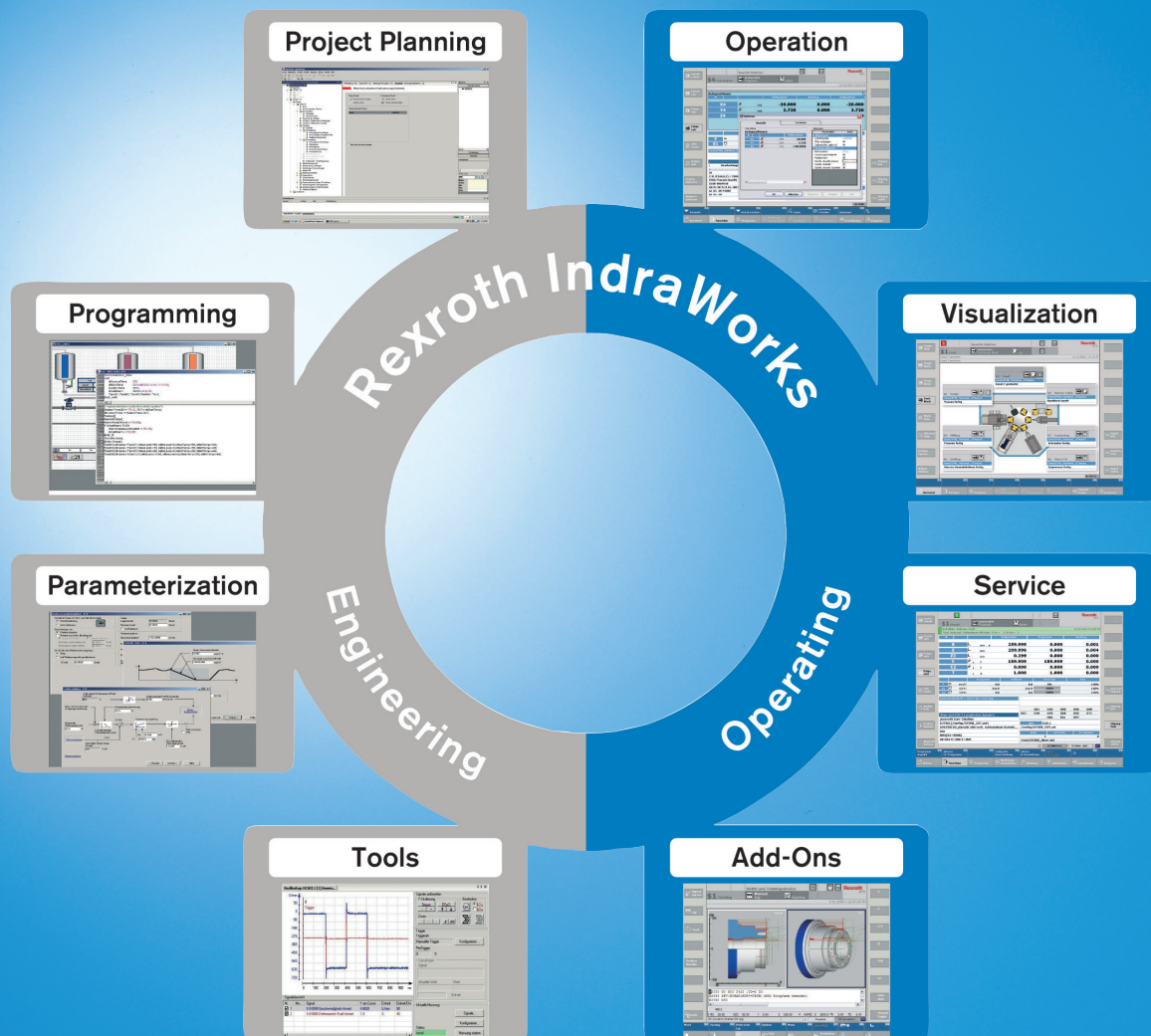


# IndraWorks 14VRS

FDT Container

Application Manual  
R911370655

Edition 01



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14VRS  
FDT Container

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**Editorial department** Development Automation Systems IndraWorks Platform StMu (KaWa/MePe)

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# 1 About this documentation

## 1.1 Validity of the documentation

### Overview on target groups and product phases

In the following illustration, the framed activities, product phases and target groups refer to the present documentation.

Example: In the product phase "Mounting (assembly/installation)", the "mechanic/electrician" can execute the activity "install" using this documentation.

**Required qualification:** Individual who is able to assess the tasks assigned and identify possible safety risks owing to qualification in the subject, knowledge and experience. The individual should also be familiar with the standards and regulations.

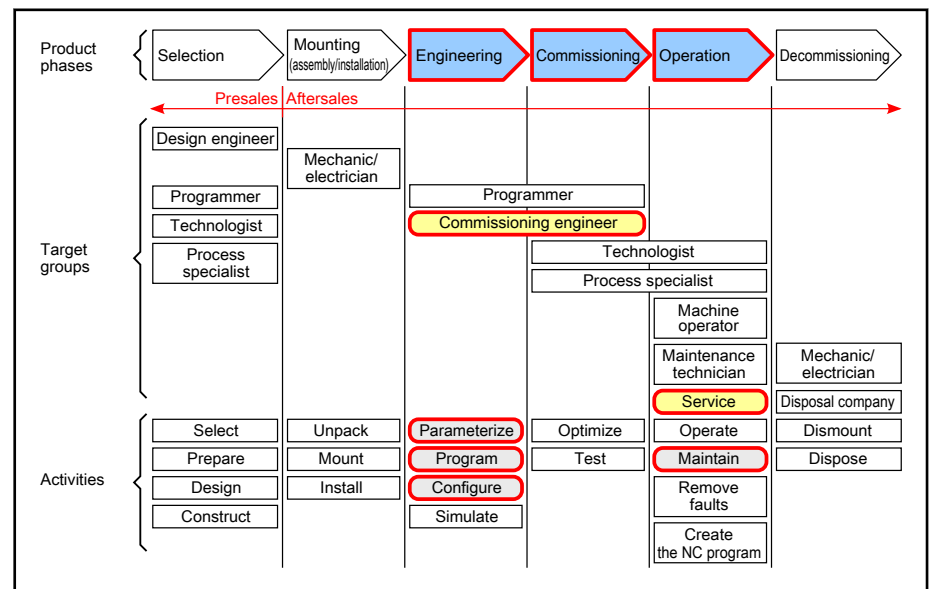


Fig. 1-1: Assigning this documentation to the target groups, product phases and target group activities

**Purpose** This documentation describes the IndraWorks FDT Container functionality. It includes the enabling of the functionality in the project and working with DTM.

