rexroth
A Bosch Company

Operating Instructions
(Translation of the original)

ctrlX IPC PR21.2, PR22.2

Embedded Automation Computer

Compact IPC with ATOM CPU

R911424207 Edition 01

Disclaimer

The data specified above only serve to describe the product. As our products are constantly being further developed, no statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

Table of contents

1 About this documentation

1.1 Revision history

Edition	Release date	Note
01	2024-05	First edition

1.2 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 target group mechanic/electrician can execute the activity install using this documentation.

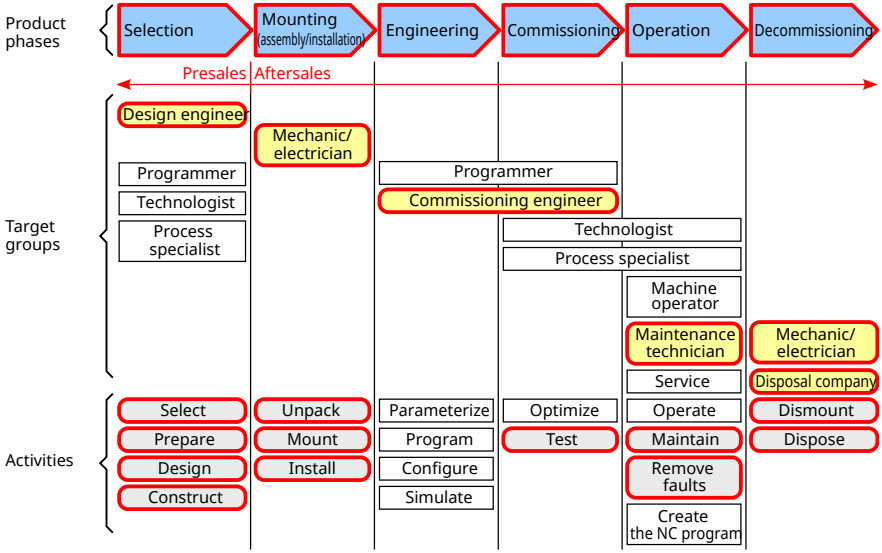

Fig. 1: Assigning the present documentation to the target groups, product phases and activities of the target group

This document instructs the technical staff of the machine manufacturer on how to safely perform the mechanic and electric installation and on how to commission the devices.

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 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.

1.4 Scope

This operating instruction applies to all Embedded Automation Computers whose type code starts with "PR2x.2". The type code is located on the type plate of the device, also refer to .

1.5 Related documents

Title	Part number and document type
Security Manual Electric Drives and Controls	➦ R911342562 Project Planning Manual
IndraControl VAP 01.1 Power Supply Unit	➦ R911339613 Operating Instructions
ctrlX HMI DE0015, DE0021 Multi-Touch Displays	➦ R911405731 Operating Instructions
Rexroth IndraControl PR, VR, DR and DE Devices Software Applications	➦ R911384733 Project Planning Manual
IndraControl VAU 02.1 Uninterruptible Power Supply	➦ R911384727 Operating Instructions

1.6 Customer feedback

Customer requests, comments or suggestions for improvement are of great importance. Please email your feedback on the documentations to➦ Feedback.Documentation@boschrexroth.de. Directly insert comments into the electronic PDF document and send the PDF file to Bosch Rexroth.

2 Product identification and scope of delivery

2.1 Product identification

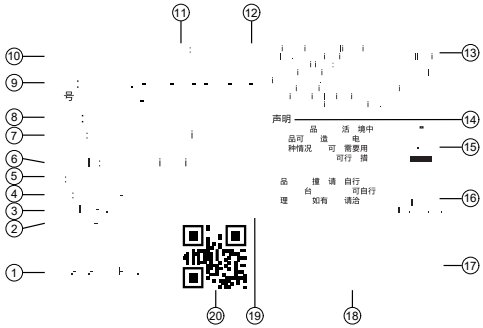

Fig. 2: Type plate

1 Company address
2 Ambient temperature
3 Rated current
4 Rated voltage
5 Serial number
6 Name of origin
7 Product
8 Part number
9 Type code
10 Trademark
11 Manufacturing date
12 Plant number
13 FCC note text EN
14 FCC note text
15 WEEE marking
16 Underwriters Laboratories Inc. mark
17 CE conformity mark
18 UKCA conformity mark
19 China-RoHs 2 label
20 QR or data matrix code, Rexroth, 2D code

2.2 Scope of delivery

- Embedded Automation Computer
- Safety instructions
- Image Recovery Stick
- Power connector (24 V connection terminal)
- Grounding cable

3 Using safety instructions

3.1 Structure of the safety instructions

The safety instructions are structured as follows:

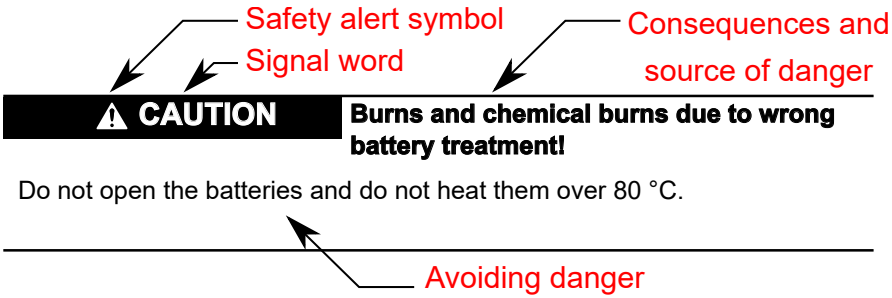

Fig. 3: Structure of the safety instructions

3.2 Explaining signal words and the 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).

The signal word draws attention to the safety instruction and indicates the risk potential.

