IndraControl DR

Multi-Touch Displays (Built-in Device)

Change Record

Edition 02, 2020-01

Refer to tab. 1-1 "Change Record" on page 1

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Editorial Department

Development Automation Systems Control Platform JüKö (MaKo/MePe)

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1 About this documentation

Editions of this documentation

Edition	Release Date	Note
01	2018-01	First edition
02	2020-01	Revision

Tab. 1-1: Change Record

1.1 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.
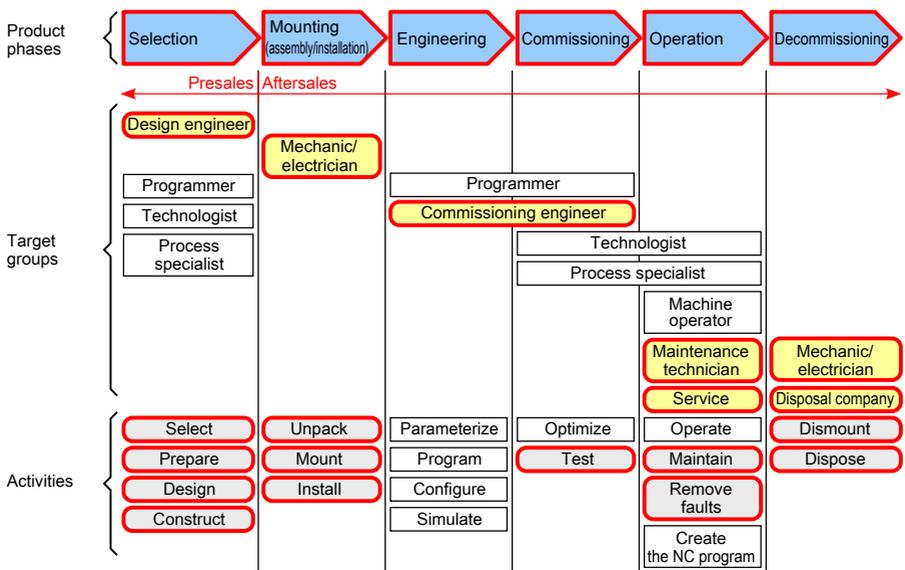
Fig. 1-1: Assigning the present documentation to the target groups, product phases and activities of the target group

1.2 Purpose

This document instructs the technical staff of the machine manufacturer on how to perform the mechanical and electrical installation safely and on how to commission the device.

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

1.3 Scope

This operating instruction applies to all multi-touch displays whose type code starts with "DR00xx...". The type code is located on the type plate of the device, also refer to chapter 2.1 "Product identification" on page 3.

1.4 Related documentations

Title	Part number and document type
Rexroth IndraControl VAP 01 Power Supply Unit	R911339613 Operating Instructions
Rexroth IndraControl PR and VR Devices Software Applications	R911384733 Project Planning Manual
VAU 02.1 Uninterruptible Power Supply	R911384726 Operating Instructions
Rexroth IndraControl PR30 and VR30 Control cabinet PC and panel PC	R911384705 Project Planning Manual
Rexroth IndraControl PR31 and VR31 Control cabinet PC and panel PC	R911397432 Project Planning Manual
Rexroth IndraControl PR4 and VR4 Control cabinet PC and panel PC	R911384697 Project Planning Manual
IndraControl PR and VR Devices Accessories	R911384727 Project Planning Manual

Tab. 1-2: Related documentations

1.5 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. Directly insert comments in the electronic PDF document and send the PDF file to Bosch Rexroth.

2 Product identification and scope of delivery

2.1 Product identification

Description	Example
Part number	PN: R911123456
Type code	TYPE: DR0015...
Serial number	SN: 123456789123456
Plant	(7260)
Manufacturing date	MD: 17W40
Name of origin	Made in...
Company address	Bosch Rexroth AG, 97816 Lohr, Germany
CE conformity marking	CE
Rexroth barcode	
Test marking	I-V-C-B-T-V
Voltage specification	In 24 V DC
Current specification	In 1.5 A
Ambient temperature	T(amb) 0-55 °C
Certification markings	UL, FCC, China-RoHS, ...

Tab. 2-1: Specifications on the type plate, example

2.2 Scope of delivery

- Multi-touch display
- Mounting accessories
- Safety instructions
- 24 V connection terminal

3 Using safety instructions

3.1 Structure of the safety instructions

The safety instructions are structured as follows:

Safety alert symbol

Signal word

Consequences and
source of danger

⚠ CAUTION | Burns and chemical burns due to wrong
battery treatment!

Do not open the batteries and do not heat them over 80 °C.

Avoiding danger
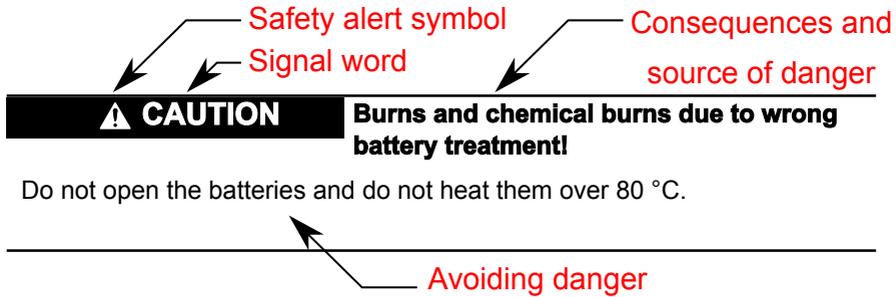
Fig. 3-1: Structure of the safety instructions

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 draws attention to the safety instruction and indicates the risk potential.

The safety alert symbol (triangular safety reflector with exclamation marks), preceding the signal words Danger, Warning, Caution indicates hazards for persons.

⚠ **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 **can** occur.

⚠ **CAUTION**

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

NOTICE

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

3.3 Symbols used

Pointers are displayed as follows:

☞   This is a note.

Tips are displayed as follows:

💡   This is a tip.

3.4 Explaining the signal alert symbol on the device

⚠️   If this symbol is on your device, you have to observe the documentation on the device. The respective documentation informs on the type of hazard as well as the steps required to avoid this hazard.

4 Intended use

The Bosch Rexroth operator displays are passive operator and visualization terminals. They form a PC-based operator terminal when used with a Bosch Rexroth control cabinet PC.