## 1.2 Structure of the documentation

For important information on the intended use of the FDT Container, refer to [chapter 2 "Important instructions on use" on page 13](#).

For information on the use of the DTM, refer to [chapter 3 "First steps" on page 15](#).

For information on the use of the FDT Container in version-controlled IndraWorks projects, refer to [chapter 4 "Working under version control" on page 21](#).

For information on how to work with the FDT Container, refer to [chapter 5 "Tips and tricks" on page 23](#).

For information on the export/import of the FDT Container in IndraWorks, refer to [chapter 6 "Exporting and importing the FDT Container" on page 27](#).

For information on the "Compare" function, refer to [chapter 7 "The Compare function in the FDT Container" on page 29](#).

The [chapter 8 "Service and support" on page 31](#) contains more information on the customer service helpdesk.

About this documentation

## 1.3 Using safety instructions

### 1.3.1 Safety instructions – Structure

The safety instructions are structured as follows:

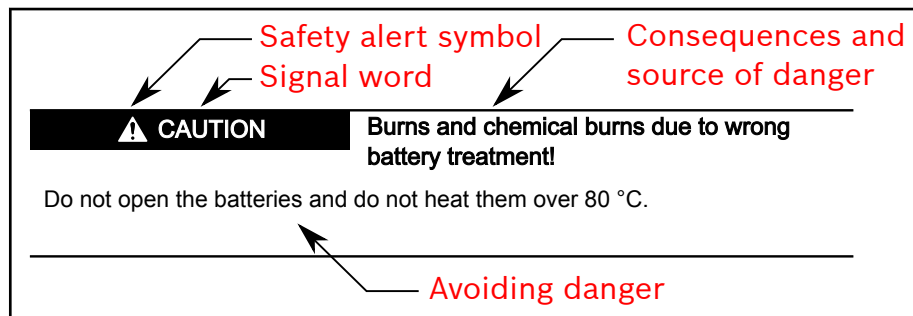


Fig. 1-2: Safety instructions – structure

### 1.3.2 Explaining signal words and safety alert symbol

The safety instructions in this documentation contain specific signal words (danger, warning, caution, notice) and, if necessary, a safety alert symbol (according to ANSI Z535.6-2006).

The signal word is used to draw attention to the safety instruction and also provides information on the severity of the hazard.

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 the event of non-compliance with this safety instruction, death or serious injury **will** occur.

#### **⚠ WARNING**

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

#### **⚠ CAUTION**

In the event of non-compliance with this safety instruction, minor or moderate injury can occur.

#### **NOTICE**

In the event of non-compliance with this safety instruction, material damage can occur.

### 1.3.3 Symbols used

Pointers are displayed as follows:



This is a note.

Tips are displayed as follows:



This is a tip.

## 1.4 Required and supplementing documentation XLC/MLC

Documentation titles with type codes and part numbers

| System overview                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rexroth IndraLogic XLC 14VRS System Overview</b><br>DOK-XLC***-SYSTEM**V14-PRRS-EN-P, R911341483<br>This documentation provides an overview on the possible hardware/software components of the automation system IndraLogic XLC of the mentioned version. The documentation facilitates assembling a system. |
| <b>Rexroth IndraMotion MLC 14VRS System Overview</b><br>DOK-MLC***-SYSTEM**V14-PRRS-EN-P, R911341504<br>This documentation provides an overview of the hardware/software components of the automation system IndraMotion MLC in the mentioned version. The documentation facilitates assembling a system.        |

Tab. 1-1: XCL/MLC documentation overview - System overview

| First steps                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rexroth IndraMotion MLC 14VRS First Steps</b><br>DOK-MLC***-F*STEP**V14-CORS-EN-P, R911341517<br>This documentation describes the first steps of the IndraMotion MLC and the RobotControl. It includes the hardware and software prerequisites as well as the creation of a project. |
| <b>Rexroth IndraLogic XLC 14VRS First Steps</b><br>DOK-XLC***-F*STEP**V14-CORS-EN-P, R911341489<br>This documentation describes the first steps of the IndraLogic XLC. It includes the hardware and software prerequisites as well as the creation of a project.                        |
| <b>Rexroth IndraMotion MLC 14VRS Project Conversion</b><br>DOK-XLCMLC-PROCONV*V14-APRS-EN-P, R911341494<br>This documentation describes the project conversion of the IndraMotion MLC.                                                                                                  |

Tab. 1-2: XCL/MLC documentation overview - First steps

## About this documentation

|                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Engineering</b>                                                                                                                                                                                                                                                                                                     |
| <b>Rexroth IndraWorks 14VRS Software Installation</b><br>DOK-IWORKS-SOFTINS*V14-CORS-EN-P, R911344286<br>This documentation describes the IndraWorks installation.                                                                                                                                                     |
| <b>Rexroth IndraWorks 14VRS Engineering</b><br>DOK-IWORKS-ENGINEE*V14-APRS-EN-P, R911343566<br>This documentation describes the application of IndraWorks in which the Rexroth Engineering tools are integrated. It includes instructions on how to work with IndraWorks and how to operate the oscilloscope function. |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS Function Description</b><br>DOK-XLCMLC-FUNC****V14-APRS-DE-P, R911341700<br>This documentation describes wizards, context menus, dialogs, control commissioning, device configuration and functionalities of the IndraMotion MLC.                                      |

