
P-0-3516, Analog input, assignment, status word.....	717	P-0-3545, Analog output, assignment, signal range, upper limit.....	726
P-0-3517, Analog input, assignment, status word.....	717	P-0-3546, Analog output, assignment, control word.....	726
P-0-3518, Analog input, assignment, status word.....	718	P-0-3547, Analog output, assignment, status word.....	726
P-0-3519, Analog input, assignment, status word.....	718	P-0-3548, Analog output, assignment, source parameter.....	727
P-0-3520, Analog input, assignment, status word.....	718	P-0-3549, Analog output, assignment, offset....	727
P-0-3521, Analog input, assignment, status word.....	719	P-0-3550, Analog output, assignment, value range.....	727
P-0-3522, Hardware control word of analog inputs and outputs.....	719	P-0-3551, Analog output, assignment, signal range, lower limit.....	727
P-0-3523, Valve command value emergency ramp.....	719	P-0-3552, Analog output, assignment, signal range, upper limit.....	728
P-0-3524, Field bus: control word fluid power.....	720	P-0-3553, Analog output, assignment, control word.....	728
P-0-3525, Field bus: status word fluid power....	720	P-0-3554, Analog output, assignment, status word.....	728
P-0-3526, Analog input, assignment, extended control word.....	720	P-0-3555, Analog output, assignment, source parameter.....	729
P-0-3527, Analog input, assignment, extended control word.....	720	P-0-3556, Analog output, assignment, offset....	729
P-0-3528, Analog input, assignment, extended control word.....	721	P-0-3557, Analog output, assignment, value range.....	729
P-0-3529, Analog input, assignment, extended control word.....	721	P-0-3558, Analog output, assignment, signal range, lower limit.....	729
P-0-3530, Analog input, assignment, extended control word.....	722	P-0-3559, Analog output, assignment, signal range, upper limit.....	730
P-0-3531, Pressure controller preload integrator, threshold 2.....	722	P-0-3560, Analog input, assignment, signal range lower limit.....	730
P-0-3532, Analog output, assignment, control word.....	722	P-0-3561, Analog input, assignment, signal range lower limit.....	730
		P-0-3562, Analog input, assignment, signal range lower limit.....	730
		P-0-3563, Analog input, assignment, signal range lower limit.....	731

Index

P-0-3564, Analog input, assignment, signal range lower limit.....	731	P-0-3622.0.3, ECAT: Sync Manager 1.....	746
P-0-3565, Analog input, assignment, signal range upper limit.....	731	P-0-3622.0.4, ECAT: Sync Manager 2.....	747
P-0-3566, Analog input, assignment, signal range upper limit.....	732	P-0-3622.0.5, ECAT: Sync Manager 3.....	747
P-0-3567, Analog input, assignment, signal range upper limit.....	732	P-0-3623.0.1, ECAT: PDO Assignment RX (Outputs).....	747
P-0-3568, Analog input, assignment, signal range upper limit.....	732	P-0-3623.0.2, ECAT: PDO Assign Outputs 1... 748	
P-0-3569, Analog input, assignment, signal range upper limit.....	732	P-0-3624.0.1, ECAT: PDO Assignment TX (Inputs).....	748
P-0-3570, Selection of controller output.....	733	P-0-3624.0.2, ECAT: PDO Assign Inputs 1.....	749
P-0-3571, Control section temperature.....	733	P-0-3626.0.1, EPL: Verify Configuration.....	749
P-0-3572, Supply voltage, actual value.....	733	P-0-3626.0.2, EPL: ConfDate.....	749
P-0-3573, Actual current value of solenoid A....	734	P-0-3626.0.3, EPL: ConfTime.....	749
P-0-3574, Actual current value of solenoid B....	734	P-0-3627.0.1, EPL: Interface Group.....	750
P-0-3575, Natural frequency of axis.....	734	P-0-3627.0.2, EPL: Interface Index.....	750
P-0-3576, Moved mass.....	734	P-0-3627.0.3, EPL: Interface Description.....	750
P-0-3577, Simulation parameter, compact.....	735	P-0-3627.0.4, EPL: Interface Type.....	751
P-0-3578, Valve standard velocity (negativ)....	735	P-0-3627.0.5, EPL: Interface Mtu.....	751
P-0-3579, Valve standard velocity ramp.....	735	P-0-3627.0.6, EPL: Interface Phys Address....	751
P-0-3581, List of available profile types.....	736	P-0-3627.0.7, EPL: Interface Name.....	751
P-0-3591, Module/firmware history, compact... 736		P-0-3627.0.8, EPL: Interface Oper Status.....	752
P-0-3599, Pressure normalization.....	736	P-0-3627.0.9, EPL: Interface Admin State.....	752
P-0-3600.0.1, CANopen: Device type.....	736	P-0-3627.0.10, EPL: Valid.....	753
P-0-3601.0.1, CANopen: Error register.....	737	P-0-3628.0.1, EPL: Sequ Layer Timeout.....	753
P-0-3603.0.1, CANopen: Communication cycle period.....	737	P-0-3629.0.1, EPL: Cmd Layer Timeout.....	753
P-0-3604.0.1, CANopen: Manufacturer device name.....	738	P-0-3630.0.1, EPL: Rx Comm Param.....	753
P-0-3604.0.2, CANopen: Manufacturer hardware version.....	738	P-0-3630.0.2, EPL: Node ID.....	754
P-0-3604.0.3, CANopen: Manufacturer software version.....	738	P-0-3630.0.3, EPL: Mapping Version.....	754
P-0-3606.0.1, Identity Object: Highest sub-index supported.....	739	P-0-3631.0.1, EPL: Rx Mapp Param.....	754
P-0-3606.0.2, CANopen: Vendor ID.....	739	P-0-3631.x.2, EPL: Rx Object Mapping.....	755
P-0-3606.0.3, CANopen: Product Code.....	740	P-0-3632.0.1, EPL: Tx Comm Param.....	755