The signal graphics (warning triangle with exclamation mark), added in front of the signal words Danger, Warning and Caution refer to hazards to inidividuals.

⚠ 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

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

4.1 Intended use

The Industrial PC of Bosch Rexroth are intended for "IOT" and "HMI" applications.

NOTICE	**The device might be destructed if not the expressly stated accessories, mounting parts and other components, cables, lines, software and firmware are used.** The industrial PCs 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 industrial PCs:

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

⚠ WARNING	**Danger due to unintended use** The protection specified by Bosch Rexroth cannot be ensured if not used as intended. – Use the product exclusively as intended by Bosch Rexroth. – Operate this device only under the mounting and installation conditions, in the position and under the ambient conditions (temperature, degree of protection, humidity, EMC etc.) specified in this documentation.

5 Spare parts, accessories and wear parts

5.1 24 V power connector

Ordering code	Part number	Description
ZUBEHOERSATZ PR21	R911401182	Power connector

5.2 External 24 V power supply unit

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

5.3 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

5.4 Splitter

Connecting unit to connect two operating displays with the same resolution and the same design with only one industrial PC.

Ordering code	Part number	Description
VAC08.1SSP-HDM-2D2-NNNN	R911175117	Splitter for CDI+ interface

5.5 CMOS battery

Ordering code	Part number	Description
BATTERY BGR SUP-E02-PR22	R911423803	CMOS battery with connecting cable

5.6 Wear parts

Wear parts are not subject to any warranty.

5.6.1 CMOS battery

The service life of the CMOS battery of type CR2032 is 5 to 7 years.

6 Ambient conditions

6.1 Ambient conditions

Humidity	85% at 40°C (non-condensing)
Ambient temperature during operation	0 to 55 C
Ambient temperature during storage	-40 to 85°C
Shock protection	EN 60068-2-27
Overvoltage category	2
Contamination level	2, no condensation allowed
Mechanical strength	EN 60068-2-64 Acceleration: 2G

NOTICE	Defective device 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 housings 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	Risk to damage the device due to external influences Keep the device away from oils and emulsions.

NOTICE	Defective device due to gases jeopardizing functions Due to the risk of corrosion, avoid sulphureous gases (e.g. sulphur dioxide (SO_2) and hydrogen sulphide (H_2S)). The device is not resistant against these gases.

This is a product that corresponds to the limit values of the emitted interference of class A (industrial environments). This is a product that does not correspond to the limit values of the emitted interference of class B (residential area and small enterprises.

When using the product in residential areas or small enterprises, the operator has to take actions to prevent radio interferences (also refer to DIN EN 55022).

7 Technical data

7.1 PC box

	PR21.2	PR22.2
CPU	Intel Atom x6212RE	Intel Atom x6414RE
GPU	Intel HD Graphics	Intel HD Graphics
RAM	4 GB	8 GB
Memory	32 GB eMMC	128 GB eMMC
Mini PCIe (internal)	1 × Full size mPCIe or mSATA	1 × Full size mPCIe or mSATA
Ethernet ports	2 × Realtek 8119 GbE	2 × Realtek 8119 GbE
USB	2 × USB 3.2 Gen2	2 × USB 3.2 Gen2
Video	1 × HDMI	1 × HDMI
Buffer memory battery for the real-time clock	Button cell CR2032	Button cell CR2032
Fixture	Support rail	Support rail
Mounting	Upright mounting	Upright mounting
Input voltage	DC 10 ~ 30 V	DC 10 ~ 30 V

	PR21.2	PR22.2
Power consumption	15.8 W (typical), 35 W (maximum)	15.8 W (typical), 35 W (maximum)
Weight	0.4 kg	0.4 kg
Degree of protection	IP20	IP20

8 Standards

8.1 General notes on the standards

The products have been developed according to the standards published at the time of product engineering.

8.2 Standards used

For the respective versions of the standards, refer to the declarations of conformity.

