BECKHOFF New Automation Technology

Manual | EN

CPX29xx-0000

Multi-touch Control Panel with DVI/USB Extended interface for use in hazardous areas, zone 2/22

2026-03-17 | Version: 1.0

Table of contents

1 Notes on the documentation

This description is intended exclusively for trained specialists in control and automation technology who are familiar with the applicable national standards.
The documentation and the following notes and explanations must be complied with when installing and commissioning the components.
The trained specialists must always use the current valid documentation.

The trained specialists must ensure that the application and use of the products described is in line with all safety requirements, including all relevant laws, regulations, guidelines, and standards.

Disclaimer

The documentation has been compiled with care. The products described are, however, constantly under development.
We reserve the right to revise and change the documentation at any time and without notice.
Claims to modify products that have already been supplied may not be made on the basis of the data, diagrams, and descriptions in this documentation.

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2 For your safety

The signal words and their meanings are explained in the chapter on safety. They contain fundamental safety instructions that are essential for preventing personal injuries and damage to property.

Exclusion of liability

Beckhoff shall not be held liable in the event that this documentation is not complied with and the devices are therefore not used in line with the documented operating conditions.

2.1 Signal words

The signal words used in the documentation are classified below.

Warning on personal injuries

⚠ DANGER
High-risk hazard that will result in death or serious injury.

⚠ WARNING
Medium-risk hazard that may result in death or serious injury.

⚠ CAUTION
Low-risk hazard that may result in minor injury.

Warning on property and environmental damage

NOTICE
The environment, equipment, or data may be damaged.

2.2 Intended use

The control panel is designed for industrial application in machine and system engineering. It serves as the operating unit of the machine or plant.

The Front side of the device is designed for an IP65 working environment. It offers full protection against contact and against dust, as well as protection against water jets (nozzle) from any angle.

The Rear side is designed for an IP20 working environment. It is protected against the penetration of fingers and solid foreign bodies of 12.5 mm in diameter or larger in size. It is not protected against water. Operation of the device in wet and dusty environments is not permitted.

The specified limits for technical data must be adhered to.

The device can be used within the documented operating conditions.

Improper use

Do not use the device outside the documented operating conditions.

2.3 Fundamental safety instructions

The following safety instructions must be observed when handling the device.

Application conditions

- Do not use the device under extreme environmental conditions.
- Do not use the device in hazardous areas.
- Never plug or unplug connectors during thunderstorms. There is a risk of electric shock.
- Ensure that the device has a protective and functional earth connection.

Damage to property, loss of data and impairment of functions

- Ensure that only trained specialists with a control and automation engineering background, operate the device. Use by unauthorized persons can lead to damage to property and loss of data.
- Fuse the power supply line to protect the supply line in the event of a short circuit according to its cross-section.
- In case of fire, extinguish the device with powder or nitrogen.

2.4 Operator's obligation to exercise diligence

The operator must ensure that

- the products are used only for their intended purpose (see Chapter 2.2 Intended use [▶ 6]).
- the products are only operated in sound condition and in working order.
- the products are operated only by suitably qualified and authorized personnel.
- the personnel is instructed regularly about relevant occupational safety and environmental protection aspects, and is familiar with the operating instructions and in particular the safety instructions contained herein.
- the operating instructions are in good condition and complete, and always available for reference at the location where the products are used.

2.5 Notes on information security

The products of Beckhoff Automation GmbH & Co. KG (Beckhoff), insofar as they can be accessed online, are equipped with security functions that support the secure operation of plants, systems, machines and networks. Despite the security functions, the creation, implementation and constant updating of a holistic security concept for the operation are necessary to protect the respective plant, system, machine and networks against cyber threats. The products sold by Beckhoff are only part of the overall security concept. The customer is responsible for preventing unauthorized access by third parties to its equipment, systems, machines and networks. The latter should be connected to the corporate network or the Internet only if appropriate protective measures have been set up.

In addition, the recommendations from Beckhoff regarding appropriate protective measures should be observed. Further information regarding information security and industrial security can be found in our https://www.beckhoff.com/secguide.

Beckhoff products and solutions undergo continuous further development. This also applies to security functions. In light of this continuous further development, Beckhoff expressly recommends that the products are kept up to date at all times and that updates are installed for the products once they have been made available. Using outdated or unsupported product versions can increase the risk of cyber threats.

To stay informed about information security for Beckhoff products, subscribe to the RSS feed at https://www.beckhoff.com/secinfo.

2.6 Special conditions (ATEX)

⚠ WARNING

Danger of explosion

Gases or dusts can be ignited in potentially explosive areas. Read and follow the safety instructions to prevent deflagration or explosions.

The Control Panel must be installed in a housing, which ensures protection rating IP54 for gas according to EN 60079-7.
A housing with protection rating IP54 is required for fibers and flyings, and for non-conductive dust. IP6X is required for conductive dust according to EN 60079-31.

Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.

If the temperatures during rated operation are higher than 70 °C at the feed-in points of cables, lines or pipes, or higher than 80°C at the wire branching points, then cables must be selected whose temperature data correspond to the actual measured temperature values.

Observe the permissible ambient temperature during operation in potentially explosive areas. The permissible ambient temperature range during operation is 0 °C to +55 °C.

The connections of the Control Panel may only be connected or disconnected if the supply voltage has been switched off or if a non-explosive atmosphere is ensured.

Fix the USB cables with cable straps to the mounting bracket. Check tensile strength of the cables regularly and retightened the cable straps if necessary.

The Control Panel may only be mounted horizontally (see: Mounting).

2.7 Special conditions (IECEx)

⚠ WARNING

Danger of explosion

Gases or dusts can be ignited in potentially explosive areas. Read and follow the safety instructions to prevent deflagration or explosions.

The Control Panel must be installed in a housing, which ensures protection rating IP54 for gas according to IEC 60079-7. A housing with protection rating IP54 is required for fibers and flyings, and for non-conductive dust. IP6X is required for conductive dust according to IEC 60079-31.

Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.

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The connections of the Control Panel may only be connected or disconnected if the supply voltage has been switched off and if a non-explosive atmosphere is ensured.

Fix the USB cables with cable straps to the mounting bracket. Check tensile strength of the cables regularly and retightened the cable straps if necessary.

The Control Panel may only be mounted horizontally (see: Mounting).

3 Product overview

The CPX series of robust control panels is designed for use in zone 2/22 hazardous areas. It is intended for control cabinet installation.

The device has the following features:

- Various display sizes and resolutions:
  - 15-inch, 1024 x 768 (4:3)
  - 19-inch, 1280 x 1024 (5:4)
  - 21.5-inch, 1920 x 1080 (16:9)
- Multi-finger touch screen (PCT): e.g. for 10-finger touch
- Aluminum housing with glass front for use in zone 2/22 hazardous areas
- Front IP65, rear IP20
- Control cabinet installation via pull-out clamping levers

3.1 Structure

The following figure shows the structure of the device as an example for all CPX29xx variants.

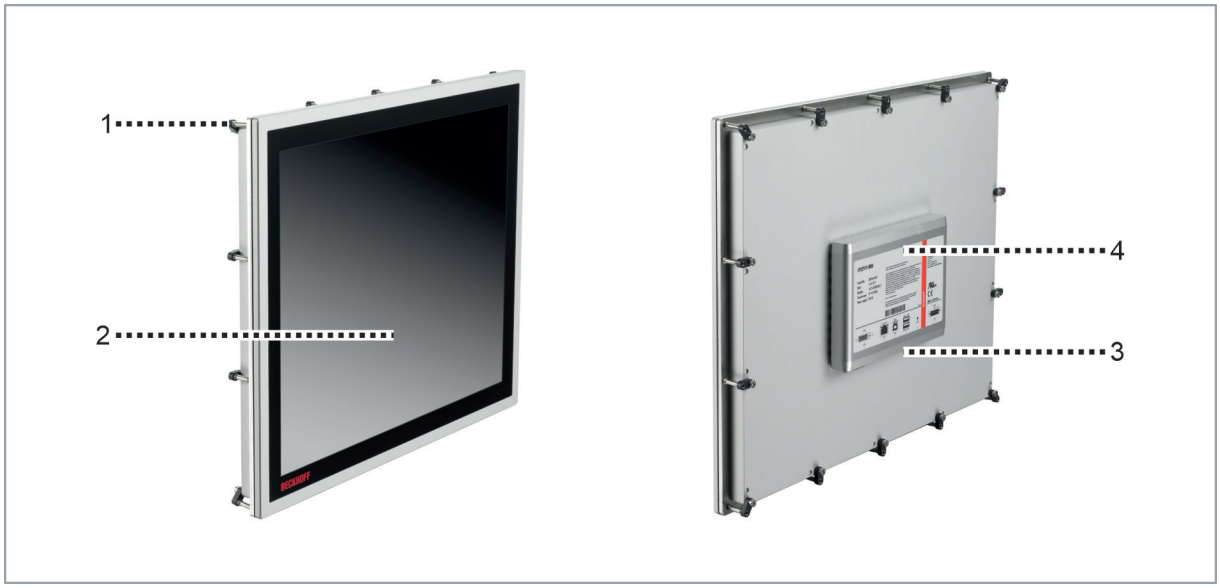

Fig. 1: Structure

Table 1: Legend - Structure

No.	Component	Description
1	Clamping lever	Mounting the device in the control cabinet
2	Display and touch screen glass	Operating the device
3	Connection section	Accessing the connections
4	Name plate	Information on the equipment of the device