NOTICE	**Risk of damaging the device if not expressly stated accessories, mounting parts and other components, cables, lines, software and firmware are used.**

The operator displays may only be used as intended and with the accessories, mounting parts and other components specified in this documentation. Components that are not expressly mentioned must neither be attached nor connected. The same applies to cables and lines.

Only to be operated with the component configurations and combinations expressly defined and with the software and firmware specified in the corresponding functional description.

Typical areas of application of the operator display:

- Handling and assembly systems
- Packaging and food processing machines
- Printing and paper converting machines
- Machine tools
- Wood processing machines

The operator displays may only be operated under the mounting and installation conditions, the position and the ambient conditions (temperature, degree of protection, humidity, EMC etc.) specified in this documentation.

NOTICE	Danger of destruction of the touch screen if operated with inappropriate objects.

Operate the touch screen only with your finger or with a touch pen suitable for capacitive touch screens.

5 Spare parts, accessories and wear parts

5.1 External 24 V power supply unit

Ordering code	Part number	Description
VAP01.1H-W23-024-010-NN	R911171065	External 24 V power supply unit for IndraControl V-devices

Tab. 5-1: External 24 V power supply unit for the operator display

5.2 Uninterruptible power supply

Ordering code	Part number	Description
VAU02.1S-024-024-072-NN	R911385289	Uninterruptible Power Supply 24 V DC, 72 watt with RS232 interface

Tab. 5-2: Uninterruptible power supply (UPS)

5.3 Connecting cables for CDI+ interface

☞ Malfunctions caused by using inappropriate CDI cables.
Use only cables listed in the following overview.

Ordering code	Part number	Description
RKB0008/000,5 (*******_*******_*******)	R911171484	Length: 0.5 m
RKB0008/001,0 (*******_*******_*******)	R911171485	Length: 1 m

Ordering code	Part number	Description
RKB0008/002,5 (*******-*******-*******)	R911170151	Length: 2.5 m
RKB0008/005,0 (*******-*******-*******)	R911170152	Length: 5 m
RKB0008/007,5 (*******-*******-*******)	R911172971	Length: 7.5 m
RKB0008/010,0 (*******-*******-*******)	R911170153	Length: 10 m
RKB0008/015,0 (*******-*******-*******)	R911171183	Length: 15 m
RKB0008/020,0 (*******-*******-*******)	R911171184	Length: 20 m
RKB0008/025,0 (*******-*******-*******)	R911170154	Length: 25 m
RKB0008/030,0 (*******-*******-*******)	R911171381	Length: 30 m
RKB0008/035,0 (*******-*******-*******)	R911171369	Length: 35 m
RKB0008/040,0 (*******-*******-*******)	R911171382	Length: 40 m
RKB0008/050,0 (*******-*******-*******)	R911171383	Length: 50 m
RKB0008/055,0 (*******-*******-*******)	R911173779	Length: 55 m
RKB0008/060,0 (*******-*******-*******)	R911173780	Length: 60 m
RKB0008/065,0 (*******-*******-*******)	R911173781	Length: 65 m
RKB0008/070,0 (*******-*******-*******)	R911173782	Length: 70 m

Tab. 5-3: Connecting cables to control cabinet PC, panel PC and operator display.

☞ Further cable lengths are available on request.

5.4 USB connecting cables (USB 2.0)

Ordering code	Part number	Description
RKB0019/000,5 (*******-*******-*******)	R911171165	USB connecting cable, length 0.5 m
RKB0019/001,0 (*******-*******-*******)	R911171166	USB connecting cable, length 1 m
RKB0019/003,0 (*******-*******-*******)	R911171167	USB connecting cable, length 3 m
RKB0019/005,0 (*******-*******-*******)	R911171168	USB connecting cable, length 5 m

5.5 Connecting cables of the display port

The listed display port cables are provided with a special shielding. The display port cables meet the following specifications:

- Conform to the display port 1.2
- Resolutions up to 4096 x 2160
- Supports HDCP 1.3 and DPCP

Ordering code	Part number	Description
RKB0063/003,0 (*******-*******-*******)	R911391713	Connecting cable of the display port, length 3 m
RKB0063/005,0 (*******-*******-*******)	R911391714	Connecting cable of the display port, length 5 m

5.6 Wear parts

Wear parts are not subject to any warranty.

Backlight

The service life of the backlight is limited. After this period, the backlight will produce only 50 % of its original brightness. The service life is 50,000 hours if the ambient temperature is 25 °C.

6 Ambient conditions

Humidity	85% at 40°C (non-condensing)
Operating temperature	0 to 55°C (with airflow 0.3 m/s)
Storage temperature	-20 to 60 °C
Shock protection	DIN EN 60068-2-27
Overvoltage category	2
Contamination level	2, no condensation allowed
Mechanical strength	IEC 60068-2-64
	Acceleration: 2G

Tab. 6-1: Ambient conditions

NOTICE	Failure of the product due to contaminated air

- The ambient air must not contain acids, alkaline solutions, corrosive agents, salts, metal vapors and other electrically conductive contaminants in high concentrations
- The devices to be installed into the housing and installation compartments must at least comply with the degree of protection IP 54 according to DIN EN 60529.
- The device shall be provided in a suitable fire enclosure in the end-use application.

| | | NOTICE | | Defective product due to gases jeopardizing functions |

Due to the risk of corrosion, avoid sulphurous gases (e.g. sulphur dioxide (SO_2) and hydrogen suphide (H_2S)). The product is not resistant against these gases.

| | | NOTICE | | Risk to damage the device due to external influences |

Keep the device away from oils and emulsions.

7 Technical data

	DR0012	DR0015	DR0018	DR0021
Display	307 mm TFT (12")	396 mm TFT (15")	470 mm TFT (18")	546 mm TFT (21")
	1280 × 800 pixels	1366 × 768 pixels	1366 × 768 pixels	1920 × 1080 pixels
	16.2 million colors	16.2 million colors	16.7 million colors	16.7 million colors
Weight	Approx. 4.4 kg	Approx. 6.2 kg	Approx. 7.7 kg	Approx. 8.4
Power consumption	25 W max.	25 W max.	29 W max.	36 W max.
Input voltage	24 V DC +25 %, -20 % with IEC 61131-2			
Operation	Projected capacitive 10-point multitouch			
Surface of the front panel	Chemically strengthened front glass			
Graphic interfaces	Depending on the configuration: • Interface option "Standard video DP": 1 × display port, 1 × USB 2.0 (type B) • Interface option "CDI+ RX module": 1 × CDI+ (1 x RJ45) • Interface option "CDI+ daisy chain TX module": 2 × CDI+ (2 × RJ45)			
Degree of protection	Front panel IP 66			
USB	2 × USB 2.0 (type A) Max. of 500 mA per USB port, total current of max. 1 A at all USB ports.			