Tab. 1-3: XCL/MLC documentation overview - Engineering

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Diagnostics and service</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS Diagnostics</b><br>DOK-XLCMLC-DIAG****V14-RERS-EN-P, R911341481<br>This documentation includes all control diagnostics implemented in the control systems IndraLogic XLC and IndraMotion MLC.                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS Parameters</b><br>DOK-XLCMLC-PARAM***V14-RERS-EN-P, R911341479<br>This documentation describes the parameters of the XLC/MLC systems as well as the interaction between parameterization and programming. It includes the axis parameters, control parameters, kinematic parameters, touch probe parameters and programmable limit switch parameters.                                                                                                                                                                                                                                                    |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS Commissioning</b><br>DOK-XLCMLC-STARTUP*V14-CORS-EN-P, R911341502<br>This documentation describes the steps to commission and service the IndraMotion MLC and IndraLogic XLC systems. It includes checklists for frequent tasks and a detailed description of the steps.                                                                                                                                                                                                                                                                                                                                 |
| <b>Rexroth IndraWorks IndraMotion Service Tool</b><br>DOK-IWORKS-IMST*****-APRS-DE-P, R911341383<br>This documentation describes the IndraMotion Service Tool (IMST). IMST is a web-based diagnostic tool used to access a control system via an Ethernet high-speed connection. The IMST allows OEMs, end users and service engineers to access and remotely diagnose a system. The PC has to use at least Internet Explorer 8, Firefox 3.5 or a higher version.<br>The following control variants are supported: <ul style="list-style-type: none"> <li>• IndraMotion MLC L25/L45/L65/L75/XM2/VPx</li> <li>• IndraLogic XLC L25/L45/L65/L75</li> </ul> |

Tab. 1-4: XCL/MLC documentation overview - Diagnostics and service

|                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Drive controllers</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Rexroth IndraDrive Firmware for Drive Controllers MPH-, MPB-, MPD-, MPC-08</b><br>DOK-INDRV*-MP*-08VRS**-APxx-EN-P-DE-P, R911332643<br>This documentation describes all functional properties of the IndraDrive firmware in the variants MPH-08, MPB-08, MPD-08 and MPC-08.                                                                                                                                                                     |
| <b>Rexroth IndraDrive Drive Controllers MPx-02 to MPx-08</b><br>DOK-INDRV*-GEN-**VRS**-PAxx-EN-P, R911297317<br>This documentation describes all parameters implemented in the firmware for drive controllers of the IndraDrive family. It supports the parameterization of the drive controllers.                                                                                                                                                 |
| <b>Rexroth IndraDrive MPx-02 to MPx-08 and HMV</b><br>DOK-INDRV*-GEN-**VRS**-WAxx-EN-P, R911297319<br>This documentation describes all diagnostics implemented in the following firmwares: <ul style="list-style-type: none"> <li>• Drive controller firmwares from MPx-02 to MPx-08 and</li> <li>• firmwares of the supply devices of the type "HVM".</li> </ul> It supports the operating crew as well as the programmer during troubleshooting. |
| <b>Rexroth IndraDrive Control Units CSB02, CSE02, CSH02, CDB02</b><br>DOK-INDRV*-CXX02*****-PRRS-EN-P, R911338962                                                                                                                                                                                                                                                                                                                                  |
| <b>Rexroth IndraDrive MPx-18 Functions</b><br>DOK-INDRV*-MP*-18VRS**-APRS-EN-P, R911338673<br>This documentation describes all functional properties of the IndraDrive firmware in the variants MPB-18, MPM-18, MPC-18 and MPE-18.                                                                                                                                                                                                                 |

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Tab. 1-5: XCL/MLC documentation overview - Drive controllers

|                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PLC</b>                                                                                                                                                                                                                                                                                                                                                    |
| <b>Rexroth IndraWorks 14VRS IndraLogic 2G PLC Programming System</b><br>DOK-IWORKS-IL2GPRO*V14-APRS-EN-P, R911343571<br>This documentation describes the PLC programming tool IndraLogic 2G and its usage. It includes the basic use, first steps, visualization, menu items and editors.                                                                     |
| <b>Rexroth IndraWorks 14VRS Basic Libraries IndraLogic 2G</b><br>DOK-IL*2G*-BASLIB**V14-LIRS-EN-P, R911343920<br>This documentation describes the system-comprehensive PLC libraries.                                                                                                                                                                         |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS PLCOpen Libraries</b><br>DOK-XLCMLC-FUNLIB**V14-LIRS-EN-P, R911341491<br>This documentation describes the function blocks, functions and data types of the RIL_CommonTypes, ML_Base and ML_PLCOpen libraries for the IndraLogic XLC/IndraMotion MLC. It also includes the error reactions of function blocks. |

Tab. 1-6: XCL/MLC documentation overview - PLC

## About this documentation

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Field buses</b>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Rexroth IndraWorks 14VRS Field Buses</b><br>DOK-IWORKS-FB*****V14-APRS-EN-P, R911341485<br>This documentation describes the field bus and local periphery connections supported by the IndraLogic XLC, IndraMotion MLC and IndraMotion MTX systems. The focus of this documentation is on the configuration, parameterization, commissioning and the diagnostics of the different periphery connections. This documentation is the basis for the online help. |
| <b>Rexroth IndraWorks 14VRS Field Buses Libraries</b><br>DOK-IWORKS-FB*LIB**V14-LIRS-EN-P, R911343575<br>This documentation describes the field bus libraries: RIL_ProfibusDP_02, RIL_ProfibusDP Slave, RIL_ProfinetIO, RIL_ProfinetIODevice, RIL_EtherNetIPAdapter, RIL_MappingList, RIL_SERCOSIII, RIL_Inline including their diagnostics and error reactions of the function blocks.                                                                          |
| <b>Rexroth IndraWorks 12VRS FDT Container</b><br>DOK-IWORKS-FDT*CON*V12-APRS-EN-P, R911334398<br>This documentation describes the IndraWorks FDT Container functionality. It includes the activation of the functionality in the project and working with DTMs.                                                                                                                                                                                                  |
| <b>Sercos System Manual for I/O Devices</b><br>DOK-CTRL-ILS3*****-APxx-EN-P, R911333512<br>This documentation describes the configuration, parameterization, commissioning and diagnostics of I/O devices with a Sercos interface.                                                                                                                                                                                                                               |