3.2 Interface description

The device features the following interfaces, which are located at the back of the device:

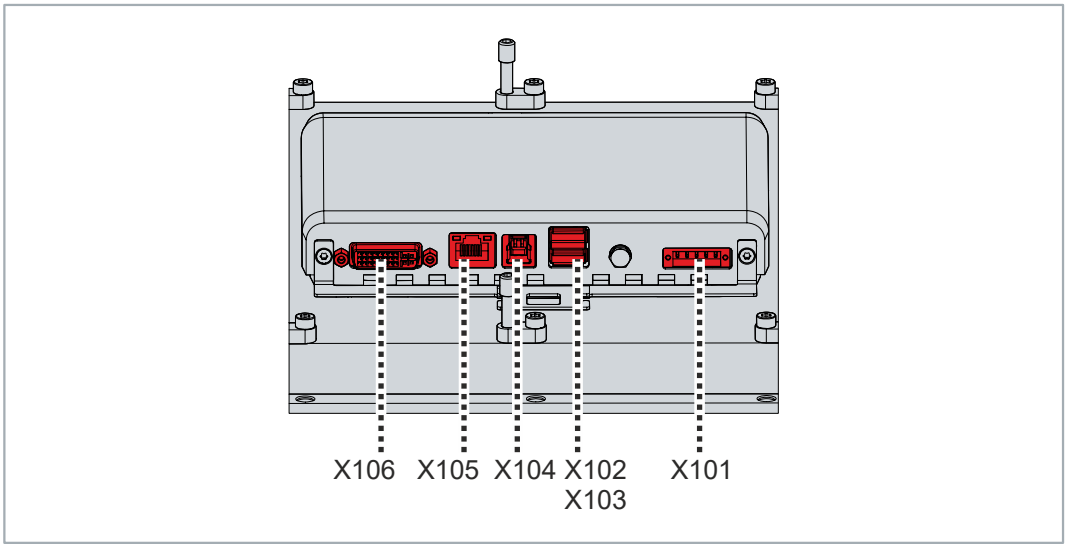

Fig. 2: Connection section

Table 2: Legend Connection section

Name	Interface
X101	Power supply [▶ 12]
X102, X103	USB output [▶ 13]
X104	USB input [▶ 14]
X105	USB-E input [▶ 15]
X106	DVI-E input [▶ 16]

3.2.1 Power supply

The device is supplied with a rated input voltage of 24 V. The power supply and the protective earth of the device are connected via the 5-pin voltage socket (X101).

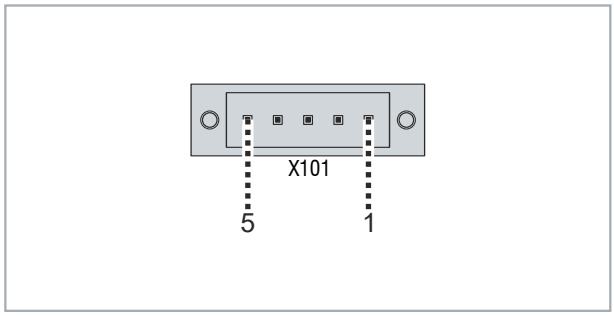

Fig. 3: Voltage socket pin numbering

Table 3: Voltage socket pin assignment

Pin	Signal	Description
1	NC	Not used
2	NC	Not used
3	⏚	Protective earth
4	-	24 V supply voltage, negative pole
5	+24 V	24 V supply voltage, positive pole

The plug for the power supply is specified for 16 A and can accommodate wire cross-sections of up to 1.5 mm^2. For long supply lines, use 1.5 mm^2 cables to achieve a low voltage drop on the supply line. There should be a minimum of 22 V at the control panel's power supply plug so that the control panel will remain on in the event of voltage fluctuations. The plug is included in the scope of delivery. You can obtain a replacement plug from your Beckhoff Sales using the following ordering option:

- C9900-P927: power supply connector, 5-pin, with strain relief for the external supply cable

3.2.2 USB output

The device has two USB outputs (X102, X103). Type A USB sockets are used to connect peripheral devices with USB connector. The USB 3.0 standard is supported when the device is connected up to a maximum distance of 3 m from the PC. At a greater distance from the PC, the interfaces are limited to the USB 2.0 standard.

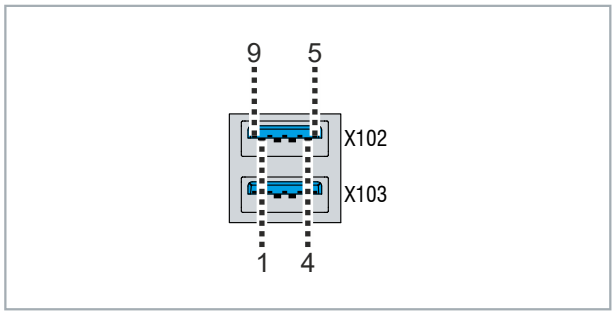

Fig. 4: USB output pin numbering

Table 4: USB interfaces pin assignment

Pin	Connection
1	Vbus
2	D -
3	D +
4	GND
5	StdA_SSRX -
6	StdA_SSRX +
7	GND_DRAIN
8	StdA_SSTX -
9	StdA_SSTX +

For USB 2.0, only pins 1 to 4 are relevant.

3.2.3 USB input

The device has a USB input (X104) with a type B socket. The socket is used for direct connection to the standard USB output of a PC at distances of up to 5 m. The USB 3.0 specification is supported.

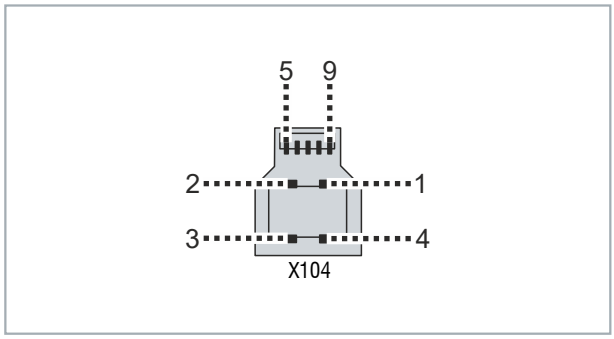

Fig. 5: USB input pin numbering

Table 5: USB interface pin assignment

Pin	Connection
1	Vbus
2	D -
3	D +
4	GND
5	StdA_SSRX -
6	StdA_SSRX +
7	GND_DRAIN
8	StdA_SSTX -
9	StdA_SSTX +

For USB 2.0, only pins 1 to 4 are relevant.

3.2.4 USB-E input

The device has a USB extended input (X105) in the form of an RJ45 socket. The device is connected to the CU8801 USB to USB Extended converter box via the interface. The connection is made via a standard RJ45 cable, not crossed. The interface transmits USB 2.0 at 480 Mbit/s. The socket is not an Ethernet port.

To realize a distance of 50 m without hubs, USB Extended converts the USB signal so that it can be transmitted via a 50 m CAT-5 cable. In the device the signal is converted back to USB.