Tab. 7-1: Technical data of the display

7.1 Optical characteristic values

7.1.1 TFT

The maximum permissible number and type of pixel errors of TFT displays depends on the manufacturer and is defined by the respective incoming inspection of the vendor.

7.1.2 Input system or multi-touch front

The maximum permissible number, type and size of defects on the front, on the glass or between the display and the front – such as trapped dust, dirt and scratches is defined in the FT quality guideline.

8 Standards

The products have been developed according to the current German edition of the standards at the time of product development.

8.1 Standards used

Standard	Description
EN 60204 -1	Safety of machinery – Electrical equipment of machines
EN 61000-6-4	Generic standards – Emission standard (industrial environments)
EN 61000-6-2	Generic standards – Noise immunity (industrial environments)
EN 60068-2-6	Vibration test
EN 60068-2-27	Shock test
EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

Tab. 8-1: Standards used

8.2 CE marking

8.2.1 Declaration of conformity

The electronic products described in these instructions comply with the requirements and the target of the following EU directive and the following harmonized European standards:

EMC directive 2014/30/EC

The electronic products described in the present instructions are intended for use in industrial environments and comply with the following requirements:

Standard	Title	Edition
DIN EN 61000-6-2	Electromagnetic compatibility (EMC)	March 2006
	Part 6-2: Generic standards – Noise immunity for industrial environments (IEC 61000-6-2:2005)	
DIN EN 61000-6-4	Electromagnetic compatibility (EMC)	September 2011
	Part 6-4: Generic standards – Emission standard for industrial environments (IEC 61000-6-4:2006)	

Tab. 8-2: Standards for electromagnetic compatibility (EMC)

☞ **Loss of CE conformity due to modifications at the device**

CE marking applies only to the device upon delivery. After modifying the device, verify the CE conformity.

8.3 UL/CSA certified

The devices are certified according to

● UL 61010-2-201 (Industrial Control Equipment) and

● CSA22.2 No. 61010-2-201 (CSA)

UL file number. E210730.

However, there can be combinations or extension stages with a limited or missing certification. Thus, verify the registration according to the UL marking on the device.

☞ **Loss of UL/CSA conformity due to modifications at the device**

UL and CSA marking applies only to the device upon delivery. After modifying the device, verify the UL and the CSA conformity.

9 Interfaces
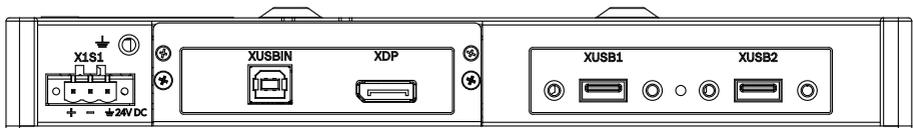
Fig. 9-1: DR device with DP module
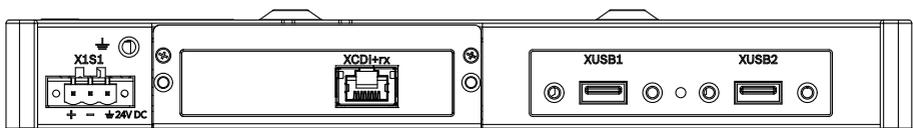
Fig. 9-2: DR device with CDI+ module (rx)
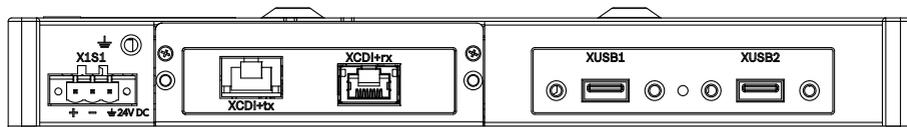
Fig. 9-3: DR device with CDI+ module (rx and tx)

9.1 Overview

The following connections are available:

Labeling at the housing	Connection type	Connection type (at the device)	Mating connector or cable (from outside)
X1S1	24 V DC voltage supply	Male connector strip, 3-pin	Female connector strip, 3-pin
XUSB1, XUSB2	USB2.0 interfaces	USB socket, 4-pin, type A	USB plug, 4-pin, type A
XUSBIN (Optional)	USB2.0 interfaces (for the touch input transfer)	USB socket, 4-pin, type B	USB plug, 4-pin, type B
XDP (Optional)	Video connection to the control cabinet PC	Display port socket, (20-pin)	Display port plug, (20-pin)
⏚	Functional earth	M5 screw	Ring cable lug
CDI+rx (Optional)	RJ-45 interface (video and data interface)	RJ45 socket	RJ45 plug
CDI+tx (Optional)	RJ-45 interface (video and data interface)	RJ45 socket	RJ45 plug

Tab. 9-1: Interfaces

NOTICE	Malfunctions due to insufficient shielding!

Use only shielded cables and metallic or conductive connector/coupling covers with large-area shield support.

9.2 PC voltage supply X1S1

The 24 V DC voltage supply for the display is connected via the "X1S1" connection.
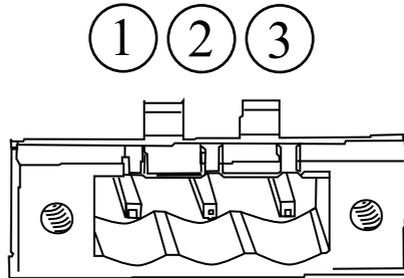
Fig. 9-4: Interface for 24 V voltage supply

Pin	Function
①	+24 V supply voltage
②	0 V supply voltage
③	Functional earth

Tab. 9-2:

9.3 USB interfaces XUSB1 and XUSB2

The devices are provided with two USB interfaces on the connector panel (XUSB1: USB 2.0, XUSB2: USB 2.0).
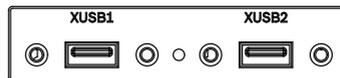
Fig. 9-5: USB interfaces

☞ The maximum current carrying capacity is 500 mA, the total current at all USB ports is 1A.

9.4 Display port XDP

The display port XDP interface connects the operator display DR to the display port interface of a control cabinet PC.

9.5 Long distance XCDI+rx

The long distance XCDI+rx interface connects the operator display DR to the long distance XCDI+tx interface of a control cabinet PC.