EN 55011	Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement
EN 55032	Electromagnetic compatibility of multimedia equipment – Emission Requirements
EN IEC 61000-6-4	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments
EN 55035	Electromagnetic compatibility of multimedia equipment – Immunity requirements
EN IEC 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Noise immunity for industrial environments
EN 61000-4-2	Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test
EN IEC 61000-4-3	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test
EN 61000-4-4	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test
EN 61000-4-5	Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test
EN 61000-4-6	Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields
EN 61000-4-8	Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test
IEC 60068-2-64	Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance

IEC 60068-2-6	Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)
IEC 60068-2-27	Environmental testing – Part 2-27: Tests - Test Ea and guidance: Shock

8.3 EU declaration of conformity

CE

Excerpt:

The undersigned, representing the manufacturer, hereby declares that the product is in conformity with the provisions of the following EU Directive(s) (including all applicable amendments) and that the standards and technical specifications stated in the EU Declaration of Conformity have been applied:

- ROHS DIRECTIVE 2011/65/EU
- EMC DIRECTIVE 2014/30/EU

For the EU declaration of conformity, go to the Bosch Rexroth media directory: ➦ www.boschrexroth.com/MediaDirectory, search term ➦ „DCTC-30446-002“.

8.4 UL/CSA-certified

c UL us LISTED

The devices are certified according to:

- **UL 61010-2-201** (Industrial Control Equipment) and
- **CSA22.2 No. 61010-2-201** (CSA)
  UL file no. 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.

To guarantee a UL/CSA-compliant operation, the following conditions have to be met:

– Use only insulated copper wires suitable for at least 60 °C

8.5 UK declaration of conformity

The products comply with the UK statutory instrument acc. to S.I. 2016/1091 (Electromagnetic Compatibility) and the UK RoHS regulation S.I. 2012/3032.

For the UK declaration of conformity, go to the Bosch Rexroth media directory: ➦ www.boschrexroth.com/mediadirectory, search term: ➦ „DCTC-30446-032“.

UK CA

9 Interfaces

9.1 Overview

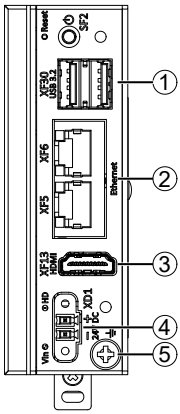

Fig. 4: Interface overview

No.	Name	Connection type	Connector type (Integrated)	Mating connector and cable (From outside)
①	XF30	2 × USB3.2 interfaces	USB socket, 8-pin, type A	USB plug, 8-pin, type A
②	XF5 XF6	Ethernet interface 10/100/1000 MBit, Base-T	RJ45 socket 8-pin	RJ45 plug (twisted pair, 8-wire)
③	XF13	Connection for external monitor	HDMI female connector	HDMI connector
④	XD1	Voltage supply	Male connector strip, 2-pin	Female connector strip, 2-pin
⑤	⏚	Ground connection	–	–

NOTICE

Malfunctions due to insufficient shielding!

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

9.2 Voltage supply XD1

The DC 24 V voltage supply for the control cabinet PC is connected via "XD1" connection.

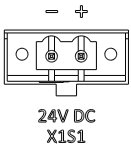

Fig. 5: XD1

Pin	Function
1	+24 V supply voltage
2	0 V supply voltage

9.3 USB interfaces XF30

The devices are provided with two USB interfaces on the connector panel (XF30).

The maximum current carrying capacity per USB socket is 500 mA for the USB2.0 and 900 mA for the USB3.0.

9.4 Ethernet interfaces XF5 and XF6

The Embedded Automation Computer can be connected to an Ethernet network via the Ethernet interfaces XF5 and XF6.

9.5 HDMI interface XF13

Connect the Embedded Automation Computer to the HDMI interface of an operator display via the "XF13" HDMI interface.

10 Mounting, dismounting and electric installation

10.1 General information

NOTICE	**Mechanical damage due to incorrect 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

10.2 PC box dimensions

The devices can be mounted via support rail. Refer to the following illustration for the device dimensions.

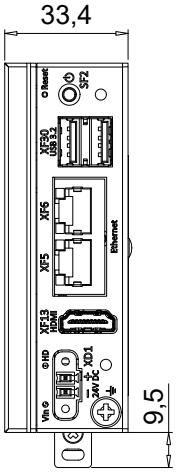

Fig. 6: Front view

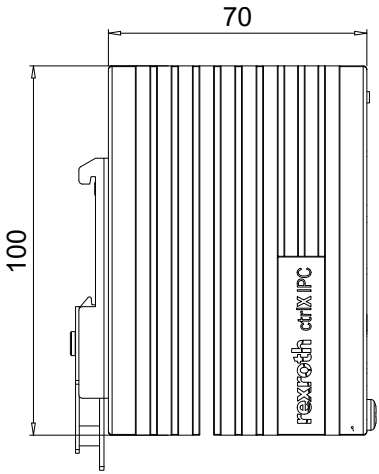

Fig. 7: Side view

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.
- Do not lay signal carrying cables in parallel to motor cables or to other noise sources, as the signal transmission can be disturbed. Keep the maximum possible distance from interference sources.
- Install the device vertically (upright mounting).

The device is only approved for indoor use.

10.4 Mounting

NOTICE	**Destruction of components and devices due to mounting and dismounting under voltage!**
	– Before mounting or dismounting, disconnect the IPC or the control - including its components - from voltage. – Connect the voltage only after the IPC or the control and its components have been set up.