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*Tab. 1-7: XCL/MLC documentation overview - Field buses*

|                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HMI</b>                                                                                                                                                                                                                                                                                                                                       |
| <b>Rexroth IndraWorks 14VRS HMI</b><br>DOK-IWORKS-HMI*****V14-APRS-EN-P, R911343569<br>This documentation describes the functions, configuration and operation of the user interfaces IndraWorks HMI Engineering and IndraWorks HMI Operation.                                                                                                   |
| <b>Rexroth IndraWorks 14VRS WinStudio</b><br>DOK-IWORKS-WINSTUD*V14-APRS-EN-P, R911341585<br>This "User Manual and Technical Reference Book" facilitates working with the "Rexroth WinStudio" software for optimal results. This document provides technical information and step-by-step instructions to create web-enabled HMI/SCADA programs. |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS HMI Connection</b><br>DOK-XLCMLC-HMI*****V14-APRS-EN-P, R911341497<br>This documentation describes the visualization systems supported by the IndraLogic XLC and IndraMotion MLC and their connection.                                                                                           |

*Tab. 1-8: XCL/MLC documentation overview - HMI*

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technology</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS Generic Application Template</b><br>DOK-XLCMLC-TF*GAT**V14-APRS-EN-P, R911341487<br>This documentation provides a structured template to the IndraLogic PLC programmer. This template can be used to add and edit the PLC programming code. It includes the template, the template wizard and example applications.                                                                                                                                                                                             |
| <b>Rexroth IndraMotion MLC 14VRS Technology Libraries</b><br>DOK-MLC***-TF*LIB**V14-LIRS-EN-P, R911341511<br>This documentation describes the function blocks, functions and data types of the "ML_TechInterface.library", "ML_TechMotion.library", "RMB_TechCam.library" and "ML_TechBase.library". It also includes libraries for the winder functionality, register controller functionality and CrossCutter functionality.                                                                                                                                  |
| <b>Rexroth IndraWorks Energy Efficiency Management 14VRS</b><br>DOK-IWORKS-4EE*****V14-APRS-EN-P, R911339229<br>This documentation describes the HMI connection of the energy management system and the function blocks, functions and data types of the "RIL_4EE " library. The documentation also includes the error reactions of the function blocks.                                                                                                                                                                                                        |
| <b>Rexroth IndraMotion MLC 14VRS RegisterControl (Library)</b><br>DOK-MLC***-REGI*CO*V14-LIRS-EN-P, R911341509<br>This documentation describes the inputs and outputs of the individual function blocks and provides notes on their use.                                                                                                                                                                                                                                                                                                                        |
| <b>Rexroth IndraMotion MLC 14VRS RegisterControl (Application Description)</b><br>DOK-MLC***-REGI*CO*V14-APRS-EN-P, R911341507<br>This documentation describes the application of the integrated register control for a rotogravure printing machine. The components of the mark stream sensor, the HMI application and the error recovery options are described. This instruction provides information on how to operate the register control, react to errors and query diagnostics. This documentation is written for machine setters and machine operators. |
| <b>Rexroth IndraMotion MLC 14VRS Winder Function Application</b><br>DOK-MLC***-TF*WIND*V14-APRS-EN-P, R911341513<br>This application-related system documentation describes the application of the winder technology functions.                                                                                                                                                                                                                                                                                                                                 |
| <b>Rexroth IndraWorks 13VRS CamBuilder</b><br>DOK-IWORKS-CAMBUIL*V13-APRS-EN-P, R911336291<br>This documentation describes the basic principles and operation of the CamBuilder, the cam editing tool.                                                                                                                                                                                                                                                                                                                                                          |
| <b>Rexroth IndraMotion MLC 14VRS Robot Control V2</b><br>DOK-MLC***-ROCO****V14-RERS-EN-P, R911341588<br>This documentation provides information about the Robot Control V2. The focus is on PLCopen programming. The program structure, variables, functions, motion statements and the required system parameters are described. This documentation also includes the description of the "ML_Robot" library. Robot Control V2 is supported by a kinematic interface. The components of this interface are described in the "ML_KinTech" library.              |

Tab. 1-9: XCL/MLC documentation overview - Technology

|                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Open Core Engineering - OCE</b>                                                                                                                                                                                                                         |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS First Steps MLPI</b><br>DOK-XLCMLC-MLPI****V14-CORS-EN-P, R911341033<br>This document describes the installation and the commissioning of the MLPI interface.                                              |
| <b>Rexroth IndraLogic XLC IndraMotion MLC 14VRS Automation Interface</b><br>DOK-XLCMLC-AUT*INT*V14-APRS-EN-P, R911341499<br>This documentation describes the script-based access to IndraWorks project data via the interface of the Automation Interface. |

Tab. 1-10: XCL/MLC documentation overview - Open Core Engineering - OCE

About this documentation

|                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SafeLogic</b>                                                                                                                                                                                                                                                                                                                             |
| <b>Rexroth IndraWorks SafeLogic 14VRS First Steps</b><br>DOK-IWORKS-SL*STEP*V14-CORS-EN-P, R911341520<br>This documentation describes the initial commissioning of the Safety function module and its external Safety periphery. Taking the example of a project, all required steps to commission a simple Safety application are executed. |
| <b>Rexroth IndraMotion MLC IndraLogic XLC 14VRS SafeLogic System Overview</b><br>DOK-XLCMLC-SL**SYS*V14-PRRS-EN-P, R911341696<br>This documentation describes the project planning, configuration, creation and commissioning of safety-related devices.                                                                                     |
| <b>Rexroth IndraWorks 14VRS SafeLogic Project Configuration</b><br>DOK-IWORKS-SL**PRJ*V14-APRS-EN-P, R911341694<br>This documentation describes the configuration of Safety applications.                                                                                                                                                    |
| <b>Rexroth IndraControl SafeLogic Function Module</b><br>DOK-CONTRL-SL**FM*****-ITRS-DE-P, R911336576<br>This documentation is provided with the hardware and describes the commissioning, the installation, the decommissioning and disposal of the hardware.                                                                               |

Tab. 1-11: XCL/MLC documentation overview - SafeLogic

|                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hardware</b>                                                                                                                                                                                                        |
| <b>Rexroth IndraControl L45/L65/L85 Control</b><br>DOK-CONTRL-ICL45L65L85-PRxx-EN-P, R911332116<br>This documentation describes the IndraControl L45/L65/L85 controls.                                                 |
| <b>Rexroth IndraControl L25</b><br>DOK-CONTRL-IC*L25*****-PRxx-EN-P, R911328474<br>This documentation describes the IndraControl L25 controls.                                                                         |
| <b>Rexroth IndraControl Lxx 14VRS Function Modules</b><br>DOK-CONTRL-FM*LXX**V14-APRS-EN-P, R911341583<br>This documentation describes all function modules of the Lxx controls including engineering and diagnostics. |