P-0-3606.0.4, CANopen: Revision Number.....	740	P-0-3632.0.2, EPL: Node ID.....	755
P-0-3606.0.5, CANopen: Serial Number.....	740	P-0-3632.0.3, EPL: Mapping Version.....	756
P-0-3616.0.1, ECAT: EtherCAT Address.....	741	P-0-3633.0.1, EPL: Tx Mapp Param.....	756
P-0-3616.0.2, ECAT: Virtual MAC Address.....	741	P-0-3633.x.2, EPL: Tx Object Mapping.....	757
P-0-3617.0.1, ECAT: IP Address Info.....	741	P-0-3634.0.1, EPL: CN Loss SoC.....	757
P-0-3617.0.2, ECAT: IP Address.....	742	P-0-3634.0.2, EPL: Loss SoC: Cumulative Cnt.....	757
P-0-3617.0.3, ECAT: Subnet Mask.....	742	P-0-3634.0.3, EPL: Loss SoC: Threshold Cnt.....	758
P-0-3617.0.4, ECAT: Default Gateway.....	742	P-0-3634.0.4, EPL: Loss SoC: Threshold.....	758
P-0-3618.0.1, ECAT: Receive PDO Mapping.....	743	P-0-3635.0.1, EPL: CN CRC Error.....	758
P-0-3619.x.1, ECAT: RPDO: application object.....	743	P-0-3635.0.2, EPL: CRC Error: Cumulative Cnt.....	758
P-0-3620.0.1, ECAT: Transmit PDO Mapping.....	744	P-0-3635.0.3, EPL: CRC Error: Threshold Cnt.....	759
P-0-3621.x.1, ECAT: TPDO: application object.....	745	P-0-3635.0.4, EPL: CRC Error: Threshold.....	759
P-0-3622.0.1, ECAT: Sync Manager Communication Type.....	746	P-0-3636.0.1, EPL: CN Loss Of SoC Tolerance.....	759
P-0-3622.0.2, ECAT: Sync Manager 0.....	746	P-0-3637.0.1, EPL: IP Addr Table.....	760
		P-0-3637.0.2, EPL: If Index.....	760
		P-0-3637.0.3, EPL: Addr IPAD.....	760
		P-0-3637.0.4, EPL: Net Mask IPAD.....	760
		P-0-3637.0.5, EPL: Reasm Max Size.....	761
		P-0-3637.0.6, EPL: Default Gateway IPAD.....	761
		P-0-3638.0.1, EPL: Ip Group.....	761
		P-0-3638.0.2, EPL: Forwarding.....	761
		P-0-3638.0.3, EPL: Default TTL.....	762
		P-0-3638.0.4, EPL: Forward Datagrams.....	762

P-0-3639.0.1, EPL: Feature Flags.....	762	P-0-3711, Swivel angle sensor wire rupture, upper threshold.....	777
P-0-3640.0.1, EPL: EPL Version.....	764	P-0-3712, Swivel angle sensor wire rupture, timeout.....	778
P-0-3641.0.1, EPL: Curr NMT State.....	765	P-0-3713, Analog input of swivel angle feedback value.....	778
P-0-3642.0.1, EPL: EPL Node ID.....	765	P-0-3714, Filter time of swivel angle feedback value.....	778
P-0-3642.0.2, EPL: Node ID.....	765	P-0-3715, Nominal flow.....	778
P-0-3642.0.3, EPL: Node ID By HW.....	765	P-0-3716, Nominal pressure delta p.....	779
P-0-3642.0.4, EPL: SW Node ID.....	766	P-0-3717, Outputs of position controller, compact.....	779
P-0-3643.0.1, EPL: Cycle Timing.....	766	P-0-3718, Extended diagnostic message.....	779
P-0-3643.0.2, EPL: Isochr Tx Max Payload.....	766	P-0-3719, Extended diagnostic message.....	779
P-0-3643.0.3, EPL: Isochr Rx Max Payload.....	766	P-0-3720, Default profile.....	780
P-0-3643.0.4, EPL: Pres Max Latency.....	767	P-0-3722, Pressure controller preload, pressure change filter time.....	780
P-0-3643.0.5, EPL: Preq Act Payload Limit.....	767	P-0-3727, Actual pilot value.....	780
P-0-3643.0.6, EPL: Pres Act Payload Limit.....	767	P-0-3728, Output of main stage controller.....	781
P-0-3643.0.7, EPL: Asnd Max Latency.....	768	P-0-3729, Output pressure controller P-gain....	781
P-0-3643.0.8, EPL: Multiple Cycle Cnt.....	768	P-0-3736, Pressure controller adaptation, P-term.....	781
P-0-3643.0.9, EPL: Async MTU.....	768	P-0-3737, Pressure controller adaptation, D-term.....	781
P-0-3643.0.10, EPL: Prescaler.....	768	P-0-3738, Pressure controller disturbance feedforward.....	782
P-0-3644.0.1, EPL: CN Basic Ethernet Timeout.....	769	P-0-3739, Input of output adjustment.....	782
P-0-3645.0.1, EPL: Host Name.....	769	P-0-3740, Hardware control word of analog inputs and outputs.....	782
P-0-3646.0.1, EPL: Reset Cmd.....	769	P-0-3745, Hardware control word of analog inputs and outputs.....	782
P-0-3647.0.1, ECAT: Synchronization Type (Outputs) number of entries.....	770	P-0-3748, Password configuration.....	783
P-0-3647.0.2, ECAT: Synchronization Type (Outputs).....	770	P-0-3749, Password token.....	783
P-0-3647.0.5, ECAT: Synchronization Types Supported (Outputs).....	771	P-0-3750, Sercos: Test-IDN for Conformity purpose - configuration.....	783
P-0-3647.0.7, ECAT: Calc and Copy Time (Outputs).....	771	P-0-3751, Sercos: Test-IDN for Conformity purpose.....	783
P-0-3647.0.10, ECAT: Delay Time (Outputs)....	772	P-0-3752, PLC user program.....	784
P-0-3648.0.1, ECAT: Synchronization Type (Inputs) number of entries.....	772	P-0-3753, PLC user program.....	784
P-0-3648.0.2, ECAT: Synchronization Type (Inputs).....	773	P-0-3754, PLC user program.....	784
P-0-3648.0.5, ECAT: Synchronization Types Supported (Inputs).....	773	P-0-3755, PLC user program.....	785
P-0-3648.0.7, ECAT: Calc and Copy Time (Inputs).....	773	P-0-3756, PLC user program.....	785
P-0-3648.0.10, ECAT: Delay Time (Inputs).....	774	P-0-3757, PLC user program.....	785
P-0-3700, Analog input, assignment, extended control word.....	774	P-0-3758, PLC user program.....	786
P-0-3701, Flow control word.....	775	P-0-3759, PLC user program.....	786
P-0-3702, Flow status word.....	775	P-0-3760, PLC user program.....	786