NOTICE	**Possible damage to property due to unintended mounting of the support rail**
	– Fasten the support rail adequately. – Connect the support rail to a functional earth. – Mount the IPC or the control on the support rail, as the support rail is also used for heat dissipation and grounding. – Install the IPC or the control in a control cabinet or an appropriate housing.

Mounting steps

- Place the Embedded Automation Computer on the support rail.

10.5 Installing components

10.5.1 Installing mPCIe or mSATA card

The steps 1 and 2 are omitted if the box PC is not yet mounted into the control cabinet.

1. Switch off the box PC and disconnect it from the voltage supply.
2. Remove all plugs from the box PC.
3. Position the box PC on a plane support and ensure that the right housing cover points up.
4. Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.

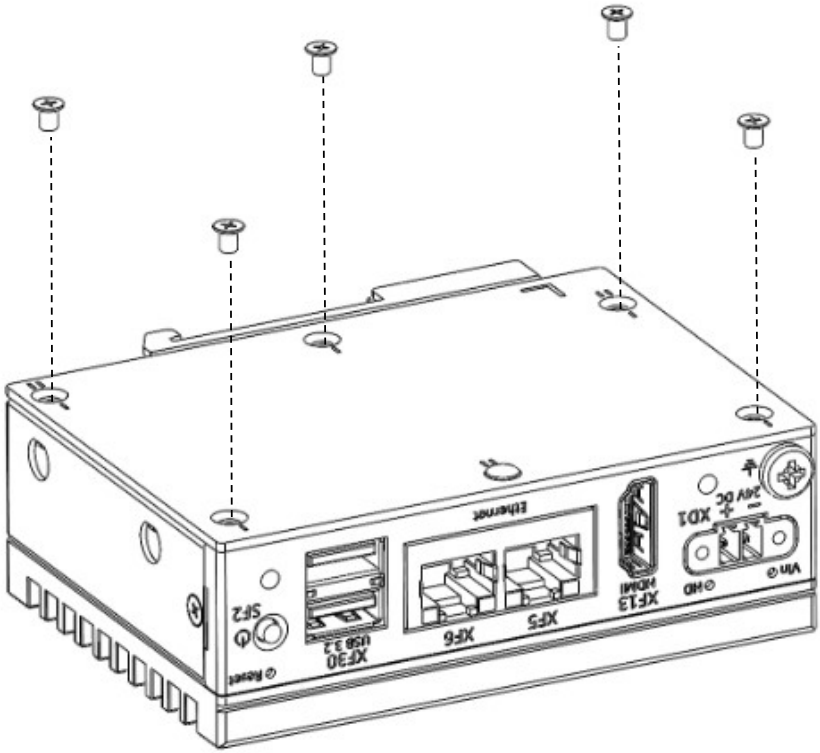

Fig. 8: Opening housing cover

5. Loosen the five M2.5 screws and remove the housing cover.

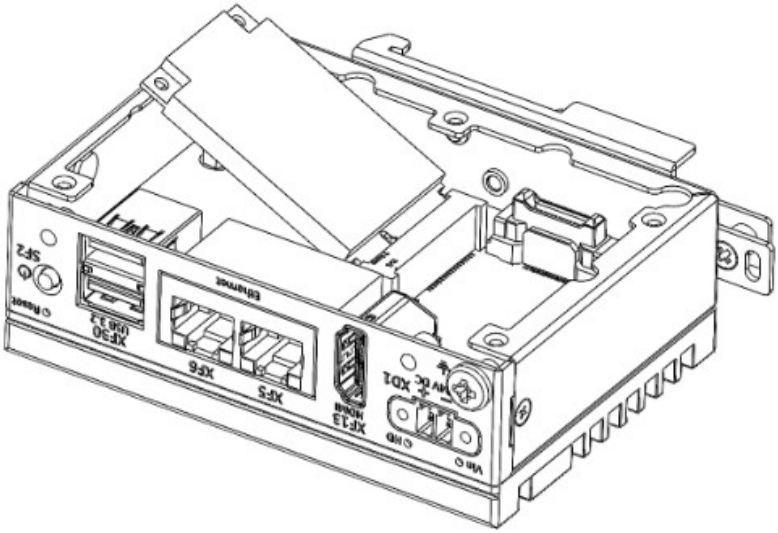

Fig. 9: Inserting mPCIe or mSATA card

6. Plug in the mPCIe or the SATA card into the mPCIe or mSATA slot and fix it with the M3 screw.
7. Mount the housing cover again.

10.6 Dismounting

For dismounting, use a common tool such as a slotted screwdriver with a 2.5 mm blade.

1. Disconnect the Embedded Automation Computer from voltage.
2. Remove all connected cables.
3. Remove the Embedded Automation Computer from the support rail.

10.6.1 Dismounting steps

NOTICE	**Destruction of components and devices due to mounting and dismounting under voltage!**
	– Before mounting or dismounting, disconnect the IPC or the control - including its components - from voltage. – Connect the voltage only after the IPC or the control and its components have been set up.

Removing the Embedded Automation Computer from support rail

1. Use a suitable tool (e.g. slotted screwdriver) and put it into the lower disengaging mechanism (base latch) of the Embedded Automation Computer and disengage it (see (A) in the following figure). The base latch is locked in the open position.
2. Remove the Embedded Automation Computer vertically to the support rail [see (B) in the following figure].