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Tab. 1-12: XCL/MLC documentation overview - Hardware

|                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hydraulics</b>                                                                                                                                                                                                                                                                                                          |
| <b>Rexroth IndraMotion MLC 14VRS Hydraulic Functions</b><br>DOK-MLC***-TF*HMOT*V14-LIRS-EN-P, R911341907<br>This documentation describes the function blocks, functions and data types of the MH_TechHydrBase and MH_TechHydrMotion libraries. The documentation also includes the error reactions of the function blocks. |
| <b>Rexroth IndraMotion MLC 14VRS Sequential Programming</b><br>DOK-XLCMLC-SEQPROG*V14-LIRS-EN-P, R911341909<br>This documentation describes the sequential programming options, also when using GAT, and the MH_HydrControlProg library.                                                                                   |

Tab. 1-13: XCL/MLC documentation overview - Hydraulics

## 1.5 Names and abbreviations

| Term | Explanation       |
|------|-------------------|
| FDT  | Field Device Tool |

About this documentation

|               |                                                                   |
|---------------|-------------------------------------------------------------------|
| DTM           | Device Type Manager                                               |
| FDT Container | IndraWorks functionality                                          |
| FDT Lock      | Term in the field of version control<br>Access management for DTM |
| GDC           | Global Drive Control                                              |
| Checkout      | Term in the field of version control<br>Changes possible          |
| Hijack        | Term in the field of version control<br>Changes possible (local)  |
| Sercos        | Communication protocol                                            |

Tab. 1-14: Names and abbreviations used

## 1.6 Customer feedback

Customer requests, comments or suggestions for improvement are of great importance to us. Please email your feedback on the documentations to [Feedback.Documentation@boschrexroth.de](mailto:Feedback.Documentation@boschrexroth.de). Directly insert comments in the electronic PDF document and send the PDF file to Bosch Rexroth.



## 2 Important instructions on use

### 2.1 Intended use

#### 2.1.1 Introduction

Bosch Rexroth products represent state-of-the-art developments and manufacturing. The products are tested prior to delivery to ensure operating safety and reliability.

The products may only be used in the manner that is defined as appropriate. If they are not used as intended, situations occur that result in damage to property or personal injury.



Bosch Rexroth shall not assume any warranty, liability or payment of damages in case of damage resulting from a non-intended use of the products; the use shall solely bear all risks from unintended use of the products.

Before using Rexroth products, ensure that all the prerequisites for an intended use of the products are met:

- Anybody handling Bosch Rexroth products in any way is obliged to read and consent to the relevant safety instructions and the intended use
- The original condition of hardware products may not be altered; in other words, no structural modifications are permitted. It is not permitted to decompile software products or alter source codes
- Do not install damaged or defective products or use them in operation
- It has to be ensured that the products have been installed as described in the relevant documentation

#### 2.1.2 Fields of use and application

The IndraWorks FDT Container integrates engineering tools provided as DTM (Device Type Manager) by the device manufacturer. Basis is the FDT standard 1.2, 1.2.1 and 2.0 of the FDT group.

The FDT Container is used for certain Bosch Rexroth control systems within the IndraWorks Engineering.

Its areas of use are the configuration, parameterization, diagnostics and management of field devices using DTM.

Additionally, the specifications given in "Fields of Use and Application" for the control systems used with the FDT container do also apply.



The DTM have to fulfill the FDT standard 1.2, 1.2.1 or 2.0 of the FDT group.

#### 2.1.3 Unintended use

Using the IndraWorks FDT Container outside of the above-referenced areas of application or under operating conditions other than described in the document and the technical data specified is defined as "inappropriate use".

DTM may not be used in the IndraWorks FDT Container if

- DTM faulty or not tested
- DTM feedbacks impede an appropriate use of IndraWorks.

## Important instructions on use

The IndraWorks FDT Container may also not be used for applications that have not been specifically released by Bosch Rexroth.

## 3 First steps

### 3.1 General information

FDT (Field Device Tool) is a manufacturer-comprehensive concept for the configuration, parameterization, diagnostics and management of field devices.

The IndraWorks FDT functionality is designated as FDT Container.

The IndraWorks FDT Container is used to integrate 3<sup>rd</sup> party engineering tools provided as DTM (Device Type Manager) by the device manufacturer. Basis is the FDT standard 1.2, 1.2.1 and 2.0 of the FDT group.



The FDT functionality is provided in the IndraWorks library via the "FDT Container" node.

### 3.2 Installing DTM

The 3<sup>rd</sup> party engineering tools (DTM) are provided by the device manufacturer. The DTM must be preinstalled on the PC.

Therefore, all Windows applications have to be closed, including IndraWorks.



Windows XP:

The installed DTM are listed under **Start - Control Panel - Software**. The DTM can also be removed if necessary.

Windows 7:

The installed DTM are listed under **Start - Control Panel - Programs and Features**. The DTM can also be removed if necessary.

### 3.3 Updating DTM catalog in the library

Proceed as follows:

1. Start IndraWorks.
2. In the **Tools** menu, start the **Updating DTM Catalog** function. A progress bar is displayed. This can take several minutes.
  - IndraWorks scans for installed DTM and displays them in the library in the "DTM catalog" folder.
  - The DTM are organized by means of subfolders. The subfolders correspond to the supported field bus protocols, e.g. "Profibus DP".
  - The GSD file is extracted from the DTM for the Profibus slaves and imported into the "Periphery" folder of the library.



- The Profibus slave DTM, for which no GSD file could be extracted, are listed in the "Output" window.
- The imported GSD files are only available for IndraLogic 2G.
- Open the **Properties** dialog for each DTM in the library via the context menu
- On the **GSD file** tab in this dialog, the assignment to the GSD file for Profibus slave DTM can be viewed and modified

## First steps

## 3.4 "Properties" dialog in the library

In the **"Properties"** dialog, information on the DTM selected in the **"Library"** is displayed on the following tabs:

- **"Type"**: Information on the device type
- **"DTM"**: Information on the Device Type Manager (DTM installation)
- **"GSD file"**: Assigned GSD file for Profibus slave DTM

The **"GSD file"** tab is only available for Profibus slave DTM.