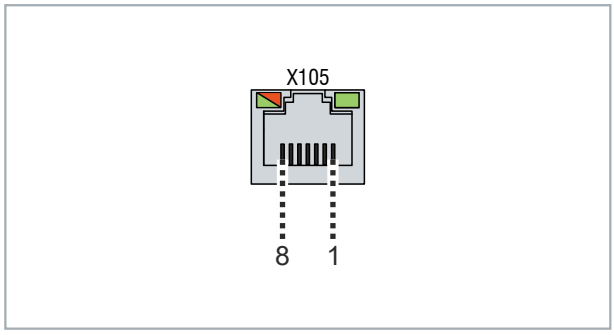

Fig. 6: USB-E input pin numbering

Table 6: USB-E input pin assignment

Pin	Signal	Description
1	T2 +	Pair 2
2	T2 -	
3	T3 +	Pair 3
4	T1 +	Pair 1
5	T1 -	
6	T3 -	Pair 3
7	T4 +	Pair 4
8	T4 -	

3.2.5 DVI-E input

The device has a DVI-E input (X106). It is used to transmit the graphics signal from the industrial PC to the control panel. The DVI-E input is compatible with standard DVI output of a PC.

The graphics signal is transferred directly via a DVI cable over a distance of 50 m max. Such a cable length leads to strong distortion of the graphics signal on arrival at the control panel. A signal processor is used in the control panel to fully restore the DVI signal.

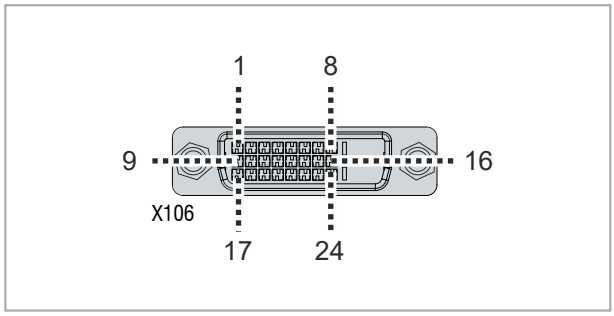

Fig. 7: DVI-E input pin numbering

Table 7: DVI Extended interface pin assignment

Pin	Connection	Pin	Connection	Pin	Connection
1	TMDS Data 2 -	9	TMDS Data 1 -	17	TMDS Data 0 -
2	TMDS Data 2 +	10	TMDS Data 1 +	18	TMDS Data 0 +
3	TMDS Data 2/4 Shield	11	TMDS Data 1/3 Shield	19	TMDS Data 0/5 Shield
4	TMDS Data 4 -	12	TMDS Data 3 -	20	TMDS Data 5 -
5	TMDS Data 4 +	13	TMDS Data 3 +	21	TMDS Data 5 +
6	DDC Clock	14	+ 5 V Power	22	TMDS Clock Shield
7	DDC Data	15	Ground (+ 5 V, Analog H/V Sync)	23	TMDS Clock +
8	Analog Vertical Sync	16	Hot Plug Detect	24	TMDA Clock -

3.3 Name plate

The name plate provides information about the equipment of your device. The name plate shown here serves only as an example.

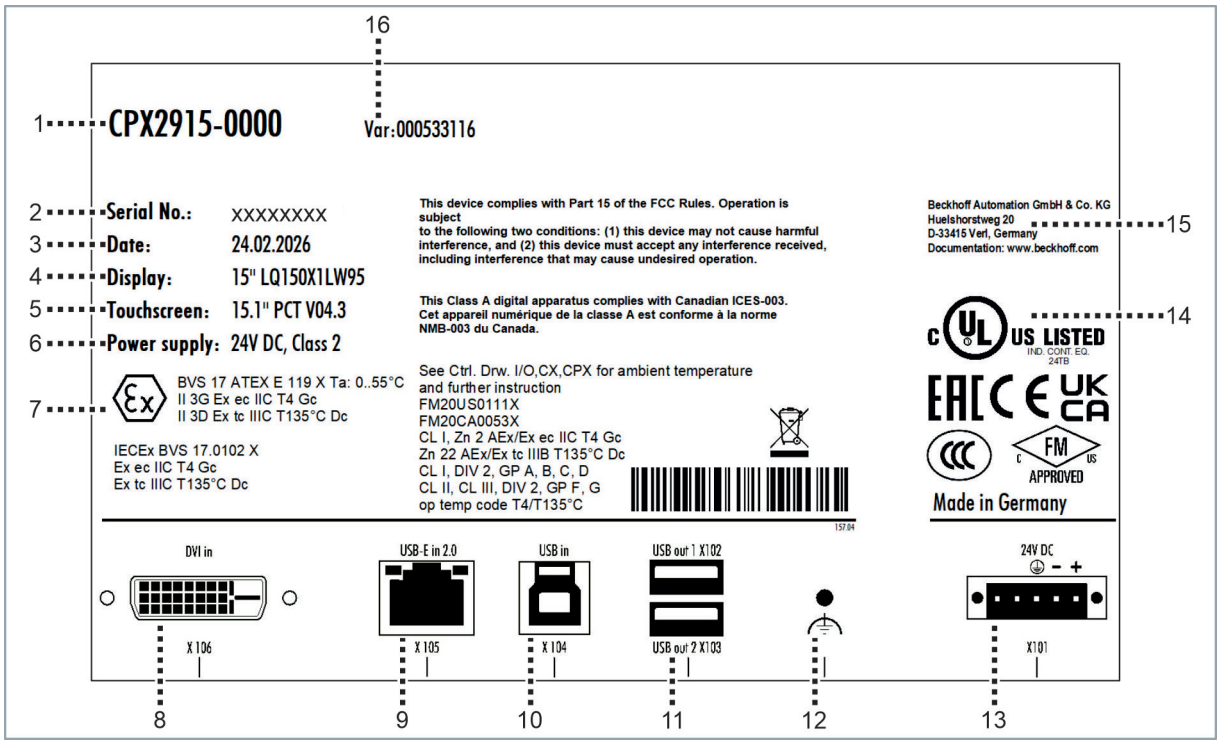

Fig. 8: Name plate

Table 8: Name plate key

No.	Description
1	Model: the last four digits indicate the device generation.
2	Serial number = Beckhoff Traceability Number (BTN)
3	Date of manufacture
4	Display
5	Touch screen
6	Power supply
7	Markings for use in potentially explosive atmospheres
8	DVI-E input
9	USB-E input
10	USB input
11	USB output
12	Grounding bolt for functional earthing
13	Power supply connection
14	Symbols Note: Here are the symbols applicable to the device. The approvals of your device can be found on the name plate and in chapter 10.2 Approvals [▶ 36].
15	Address of the vendor
16	Variant number: commercial number of the order code including ordering options

The CPX29xx-0000 Control Panel is certified for potentially explosive atmospheres and bears the following markings:

ATEX:

BVS 17 ATEX E 119 X Ta: 0..55°C
II 3G Ex ec IIC T4 Gc
II 3D Ex tc IIIC T135°C Dc

IECEx:

IECEx BVS 17.0102 X
Ex ec IIC T4 Gc
Ex tc IIIC T135°C Dc

See Ctrl. Drw. I/O,CX,CPX for ambient temperature and further instruction
FM20US0111X
FM20CA0053X
CL I, Zn 2 AEx/Ex ec IIC T4 Gc
Zn 22 AEx/Ex tc IIIB T135°C Dc
CL I, DIV 2, GP A, B, C, D
CL II, CL III, DIV 2, GP F, G
op temp code T4/T135°C

4 Commissioning

In order to use the device, you must first commission it. The first step is to transport the device to is operating location and unpack it. The device is then installed in the control cabinet, the cables and power supply are connected, and finally the device is switched on.

Operating the device

The device is operated via the touch screen.

NOTICE

Damage to the touch screen

Operating the touch screen with unsuitable objects may damage the touch screen.

- Operate the touch screen only with bare fingers or wearing suitable gloves.
- If you use gloves, make sure that no hard particles such as metal shavings, glass splinters or similar adhere to the glove.

If you, as the user, require additional protection for the touch screen against dirt and scratching, for example due to dirty hands, this can be achieved with a protective film. The film provides short-term protection for a few days.

You can either order a protective film individually and fit it yourself retrospectively, or you can order the film for fitting directly ex factory. The protective films available for the display size of your device can be found on the Beckhoff website.

Proceed as follows to attach the protective film to the touch screen:

1. Ensure that the environment is as dust-free as possible.
2. Thoroughly clean the surface of the device to be fitted with the film and remove all grease residues.
3. Detach the film from the backing at the short edge and place it on the surface.
4. Gradually remove the film from the backing. At the same time, use a doctor blade or other object with a soft rubber or felt edge to apply the film.
5. Brush away air bubbles towards the edge with a doctor blade or other object with a soft rubber or felt edge.

⇨ The film is now fitted.

You can use the Dimming, Screensaver and Cleaning mode functions with the Display Control Tool. The Beckhoff Information System provides more information about the tool: https: https://infosys.beckhoff.com/content/1031/panelconfigurationtools/11725543179.html?id=7993182328699786200.