9.6 Long distance XCDI+tx

The long distance XCDI+tx interface connects the operator display DR to the long distance XCDI+rx interface of a control cabinet PC.

The maximum CDI+ cable length between the individual devices is 100 m.

Up to three DR operating displays can be connected serially to the IndraControl PR30, PR31 and PR4 devices using the CDI+ interface. The operating displays only operate in the "Clone" mode. The advanced mode can only be used if the second display is connected to the display port. The touch function is always active on all operating displays. Entries can not be blocked at individual operating displays.

10 Mounting, assembly and electrical installation

NOTICE	Mechanic damage due to incorrect mounting torque.

Tighten the screws and nuts with the corresponding torque according to the following table.

Thread	Tightening torque
M2.5	0.4 Nm
M3	0.7 Nm
M4	1.4 Nm
M5	2.8 Nm
M6	3.0 Nm

Tab. 10-1: Tightening torque

10.1 Housing dimensions of the display
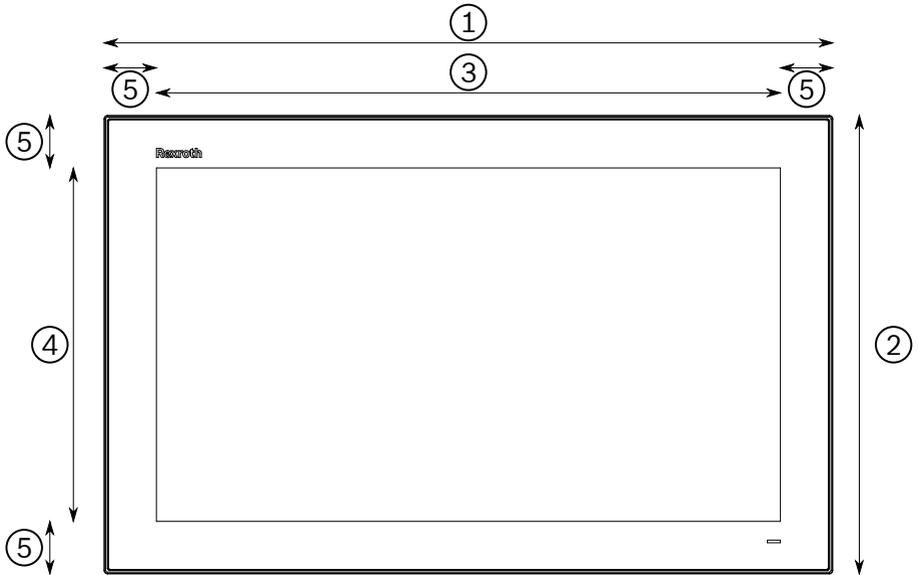
Fig. 10-1: Front view of the display

Display size	Device width ①	Device height ②	Display width ③	Display height ④	Frame width ⑤
12"	329	231	263	165	33
15"	420	269	346	195	37
18"	488	309	412	232	38
21"	558	350	478	270	40

Tab. 10-2: Housing dimensions of the display in diameters

10.2 Housing dimensions of the display
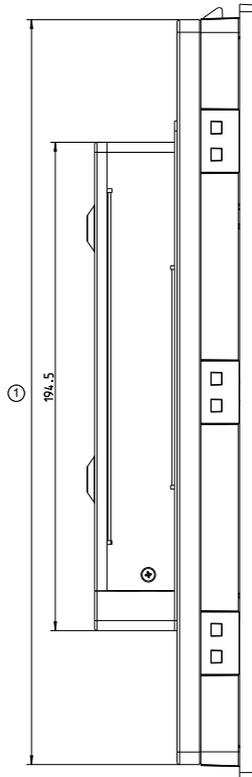
① DR0012: 218,4; DR0015: 259,1; DR0018: 296,7; DR0021: 338,4

Fig. 10-2: Housing dimensions, left side view
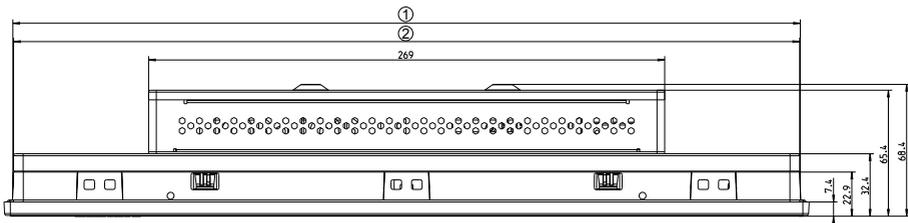
① DR0012: 308,1; DR0015: 410,5; DR0018: 476,8; DR0021: 548,5
② DR0012: 307,4; DR0015: 409,8; DR0018: 475,7; DR0021: 547,0

Fig. 10-3: Housing dimensions, top view

10.3 Installation notes

- Provide a space of 50 mm on all sides for sufficient cooling and cable routing.
- The LED display on the operator panel must not be covered.
- Wire all cables in loops. Use strain reliefs for all cables.
- Install the operator display only vertically, with a max. deviation of ±45°, measured from the vertical.
- Do not lay the CDI cables in parallel to motor cables or to other noise sources, as the CDI connection can be disturbed. Keep the maximum distance possible from interference sources.

10.4 Display mounting at a VESA fastening

The DR displays are provided with four M4 treads in square arrangement of 100 x 100 on their rear side to fasten a VESA adapter.

☞ Screws to fasten the DR display to VESA fastenings with a material strength of up to 1.0 mm are provided upon delivery. Use longer screws for VESA fastenings with a greater material length!

10.5 Device mounting of the display in the mounting cut-out

Install the display as follows:

☞ **Loss of degree of protection IP 66!**

The housing in which the display is installed, has to fulfil the following conditions:

- Free from impurities
- Sufficient mechanical strength and flatness

These criteria influence the required IP degree of protection to a great extent.

Further required measures have to be taken depending on the mounting location, e. g. the stabilization of the mounting frame.

☞ **Material thickness to mount the display:**

The display is installed into the housing. The material thickness of the housing has to be between 2 and 6 mm.