The Profibus slave DTM normally include the content of the GSD file in their device type information. When updating the DTM catalog, the GDS files are extracted from the DTM installation.

The assigned GSD file and the type of assignment are displayed on the **"GSD file"** tab. The assigned GSD file can be modified if the GSD file extracted from the DTM is not up-to-date or available.

The following assignment variants are available:

- **"Extracted from DTM"**: The GSD file was extracted from the Profibus slave DTM and automatically assigned
- **"No assignment"**: No GSD file could be extracted from the Profibus slave DTM. By selecting the assignment **"Separate GSD file"**, a GSD file can be manually assigned from the **"Periphery"** folder to the library
- **"Separate GSD file"**: The GSD file was manually assigned



When adding a Profibus slave DTM, a Profibus slave can be created at the assigned Profibus master. The assigned GSD file is the basis for the Profibus slave creation.

## 3.5 Activating FDT Container functionality in the project

Select the entry **"FDT Container"** in the **"Drive and Control"** folder of the **"library"** and drag it to a node in the Project Explorer. The following nodes permit the **"FDT Container"** to be added:

- Project
- Folders located directly below the project node
- Control



Only selected IndraLogic 2G-based controls support the FDT Container.

## 3.6 FDT communication channel

If the **"FDT Container"** in the **"Project Explorer"** is located below a control, the **"FDT Communication Channel"** dialog is available via the context menu. The FDT communication channel can be parameterized here.

The control, below which the FDT Container is located, is named as **"Assigned control"**. This control provides the FDT communication channel.

The protocol and the hardware component are selected in the **"FDT Communication"** selection field. A Profibus master has to be selected for a Profibus DPV1 communication, e.g. **"Profibus, master index 0"**.

If **"none"** is selected as FDT communication, only communication DTM can be directly added to the FDT Container.

If "Profibus" is selected as FDT communication, only DTM for Profibus DP slaves (Profibus slave DTM) can be directly added to the FDT Container.

If "Sercos" is selected as FDT communication, only DTM for "Sercos III" slaves (Sercos slave DTM) can be directly added to the FDT Container.



- The default assignment for the FDT communication is "none"
- For detailed information on the controls/hardware components based on the IndraLogic 2G supporting the FDT communication for the Profibus DPV1, please refer to the documentation of the control.
- The FDT communication channel can only be parameterized if there are no DTM at the FDT Container.

## 3.7 Adding DTM to the project

There are two possibilities to add DTM to the project:

### 1. Via context menu

- Select the "FDT Container" node, a subfolder or a DTM in the Project Explorer and open the context menu
- Activate **Add ► Device** and select the desired DTM in the selection dialog. Confirm with **OK**

### 2. Via drag&drop

- Select the desired DTM in the "DTM catalog" folder of the library
- Drag the DTM to the "FDT Container" node, a subfolder or a DTM in the Project Explorer



When adding a Profibus slave DTM, a fitting Profibus slave can be automatically created at the assigned Profibus master. The assigned GSD file is the basis for the Profibus slave creation.

Refer to the "GSD file" tab in the chapter [chapter 3.4 "Properties dialog in the library " on page 16.](#)

## 3.8 Setting DTM address

The "Setting the DTM Address" dialog appears when a DTM is added to an FDT Container for which either "Profibus" or "Sercos" is parameterized as FDT communication channel. The address of the DTM is initially specified here.

For "Profibus slave DTM", see:

- [chapter 5.8 "Rules on specifying the address for Profibus slave DTM " on page 24](#)
- [chapter 5.8 "Rules on specifying the address for Profibus slave DTM " on page 24](#)

For "Sercos slave DTM", see:

- [chapter 5.11 "Displaying address of Sercos slave DTM" on page 25](#)
- [chapter 5.12 "Rules on specifying the Sercos address for DTM " on page 25](#)

## First steps

## 3.9 Modifying DTM address

The "Modifying the DTM Address" dialog is available via the context menu for DTM located below an FDT Container for which either "Profibus" or "Sercos" is parameterized as FDT communication channel. The address of the DTM can be modified here.

For "Profibus slave DTM", see:

- [chapter 5.8 "Rules on specifying the address for Profibus slave DTM " on page 24](#)
- [chapter 5.8 "Rules on specifying the address for Profibus slave DTM " on page 24](#)

For "Sercos slave DTM", see:

- [chapter 5.11 "Displaying address of Sercos slave DTM" on page 25](#)
- [chapter 5.12 "Rules on specifying the Sercos address for DTM " on page 25](#)

## 3.10 Renaming DTM

When adding and renaming a DTM, the name specification is IEC-compliant.



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Names of existing DTM are **not** automatically changed to IEC-compliant names.

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## 3.11 Structuring DTM using folders

The DTM can be structured or grouped using folders.

The following functions are provided via the context menu:

- **Add ► Folders**
- **Delete**
- **Rename**

Folders can be added to the following nodes:

- FDT Container
- Folders below the FDT Container
- Communication or gateway DTM

## 3.12 DTM context menu

The DTM provide their functions via the context menu. The content of the context menu depends partially on the state of the DTM, e.g. online or offline. Some functions are standardized, e.g.

- **Delete**
- **Rename**
- **Add**
- **Go Online**
- **Go Offline**
- **Download Parameter to Device**
- **Upload Parameter from Device**
- **Properties**

DTM-specific functions are provided in the context menu under **Additional functions**

### 3.13 "Properties" dialog in the Project Explorer

Information on the device (DTM) selected in the "Project Explorer" is shown on the following tabs in the "Properties" dialog:

- "Instance": Information on the device instance
- "Type": Information on the device type
- "DTM": Information on the Device Type Manager (DTM installation)
- "Notes": Notes on the device instance



The notes are saved in IndraWorks, but not in the physical device.

### 3.14 Online parameterization via DTM

The physical communication path (field bus structure) must be patterned by the respective DTM. Access to the field bus is given by a communication DTM or by the FDT Container's FDT communication channel. The device and gateway DTM follow the field bus structure accordingly.

When being inserted, every DTM must be assigned to the address of the associated physical device in the field bus.

#### Go online

If these conditions are fulfilled and there is a physical connection to the devices via the field bus, the DTM can go online.

Use the **Go Online** function from the context menu of the DTM.



Normally, switching a DTM to online causes a parent DTM (e.g. communication DTM) to go online automatically.