4.1 Transport and unpacking

Despite the robust design of the unit, the components are sensitive to strong vibrations and impacts. During transport the device must therefore be protected from mechanical stress. Appropriate packaging of the device, such as the original packaging, can improve the vibration resistance during transport.

NOTICE

Hardware damage due to condensation

Unfavorable weather conditions during transport can cause damage to the device.

- Protect the device against moisture (condensation) during transport in cold weather or in case of extreme temperature fluctuations.
- Do not put the device into operation until it has slowly adjusted to the room temperature.
- Should condensation occur, wait for about 12 hours before switching the device on.

Proceed as follows to unpack the unit:

1. Check the packaging for transport damage.
2. Remove packaging.
3. Keep the packaging for possible future transport.
4. Check your delivery for completeness by comparing it with your order.
5. Check the contents for visible shipping damage.
6. Inform the Beckhoff Service Dept. in case of discrepancies between the packaging content and the order or in the event of transport damage.

⇨ You have unpacked the device.

4.2 Control cabinet installation

NOTICE

Extreme environmental conditions

Extreme environmental conditions can cause damage to the device.

- Avoid extreme environmental conditions.
- Protect the device against dust, moisture and heat.

NOTICE

Lack of air circulation

Incorrect installation of the device prevents air circulation in the device and thus causes overheating and impaired functioning.

- Only install the device in the corresponding wall in the orientation shown.

NOTICE

Incorrect installation

Mounting the device in a way that deviates from the documentation can impair its functionality.

- Mount the device only in the orientations shown in the documents.

The device is designed for installation in a control cabinet for machine and system engineering. The environmental conditions specified for operation must be observed.

Preparation of the control cabinet

The control cabinet must have the required installation cutout according to the device dimensions of the panel PC.

The wall thickness must be between 1 mm and 5 mm for installation. After installation, be sure to check the tightness between the panel PC and the wall.

Please also note the following for installation in a control cabinet:

- Ensure that there is 5 cm of free space above and below the device for air circulation.
- Position the panel PC such that reflections from light sources on the screen are avoided as far as possible.
- For the correct installation height, use the position of the screen for guidance. This should always be optimally visible to the user.
- Do not expose the panel PC to direct sunlight.

4.2.1 Dimensions

The dimensions are used to prepare the corresponding installation cut-out in the control cabinet.

All dimensions are in mm.

The following figure shows the dimensions of the 15-inch device.

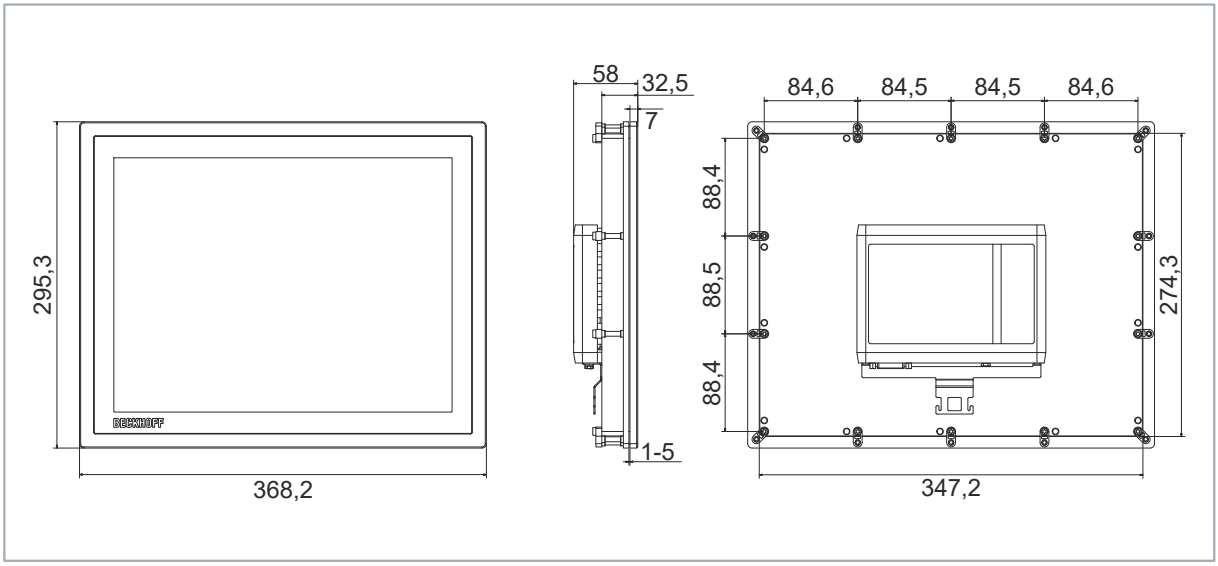

Fig. 9: Dimensions 15-inch

The following figure shows the dimensions of the 19-inch device.

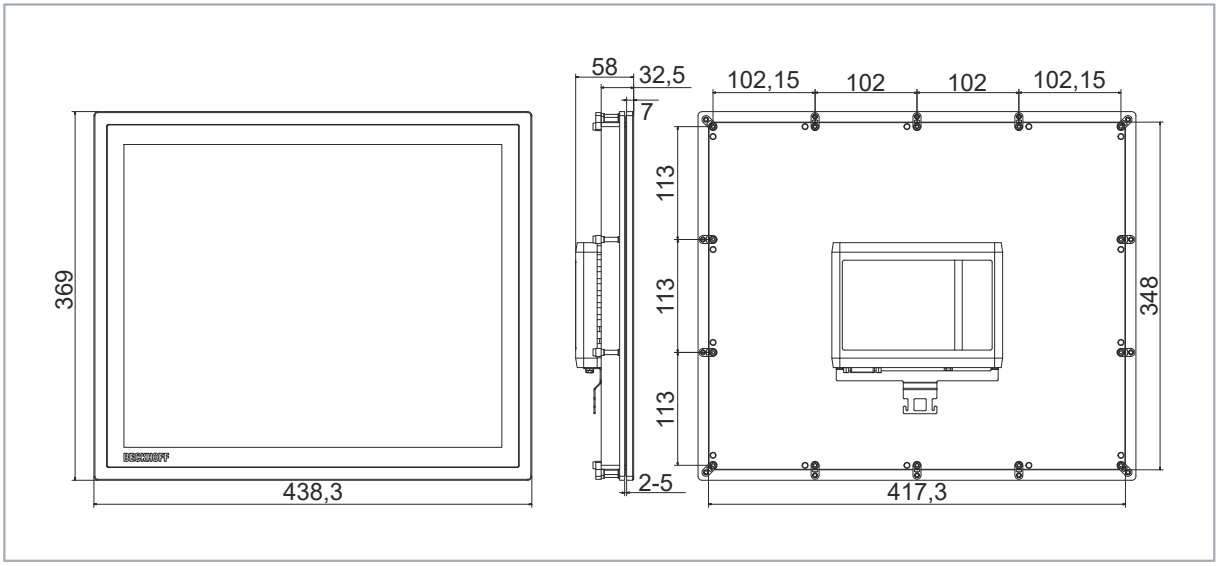

Fig. 10: Dimensions 19-inch

The following figure shows the dimensions of the 21.5-inch device.

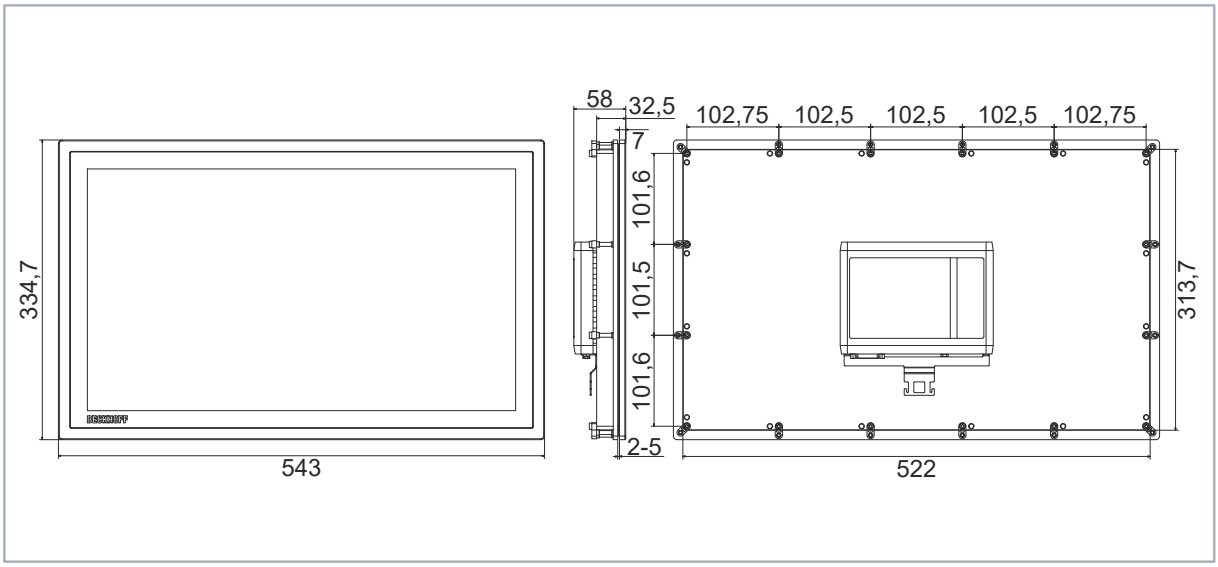

Fig. 11: Dimensions 21.5-inch

4.2.2 Mounting in the control cabinet

Once you have made the required cutout in the control cabinet, you can install the device in the control cabinet. Clamping levers are provided at the rear side of the housing for mounting of the device. When delivered, the clamping levers are folded down onto the device.