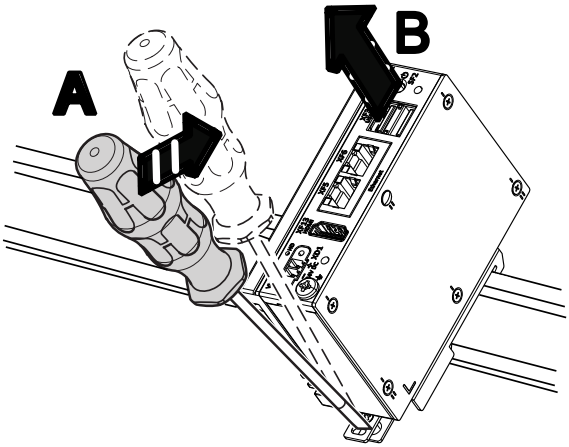

Fig. 10: Dismounting

Before mounting the Embedded Automation Computer on the support rail again, release the clamping of the open position again. Press the locking lever.

10.7 Electric installation

10.7.1 Connecting the Embedded Automation Computer to the 24 V voltage supply

For the voltage supply, use a 24 V industrial power supply unit acc. to DIN EN 60742, classification VDE 551, for example VAP01.1HW23- 024-010-NN with the part number R911171065.

The Embedded Automation Computer is designed to connect to a power supply plug. Only use power supply plugs designed for the following values:

- DC 10 to 30 V
- 4 to 1.33 A
- Maximum temperature of 55 °C

1. Connect the functional earth to the device. ⏚

2. Connect the "XD1" interface for the 24 V voltage supply to an industrial power supply unit. Insert the negative and positive wires into the V+ and V– contacts on the terminal block connector.

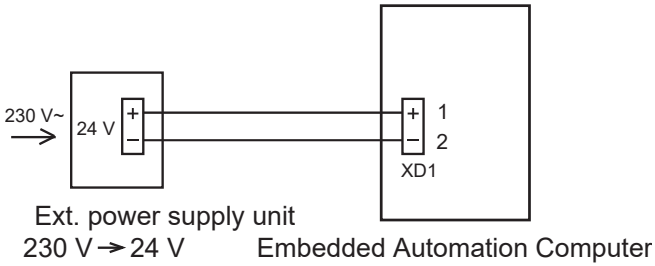

Fig. 11: Overall connection diagram

3. Tighten the screws of the terminal block.

   Note the following guidelines before wiring the device:

   - The terminal block is designed for a cross-section from 0.25 to 1.5 mm² between 16 and 24 AWG (12 A).
   - The torque of the terminal block screws is 0.8 Nm (7 lb in).
   - Use only copper wires.

10.7.2 Connecting Embedded Automation Computer with operator display

Connection diagram

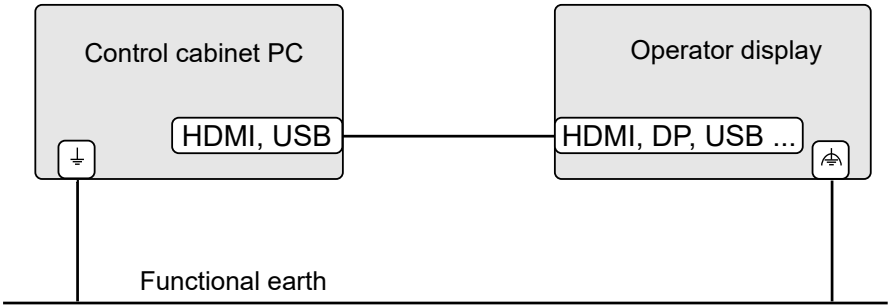

Fig. 12: Wiring the control cabinet PC to the operator display

1. Connect the functional earth.

   ⏚

2. Connect the USB and HDMI interface at the control cabinet PC to the corresponding interfaces at the respective operator display.

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 operator 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 control cabinet PC has to be connected to this neutral point as well.

When installing RJ45 cables with a diameter of 7.4 mm, observe the following bending radius:

- 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 RJ45 cables.

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

10.7.3 Connecting the Embedded Automation Computer to multiple operator displays

Up to two IndraControl DR/DE operator displays can be connected to the Embedded Automation Computer. The operating displays only operate in "Clone" mode. The touch function is always active on all operating displays. Entries cannot be blocked at individual operating displays.

