



Installation and Operating instructions for

CP790x-140x

IP65 Stainless Control Panel

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BECKHOFF

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1 Foreword

1.1 Notes on the Documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards. It is essential that the following notes and explanations are followed when installing and commissioning these components.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

1.1.1 Liability Conditions

The documentation has been prepared with care. The products described are, however, constantly under development. For that reason the documentation is not in every case checked for consistency with performance data, standards or other characteristics. In the event that it contains technical or editorial errors, we retain the right to make alterations at any time and without warning. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

1.1.2 Trademarks

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1.1.3 Patent Pending

The EtherCAT Technology is covered, including but not limited to the following patent applications and patents: EP1590927, EP1789857, DE102004044764, DE102007017835 with corresponding applications or registrations in various other countries.

The TwinCAT Technology is covered, including but not limited to the following patent applications and patents: EP0851348, US6167425 with corresponding applications or registrations in various other countries.

1.1.4 Copyright

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1.1.5 State at Delivery






All the components are supplied in particular hardware and software configurations appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH.

1.1.6 Delivery conditions

In addition, the general delivery conditions of the company Beckhoff Automation GmbH apply.


1.2 Description of safety symbols

The following safety symbols are used in this operating manual. They are intended to alert the reader to the associated safety instructions.


 DANGER	<p>Acute risk of injury!</p> <p>If you do not adhere the safety advise adjoining this symbol, there is immediate danger to life and health of individuals!</p>
 WARNING	<p>Risk of injury!</p> <p>If you do not adhere the safety advise adjoining this symbol, there is danger to life and health of individuals!</p>
 CAUTION	<p>Hazard to individuals!</p> <p>If you do not adhere the safety advise adjoining this symbol, there is obvious hazard to individuals!</p>
 Attention	<p>Hazard to devices and environment</p> <p>If you do not adhere the notice adjoining this symbol, there is obvious hazard to materials and environment.</p>
 Note	<p>Note or pointer</p> <p>This symbol indicates information that contributes to better understanding.</p>

1.3 Basic safety measures

Before the Industrial PC is switched off, software that is running must be properly closed. Otherwise it is possible that data on the storage medium is lost. Please read the section [Switching the Control Panel on and off](#).

 Warning	<p>Switch off all parts of the equipment, then uncouple the Control Panel</p> <p>Before opening the housing, and whenever the Control Panel is not being used for control purposes (such as during functional checks after a repair), all parts of the equipment must first be switched off, after which the Control Panel is to be disconnected from the equipment.</p>
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Disconnect the device by unplugging the connectors on the rear side of the Control Panel. Items of equipment that have been switched off must be secured against being switched on again.

 Warning	<p>Do not exchange any parts when under power</p> <p>When components are being fitted or removed, the supply voltage must be switched off.</p> <p>Fitting work on the Control Panel can result in damage:</p> <ul style="list-style-type: none">• if metal objects such as screws or tools fall onto operating circuit boards• if connecting cables internal to the Panel PC are removed or inserted during operation.
---	--

1.4 Operator's obligation to exercise diligence

The operator must ensure that

- the product is only used as intended (see chapter [Product Description](#))
- the product is in a sound condition and in working order during operation
- the product is operated, maintained and repaired 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 manual and in particular the safety notes contained herein
- the operation manual is in good condition and complete, and always available for reference at the location of the product



Note

Do not open the housing of the Control Panel!

For technical support contact [Beckhoff Service](#).

1.4.1 National regulations

Depending on the type of machine and plant in which the Control Panel is used, national regulations governing the controllers of such machines will apply, and must be observed by the operator. These regulations cover, amongst other things, the intervals between inspections of the controller. The operator must initiate such inspections in good time.

1.4.2 Procedure in the event of a fault

In the event of faults at the Control Panel, the list in the section [Troubleshooting](#) can be used to determine the measures to be taken.

1.4.3 Operator requirements

Anyone who uses the Control Panel must have read these operating instructions and must be familiar with all the functions of the software installed on the Industrial PC to which he has access.

2 Product Description

2.1 Product overview

Front view of CP790x-1400



Front view of CP790x-1401 with USB-port, emergency stop button and electromechanical push-buttons



The CP790x Control Panels in a stainless steel finish are control and display units that meet the strict hygiene regulations for the food, packaging and medical industries as well as for clean rooms. The stainless steel Panels with IP65 protection feature virtually gap less housing design with flush-mounted touch screens. The housing geometry and an optimized frame profile allow liquids to run off and prevent the accumulation of contamination. Further features, such as the resistance of the stainless steel surface and the touch screen to cleaning agents and disinfectants, as well as the equipping of the display with a splinter guard, cover all requirements for clean room applications.

The CP79xx stainless steel panels with DVI/USB Extended allow a distance of up to 50 m between operating unit and PC. The stainless steel Control Panels are highly functional units with 12-, 15- or 19-inch touch panels. The range is completed by a stainless steel mounting arm adapter for adaptation to steel pipes, which can be ordered as an option. Furthermore, the range is rounded off by customer-specific modifications, such as additional display sizes or the integration of emergency off and electromechanical buttons, short-stroke keys and RFID readers under the front laminate as well as USB ports.