P-0-3703, Flow ramp time positive, acceleration.....	775	P-0-3761, PLC user program.....	787
P-0-3704, Flow ramp time positive, deceleration.....	775	P-0-3762, PLC user program.....	787
P-0-3705, Flow ramp time negative, acceleration.....	776	P-0-3763, PLC user program.....	787
P-0-3706, Flow ramp time negative, deceleration.....	776	P-0-3764, PLC user program.....	788
P-0-3707, Swivel angle sensor configuration....	776	P-0-3765, PLC user program.....	788
P-0-3708, Swivel angle sensor, lower working point.....	776	P-0-3766, PLC user program.....	788
P-0-3709, Swivel angle sensor, upper working point.....	777	P-0-3767, PLC user program.....	789
P-0-3710, Swivel angle sensor wire rupture, lower threshold.....	777	P-0-3768, PLC user program.....	789
		P-0-3769, PLC user program.....	789
		P-0-3770, PLC user program.....	790
		P-0-3771, PLC user program.....	790
		P-0-3772, PLC user program.....	790

P-0-3773, PLC user program.....	791	P-0-3915.0.3, Module/firmware history, cause of error.....	803
P-0-3774, PLC user program.....	791	P-0-3915.0.130, Module/firmware history, compact.....	803
P-0-3775, PLC user program.....	791	P-0-4008, Positioning block acceleration.....	804
P-0-3776, PLC user program.....	792	P-0-4009, Positioning block jerk.....	805
P-0-3777, PLC user program.....	792	P-0-4006, Positioning block target position.....	803
P-0-3778, PLC user program.....	792	P-0-4007, Positioning block velocity.....	804
P-0-3779, PLC user program.....	793	P-0-4014, Type of construction of motor/ cylinder.....	805
P-0-3780, PLC user program.....	793	P-0-4018, Positioning block delay time.....	806
P-0-3781, PLC user program.....	793	P-0-4019, Positioning block mode.....	806
P-0-3782, PLC user program.....	794	P-0-4020, Multi-axis device: Active axes.....	807
P-0-3783, PLC user program.....	794	P-0-4023, C0400 Communication phase 2 transition.....	807
P-0-3784, PLC user program.....	794	P-0-4026, Positioning block selection.....	807
P-0-3785, Valve monitoring delay.....	795	P-0-4028, Device control word.....	808
P-0-3786, Control variable adjustment of command value, maintenance.....	795	P-0-4029, Diagnostic report SCSB module.....	809
P-0-3789, Velocity controller integrator feed- back threshold.....	795	P-0-4030, Axis configuration for multi-axis device.....	809
P-0-3790, Velocity controller integrator feed- back time constant.....	796	P-0-4031, Overview of device addresses.....	810
P-0-3792, Active damping: Acceleration gain ramp time.....	796	P-0-4051, Positioning block acknowledg- ment.....	811
P-0-3793, Active damping: Velocity gain ramp time.....	796	P-0-4052, Positioning block, last accepted.....	811
P-0-3818, Master communication: List of available protocols.....	796	P-0-4053, Positioning block, last active.....	811
P-0-3820, Filter time of pressure feedback value.....	797	P-0-4057, Positioning block, input linked blocks.....	812
P-0-3821, Derivative action time, actual pressure value DT1.....	797	P-0-4060, Positioning block control word.....	812
P-0-3822, Filter time of pressure feedback value DT1.....	797	P-0-4061, Positioning block status word.....	813
P-0-3844, Additive velocity command value.....	798	P-0-4063, Positioning block deceleration.....	813
P-0-3845, Synchronization control word.....	798	P-0-4064, Password level.....	814
P-0-3846, Synchronization status word.....	798	P-0-4064.0.1, Password configuration.....	815
P-0-3847, Synchronization position P-gain.....	798	P-0-4064.0.2, Password token.....	815
P-0-3848, Synchronization position integral time.....	799	P-0-4065, Active non-volatile memory.....	816
P-0-3849, Synchronization position P-gain.....	799	P-0-4066, Card Identification Data.....	816
P-0-3850, Synchronization position integral time.....	799	P-0-4068, Field bus: Control word IO.....	816
P-0-3851, Synchronization force P-gain.....	799	P-0-4069, Field bus: Module diagnosis.....	819
P-0-3852, Synchronization force integration time.....	800	P-0-4071, Field bus: Length of cyclic com- mand value data channel.....	819
P-0-3853, Synchronization force P-gain.....	800	P-0-4073, Field bus: Diagnostic message.....	819
P-0-3854, Synchronization force integration time.....	800	P-0-4074, Field bus: Data format.....	822
P-0-3855, Synchronization velocity P-gain.....	801	P-0-4075, Field bus: Watchdog.....	822
P-0-3856, Synchronization velocity integra- tion time.....	801	P-0-4076, Field bus: Process data - updat- ing clock.....	823
P-0-3857, Synchronization velocity P-gain.....	801	P-0-4077, Field bus: Control word.....	823
P-0-3858, Synchronization velocity integra- tion time.....	801	P-0-4078, Field bus: Status word.....	825
P-0-3859, Pressure feedback value, filtered.....	802	P-0-4079, Field bus: Baud rate.....	827
P-0-3862, Oil temperature.....	802	P-0-4080, Field bus: Config. list of cyclic ac- tual value data ch.....	828
P-0-3915.0.1, Module/firmware history, time stamp.....	802	P-0-4081, Field bus: Config. list of cyclic command value data ch.....	828
P-0-3915.0.2, Module/firmware history, com- ponent designation.....	802	P-0-4082, Field bus: Length of cyclic actual value data channel.....	829