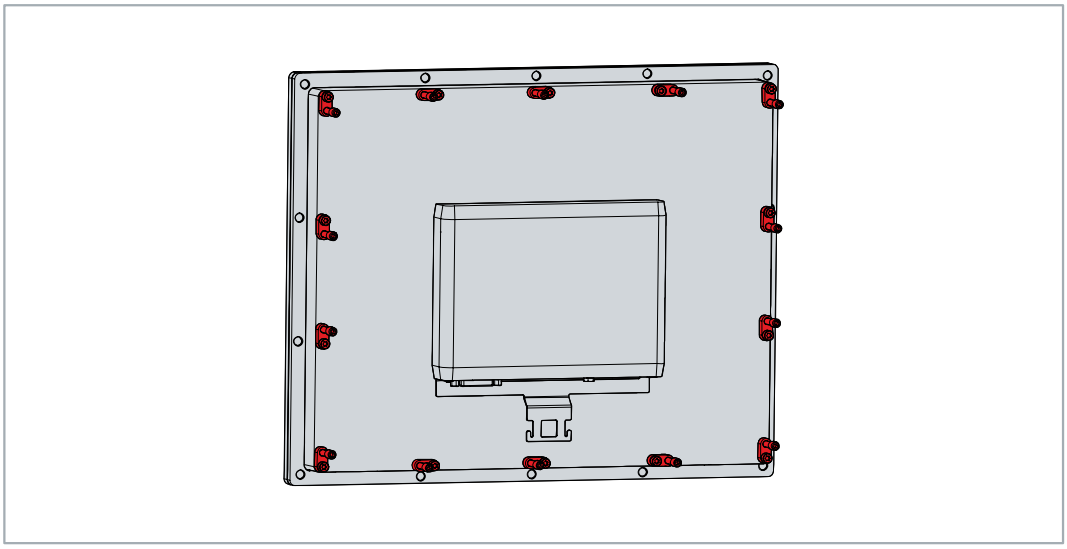

Fig. 12: Delivery state clamping lever

To mount the device in the control cabinet, follow the steps below:

1. Insert the device in the intended position in the control cabinet wall. Make sure that the device is secured against falling out until it is fastened properly.

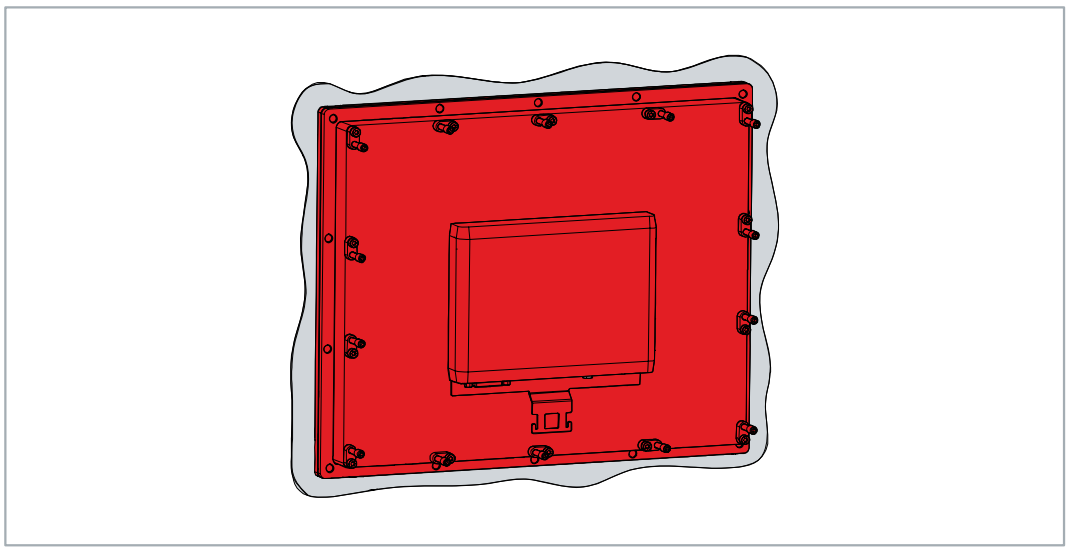

Fig. 13: Wall positioning

2. Turn the clamping levers 90° outwards (sections A and B).
3. Tighten the clamping levers with a 3.0 mm Allen key (section C).

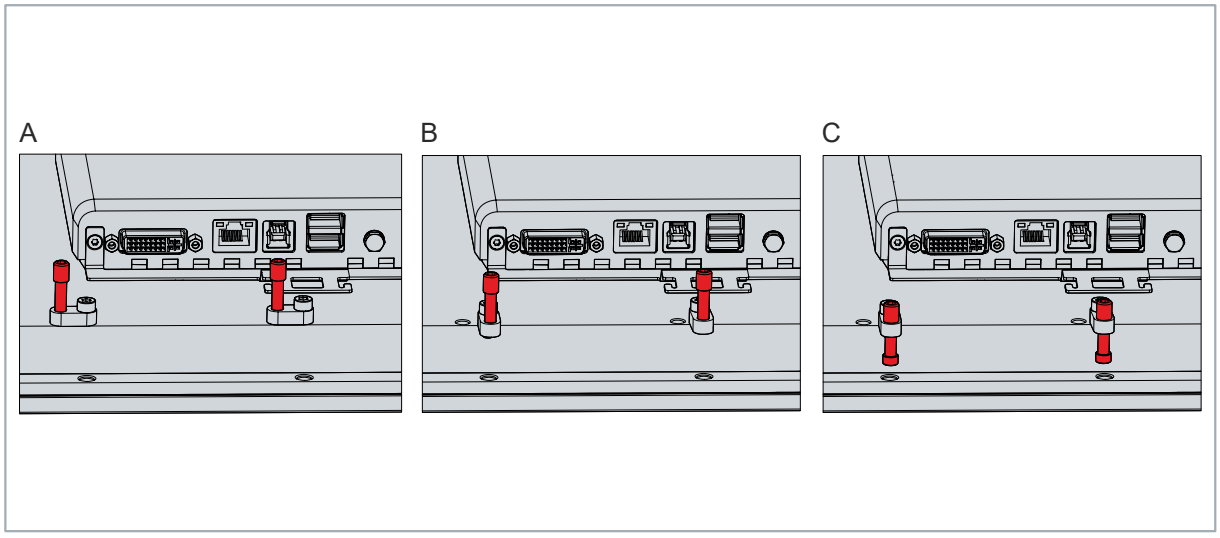

Fig. 14: Control cabinet installation

⇨ You have installed the device in the control cabinet.

4.3 Connecting the control panel

⚠ CAUTION

Risk of electric shock

Dangerous touch voltages can lead to electric shock. To avoid electric shock, observe the following:

- Never connect or disconnect the device cables during a thunderstorm.
- Provide protective earthing for handling the device.

To make the device ready for operation, you have to connect it. The first step is to ground the device. Then you can connect the cables and the power supply.

An external power supply providing 24 V DC from an isolated source is required. This must be protected by a fuse in accordance with UL 248 with a maximum nominal value of 4 A. A nominal voltage of at least 22 V must be applied to the power supply plug of the device at all times.