The functionalities of the DTM to modify online parameters, configurations etc. in the respective physical device can be used now.

#### Go offline

If the connection to the physical device should be canceled, use the **Go Offline** function in the context menu of the DTM.



Normally, switching a DTM to offline mode causes the subordinate DTM to automatically go offline.

### 3.15 Opening projects

If the project to be opened contains DTM, the structural data of the DTM will be loaded. The DTM are only loaded when they are used. This applies when the context menu is displayed for example.

### 3.16 Saving projects

When saving the project, the DTM data is also saved.

### 3.17 Closing projects

When closing a project, the open DTM are closed or shut down.

The DTM data is stored before.

## First steps



The DTM shutdown is displayed in the IndraWorks status bar.

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## 3.18 Archiving projects

When archiving the project, the DTM data is also archived.



The archive does not contain the DTM installations.

---

## 3.19 Restoring projects

When restoring the project, the DTM data is also restored.



- The archive does not contain the DTM installations
  - The DTM have to be installed on the PC to work with DTM data.
-

## 4 Working under version control

### 4.1 General information

The FDT Container supports working with versionized IndraWorks projects. This functionality is known as version control.

The aim is that multiple users can work on a single IndraWorks project, whereby the access rights to the data are controlled by a version control system. Every user has a local copy of the IndraWorks project coordinated by the version control.



Data can only be modified in the "Checked out" mode. Additionally, an object (e.g. FDT Container) can only be checked out if not yet checked out by another user.

### 4.2 Rules on version control for the FDT Container

The FDT Container is added to version control as total entity (as a block) with all of its subfolders and DTM. All folders and DTM have all the same version control state.

The version control state is displayed on the "FDT Container" node in the Project Explorer and applies to all subfolders and DTM. It is displayed by means of an additional symbol.

Version control operations, such as check in and check out, are only available on the FDT Container. These affect the FDT Container with all its subordinate folders and DTM.

The binary DTM data is added to version control.



The DTM are shut down during version control operations, such as check in, check out and retrieving the most recent version. Any open windows or dialogs are closed.



The DTM have to be installed on the PC to work with DTM data. It is recommended to install the same DTM installations on all the PCs working on a team project.

### 4.3 Availability of functions for DTM and folders

Functions causing data modifications cannot be executed in the "Checked in" version control state. The FDT Container has to be checked out or hijacked before. This affects functions such as:

- "Adding" devices (DTM) and folders
- "Deleting" DTM and folders
- "Renaming" DTM and folders
- Editing "Notes" in the "Properties" dialog of the DTM
- "Modifying DTM address" for Profibus slave DTM

### 4.4 Behavior of DTM under version control

The version management statuses are displayed on the FDT locking mechanism. The locking mechanism is a mandatory functionality of the DTM and is

## Working under version control

designated as "FDT Lock". Also refer to FDT specification 1.2.1: "chapter 6.12 Locking".

- If the DTM is in the "Checked in" version management mode, the DTM does not receive FDT Lock on request. The DTM data set is write-protected.

The user can only see the DTM data and parameters.

- If the DTM is in the "Checked out" or "Hijacked" version control state, it receives the FDT Lock on request. The DTM data set is not write-protected.

The user can see and edit the DTM data and parameters.

## 5 Tips and tricks

### 5.1 Activating the "Output" window

The "Output" window shows the error messages of the DTM. Activate the **Output** function in the menu **View ► Other Windows**.

### 5.2 Empty "Selection of DTM"/DTM catalog

If either the **Selection of DTM** or the **DTM Catalog** dialog is empty, the DTM catalog has to be updated.

Use the **Update DTM Catalog** function in the **Tools** menu.

Also refer to:

- [chapter 3.3 "Updating DTM catalog in the library" on page 15](#)
- [chapter 5.3 "Installed DTM not in the DTM catalog" on page 23](#)



If the desired DTM cannot be added to the FDT Container, check the setting of the FDT communication channel as well.

### 5.3 Installed DTM not in the DTM catalog

If a later installed DTM does not appear in the **DTM Catalog** or in the **Selection of DTM** dialog, the DTM catalog has to be updated.

Use the **Update DTM Catalog** function in the **Tools** menu.

Also refer to:

- [chapter 3.3 "Updating DTM catalog in the library" on page 15](#)

### 5.4 Channel functions

The **Channel Functions** function is available in the context menu of the DTM if the DTM is provided with several channels. The **Channel Functions** dialog displays the channels and the supported protocols of the DTM.

Also refer to:

- [chapter 5.5 "Selecting channel" on page 23](#)

### 5.5 Selecting channel

The **Select channel** dialog appears if the DTM to be added can be added to several channels. Select the channel at which the DTM should be added.



The SafeLogic compact communication DTM provides the channels **EFI-Link** and **Single (RK512)** for example:

- Use the **EFI-Link** channel to combine several CPUs (multi-station)
- Use the **Single (RK512)** channel to work with only one CPU (single station)

### 5.6 Switching from online to offline

If the DTM is in offline mode, the context menu contains a **Go Online** item. If the DTM is in online mode, the context menu contains the **Go Offline** item.

## Tips and tricks

- Profibus DTM** If the maximum number of Profibus DPV1 communication connections is reached, it is not possible to switch the Profibus slave DTM to online mode. Switch non-required DTM offline to release communication connections.
- Sercos DTM** If no Sercos slave exists yet at the assigned Sercos master with the same Sercos address, it is not possible to switch the Sercos slave DTM to online mode. No communication can be established via the Sercos service channel. Configure a Sercos slave with the required Sercos address at the Sercos master.
- If the maximum number of communication connections is reached via the Sercos service channel, it is not possible to switch the Sercos slave DTM to online mode. Switch non-required DTM offline to release communication connections.



Going online or offline takes some time for some DTM. Please wait.

## 5.7 Displaying address of Profibus slave DTM

The Profibus address for Profibus slave DTM is displayed in the Project Explorer as a prefix in front of the name.