		P-0-4083, Parameter channel: Length.....	829
		P-0-4083.0.1, Parameter channel: Configu- ration.....	830
		P-0-4083.0.2, Application: Allocation of ob- ject ID to Sercos EIDN.....	830

P-0-4083.0.3, Master communication: Allocation object ID to Sercos EIDN.....	831	S-0-0021, IDN-list of invalid operation data for CP2.....	32
P-0-4084, Application: Profile type.....	831	S-0-0022, IDN-list of invalid operation data for CP3.....	33
P-0-4084.0.1, List of available profile types.....	833	S-0-0024, Configuration list of MDT.....	33
P-0-4084.0.2, Default profile.....	833	S-0-0025, IDN-list of all procedure commands.....	34
P-0-4085, C4700 Command Activate easy startup mode.....	833	S-0-0026, Configuration list for signal status word.....	34
P-0-4086, Master communication status.....	834	S-0-0027, Configuration list for signal control word.....	34
P-0-4088, Master communication: Drive configuration.....	835	S-0-0029, MDT error counter.....	35
P-0-4089.0.1, Master communication: Protocol.....	837	S-0-0030, Manufacturer version.....	35
P-0-4089.0.2, Master communication: Device name.....	837	S-0-0032, Primary operation mode.....	36
P-0-4089.0.3, Device address.....	838	S-0-0033, Secondary operation mode 1.....	37
P-0-4089.0.4, Active device address.....	838	S-0-0034, Secondary operation mode 2.....	38
P-0-4089.0.5, Master communication: Configuration.....	838	S-0-0035, Secondary operation mode 3.....	39
P-0-4089.0.7, ECAT: SII Configured Station Alias.....	839	S-0-0036, Velocity command value.....	40
P-0-4089.0.13, Master communication: IP address.....	840	S-0-0037, Additive velocity command value.....	40
P-0-4089.0.14, Master communication: Network mask.....	840	S-0-0038, Positive velocity limit value.....	41
P-0-4089.0.15, Master communication: Gateway address.....	841	S-0-0039, Negative velocity limit value.....	41
P-0-4089.0.17, Master communication: List of available protocols.....	842	S-0-0040, Velocity feedback value of encoder 1.....	42
P-0-4089.0.127, Master communication: Master debugging.....	842	S-0-0041, Homing velocity.....	42
P-0-4090, Configuration for loading default values.....	842	S-0-0042, Homing acceleration.....	42
P-0-4094.0.1, Field bus: control word fluid power.....	844	S-0-0043, Velocity polarity parameter.....	43
P-0-4094.0.2, Field bus: status word fluid power.....	846	S-0-0044, Velocity data scaling type.....	43
Parameter number, Parameter name.....	2	S-0-0045, Velocity data scaling factor.....	44
PELV.....	16	S-0-0046, Velocity data scaling exponent.....	45
Protective extra-low voltage.....	16	S-0-0047, Position command value.....	45
S		S-0-0049, Positive position limit value.....	46
S-0-0000, Dummy parameter.....	23	S-0-0050, Negative position limit value.....	47
S-0-0001, NC cycle time (TNcyc).....	23	S-0-0051, Position feedback value of encoder 1.....	47
S-0-0002, Sercos cycle time (TScyc).....	23	S-0-0052, Reference distance of encoder 1.....	48
S-0-0005, Minimum feedback acquisition time (T4min).....	24	S-0-0053, Position feedback value of encoder 2.....	49
S-0-0007, Feedback acquisition starting time (T4).....	24	S-0-0054, Reference distance of encoder 2.....	49
S-0-0011, Class 1 diagnostics.....	25	S-0-0055, Position polarities.....	50
S-0-0012, Class 2 diagnostics.....	26	S-0-0057, Position window.....	51
S-0-0013, Class 3 diagnostics.....	27	S-0-0058, Reversal clearance.....	52
S-0-0014, Interface status.....	29	S-0-0059, Position switch flag parameter.....	53
S-0-0015, Telegram type parameter.....	30	S-0-0060, Position switch point 1 "On".....	53
S-0-0016, Configuration list of AT.....	31	S-0-0076, Position data scaling type.....	54
S-0-0017, IDN-list of all operation data.....	31	S-0-0077, Linear position data scaling factor.....	55
S-0-0018, IDN-list of operation data for CP2.....	32	S-0-0078, Linear position data scaling exponent.....	55
S-0-0019, IDN-list of operation data for CP3.....	32	S-0-0079, Rotational position resolution.....	56
		S-0-0080, Torque/force command value (2 bytes).....	56
		S-0-0081, Additive torque/force command value (2 bytes).....	57
		S-0-0082, Torque/force limit value positive.....	58
		S-0-0083, Torque/force limit value negative.....	58
		S-0-0084, Torque/force feedback value (2 bytes).....	59
		S-0-0085, Torque/force polarity parameter.....	59
		S-0-0086, Torque/force data scaling type.....	60

S-0-0089, MDT Transmit starting time (T2).....	61	S-0-0171, C4400 Calculate displacement procedure command.....	93
S-0-0091, Bipolar velocity limit value.....	62	S-0-0172, C4500 Displacement to refer- enced system procedure command.....	94
S-0-0092, Bipolar torque/force limit value (2 bytes).....	62	S-0-0175, Offset of position feedback value of encoder 1.....	95
S-0-0093, Torque/force data scaling factor.....	63	S-0-0176, Offset of position feedback value of encoder 2.....	95
S-0-0094, Torque/force data scaling expo- nent.....	63	S-0-0177, Absolute offset encoder 1.....	95
S-0-0095, Diagnostic message.....	64	S-0-0178, Absolute offset encoder 2.....	96