The Stainless steel Control Panel offer the following benefits:

- Flush mounted touch screen
- Stainless steel housing 1.4301, matt ground with grain size 240, protection class IP65
- Front laminate with slide-in logo
- Flush mounted integrated stainless steel 1.4301-backplane
- Integrated DVI/USB extension technology:
 - DVI-E and USB-E enable remote panel operation at a distance of up to 50 m from the PC
 - DVI-E input is compatible to the standard DVI output of a PC
- Connections in the range of the mounting arm adapter over 3 connectors IP65 for DVI, USB-E and 24 V
- USB-port, emergency stop button and electromechanical push-buttons in the front (only CP790x-1401)
- Connector 19-pin, IP65, for push buttons
- Optionally available: Beckhoff stainless steel mounting arm adapter C9900-M177 and C9900-M178.

2.2 Appropriate Use

The CP790x Control Panel is designed for industrial application in machine and plant engineering. In addition to the DVI/ USB interface, a TFT display and a touch screen are accommodated in a stainless steel housing.

In the front of the Control Panel CP790x-1401, one USB-port, an emergency stop button (S1) and three electromechanical push-buttons (S2-S4) are integrated. The Control Panel is installed at a mounting arm, a rotatable mounting arm adapter is available.

	<p>Risk of explosion!</p> <p>The Control Panel must not be used where there is a risk of explosion.</p>
---	--

2.3 Opening the connection area

The connectors of the Control Panel are located at the rear side of the device.

If the Control Panel is fitted with a mounting arm adapter (order-option C9900-M177 or C9900-M178), the connectors are located behind a cover (1). To get access to the connectors, the cover has to be removed:

First loosen the fixing screw (2) with an allen head key.



The cover now can be drawn off in direction of the arrow (see next picture).

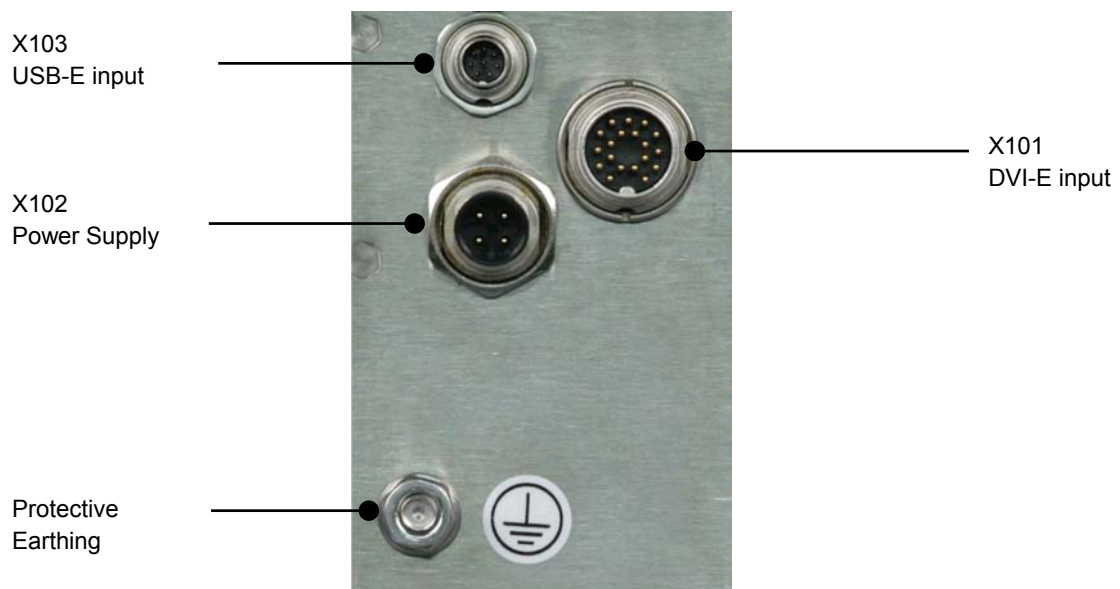


After opening the connection area you have access to the connectors of the Control Panel. The cables with the connectors have to be pulled through the mounting arm tube before connecting them in the connection area.

The installation of the cover takes place in reverse order.