Connection examples

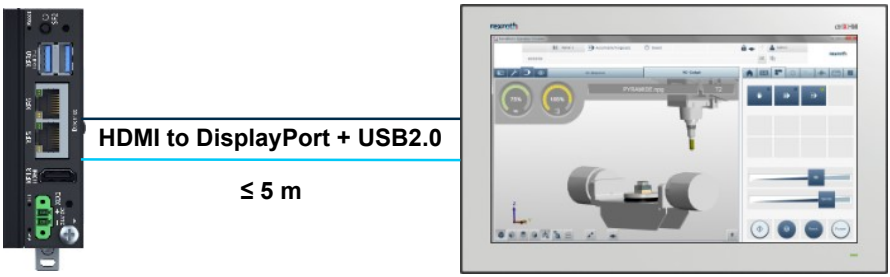

Fig. 13: Connection to via USB2.0 and HDMI to display port to the display

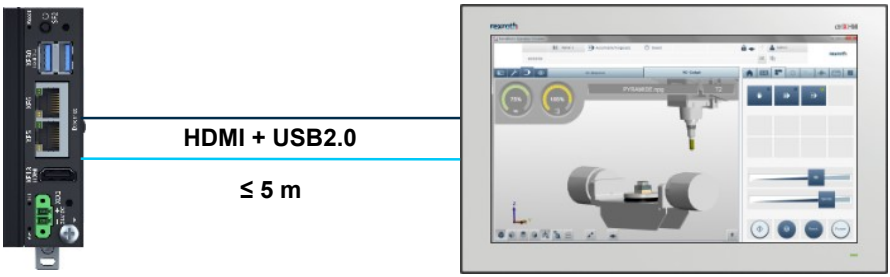

Fig. 14: Connection to the display via USB2.0 and HDMI

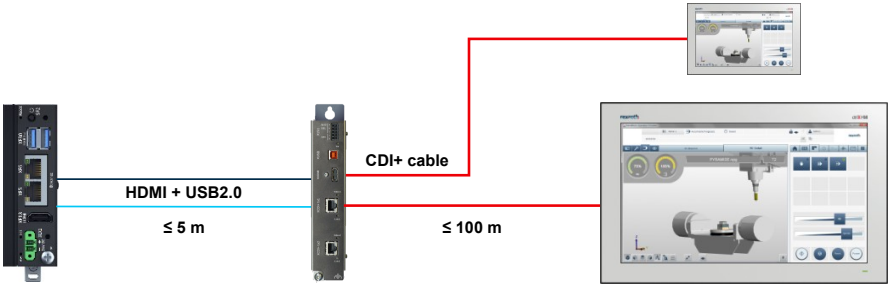

Fig. 15: Connection to the CDI+ splitter via USB2.0 and HDMI. From the CDI+Splitter via RJ45 to the display.

11 Commissioning

11.1 General information

11.1.1 Network and software configurations

Refer to the documentation "Rexroth IndraControl PR and VR Devices Software Applications". See ➦ Chapter 1.5 “Related documents” on page 7.

11.1.2 Password

Change the Windows password during commissioning.

11.1.3 Update

Check whether updates are available during commissioning and install them.

11.1.4 Starting behavior

The starting behavior of the Embedded Automation Computer can be set to two different modes via pins on the circuit board:

ATX The user has to press the power switch to start the Embedded Automation Computer.

AT The Embedded Automation Computer starts automatically when the voltage is applied. "AT" is the default setting.

To set the modes, proceed as follows:

1. Switch off the box PC and disconnect it from the voltage supply.
2. Remove all plugs from the box PC.
3. Position the box PC on a plane support and ensure that the right housing cover points up.
4. Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.