S-0-0097, Mask class 2 diagnostics.....	64	S-0-0180, Spindle relative offset.....	96
S-0-0098, Mask class 3 diagnostics.....	65	S-0-0185, Length of the configurable data record in the AT.....	97
S-0-0099, C0500 Reset class 1 diagnostics.....	65	S-0-0186, Length of the configurable data record in the MDT.....	97
S-0-0103, Modulo value.....	66	S-0-0187, List of configurable data in the AT.....	98
S-0-0104, Position loop Kv-factor.....	66	S-0-0188, List of configurable data in the MDT.....	98
S-0-0108, Feedrate override.....	67	S-0-0189, Following distance.....	98
S-0-0113, Maximum velocity of the drive.....	68	S-0-0190, C4200 Drive-controlled oscillation procedure command.....	99
S-0-0115, Encoder 2, type of position en- coder.....	68	S-0-0191, C1500 Cancel reference point procedure command.....	99
S-0-0116, Resolution of feedback 1.....	69	S-0-0192, IDN-list of all backup operation data.....	100
S-0-0121, Input revolutions of load gear.....	70	S-0-0193, Positioning jerk.....	100
S-0-0122, Output revolutions of load gear.....	71	S-0-0197, C3300 Set coordinate system procedure command.....	101
S-0-0123, Feed constant.....	71	S-0-0198, Initial coordinate value.....	101
S-0-0124, Standstill window.....	72	S-0-0199, C3400 Shift coordinate system procedure command.....	101
S-0-0125, Velocity threshold vx.....	73	S-0-0206, Drive on delay time.....	102
S-0-0126, Torque threshold Tx.....	73	S-0-0207, Drive off delay time.....	102
S-0-0127, C0100 Communication phase 3 transition check.....	73	S-0-0208, Temperature data scaling type.....	103
S-0-0128, C5200 Communication phase 4 transition check.....	74	S-0-0213, Oscillation speed.....	103
S-0-0134, Master control word.....	74	S-0-0214, Oscillation offset speed.....	103
S-0-0135, Drive status word.....	76	S-0-0215, Oscillation cycle time.....	103
S-0-0138, Bipolar acceleration limit value.....	78	S-0-0216, C4100 Switch parameter set com- mand.....	104
S-0-0139, C1600 Parking axis procedure command.....	79	S-0-0217, Preselect parameter set com- mand.....	104
S-0-0142, Application type.....	80	S-0-0219, IDN-list of parameter set.....	105
S-0-0144, Signal status word.....	80	S-0-0222, Spindle positioning speed.....	105
S-0-0145, Signal control word.....	81	S-0-0254, Current parameter set.....	105
S-0-0146, C4300 NC-controlled homing pro- cedure command.....	82	S-0-0256, Multiplication 1.....	106
S-0-0147, Homing parameter.....	82	S-0-0258, Target position.....	106
S-0-0148, C0600 Drive-controlled homing procedure command.....	84	S-0-0259, Positioning velocity.....	107
S-0-0149, C1300 Positive stop drive proce- dure command.....	85	S-0-0260, Positioning acceleration.....	107
S-0-0150, Reference offset of encoder 1.....	86	S-0-0261, Coarse position window.....	108
S-0-0151, Reference offset of encoder 2.....	86	S-0-0262, C07_x Load defaults procedure command.....	108
S-0-0152, C0900 Position spindle procedure command.....	87	S-0-0263, C2300 Load working memory pro- cedure command.....	109
S-0-0153, Spindle angle position.....	88	S-0-0264, C2200 Backup working memory procedure command.....	109
S-0-0154, Spindle positioning parameter.....	88	S-0-0265, Language selection.....	110
S-0-0157, Velocity window.....	89	S-0-0267, Password.....	110
S-0-0159, Monitoring window of following distance.....	90	S-0-0269, Storage mode.....	112
S-0-0160, Acceleration data scaling type.....	91		
S-0-0161, Acceleration data scaling factor.....	92		
S-0-0162, Acceleration data scaling exponent..	92		
S-0-0164, Acceleration feedback value en- coder 1.....	93		

S-0-0270, IDN-list of selected backup operation data.....	112	S-0-0364, Data container A: Feedback value 1.....	140
S-0-0272, Velocity window as percentage.....	113	S-0-0366, Data container A: List index feedback values.....	140
S-0-0273, Maximum drive off delay time.....	113	S-0-0368, Data container A: Addressing.....	141
S-0-0275, Coordinate offset value.....	113	S-0-0370, Data container A: Configuration list command value-1.....	141
S-0-0277, Encoder 1, type of position encoder.....	114	S-0-0371, Data container A: Configuration list feedback value-1.....	142
S-0-0278, Maximum travel range.....	115	S-0-0372, Drive Halt acceleration bipolar.....	142
S-0-0279, IDN-list of password-protected operation data.....	116	S-0-0375, Diagnostic numbers list.....	143
S-0-0282, Positioning command value.....	116	S-0-0378, Absolute encoder range, encoder 1.....	143
S-0-0283, Current coordinate offset.....	117	S-0-0386, Active position feedback value.....	144
S-0-0284, Secondary operation mode 4.....	117	S-0-0390, Diagnostic message number.....	144
S-0-0285, Secondary operation mode 5.....	118	S-0-0390.0.136, Detailed diagnostic message.....	145
S-0-0286, Secondary operation mode 6.....	119	S-0-0393, Command value mode.....	145
S-0-0287, Secondary operation mode 7.....	120	S-0-0398, IDN-list of configurable data in signal status word.....	147
S-0-0292, List of supported operation modes.....	121	S-0-0399, IDN-list of configurable data in signal control word.....	147