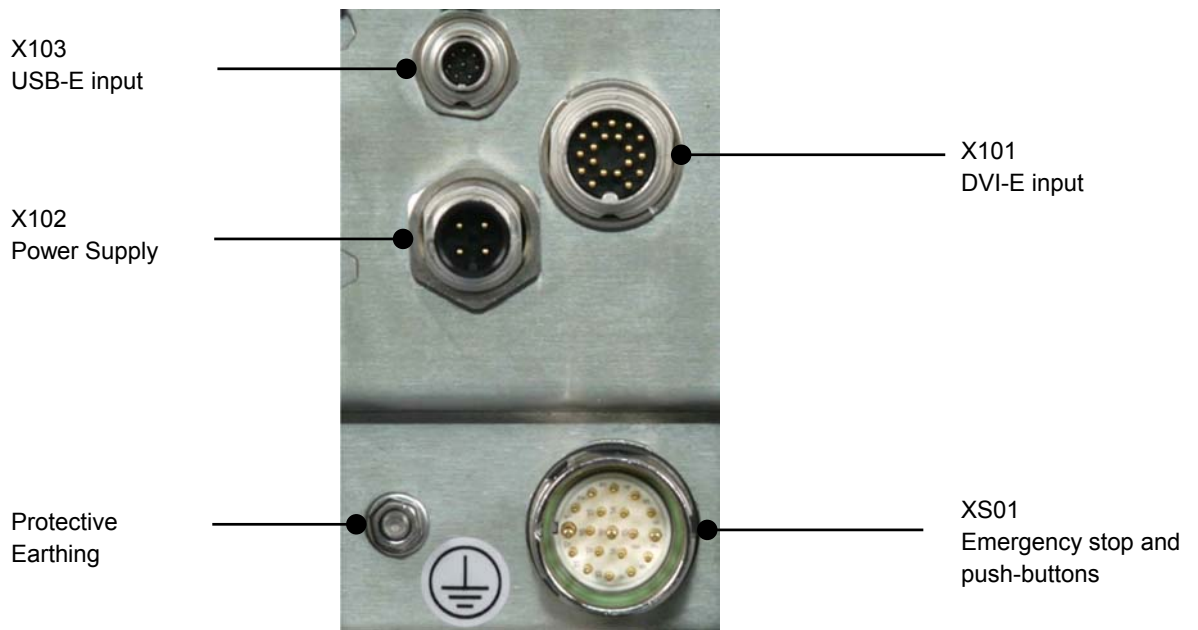
2.4 Connections

CP790x-1400

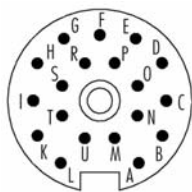


CP790x-1401

with USB-port, emergency stop button and electromechanical push-buttons in the front



2.4.1 DVI-E Input (Digital Visual Interface-Extended) (X101)




X101

SG 19-pole M16 built-in-PCB-sold. IP67 BINDER (BINDER 09-0463-90-19 prod. 723 M16X0,75)

View solder connection sided

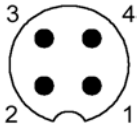
The DVI-E connection (**X101**) is used for transferring the video signal from the Industrial PC to the Control Panel. The protection class of the circular plug-in connector accords to the IP67-standard.

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. The CP790x Control Panel features a signal processor that restores the DVI signal. The PC requires a conventional DVI output.

 Note	<p>The transmission rate of the DDC file has to be limited</p> <p>At large distance between PC and Control Panel, the transmission rate of the DDC file has to be limited.</p> <p>See also chapter Setting the transmission rate.</p>
--	--

Pin	Signal	Pin	Signal
A	Shield	L	IN_TMDS_C+
B	IN_TMDS_2+	M	GND
C	GND	N	IN_TMDS_2-
D	IN_TMDS_1-	O	IN_TMDS_1+
E	GND	P	GND
F	IN_TMDS_0-	R	IN_TMDS_0+
G	GND	S	HPD_DVI
H	+ 5V_DVI	T	GND
I	DDC DAT	U	IN_TMDS_C-
K	I2C-CLK		

2.4.2 Power Supply (X102)



X102

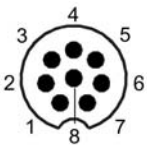
SG 4-pole M12 built-in-PCB-sold. IP67 BINDER (BINDER 09-3431-90-04 prod. 763 M12X1)

View solder connection sided

The power supply for the Control Panel is established via the 4-pole M12 socket (**X102**). The protection class of the circular plug-in connector accords to the IP67-standard.

Pin	Signal	Pin	Signal
1	+ 24V	3	GND
2	NC	4	NC

2.4.3 USB-E Input (USB-Extended) (X103)



X103

SG 8-pole M9 built-in-PCB-sold. IP67 BINDER (BINDER 09-0427-30-08 prod. 712 M9X0,5)

View solder connection sided

The Control Panel is connected with the CU8800 USB to USB extended converter box via the USB-Extended input (**X103**).

In order to realize a distance of 50 m without hubs, with USB extended the USB signal is converted so that it can be transferred via 50 m CAT5 cables commonly used for Ethernet wiring. In the Control Panel the signal is converted back to USB.

Pin	Signal	Pin	Signal
1	NC	5	USB Tx-
2	USB Rx-	6	USB Tx+
3	USB Rx+	7	15V USB_E
4	GND	8	GND

2.4.4 Protective Earthing



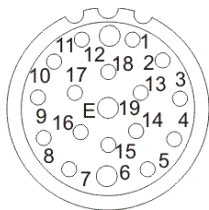
The low resistance protective earthing connection of the Control Panel is established via the ground bolt, which is located in the connection area.