## 5.8 Rules on specifying the address for Profibus slave DTM

- The value range of the address is normally between 1 and 126. Note that the value range can be limited at the assigned Profibus master!
- The address 126 is only used for the initial commissioning and should not be used at runtime!
- Check that the address entered corresponds to the address of the physical device
- Ensure that each address is only specified once
- The address of the Profibus master may not be used



If "Profibus" is selected as FDT communication for the FDT Container, the function "Bus Address Overview" is available in the context menu of the FDT Container. The "Bus Address Overview" dialog displays the Profibus addresses used at the assigned Profibus master and at the FDT Container. The "Overview on bus addresses" dialog displays the Profibus addresses used at the assigned Profibus master and at the FDT Container.

## 5.9 Which GSD file contains the Profibus slave DTM

The Profibus slave DTM contain the content of the GSD file in their device type information.

The device type information is displayed in the "Properties" dialog on the "Type" tab.

Using the "Copy information" function, the content of the "Properties" dialog can be copied to a text file and thus be compared easily.

## 5.10 Going to Profibus slave

The "Go to Profibus slave" function is used to navigate to the Profibus slave. This function is provided in the context menu of a Profibus DTM if a Profibus slave exists at the assigned Profibus master with the same Profibus address.

## 5.11 Displaying address of Sercos slave DTM

The Sercos address for Sercos slave DTM is displayed in the Project Explorer as a prefix in front of the name.

## 5.12 Rules on specifying the Sercos address for DTM

- The value range of the Sercos address is specified by the assigned Sercos master and displayed in the "Input" dialog.
- Check that the Sercos address entered corresponds to the address of the physical device
- Ensure that each Sercos address is only specified once



It is recommended not to use values already specified as axis numbers for non-real axes as Sercos address for Sercos slave DTM.

## 5.13 Operation under Windows Vista/Windows 7

If Windows Vista is used as operating system, the DTM have to fully support Windows Vista/Windows 7 as well.

## 5.14 DTM in read-only mode

The DTM can be opened, but no entries can be made in the dialogs. If you work under version control, the DTM might be in read-only mode.

To edit the DTM, the respective FDT Container either has to be checked out or hijacked.

Also refer to:

- [chapter 4.2 "Rules on version control for the FDT Container" on page 21](#)

## 5.15 Standard function of the DTM

Double-click on the DTM in the Project Explorer to start the standard function of the DTM.



The standard function is DTM-specific and can be different in on-line or offline state.

## 5.16 Notes on operation

If required, notes on operation and navigation are displayed in the IndraWorks status bar.

## 5.17 GDC-DTM (company Lenze)

User changes in the GDC are saved when closing the GDC.



The GDC has to be closed before closing the IndraWorks project.



## 6 Exporting and importing the FDT Container

### 6.1 Overview

The FDT Container supports the **"Export"** and **"Import"** functions.

In the Project Explorer, the "Export" and "Import" functions are provided in the context menu of the FDT Container.

- The "Export" and "Import" functions affect the FDT Container with all its subordinate folders and DTM.
- The FDT Container is exported and imported as total entity (as block) with all its subordinate folders and DTM.



The DTM are shutdown during export and import. Any open windows and dialogs are closed.

The export wizard guides through the export.

- Refer to "Rexroth IndraWorks 14VRS Engineering", chapter "Starting Export Wizard" (see [chapter 1.4 "Required and supplementing documentation XLC/MLC" on page 5](#))

The import wizard guides through the import.

- Refer to "Rexroth IndraWorks 14VRS Engineering", chapter "Starting Import Wizard" (see [chapter 1.4 "Required and supplementing documentation XLC/MLC" on page 5](#))

### 6.2 Use cases

The "Export" and "Import" functions can for example be used in the following cases:

- An already existing FDT Container should be operated using a different control. Therefore, the target controls have to support the FDT communication parameterized in the FDT Container, e.g. Profibus.
- Copy an FDT Container including all its subordinate folders and DTM to another project.
- Change the master index of the FDT communication by modifying the respective element in the export file

### 6.3 Rules on exporting the FDT Container

- Before starting the export, it is recommended to save the data
- The FDT Container is saved as total entity (as a block) with all of its subordinate folders and DTM to an export file. The export file may only be modified in exceptional cases: Master index change
- Only binary DTM data is exported. This data may never be modified!
- The export file does not contain the DTM installations

### 6.4 Rules on importing the FDT Container

- Before starting the import, it is recommended to save the data  
The FDT Container is imported as total entity (as block) with all its subordinate folders and DTM.

## Exporting and importing the FDT Container

- The DTM have to be installed on the PC to work with DTM data. The DTM installation has to be version-compatible. That means that it has to be possible to process the binary DTM data.
- An import is not possible if the new parent node does not support the parameterized FDT communication in the FDT Container.
- An import is not possible if an FDT Container already exists for the same communication master (bus protocol/master index) at the new parent node.



Before going online, check that the assigned control is provided with the communication master (bus protocol/master index) specified in the FDT Container.

---

## 7 The "Compare" function in the FDT Container

The FDT Container supports the **"Compare"** function.

In the Project Explorer, the "Compare" function is provided in the context menu of the FDT Container.

- The FDT Container is compared as total entity (as block) with all its subordinate folders and DTM. The FDT Container is one element for the "Compare" function
- The data of the subordinate DTM exists only as binary data. The subordinate folders and DTM cannot be compared individually.
- The "Merge" function is not provided for the FDT Container



The "Assigned control" property is secondary and is mainly displayed for orientation purposes. Differences are allowed.



To replace an FDT Container by another one, use the **"Export"** and **"Import"** functions.

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## 8 Service and support

Our worldwide service network provides an optimized and efficient support. Our experts offer you advice and assistance should you have any queries. You can contact us **24/7**.

**Service Germany** Our technology-oriented Competence Center in Lohr, Germany, is responsible for all your service-related queries for electric drive and controls.

Contact the **Service Hotline** and **Service Helpdesk** under:

Phone: **+49 9352 40 5060**  
Fax: **+49 9352 18 4941**  
E-mail: [service.svc@boschrexroth.de](mailto:service.svc@boschrexroth.de)  
Internet: <http://www.boschrexroth.com/>

Additional information on service, repair (e.g. delivery addresses) and training can be found on our internet sites.

**Service worldwide** Outside Germany, please contact your local service office first. For hotline numbers, refer to the sales office addresses on the internet.

**Preparing information** To be able to help you more quickly and efficiently, please have the following information ready:

- Detailed description of malfunction and circumstances
- Type plate specifications of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your e-mail address)



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