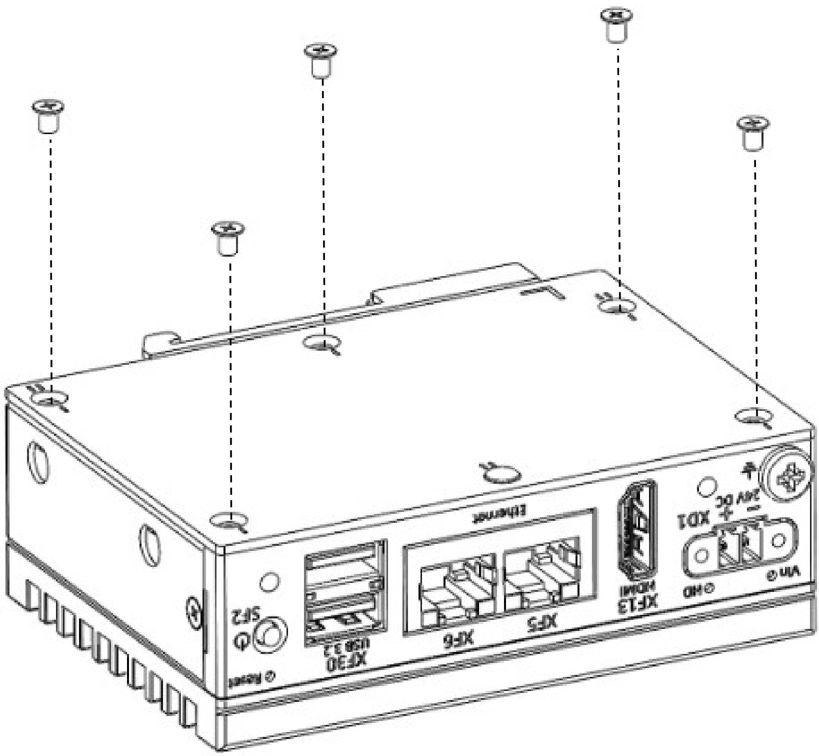

Fig. 16: Opening housing cover

5. Loosen the five M2.5 screws and remove the housing cover.

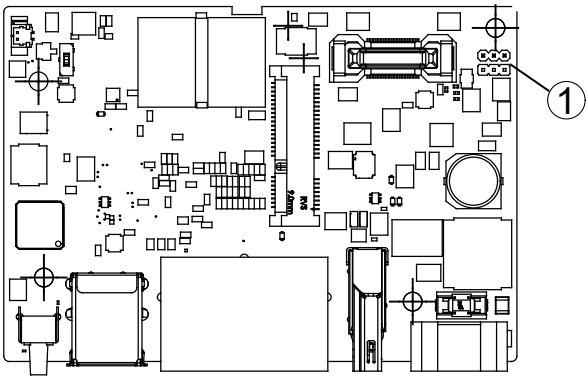

Fig. 17: View of the circuit board

① Position of pins

6. The pins are on the circuit board. Bridge the pins according to the following table to set the "ATX" or "AT" mode.

7. Mount the housing cover again using the five M2.5 screws.

Mode	Note	Bridge position
ATX	Contact 2 and 3 closed	
AT (default setting)	Contact 1 and 2 closed	

11.2 IT security

Operating systems and machines requires the implementation of a comprehensive concept for state-of-the-art IT security. Bosch Rexroth products are part of this comprehensive concept. The properties of the Bosch Rexroth products have to be considered for a comprehensive IT Security concept. For the required properties, refer to the IT Security Guideline (➥R911342562).

12 Device description

12.1 Device description

The ctrlX IPC PR2 is the basic model in the box PC portfolio and impresses with its compact design and good price-performance ratio.

The PR2x.2 variant with its Atom-class CPU is available with 2 and 4 cores and scales from Linux-based and cost-effective basic solutions to higher-performance Windows-based variants.

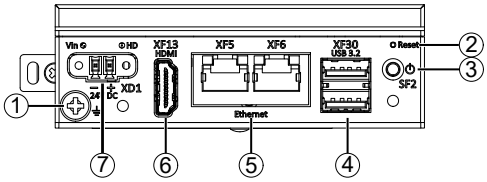

Fig. 18: Device view

① Functional earth
② Reset pushbutton
③ Power pushbutton
④ USB port (USB3.2)
⑤ Ethernet interfaces
⑥ HDMI interface
⑦ Voltage supply

12.2 Operating and error display

Symbol, LED	Display	Meaning	Action
Power	LED green	Industrial PC on, normal mode	-
	LED orange	Industrial PC off and voltage supply present or Standby mode	-
	LED off	Industrial PC off, no voltage supply	Check voltage supply (DC 24 V)

12.3 Reset and power pushbutton

Pushbutton	Action	Effect
Reset pushbutton	Press less than three seconds	Hardware reset
	Press more than three seconds	Windows recovery
Power pushbutton	On, off	-

12.4 License information

12.4.1 General information

This product contains software components licensed by the right holders as Free Software respectively Open Source Software under one or more of the licenses mentioned below and thus require their source code to be made available. The source code of these software components is not being delivered altogether with the product. Instead, for the licenses listed below, Bosch Rexroth offers to provide the source code on request. Please send your query to obtain the source code via email to ➥ open.source@boschrexroth.de or via mail to the following address:

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  - If Bosch Rexroth has modified preexisting source code, the corresponding source code of this modification will be provided (licensed under the terms of the applicable above-mentioned license) for at least 12 months after the first time it was made available to a third party, however at least 6 months after a subsequent version of the modification has been made available to a third party.
  - Please provide information to the product with which you have received the software components (e.g. product identification, serial number) in order to help us to identify the corresponding source code.

13 Error causes and troubleshooting

13.1 Error causes and troubleshooting

Error	Correction
No image visible	• Connect the supply voltage and check the XD1 connection
Distorted display due to incorrect display resolution	• Set the correct display resolution in the graphic driver. The standard resolution of the Windows images (also for the recovery sticks) is FullHD (1920 × 1080). Set the correct value once when displays with a smaller resolution are used • Restart the Embedded Automation Computer

14 Maintenance

14.1 General maintenance information

NOTICE	**Maintenance work in the device is only permitted by trained staff!** If hardware or software components have to be exchanged, please contact the Bosch Rexroth Service or ensure that only skilled staff changes the respective components.
NOTICE	**Loss of IP degree of protection due to incorrect maintenance.** Ensure that the IP degree of protection remains unchanged during 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.

14.2 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.

14.3 USB recovery

For information on restoring the system, refer to the project planning manual "PR-, VR-, DR- and DE-devices, Software Applications", see➦ R911384733.

14.4 Replacing CMOS battery (CR2032)

For ordering information on the battery, refer to ➦ Chapter 5.5 “CMOS battery” on page 11.

1. Switch off the box PC and disconnect it from the voltage supply.

2. Remove all plugs from the box PC.
3. Position the box PC on a plane support and ensure that the right housing cover points up.
4. Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.