2.4.5 Connection Emergency stop and push-buttons CP790x-1401 (XS01)

In the front of the Control Panel CP790x-1401, an emergency stop button (S1) and three electromechanical push-buttons (S2 - S4) are integrated. The buttons can be connected user-specific.



The connection of the emergency stop button and the electromechanical push-buttons are established via the 19-pole M20 (XS01) connector in the connection area. The protection class of the circular plug-in connector accords to the IP67-standard. For the accurate connection see chapter [Wiring Diagram](#).



XS01

Circular plug-in connector 19-pole M20 built-in linear, IP67, Intercontec (Intercontec A EG A 378 MR93 00 0032 000)

 Warning	<p>Take notice of the ampacity</p> <p>The maximum ampacity of the pin for connecting the emergency stop button and the electromechanical push-buttons is 100 mA at max. 35 V AC/ DC.</p>
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 Note	<p>Male connector is provided</p> <p>The male connector Intercontec A ST A 278 FR91 61 0035 000 is provided with the Control Panel.</p>
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Pin	Signal	Pin	Signal
1	S1.12	11	LED red K1
2	S1.11	12	PE
3	S1.22	13	S4.14
4	S1.21	14	S4.22
5	S2.14	15	LED white K1
6	GND	16	NC
7	S2.22	17	NC
8	LED green K1	18	NC
9	S3.14	19	+ 24V
10	S3.22		

2.4.6 USB-Port at the Front (CP790x-1401)



The Control Panel CP790x-1401 is provided with an additional USB-2.0-port.

The port is located at the front side of the Control Panel under a screw cap. The protection class accords to the IP67-standard.

2.5 Connection Kits/ Connection Cables

One 4-pole power supply connector is provided with the Control Panel.

Optionally prefabricated connection cables for connecting the emergency-stop-button and the push-buttons (XS01), as well as connection kits for the DVI-E/ USB-E connection are available.

2.5.1 Connection Cables Emergency Stop and Push-Buttons, optional

The following connection cables are available:

Connection Cables	Cables for connecting Emergency Stop and Push-Buttons
C9900-K604	Plug-in connector 19-pole with connection cable 18 x 0.75 mm ² , second end open, length 10 m
C9900-K593	Plug-in connector 19-pole with connection cable 18 x 0.75 mm ² , second end open, length 20 m
C9900-K558	Plug-in connector 19-pole with connection cable 18 x 0.75 mm ² , second end open, length 30 m

2.5.2 Connection Kits for DVI-E/ USB-E connection, optional

The following connection kits are available:

Cable Set	DVI-E/ USB-E connection
C9900-K434	Connection kit 3 m for CP79xx including: 3 m DVI cable, 3 m CAT5 cable for USB-E, USB to USB-E converter CU8800 for mounting rail installation close to the PC and 1 m USB cable to connect the USB to USB-E converter to the PC
C9900-K435	Connection kit 5 m for CP79xx including: 5 m DVI cable, 5 m CAT5 cable for USB-E, USB to USB-E converter CU8800 for mounting rail installation close to the PC and 1 m USB cable to connect the USB to USB-E converter to the PC
C9900-K436	Connection kit 10 m for CP79xx including: 10 m DVI cable, 10 m CAT5 cable for USB-E, USB to USB-E converter CU8800 for mounting rail installation close to the PC and 1 m USB cable to connect the USB to USB-E converter to the PC
C9900-K437	Connection kit 20 m for CP79xx including: 20 m DVI cable, 20 m CAT5 cable for USB-E, USB to USB-E converter CU8800 for mounting rail installation close to the PC and 1 m USB cable to connect the USB to USB-E converter to the PC
C9900-K438	Connection kit 30 m for CP79xx including: 30 m DVI cable, 30 m CAT5 cable for USB-E, USB to USB-E converter CU8800 for mounting rail installation close to the PC and 1 m USB cable to connect the USB to USB-E converter to the PC
C9900-K439	Connection kit 40 m for CP79xx including: 40 m DVI cable, 40 m CAT5 cable for USB-E, USB to USB-E converter CU8800 for mounting rail installation close to the PC and 1 m USB cable to connect the USB to USB-E converter to the PC
C9900-K440	Connection kit 50 m for CP79xx including: 50 m DVI cable, 50 m CAT5 cable for USB-E, USB to USB-E converter CU8800 for mounting rail installation close to the PC and 1 m USB cable to connect the USB to USB-E converter to the PC


3 Installation

3.1 Transport and Unpacking

The specified storage conditions must be observed (see chapter [Technical Data](#)).

3.1.1 Transport

Despite the robust design of the unit, the components are sensitive to strong vibrations and impacts. During transport, your Control Panel should therefore be protected from excessive mechanical stress. Therefore, please use the original packaging.