The cabling of the device in the control cabinet must be done in accordance with the standard EN 60204-1:2006 PELV = Protective Extra Low Voltage:

- The PE conductor (protective earth) and the "0 V" conductor of the voltage source must be on the same potential (connected in the control cabinet).
- Standard EN 60204-1:2006, section 6.4.1:b stipulates that one side of the circuit, or a point of the energy source for this circuit must be connected to the protective conductor system.

Peripheral devices connected to the device with their own power supply must have the same potential for the PE and "0 V" conductors (no potential difference).

4.3.1 Power supply cable installation

Before you can connect the power supply, you must install the power supply line yourself. For this purpose, use the supplied material for connector assembly. This consists of the 5-pin connector and the strain relief housing with cable tie.

Mounting the supply line

First mount the plug on the cable as follows:

1. Remove the insulation from the cable ends (8-9 mm).
2. Screw the cable ends into the connection strip. For the pin assignment of the connector, see Chapter Power supply.

⇨ You have fitted the supply line to the plug.

Assembly of strain relief housing

Now fit the strain relief housing to the already connected plug and supply line:

1. Thread the cable tie into the lower part of the strain relief housing (section A).
2. Insert the connection strip into the lower part of the strain relief housing (section B).

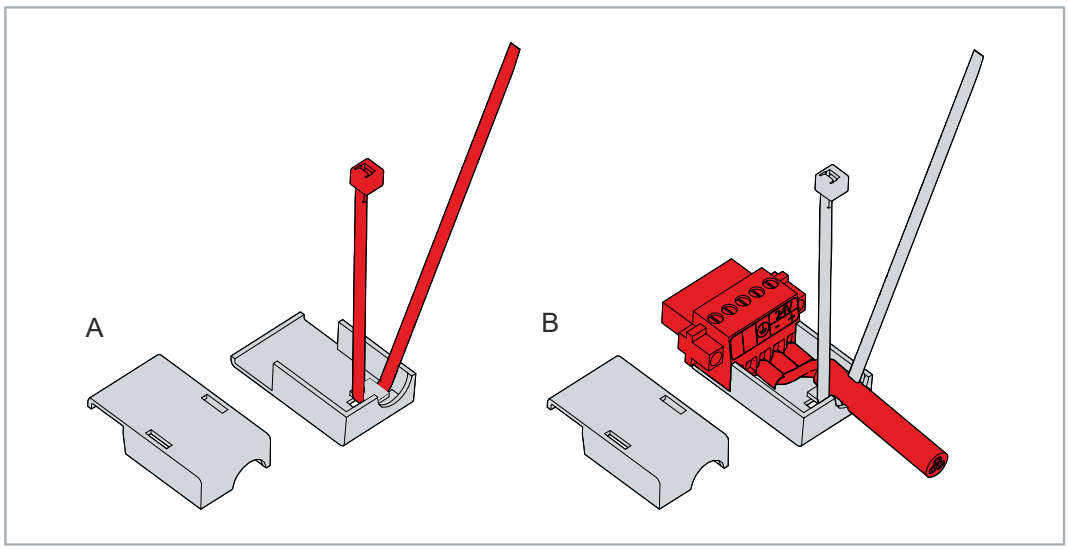

Fig. 15: Mounting lower part of strain relief housing

3. Tighten the cable tie and cut off the plastic tab (section C).
4. Attach the upper part of the strain relief housing by snapping it onto the lower part (section D).

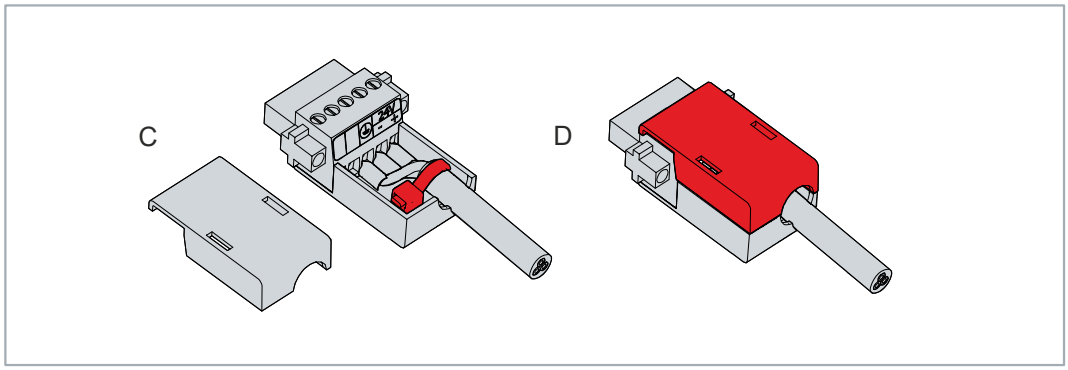

Fig. 16: Mounting upper part of strain relief housing

⇨ You have mounted the strain relief housing.

To dismantle the strain relief housing, proceed as follows:

1. Use your fingers to bend the latching lugs on the lower part slightly outwards.

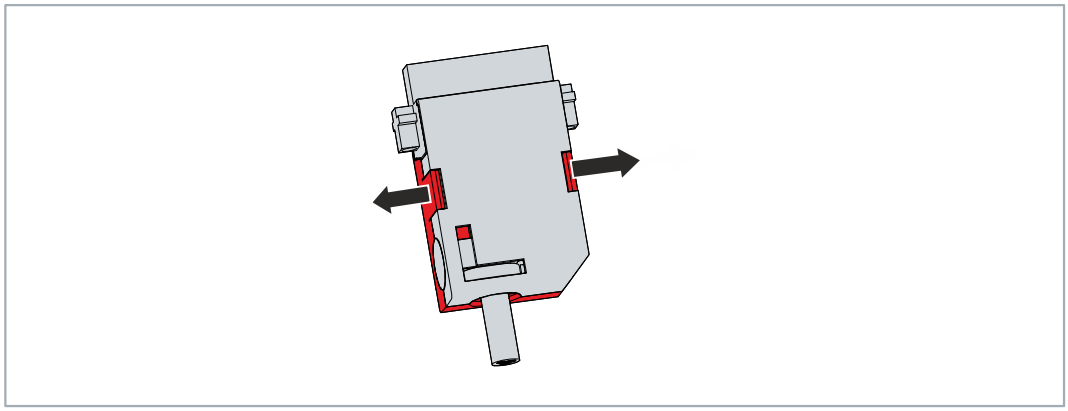

Fig. 17: Disassembly of the strain relief housing

2. Lever the upper part off the lower part.
3. Cut the cable tie.

⇨ You have dismantled the strain relief housing.

4.3.2 Grounding the control panel

Potential differences are minimized and electrical currents are diverted to the ground through grounding or potential equalization of electronic devices. This is to prevent dangerous touch voltages and electromagnetic interference.

The protective grounding of a device serves to avoid dangerous touch voltages. According to the EN 60204-1 standard (Chapter 8 Potential equalization), protective grounding is required if:

- the device exceeds dimensions of 50 mm x 50 mm,
- the device can be touched or encompassed over a large area,
- contact between the device and active parts is possible,
- an insulation fault may occur.

Establish low-resistance protective earthing of the device via the voltage connection to avoid dangerous touch voltages. There is a pin in the voltage socket for the protective earth (PE).

EMC

NOTICE

Hardware damage due to electromagnetic interference

The use of the device without a functional earth can lead to material damage due to electromagnetic interference.

- Only use the device with functional earth.

Electromagnetic compatibility (EMC) of the device includes on the one hand not affecting other devices and equipment by electromagnetic interference and on the other hand not being disturbed by electrical or electromagnetic effects itself.

To do this, the device must comply with certain protection requirements. The device has EMC interference immunity according to EN 61000-6-2. The EMC interference emission of the device meets the requirements of EN 61000-6-4.

The functional earth is necessary for the EMC of the device. The functional earth is established via the connection of the grounding bolt in the connection section of the device. Use cables with a minimum cross-section of 4 mm^2 for the ground connection.