1. Creating a mounting cut-out, refer to
2. Remove two mounting screws at the bottom of the display. These screws fixedly attach the display when inserted into the mounting cut-out.
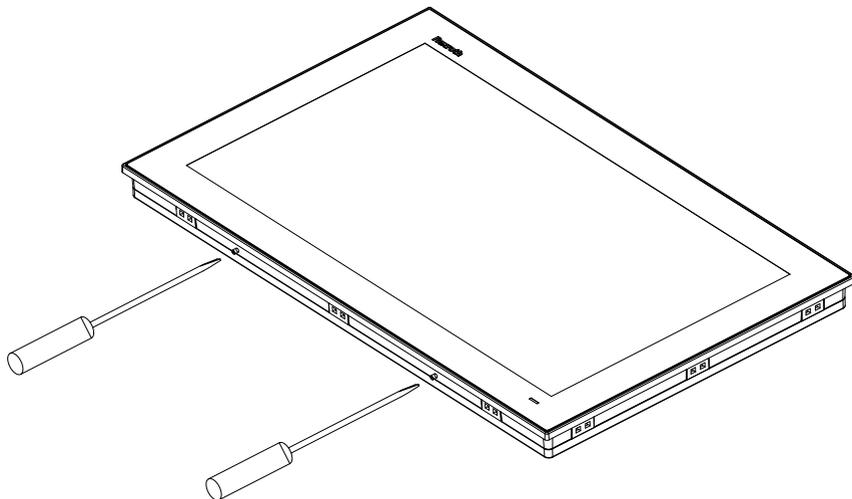
Fig. 10-4: Mounting screws at the bottom of the display

3. Install the display into the mounting cut-out. The detents fasten the display in the opening.
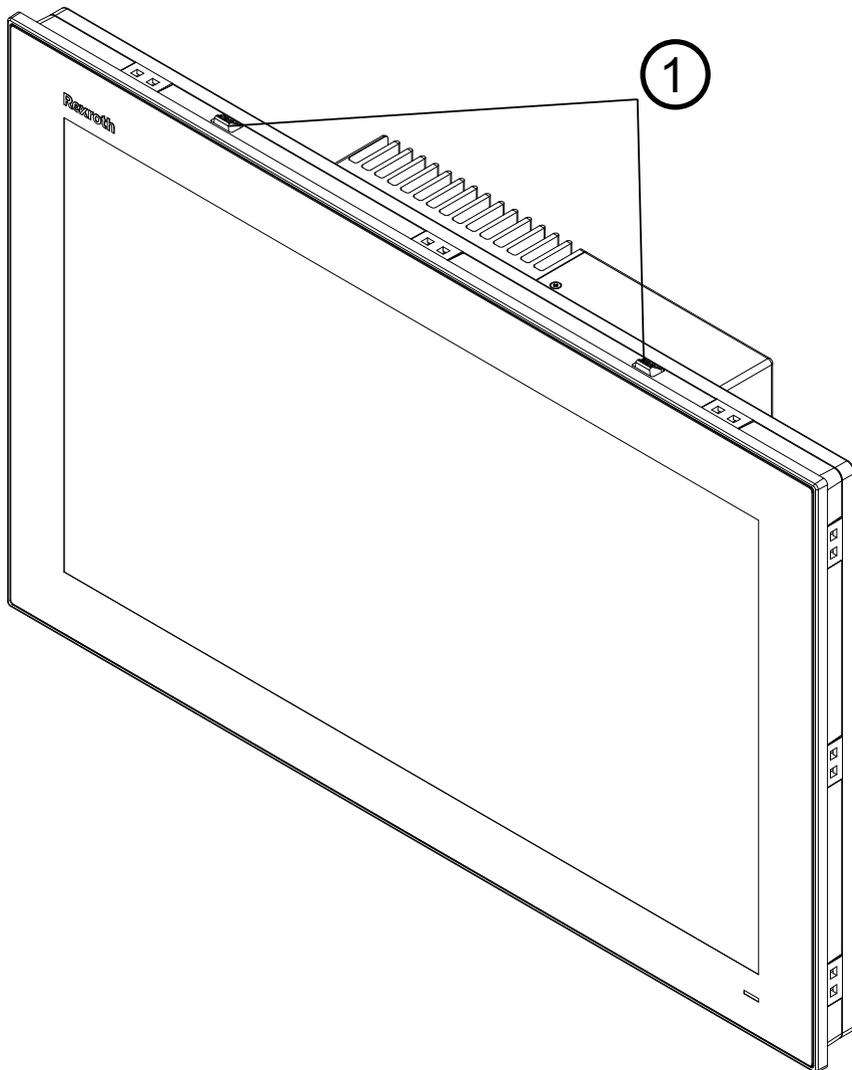
①   Detents

Fig. 10-5:   Detents on the upper side of the display
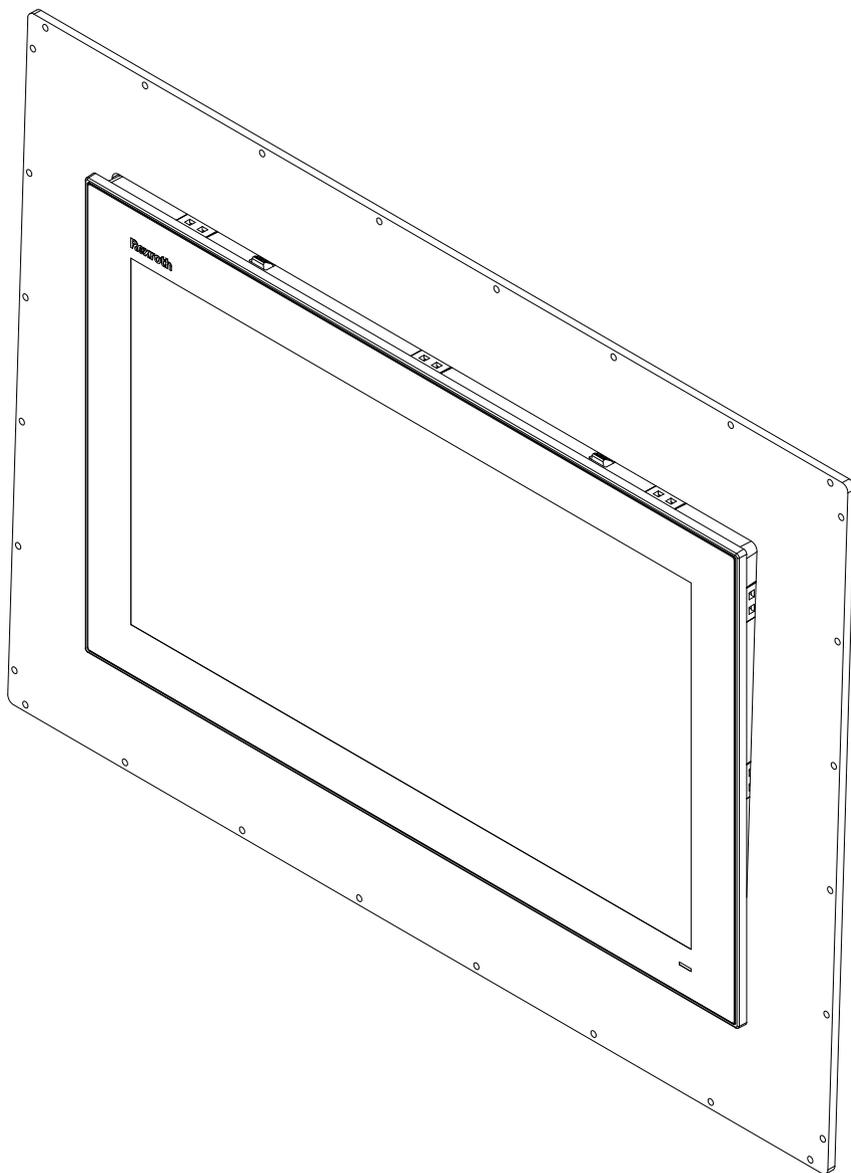
Fig. 10-6: Display in the mounting cut-out