 Attention	Danger of damage to the unit If the device is transported in cold weather or is exposed to extreme variations in temperature, make sure that moisture (condensation) does not form on or inside the device.
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Prior to operation, the unit must be allowed to slowly adjust to room temperature. Should condensation occur, a delay time of approximately 12 hours must be allowed before the unit is switched on.

3.1.2 Unpacking

Proceed as follows to unpack the unit:

1. Remove packaging.
2. Do not discard the original packaging. Keep it for future relocation.
3. Check the delivery for completeness by comparing it with your order.
4. Please keep the associated paperwork. It contains important information for handling the unit.
5. Check the contents for visible shipping damage.

If you notice any shipping damage or inconsistencies between the contents and your order, you should notify Beckhoff Service.

4 Mounting

For mounting the Control Panel there are 6 threaded holes M6 x 6 mm in the range of the mounting arm adapter at the rear side of the chassis (also see chapter *Assembly dimensions*).

Optionally the Control Panel can be mounted with a mounting arm adapter (order option).

4.1 Mounting arm installation

Depending on the order option the mounting arm can be installed from the bottom or from the top.

Order-Option	Description
C9900-M177	Rotatable mounting arm adapter for Control Panel CP790x-140x Stainless steel 1.4301, matt ground, mounting arm installation from the bottom
C9900-M178	Rotatable mounting arm adapter for Control Panel CP790x-140x Stainless steel 1.4301, matt ground, mounting arm installation from the top


4.1.1 Welding the mounting arm tube

The junction of the mounting arm adapter has to be frozen with the customized mounting arm tube. The picture shows the junction of the mounting arm adapter (1) and a customized mounting arm tube (2), which was accurately frozen with the junction.



Optionally a ready-for-use mounting arm frozen with the mounting arm adapter is available:

Order-Option	Description
C9900-M167	Mounting arm frozen with mounting arm adapter, 150 cm length, Stainless steel 1.4301, matt ground.

 <p>Note</p>	<p>Anti-twist protection</p> <p>The mounting arm adapter is fitted with an anti-twist protection to avoid over winding the Control Panel and damaging the connecting cables.</p>
--	---

4.1.2 Mounting the O-rings

The junction of the mounting arm adapter has to be fitted with the two red O-rings (see picture).

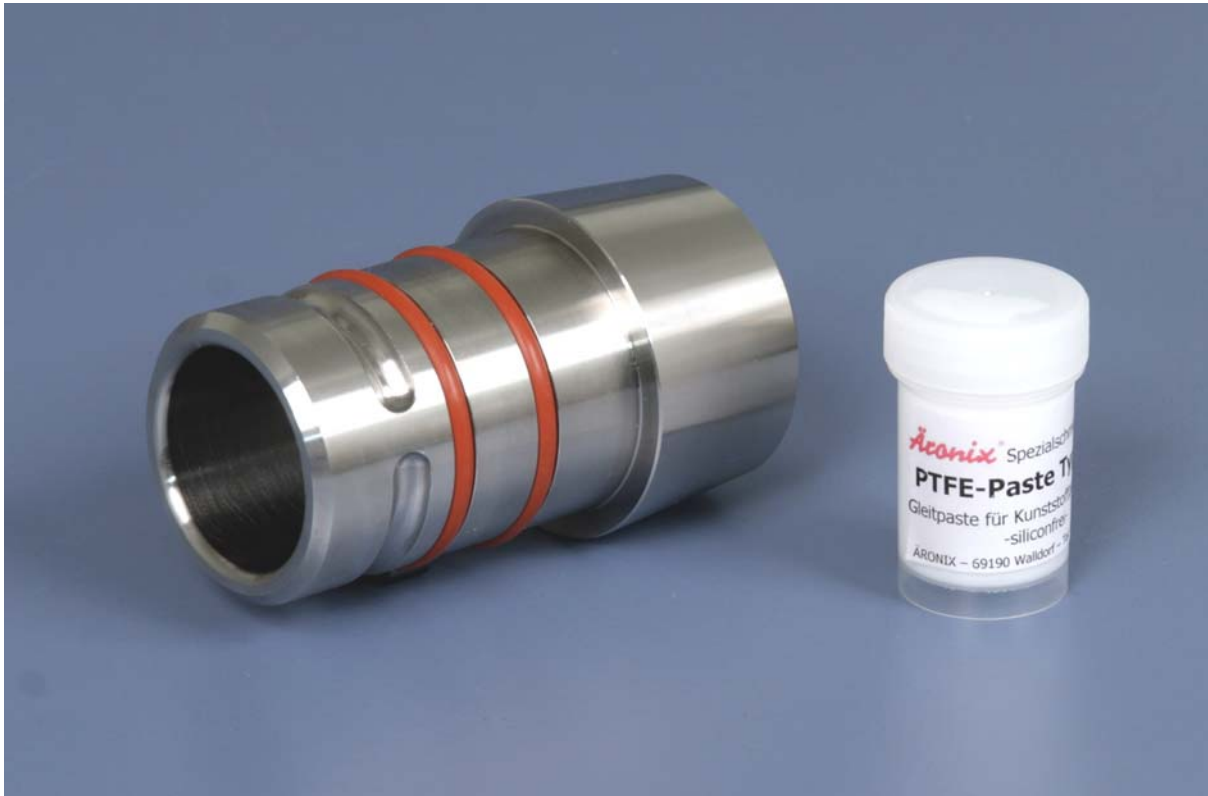


Attention

Mounting with PTFE-grease

Use assembly PTFE-grease for mounting arm installation.