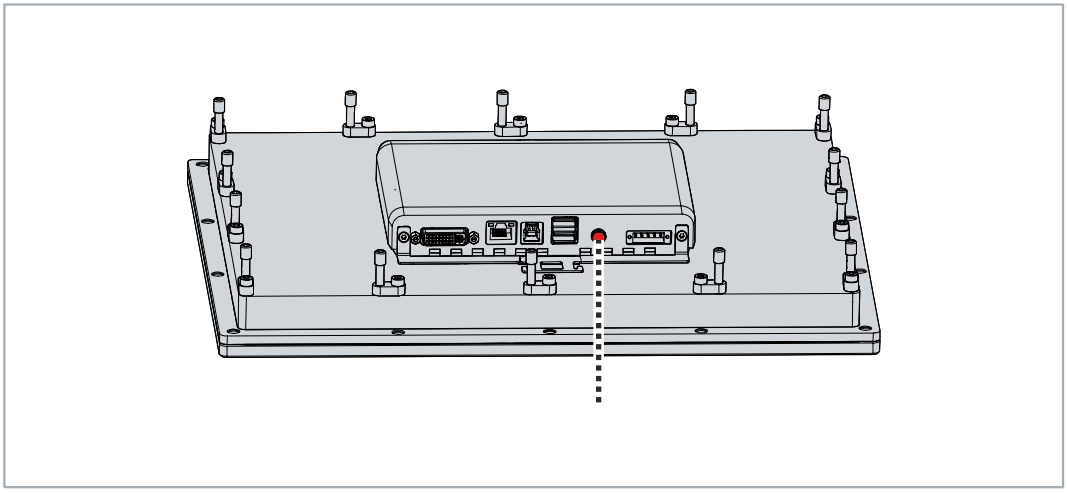

Fig. 18: Grounding bolt for functional earthing

4.3.3 Connecting cables and power supply

NOTICE

Incorrect connection procedure

Incorrect procedure when connecting the cables and the power supply can cause hardware damage.

- Follow the documented procedure for connecting the cables and the power supply.
- Always connect the cables first and only then switch on the power supply.
- Please read the documentation for the external devices prior to connecting them.

The connections are located at the rear of the device.

Connecting cables

Make sure that you first ground the device (see chapter 4.3.2 Grounding the control panel [▶ 27]) and then plug in all data transmission cables.

Connecting the power supply

Cables with a maximum cable cross-section of 1.5 mm^2 can be used for connecting the power supply. For long supply lines, use 1.5 mm^2 cables to achieve a low voltage drop on the supply line. There should be at least 22 V at the voltage connector of the device, so that the device remains switched on during voltage fluctuations.

Proceed as follows to connect the 24 V DC power supply:

1. First mount the power supply cable with the 5-pin connection strip without its strain relief housing.
2. Plug the voltage connector into the voltage socket on the device.
3. Screw the voltage connector to the voltage socket.
4. Connect the device to your external 24 V power supply.
5. Switch on the 24 V power supply.
6. Measure the voltage at the 5-pin connection strip of the device.
7. Mount the strain relief housing on the 5-pin connection strip.

⇨ You have connected the power supply.

5 Decommissioning

NOTICE

Hardware damage due to power supply

A connected power supply can cause damage to the device during disassembly.

- Disconnect the power supply from the device before starting to disassemble it.

As part of the decommissioning of the device, you must first disconnect the power supply and cables. You can then remove the device from the control cabinet. If you do not wish to use the device any further, chapter Disassembly and disposal provides information on the correct disposal of the device.

5.1 Disconnecting the power supply and cables

⚠ CAUTION

Risk of electric shock

Dangerous touch voltages can lead to electric shock. To avoid electric shock, observe the following:

- Never connect or disconnect the device cables during a thunderstorm.
- Provide protective earthing for handling the device.

Proceed as follows to disconnect the power supply and lines:

1. Shut down the device.
2. Disconnect the device from your external 24 V power supply.
3. Remove the voltage connector from the voltage socket.
4. Make a note of the wiring of all data transmission cables if you want to restore the cabling with another device.
5. Disconnect all data transmission cables from the device.
6. Finally, disconnect the ground connection.

⇨ You have disconnected the power supply and the cables.

5.2 Disassembly and disposal

Before you can remove the device from the control cabinet, you must first disconnect the power supply and the cables (see Chapter Disconnecting the power supply and cables).

To remove the device from the control cabinet, follow the steps below:

1. Loosen the clamping levers with a 3.0 mm Allen key (sections A and B). Make sure that the device is secured against falling out until it is removed from the wall.
2. Turn the clamping levers by 90° onto the device (section C).

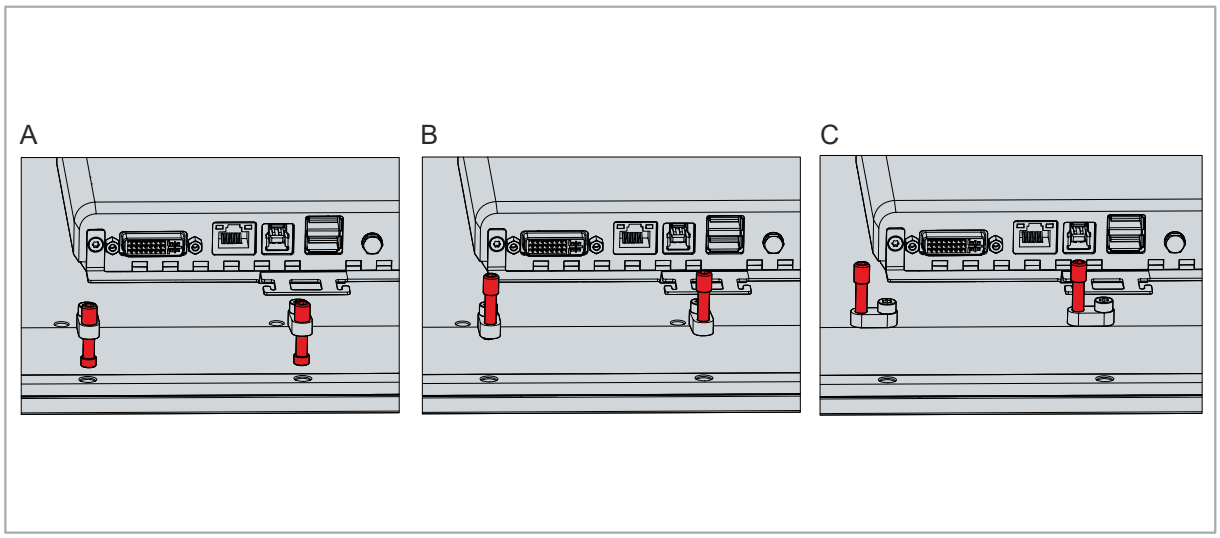

Fig. 19: Dismantling the control cabinet

3. Remove the device from the corresponding cutout in the control cabinet wall.

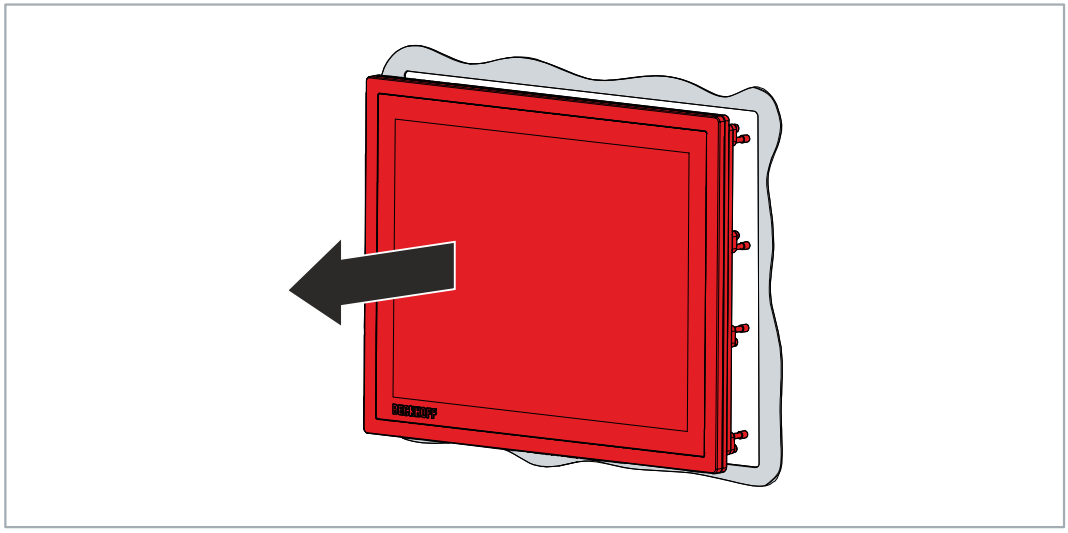

Fig. 20: Wall removal

⇨ You have successfully removed the device from the control cabinet.

When disposing of the device follow the national electronic scrap regulations. In order to dispose of the device, it must be removed and fully dismantled. Dispose of the components in the following way:

- Send plastic parts (polycarbonate, polyamide (PA6.6)) for plastics recycling.
- Take metal parts to the metal recycling collection point.
- Electronic parts such as fans and circuit boards must be disposed of in accordance with national electronic scrap regulations.
- Stick insulating tape over the poles of the CR2032 battery on the motherboard and dispose of the battery via the local battery recycling.