S-0-0293, C2400 Selectively backup working memory procedure command.....	122	S-0-0400, Home switch.....	148
S-0-0298, Reference cam shift.....	123	S-0-0403, Position feedback value status.....	149
S-0-0299, Home switch offset.....	124	S-0-0404, Position command value status.....	149
S-0-0301, Allocation of real-time control bit 1.....	124	S-0-0407, Homing enable.....	150
S-0-0303, Allocation of real-time control bit 2.....	125	S-0-0408, Reference marker pulse registered.....	150
S-0-0305, Allocation of real-time status bit 1....	126	S-0-0413, Bit number allocation of real-time control bit 1.....	151
S-0-0307, Allocation of real-time status bit 2....	126	S-0-0414, Bit number allocation of real-time control bit 2.....	151
S-0-0315, Positioning velocity > nLimit.....	127	S-0-0415, Bit number allocation of real-time status bit 1.....	152
S-0-0316, Inverse feed constant.....	127	S-0-0416, Bit number allocation of real-time status bit 2.....	152
S-0-0323, Target position outside of travel range.....	128	S-0-0417, Positioning velocity threshold in modulo mode.....	153
S-0-0326, Parameter checksum.....	128	S-0-0418, Target position window in modulo mode.....	154
S-0-0327, IDN list of checksum parameter.....	129	S-0-0419, Positioning command acknowledge.....	154
S-0-0328, Assign list signal status word.....	129	S-0-0420, C0400 Activate parameterization level procedure command.....	155
S-0-0329, Assign list signal control word.....	129	S-0-0422, C0200 Exit parameterization level procedure command.....	155
S-0-0330, Status "v_feedback = v_command".....	130	S-0-0423, IDN-list of invalid data for parameterization levels.....	155
S-0-0331, Status "v_feedback = 0".....	131	S-0-0424, Status parameterization level.....	156
S-0-0332, Status "v_feedback < vx".....	131	S-0-0425, Sub-device state machine control....	156
S-0-0333, Status "T >= Tx".....	131	S-0-0429, Emergency halt deceleration.....	157
S-0-0334, Status "T >= Tlimit".....	132	S-0-0430, Effective target position.....	157
S-0-0335, Status "v_command > v_limit".....	132	S-0-0437, Positioning status.....	158
S-0-0336, Status "In position".....	133	S-0-0440, Marker position feedback 1.....	159
S-0-0338, Status "In target position".....	133	S-0-0442, Counter marker position feedback 1.....	160
S-0-0341, Status "In coarse position".....	134	S-0-0446, Ramp reference velocity for acceleration data.....	160
S-0-0342, Status "Target position attained".....	134		
S-0-0343, Status "Interpolator halted".....	134		
S-0-0346, Positioning control word.....	135		
S-0-0347, Velocity error.....	137		
S-0-0348, Acceleration feedforward gain.....	137		
S-0-0349, Bipolar jerk limit.....	138		
S-0-0359, Positioning deceleration.....	138		
S-0-0360, Data container A: Command value 1.....	139		
S-0-0362, Data container A: List index command values.....	139		

S-0-0447, C0300 Set absolute position procedure command.....	160	S-0-0505, Data container A: Configuration list feedback value 7.....	174
S-0-0448, Set absolute position control.....	161	S-0-0506, Data container A: Configuration list feedback value 8.....	174
S-0-0450, Data container A: Command value 2.....	162	S-0-0520, Axis control word.....	175
S-0-0451, Data container A: Command value 3.....	162	S-0-0521, Axis status word.....	176
S-0-0452, Data container A: Command value 4.....	163	S-0-0530, Clamping torque.....	177
S-0-0453, Data container A: Command value 5.....	163	S-0-0531, Checksum of backup operation data.....	178
S-0-0454, Data container A: Command value 6.....	163	S-0-0532, Travel range limit parameter.....	178
S-0-0455, Data container A: Command value 7.....	164	S-0-0534, Maximum torque/force.....	179
S-0-0456, Data container A: Command value 8.....	164	S-0-0535, Active velocity feedback value.....	180
S-0-0460, Position switch point 1 "Off".....	165	S-0-0536, Active acceleration feedback value.....	180
S-0-0478, Position/travel range limit status.....	165	S-0-0550, Torque/force command value, positive.....	180
S-0-0480, Data container A: Feedback value 2.....	166	S-0-0551, Torque/force command value, negative.....	181
S-0-0481, Data container A: Feedback value 3.....	166	S-0-0552, Torque/force feedback value.....	181
S-0-0482, Data container A: Feedback value 4.....	166	S-0-0553, Torque/force command value ramp.....	181
S-0-0483, Data container A: Feedback value 5.....	167	S-0-0600.x.1, Encoder status.....	182
S-0-0484, Data container A: Feedback value 6.....	167	S-0-0600.x.2, Position.....	183
S-0-0485, Data container A: Feedback value 7.....	167	S-0-0600.x.10, Marker position.....	184
S-0-0486, Data container A: Feedback value 8.....	168	S-0-0600.x.136, Extended diagnostic message.....	185
S-0-0490, Data container A: Configuration list command value 2.....	168	S-0-0601.x.1, Encoder data out configuration.....	186
S-0-0491, Data container A: Configuration list command value 3.....	169	S-0-0601.x.2, Resolution of position.....	186
S-0-0492, Data container A: Configuration list command value 4.....	169	S-0-0601.x.6, Absolute position range.....	187