In order to ensure better mobility of the mounting arm adapter, lubricate the O-rings and all parts which have contact with the O-rings with the PTFE-grease. Lubricate a thin film of grease with a palette-knife or a paint brush.



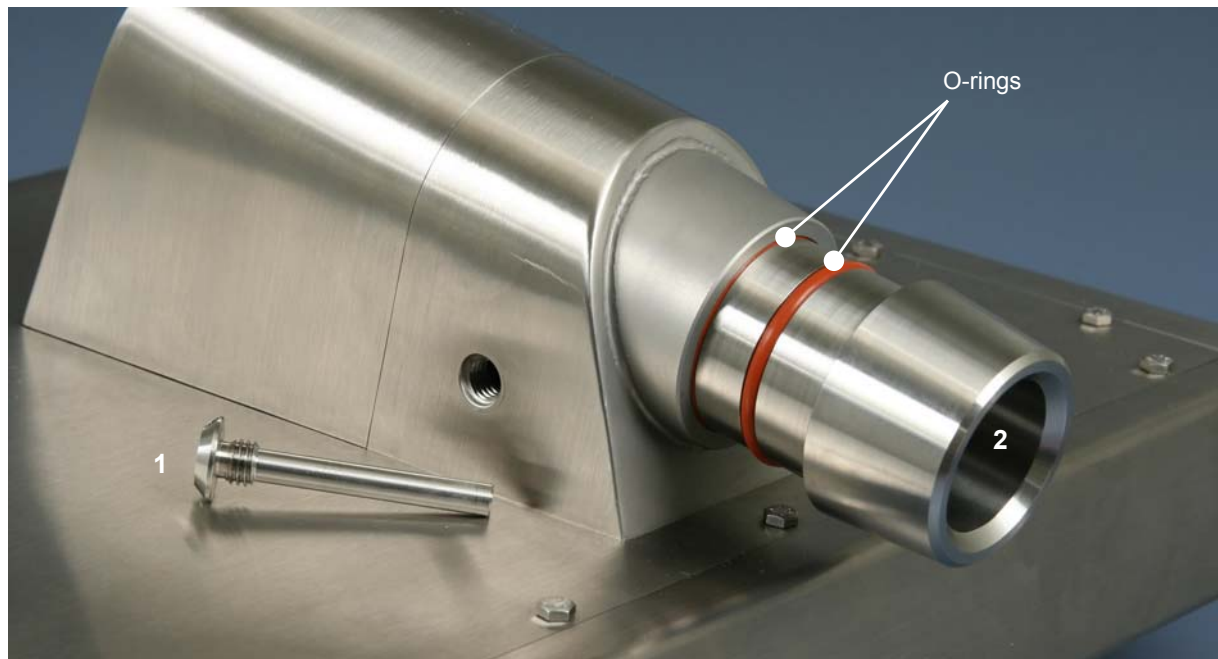
CAUTION

Note safety data sheet!

Please note the information in the safety data sheet for the PAO-PTFE-assembly grease.

4.1.3 Mounting the mounting arm

Before you can mount the mounting arm at the Control Panel, the screw (1) which fixes the adapter (2) has to be unscrewed and taken out completely.




The picture shows the assembly of the rotatable mounting arm adapter, which first must be frozen with the customized mounting arm (see chapter [Welding the mounting arm tube](#)).

Now the adapter is inserted in direction of the arrow all the way to the stop. Take care not to damage the two red O-rings!




The adapter now has to be fixed with the screw (1).

4.2 Connecting the Control Panel

	<p>Risk of explosion!</p> <p>The Control Panel must never be connected or disconnected in an area that is subject to explosion hazard!</p>
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Danger

	<p>The mains plug must be disconnected</p> <p>Please read the documentation for the external devices prior to connecting them!</p> <p>During thunderstorms, plug connector must neither be inserted nor removed!</p> <p>When disconnecting a plug connector, always handle it at the plug. Do not pull the cable!</p>
---	--

Attention

4.2.1 Connecting cables

The connections are located at the rear of the Control Panel and are documented in the chapter [Connections](#).

When connecting cables to the Control Panel, please adhere to the following order:

- Disconnect the Control Panel from the power supply.
- Connect all cables at the Control Panel and at the devices to be connected.
- Ensure that all screw connections between connectors and sockets are tight!
- Reconnect all devices to the power supply.