4. Insert each fastening element into an opening and pull the fastening element back until it is in the rear part of the opening:
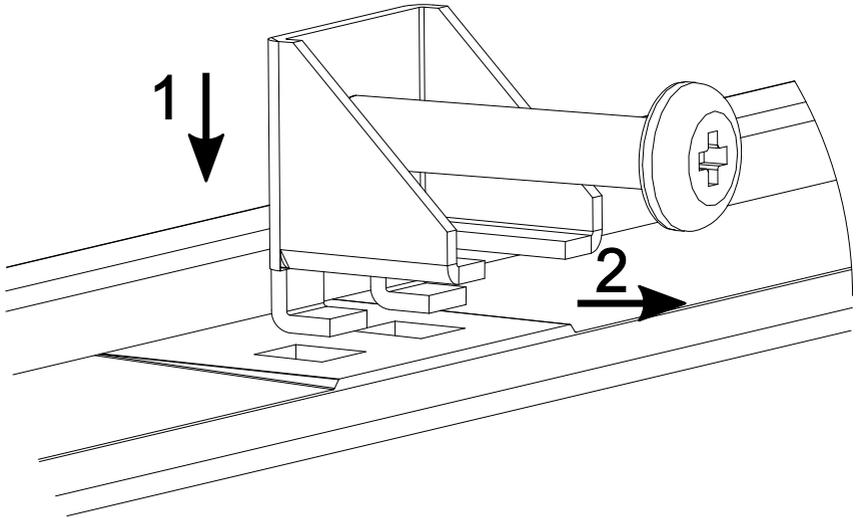
Fig. 10-7: Inserting fastening element into the opening

5. Tighten the cross-slotted screws.
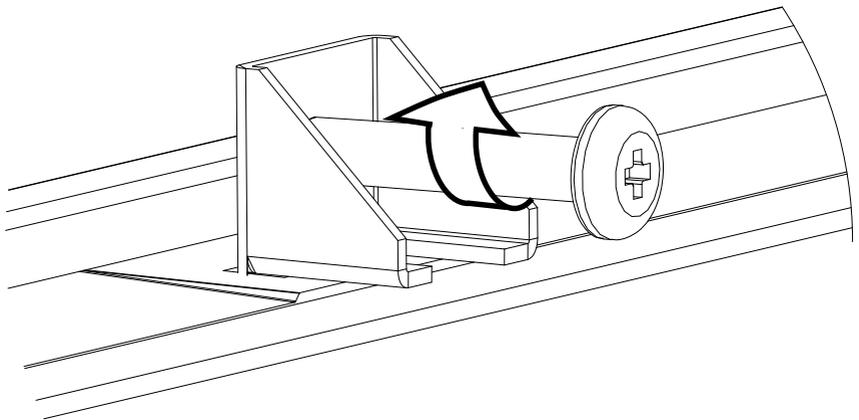
Fig. 10-8: Display holders

☞ To ensure a high degree of moisture resistance, use a mounting tor-
que of 0.5 Nm (4.5 lb-in)

10.6 Mounting cut-out
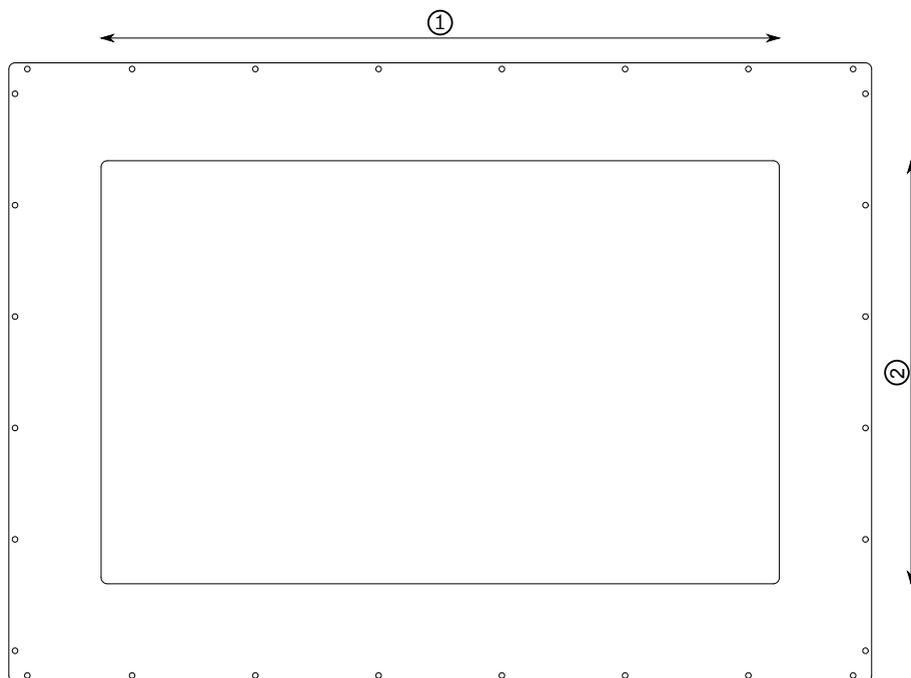
① Mounting cut-out

Fig. 10-9: Mounting cut-out

Display size	Width ②	Height ③
12"	310	221
	Tolerance ±0.7	Tolerance ±0.4
15"	412.40	261.70
	Tolerance ±0.7	Tolerance ±0.4
18"	479.30	300.30
	Tolerance ±0.7	Tolerance ±0.4
21"	550.30	341.80
	Tolerance ±0.7	Tolerance ±0.4

Tab. 10-3: Mounting cut-out in millimeters

☞ Ensure the IP protection class:
- Observe the tolerance specifications for the mounting cut-out!
- Observe the wall thickness of the mounting cut-out: Minimum of 2 mm and maximum of 6 mm.
- Consider the weight of the display and of the PC. Especially if there is a strong vibration. Reinforce the front plate with slates at the internal side close of the mounting cut-out if required.