S-0-0493, Data container A: Configuration list command value 5.....	170	S-0-0601.x.7, Velocity limit.....	188
S-0-0494, Data container A: Configuration list command value 6.....	170	S-0-0601.x.10, Overflow threshold position.....	188
S-0-0495, Data container A: Configuration list command value 7.....	171	S-0-0601.x.11, Encoder available data out.....	189
S-0-0496, Data container A: Configuration list command value 8.....	171	S-0-0601.x.12, Encoder refresh time data out.....	190
S-0-0500, Data container A: Configuration list feedback value 2.....	171	S-0-0602.x.1, Phys. encoder type.....	191
S-0-0501, Data container A: Configuration list feedback value 3.....	172	S-0-0602.x.2, Phys. encoder properties.....	192
S-0-0502, Data container A: Configuration list feedback value 4.....	172	S-0-0602.x.4, Phys. encoder resolution.....	193
S-0-0503, Data container A: Configuration list feedback value 5.....	173	S-0-0602.x.5, Phys. distance-coded reference offset A.....	193
S-0-0504, Data container A: Configuration list feedback value 6.....	173	S-0-0602.x.6, Phys. distance-coded reference offset B.....	194
		S-0-0602.x.7, Phys. encoder protocol configuration.....	195
		S-0-0602.x.8, Phys. max. initialization speed.....	197
		S-0-0602.x.9, Phys. absolute position range.....	198
		S-0-0602.x.136, Phys. encoder evaluation configuration.....	198
		S-0-0603.x.3, Phys. encoder input signal A.....	199
		S-0-0603.x.4, Phys. encoder input signal B.....	200
		S-0-0610.x.1, Encoder status (input).....	200
		S-0-0610.x.2, Position unscaled (input).....	201
		S-0-0610.x.10, Marker position not scaled (input).....	202
		S-0-0611.x.1, Encoder data out configuration (input).....	202
		S-0-0611.x.2, Resolution position (input).....	203

S-0-0611.x.6, Absolute position range (input).....	203	S-0-0862, Spool feedback value.....	228
S-0-0611.x.10, Overflow threshold position (input).....	204	S-0-0863, Spool control deviation.....	228
S-0-0611.x.11, Encoder available data out (input).....	204	S-0-0864, Bipolar spool limit value.....	228
S-0-0611.x.12, Encoder refresh time data out (input).....	205	S-0-0865, Positive spool limit value.....	228
S-0-0800, Pressure command value.....	206	S-0-0866, Negative spool limit value.....	229
S-0-0801, Pressure command value additive.....	206	S-0-0867, Spool status word.....	229
S-0-0802, Bipolar pressure limit value.....	206	S-0-0868, Spool window.....	230
S-0-0803, Pressure feedback value A.....	207	S-0-0869, Spool ramp time.....	230
S-0-0804, Pressure feedback value B.....	207	S-0-0880, Swivel angle command value.....	231
S-0-0805, Pressure polarity parameter.....	207	S-0-0881, Swivel angle command value, additive.....	231
S-0-0806, Pressure data scaling type.....	208	S-0-0882, Swivel angle actual value.....	231
S-0-0807, Pressure data scaling factor.....	209	S-0-0883, Swivel angle controller control deviation.....	232
S-0-0808, Pressure data scaling exponent.....	210	S-0-0884, Swivel angle limit value, bipolar.....	232
S-0-0809, Pressure feedback value.....	210	S-0-0885, Swivel angle limit value, positive.....	232
S-0-0810, Pressure ramp time.....	210	S-0-0886, Swivel angle limit value, negative....	233
S-0-0811, Pressure ramp reference.....	211	S-0-0887, Swivel angle status word.....	233
S-0-0813, System pressure.....	211	S-0-0888, Swivel angle ramp time.....	233
S-0-0814, Tank pressure.....	211	S-0-0889, Swivel angle window.....	234
S-0-0815, Pilot Pressure.....	212	S-0-1003, Sercos: Allowed MST losses.....	236
S-0-0819, Cylinder stroke.....	212	S-0-1006, Sercos: AT0 transmission starting time (t1).....	236
S-0-0820, Piston area A.....	212	S-0-1008, Sercos: Command value valid time (t3).....	237
S-0-0821, Piston area B.....	213	S-0-1002, Sercos: Communication Cycle time (tScyc).....	235
S-0-0822, Torque/force ramp (2 bytes).....	213	S-0-1009, Sercos: Device Control (C-Dev) offset in MDT.....	237
S-0-0823, Torque/force ramp time.....	214	S-0-1007, Sercos: Feedback acquisition capture point (t4).....	237
S-0-0824, Status "Torque/force command value attained".....	215	S-0-1005, Sercos: Minimum feedback processing time (t5).....	236
S-0-0826, Torque/force window.....	216	S-0-1000, Sercos: SCP Type & Version.....	234
S-0-0827, Pressure control deviation.....	217	S-0-1010, Sercos: Lengths of MDTs.....	238
S-0-0828, Positive pressure limit value.....	217	S-0-1011, Sercos: Device Status (S-Dev) offset in AT.....	239
S-0-0829, Negative pressure limit value.....	217	S-0-1012, Sercos: Length of ATs.....	239
S-0-0830, Pressure status word.....	218	S-0-1013, Sercos: SVC offset in MDT.....	240
S-0-0831, Depressurized window.....	219	S-0-1014, Sercos: SVC offset in AT.....	240
S-0-0832, Pressure Window.....	219	S-0-1015, Sercos: Ring delay.....	241
S-0-0840, Flow command value.....	219	S-0-1016, Sercos: Slave delay (P/S).....	241
S-0-0841, Flow command value additive.....	220	S-0-1017, Sercos: NRT transmission time.....	241
S-0-0842, Flow feedback value.....	220	S-0-1019, Master comm. engineering over IP: MAC address.....	242