4.2.2 Protective Earthing



The low resistance protective earthing connection of the Control Panel is established via the ground bolt, which is located in the connection area.

5 Operating Instructions


5.1 Switching the Control Panel on and off


5.1.1 Switching on

The Control Panel does not have its own mains power switch. As soon as the power supply is switched on the Control Panel is activated.

5.1.2 Shutting down and switching off


Control software such as is typically used on Industrial PCs permits various users to be given different rights. A user who may not close software may also not switch the Industrial PC off, since data can be lost from the storage medium by switching off while software is running.

 Warning	<p>First shut down, then switch off!</p> <p>If the Industrial PC is switched off as the software is writing a file to the storage medium, the file will be destroyed. Control software typically writes something to the storage medium every few seconds, so that the probability of causing damage by switching off while the software is running is very high.</p>
---	--

 Warning	<p>Switch off power supply</p> <p>When you have shut down the Industrial PC, you have to switch off power supply for at least 10 seconds before rebooting the system.</p> <p>After resetting power supply the Industrial PC will start booting automatically.</p>
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5.2 Operation

The operation of the Control Panel occurs via the Touch Screen.

 Warning	<p>Risk of damaging the Touch Screen</p> <p>The touch screen may only be actuated by finger tips or with the touch screen pen. The operator may wear gloves but there must be no hard particles such as metal shavings, glass splinters embedded in the glove.</p>
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5.2.1 Setting the transmission rate

At large distance between PC and Control Panel, the transmission rate of the DDC file has to be limited. The DDC file is transmitted from the Control Panel to the PC in order to transfer the display information like timing and resolution.

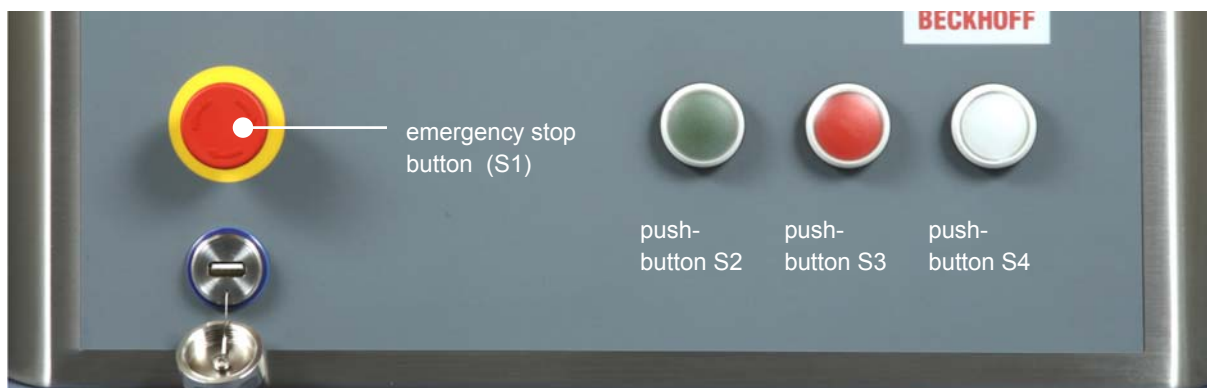
The video bios of the graphic card or, using the on-board graphic, the video bios of the motherboard contains the definition of the transmission rate for the DDC file. This value has to be 50 kHz or less. Otherwise the screen is not displayed or not until windows is started.

Windows graphic drivers also include a value for the transmission rate of the DDC file.

If Windows is running and no image is displayed, then use a graphic driver with a value of 50 kHz or less for DDC file transmission.


5.2.2 Emergency stop button and electromechanical push-buttons in the front

In the front, the Control Panel CP790x-1401 is equipped with an emergency stop button (S1) and three push-buttons (S2 – S4), which can be connected user-specific.



5.3 Servicing and maintenance

5.3.1 Cleaning

 DANGER	<p>Disconnect power supply</p> <p>Switch off the device and all connected devices, and disconnect the device from the power supply.</p>
--	--

The device can be cleaned with a soft, damp cleaning cloth. Do not use any aggressive cleaning materials, thinners, scouring material or hard objects that could cause scratches.

5.3.2 Maintenance


The Control Panel is maintenance-free.

5.4 Emergency procedures

In case of fire, the Control Panel should be extinguished with powder or nitrogen.

5.5 Shutting down


5.5.1 Disposal

 Note	<p>Observe national electronics scrap regulations</p> <p>Observe the national electronics scrap regulations when disposing of the device.</p>
--	--

In order to dispose of the device, it must be removed and fully dismantled:


- Housing components (polycarbonate, polyamide (PA6.6)) are suitable for plastic recycling.
- Metal parts can be sent for metal recycling.
- Electronic parts such as disk drives and circuit boards must be disposed of in accordance with national electronics scrap regulations.