10.7 Demounting

1. Disconnect the display from voltage
2. Remove all connected cables
3. Loosen the screws of the fastening elements.
4. Remove the fastening elements.
5. Press the detents of the installation aid from top. Ensure that the display is prevented from falling out of the mounting cut-out.
6. Remove the display from the mounting frame.

10.8 Electric installation

10.8.1 Connecting the display to the 24 V voltage supply

1. Connect the "X1S1" interface for the 24 V voltage supply to the industrial power supply unit.

   For the voltage supply, use a 24 V industrial power supply unit acc. to DIN EN 60742, classification VDE 551, for example "VAP01.1H-W23-024-010-NN" (part number R911171065).

UPS

☞ The display immediately darkens in case of a power failure if the operator display is directly connected to the 24 V supply voltage without UPS. The user cannot execute any actions via the operator display during the shutdown of the control cabinet PC.

   If the operator display is connected together with the control cabinet PC to the "24 V Out" of the external UPS (VAU 02.1), the user can still access the operator display during shutdown due to a power failure.

10.8.2 Connecting the control cabinet PC to operator display

Exemplary connection diagram of a CDI+ display connection.
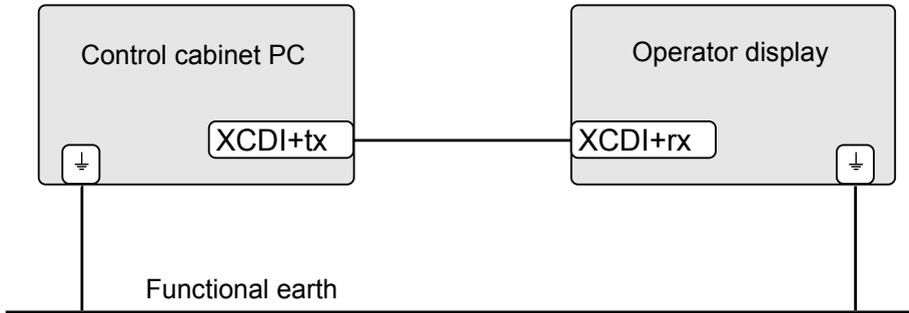
Fig. 10-10: Wiring the control cabinet PC to the operating display

Connection

1. Connect the functional earth.

2. Connect the XCDI+tx interface at the control cabinet PC to the XCDi+rx interface at the respective operating display using a CDI+ cable.

NOTICE	Material damages to electronics due to missing functional earth!

Ensure that the functional earth is connected, as otherwise the electronics can be destroyed by a potential difference between the operating display and the control cabinet PC if the voltage supply is interrupted to only one device and established again. A direct connection of the functional earth between the operator display and the control cabinet PC is optimal. If the functional earth is connected to a neutral point, the display has to be connected to this neutral point as well.

☞ When wiring Bosch Rexroth CDI cables with a diameter of 7.4 mm, observe the following bending radii:

- Radius (when bended once while routing): 4 × cable diameter
- Minimum bending radius (when moved permanently): 8 × cable diameter
- Optimum bending radius (when moved permanently): 12.5 × cable diameter

☞ **Operation breakdown due to mechanical forces on the CDI cables.**

Avoid mechanical stress (tensile, compressive, torsional and lateral forces) caused by plugs to the RJ45 socket.

☞ **Malfunctions caused by using inappropriate cables.**

Use only cables listed in chapter 5.3 "Connecting cables for CDI+ interface" on page 6

10.8.3 Connecting the control cabinet PC to multiple operator displays

Up to three operating displays of the type DR/DE can be connected serially to the PR3 devices using the CDI+ interface. The operating displays only operate in the "Clone" mode. The advanced mode can only be used if a second display is connected to the display port. The touch function is always active on all operating displays. Entries can not be blocked at individual operating displays.
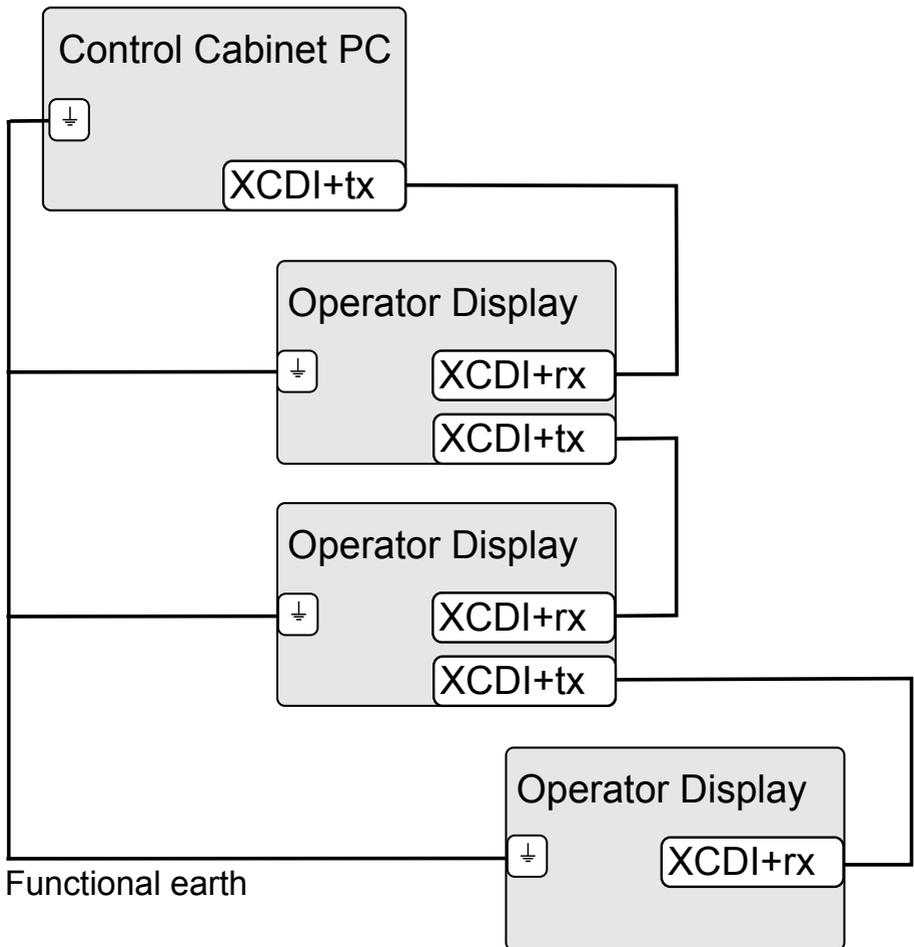
Fig. 10-11: Wiring up to three operating displays using CDI+ at a control cabinet PC