S-0-0843, Flow control deviation.....	220	S-0-1020, Master comm. engineering over IP: IP address.....	243
S-0-0844, Flow zero window.....	221	S-0-1021, Master comm. engineering over IP: Network mask.....	244
S-0-0845, Flow data scaling type.....	221	S-0-1022, Master comm. engineering over IP: Gateway address.....	245
S-0-0846, Flow data scaling factor.....	222	S-0-1023, Sercos: SYNC jitter.....	246
S-0-0847, Flow data scaling exponent.....	222	S-0-1024, C5300 Sercos: SYNC delay measuring procedure command.....	246
S-0-0848, Flow polarities.....	223	S-0-1026, Sercos: Version of communication hardware.....	247
S-0-0849, Flow status word.....	224	S-0-1028, Sercos: Error counter MST-P/S.....	247
S-0-0850, Bipolar flow limit value.....	224	S-0-1031, Sercos: Signal assignment TSx.....	248
S-0-0851, Positive flow limit value.....	225		
S-0-0852, Negative flow limit value.....	225		
S-0-0853, Flow window absolute.....	225		
S-0-0854, Flow window percentage.....	226		
S-0-0855, Flow ramp reference.....	226		
S-0-0856, Flow ramp time.....	226		
S-0-0857, Flow threshold.....	227		
S-0-0860, Spool command value.....	227		
S-0-0861, Spool command value additive.....	227		

S-0-1032, Sercos: Communication control.....	248	S-0-1060.x.4, Sercos Connectiontype: Max. Length of Connection.....	265
S-0-1034, Sercos: PHY error counter Port1 and Port2.....	249	S-0-1060.x.6, Sercos Connectiontype: Configurable IDNs.....	266
S-0-1035, Sercos: Error counter Port1 & Port2.....	249	S-0-1060.x.7, Sercos Connectiontype: Min. processing time.....	266
S-0-1035.0.1, Sercos: Error counter P&S.....	250	S-0-1060.x.10, Sercos Connectiontype: Minimum producer cycle time.....	266
S-0-1036, Sercos: Inter Frame Gap.....	250	S-0-1061, Sercos: Maximum ScycCnt.....	267
S-0-1037, Sercos: Slave Jitter.....	250	S-0-1099.0.1, Sercos: Test-IDN for Conformity purpose - configuration.....	267
S-0-1039, Hostname.....	251	S-0-1099.0.2, Sercos: Test-IDN for Conformity purpose.....	267
S-0-1040, Drive address of master communication.....	251	S-0-1300.0.1, Component Name.....	268
S-0-1041, Sercos: AT Command value valid time (t9).....	251	S-0-1300.0.3, Vendor Code.....	268
S-0-1042, Sercos: Topology index.....	252	S-0-1300.0.4, Device Name.....	268
S-0-1044, Sercos: Device Control (C-Dev).....	252	S-0-1300.0.5, Vendor Device ID.....	269
S-0-1045, Sercos: Device Status (S-Dev).....	253	S-0-1300.0.8, Hardware version.....	269
S-0-1046, Sercos: Slave addresses of the device.....	255	S-0-1300.0.9, Software version.....	270
S-0-1047, Sercos: Maximum Consumer Activation Time.....	256	S-0-1300.0.11, Order Number.....	270
S-0-1048, C6100 Command Activate IP settings.....	256	S-0-1300.0.12, Serial Number.....	270
S-0-1050.x.1, Sercos Connection: Connection setup.....	256	S-0-1300.0.130, Type plate, compact.....	271
S-0-1050.x.2, Sercos Connection: Connection number.....	257	S-0-1301, List of GDP classes.....	271
S-0-1050.x.3, Sercos Connection: Telegram assignment.....	258	S-0-1302.0.1, FSP Type.....	271
S-0-1050.x.4, Sercos Connection: Max. length of connection.....	258	S-0-1302.0.3, Application type.....	271
S-0-1050.x.5, Sercos Connection: Current length of connection.....	259	S-0-1303.0.1, Diagnostic trace configuration....	272
S-0-1050.x.6, Sercos Connection: Configuration list.....	259	S-0-1303.0.2, Diagnostic trace control.....	272
S-0-1050.x.7, Sercos Connection: Connection class.....	259	S-0-1303.0.3, Diagnostic trace state.....	273
S-0-1050.x.8, Sercos Connection: Connection control (C-Con).....	260	S-0-1303.0.10, Diagnostic trace main diagnostics.....	274
S-0-1050.x.9, Sercos Connection: State.....	261	S-0-1303.0.11, Diagnostic trace system time...	274
S-0-1050.x.10, Sercos Connection: Producer cycle time.....	262	S-0-1303.0.12, Diagnostic trace detailed diagnostics.....	274
S-0-1050.x.11, Sercos Connection: Allowed data losses.....	263	S-0-1303.0.13, Diagnostic trace system time fine.....	275
S-0-1050.x.12, Sercos Connection: Error counter data losses.....	263	S-0-1303.0.14, Diagnostic trace system time coarse.....	275
S-0-1050.x.20, Sercos Connection: IDN allocation of real-time bit.....	263	S-0-1305.0.1, System time.....	275
S-0-1050.x.21, Sercos Connection: Bit allocation of real-time bit.....	264	S-0-1305.0.2, System fine time.....	276
S-0-1051, Sercos Connection: Image of connection setups.....	264	S-0-1305.0.3, System coarse time.....	276
S-0-1060.x.1, Sercos Connectiontype: Default configuration.....	264	S-0-1350, C6400 Reboot command.....	277
S-0-1060.x.2, Sercos Connectiontype: Configuration mask.....	265	S-0-1601, List of FSP Drive classes.....	277
S-0-1060.x.3, Sercos Connectiontype: Max. quantity of conn. Capability.....	265	Safety instructions for electric and hydraulic drives and controls.....	11
		Set dependence switchable.....	7
		State of the art.....	9
		Support	
		see Service Hotline.....	849
		U	
		Unit.....	6
		Use	
		Appropriate Use.....	9
		Inappropriate Use.....	10
		V	
		Validity check.....	6

Notes

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