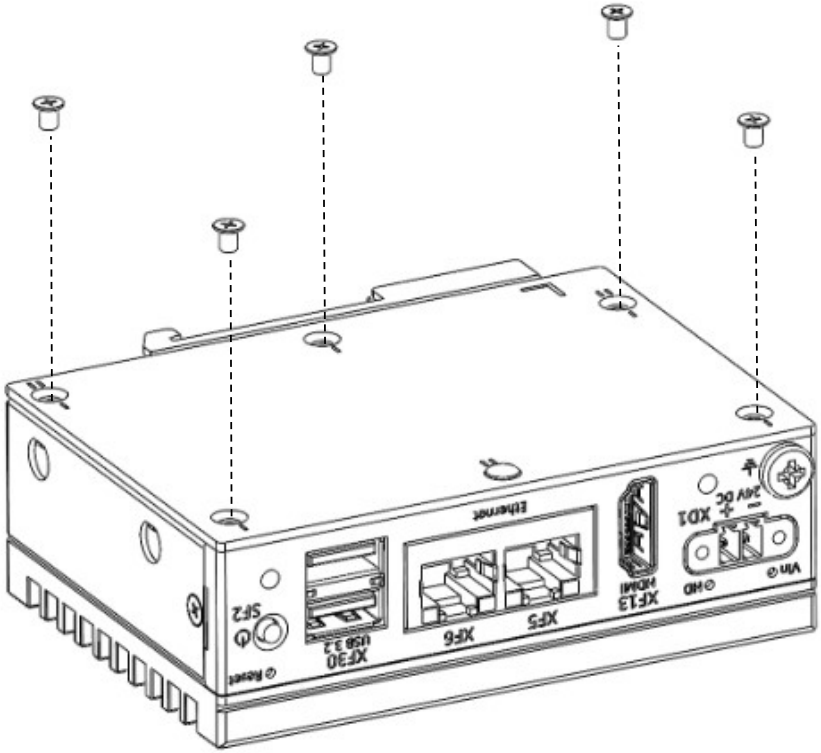

Fig. 19: Opening housing cover

5. Loosen the five M2.5 screws and remove the housing cover.
6. Unplug the battery and remove the old battery including the black adhesive pad.

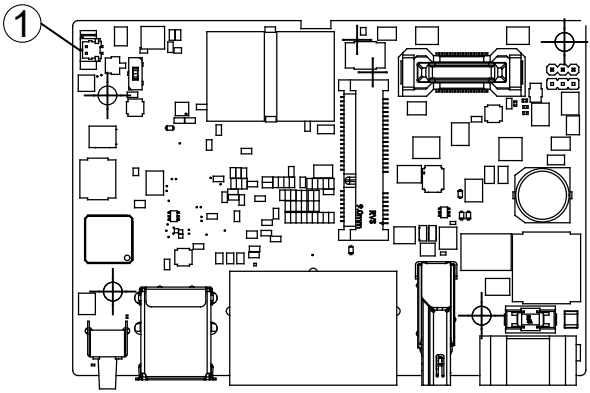

Fig. 20: View of the circuit board

① Position of the battery plug

7. Connect the plug of the new battery. Note the polarity.
8. Remove the protective film from the adhesive pad on the new battery.
9. Glue the battery in place.
10. Mount the housing cover again using the five M2.5 screws.

When changing the battery, both the BIOS setting and the clock setting may be lost!

15 Ordering information

15.1 Type code

No.	1	2	3	4	.	5	.	6	7	8	.	9	.	10	.	11	.	12	13	.	14	15	16	.	17
Example	P	R	22	00	.	2	–	1	C	2	–	AA	–	0	–	NA	–	E	1	–	NN	NN	NN	–	H

No.	Characteristic name	Characteristic value	Text
1	Device type 1	P	Embedded PC/IPC
2	Device type 2	R	Box-, build-in version
3	Performance class	21	Performance class 2, Intel Atom x6212RE
		22	Performance class 2, Intel Atom x6414RE
4	Display size	00	Without display
5	Hardware variant	1	Hardware type no. 2
6	Interfaces	1	Standard video HDMI
7	Mass storage (Flash, SSD...)	A	32 GB eMMC
		C	128 GB eMMC

No.	Characteristic name	Characteristic value	Text
8	Memory	1	4 GB RAM
		2	8 GB RAM
9	Design and display properties	AA	IPC Rexroth Design
10	Extension	0	Without
11	Extended hardware properties	NA	Base
12	Operating system	0	Without
		A	Ubuntu Core 22
		E	Windows 10 IoT Enterprise LTSC 2021 – Entry
13	Firmware version-No.	N	N/A
		I	Version 1
14-16	Reserved	NN	None
17	Material identification	H	Component

15.2 Accessories and spare parts

For ordering information on accessories and spare parts, refer to the chapter “Spare parts, accessories and wear parts”.

16 Disposal

16.1 General information

Dispose the products according to the respective valid national standards.

16.2 Return

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

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

Send the products free of charge to the following address:

Bosch Rexroth AG
Bürgermeister-Dr.-Nebel-Straße 2
97816 Lohr a.Main
Germany

16.3 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 provide you with advice and assistance. 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**
Email:	➦ 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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X

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