☞ Note for operating displays that devices in the variant "CDI+-rx/tx" are required at the first and second location. The variant with "CDI+rx" is sufficient for the last location.

11 Commissioning

The product can be used directly. No configuration is required.

11.1 IT security

The operation of installations, systems and machines requires the implementation of an integral concept for state-of-the-art IT security. Bosch Rexroth products are part of this integral concept. Bosch Rexroth product characteristics have to be taken into consideration in an integral IT security concept. The relevant characteristics are documented in the IT security guideline (R911342562).

12 Device description
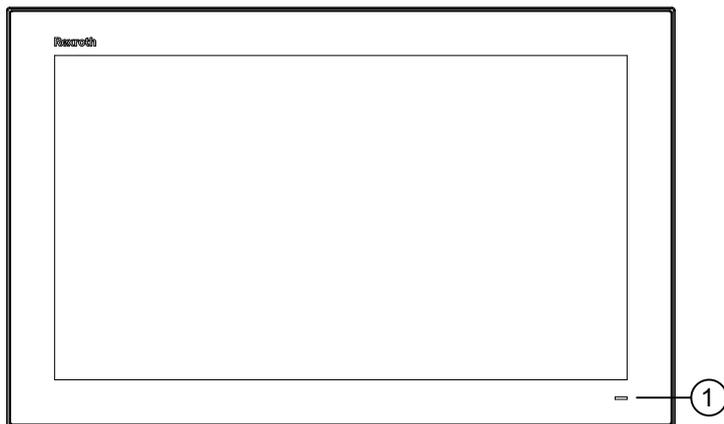
① Status displays

Fig. 12-1: Front view

12.1 Operating and error display

A status LED is positioned in the lower area of the front plate.

Symbol, LED	Display	Description	Action
Power	LED green	Normal operation	-
	LED off	No supply voltage of 24 V DC	Check supply voltage
	LED orange	● No screen signal present ● System is booting	● Check video connection ● Wait until the system completed booting

Tab. 12-1: Status LEDs for operating and error display on the front panel

13 Error causes and troubleshooting

For information on the error display on the front panel, refer to chapter 12.1 "Operating and error display " on page 26

Errors	Correction
No image visible	● Connect the supply voltage and check the X1S1 connection ● Connect the display port or CDI+ cables correctly ● If panels with a display port are used, use only Bosch Rexroth display cables to connect the panels, refer to chapter 5.5 "Connecting cables of the display port" on page 7.
Distorted display due to incorrect display resolution	● Set the correct display resolution in the graphics driver. The standard resolution of the Windows images (also for the recovery sticks) is FullHD (1920×1080). Set the correct value once if displays with a smaller resolution are used ● Restart the control cabinet PC

Tab. 13-1: Error causes and troubleshooting

14 Maintenance

☞ Only the maintenance works at the device listed in this chapter are permitted.

For further information in the event of repair, please contact the Bosch Rexroth Service.

NOTICE	Loss of IP degree of protection due to incorrect maintenance.

Ensure that the IP degree of protection remains unchanged during maintenance!

14.1 Display

The backlight is subject to wear.

A fading backlight causes a progressive deterioration display readability. Thus, a replacement is necessary. For further information, please contact the Bosch Rexroth Service.

14.2 Cleaning notes

NOTICE	Dissolving of front glass sealing with solvent!

- Do not use solvents
- Do not use high pressure cleaning device

14.3 Scheduled maintenance tasks

- Check all plug and terminal connections of the components for proper tightness and possible damage at least once a year
- Check for wire breaks or crimped lines.
- Damaged parts must be replaced immediately.

15 Ordering information

15.1 Accessories and spare parts

For ordering information on accessories and spare parts, refer to

15.2 Type code

Type short description	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1
Example:	D	R	0	0	1	8	.	1	-	1	0	-	N	N	N	-	A	A			

01 Device Type 1
Remote Display ....= D

02 Device Type 2
Build-in version .... = R

03 Performance Class
Passive device............. = 00

04 Display size
12" Display 16:9................... = 12
15" Display 16:9................... = 15
18,5" Display 16:9................ = 18
21,5" Display 16:9................ = 21

05 Hardware Variant
HW-Type Nr. 1   =

06 Interface 1
2 x USB2.0 Modul................................= 1

07 Interface 2
Standard Video DP ....= 0
CDI+ RX-modul ....= 1
CDI+ daisy chain TX modul ....= 2

08 Hardware configuration
None.. = NNN

09 Design and HMI-Display properties
10 point PCT-Touch / Rexroth-Design horizontal......... = AA
10 point PCT-Touch / Rexroth-Design vertical............. = AB

Fig. 15-1: Type code for DR devices

F04 (display size)	F09 (design and HMI display)
12	AA
15	AA
18	AA
21	AA, AB

Tab. 15-1: Available combinations

16 Disposal

16.1 Return

For disposal, our products can be returned free of charge. However, the products must be free of remains like oil and grease or other impurities.

Furthermore, the products returned for disposal must not contain any undue foreign substances or components.

Send the products free of charge to the following address:

Bosch Rexroth AG
Electric Drives and Controls
Bürgermeister-Dr.-Nebel-Straße 2
97816 Lohr am Main, Germany

16.2 Packaging

The packaging material consists of cardboard, plastics, wood or styrofoam. Packaging material can be recycled anywhere.

For ecological reasons, please do not return empty packages.

17 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
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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Notes

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