6 Maintenance

Maintenance measures increase the efficiency of the device by ensuring long-term functionality. Cleaning the device contributes to this.

Defective pixels in the TFT display are production-related and are not grounds for complaint.

Cleaning

NOTICE

Unsuitable cleaning agents

The use of unsuitable cleaning agents can damage the device.

- Clean the device only as specified.

It is essential to observe the following points when cleaning the device:

- Observe the boundary conditions of protection rating IP65/IP20.
- Never use compressed air to clean the device.
- Maintain an ambient temperature range of 0 °C to 55 °C.

Cleaning agents

In order to avoid damage to the front of the panel PC during cleaning, you must use suitable cleaning agents. Examples include:

- benzine
- spirit
- glass cleaner

Avoid the following cleaning agents:

- detergents with scouring or abrasive components
- metal cleaning objects such as razor blades or steel spatulas
- steam jet cleaner or very hot water
- cold water with a heated device
- high water pressure, e.g. high-pressure cleaner

Cleaning the front screen

You can clean the front screen of the device during operation. In order to avoid inadvertent touch entries when doing this, you must first set the device to "Cleaning Mode" with the help of the Beckhoff Display Control Tool. Also make sure that you not only clean the display area, but also the edge of the glass pane. Impurities in the edge area or liquids that do not run down the glass pane as drops but as a long short-circuit bridge create an electrically conductive connection between the touch screen area and the metal housing of the device. This unintentionally triggers a touch event at the edge of the touch screen, which can lead to incorrect operation.

The Beckhoff Display Control Tool does not start automatically when the device starts up. Proceed as follows to activate the "Cleaning Mode" of the tool:

1. Click the Beckhoff Display Control Tool icon to start it.
   ⇨ When the tool is started, a small sun symbol appears in the taskbar.
2. Right-click the sun symbol.
3. Select the "Cleaning Mode" (see Fig.).

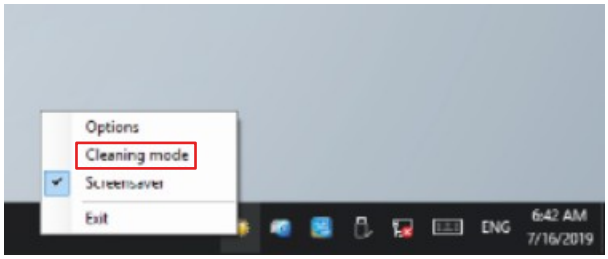

Fig. 21: Select "Cleaning Mode"

⇨ "Cleaning Mode" is activated. You can now clean the front panel.

You can set the duration for which the device should remain in "Cleaning Mode". The period can be set between 5 and 120 seconds. Right-click the sun symbol again and click "Options". Now select the appropriate duration (see figure.).

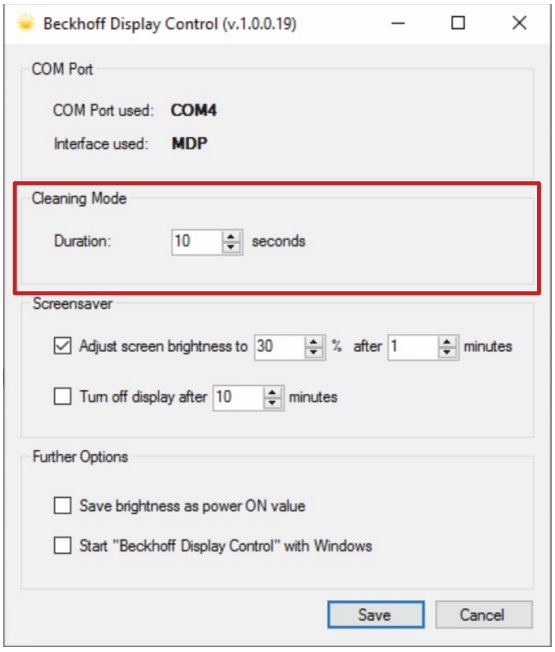

Fig. 22: Configuration "Cleaning Mode"

Repair

Only the vendor may repair the device. If a repair should be necessary, contact Beckhoff Service (see Chapter 9.1 Service and Support).

7 Troubleshooting

Table 9: Troubleshooting

Fault	Cause	Measures
No control panel function	Lack of power supply to the control panel Other cause	Check the power supply cable Call Beckhoff Service
The control panel only works partially or only temporarily (e.g. dark screen image or none at all)	Defective backlight in the display Components in the control panel defective	Call Beckhoff Service Call Beckhoff Service
Malfunction of the touch screen	Poor or missing functional earth of the device Poor or missing ground connection of the user	Establish functional earth User must stand on the floor with normal shoes
USB error during access with TwinCAT via USB	Cycle times in TwinCAT set to 10 ms (default)	Increase the cycle times to between 50 ms and 80 ms

8 Technical data

Table 10: Technical data

Product designation	CPX29xx		
Weight	CPX2915: 3.7 kg CPX2919: 5.4 g CPX2921: 5.9 kg		
Clamping lever: tightening torque of screws	1 ... 1.2 Nm		
Supply voltage	22–30 V_{DC} (24 V_{DC} power supply unit, NEC class 2)		
Power consumption	CPX2715: max. 20 W CPX2719: max. 25 W CPX2721: max. 35 W		
UL conformity (under preparation)	Use power supply class 2 or fuse protection with 4 A, in accordance with UL 60950.2 chapter 2.5, table 2C		
Secure element	fTPM 2.0 activated (see TPM documentation)		
Protection rating	Front IP65, rear IP20		
Vibration resistance (sinusoidal vibration)	EN 60068-2-6:	10 … 58 Hz:	0.035 mm
		58 … 500 Hz:	0.5 G (~ 5 m/s^2)
Shock resistance (shock)	EN 60068-2-27:	5 G (~ 50 m/s^2), duration: 30 ms	
EMC interference immunity	conforms to EN 61000-6-2		
EMC interference emission	conforms to EN 61000-6-4		
Permissible ambient temperature	Operation: 0 °C bis +55 °C Transport/storage: -20 °C ... +70 °C		
Pollution degree	2		
Permissible relative air humidity	Maximum 95 %, no condensation		
Transport and storage	The values for air humidity and shock resistance are to be observed during transport and storage and in operation. The vibration resistance during transport can be improved by suitable packaging of the device.		
Certificates	CE, ATEX, IECEx, cFMus		

9 Appendix

In the appendix you will find information for servicing and details of the approvals that your device has.

9.1 Service and support

Beckhoff and its worldwide subsidiaries offer comprehensive service and support, providing fast and competent assistance for all issues relating to Beckhoff products and system solutions.

Beckhoff Service

The Beckhoff service center provides support in all forms of after-sales service:

- on-site service
- repair service
- spare parts service
- hotline service

Hotline: + 49 5246/963-460
email: service@beckhoff.com

If your device requires attention, please state its serial number, which you can find on the name plate.

Beckhoff Support

Support offers you comprehensive technical assistance to help you with the application of individual Beckhoff products, and also with other extensive services:

- world-wide support
- design, programming, and commissioning of complex automation systems
- extensive training program for Beckhoff system components

Hotline: + 49 5246/963-157
email: support@beckhoff.com

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33415 Verl
Germany

Phone: + 49 5246/963-0
email: info@beckhoff.de

The addresses of the worldwide Beckhoff branches and agencies can be found on our website at http://www.beckhoff.com/.

You can also find further documentation for Beckhoff components there.

9.2 Approvals

Your device has at least the following approvals:

- CE
- FCC

You will find all other applicable approvals on the name plate of your device.

FCC approvals for the United States of America

FCC: Federal Communications Commission Radio Frequency Interference Statement

This device was tested and complies with the limits for a digital device of class A, according part 15 of the FCC regulations. These limits are designed to provide adequate protection against adverse interference, if the device is used in a commercial environment. This device generates, uses and may emit radio frequency energy and may cause adverse interference with radio communications, if it is not installed and used in accordance with the operating instructions. If this device is used in a residential area it is likely to cause adverse interference, in which case the user must take appropriate countermeasures in order to eliminate the interference at his own expense.

FCC approvals for Canada

FCC: Canadian Notice

This device does not exceed the class A limits for radiation, as specified by the Radio Interference Regulations of the Canadian Department of Communications.

List of figures

List of tables

Trademark statements

More Information:
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