6 Troubleshooting

 Note	<p>Pixel errors</p> <p>Pixel errors in the TFT display are production-caused and represent no complaint-reason!</p>
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Fault	Cause	Measures
The Control Panel shows no function	No power supply to the Control Panel/ Industrial PC Cable not connected	Check power supply cable 1. Correctly connect cable 2. Call Beckhoff Service
Computer boots, software starts, but control does not operate correctly	Cause of the fault is either in the software or in parts of the plant outside the Industrial PC	Call the manufacturer of the machine or the software
No screen	Transmission rate is too high when using DVI cables longer than 20 m	Limit transmission rate for DDC file to 50 kHz
USB error while TwinCAT access via USB	Cycle time in TwinCAT is set on 10 ms (standard)	Increase the cycle time up to 50 ms till 80 ms
The Control Panel functions only partially or only part of the time, e.g. no or dark picture	Faulty backlight in the display Defective components in the Control Panel	Call Beckhoff Service Call Beckhoff Service

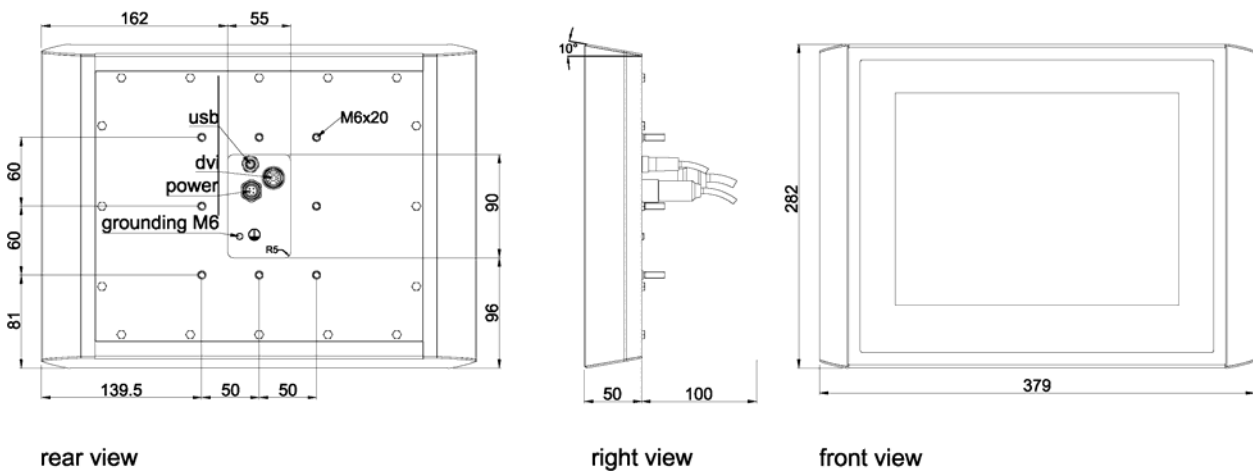
7 Assembly dimensions

 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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CP7901-1400

main dimensions and fixing points

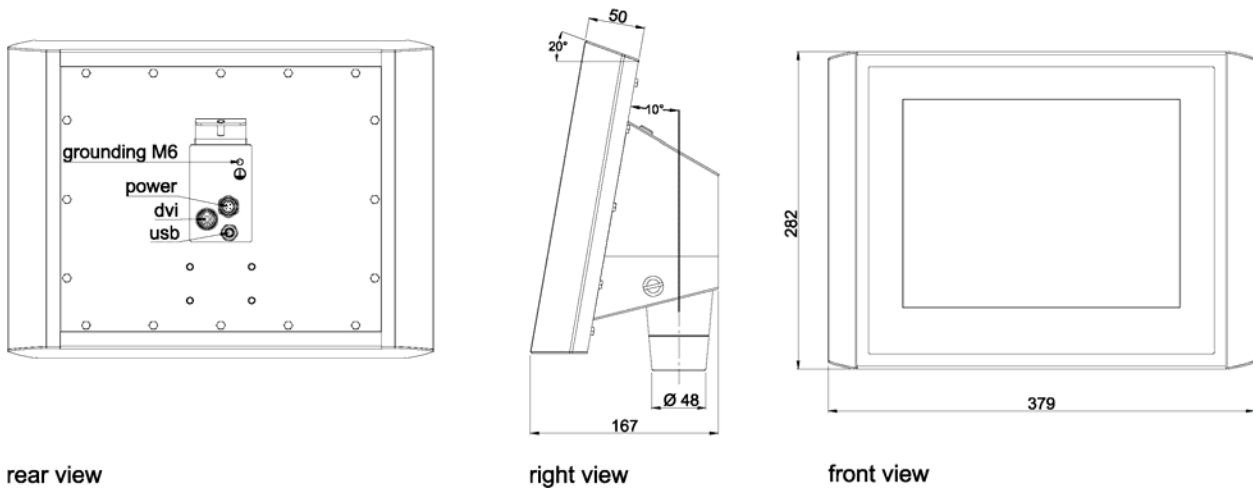
dimensions in mm




CP7901-1400-M177

main dimensions and fixing points

dimensions in mm

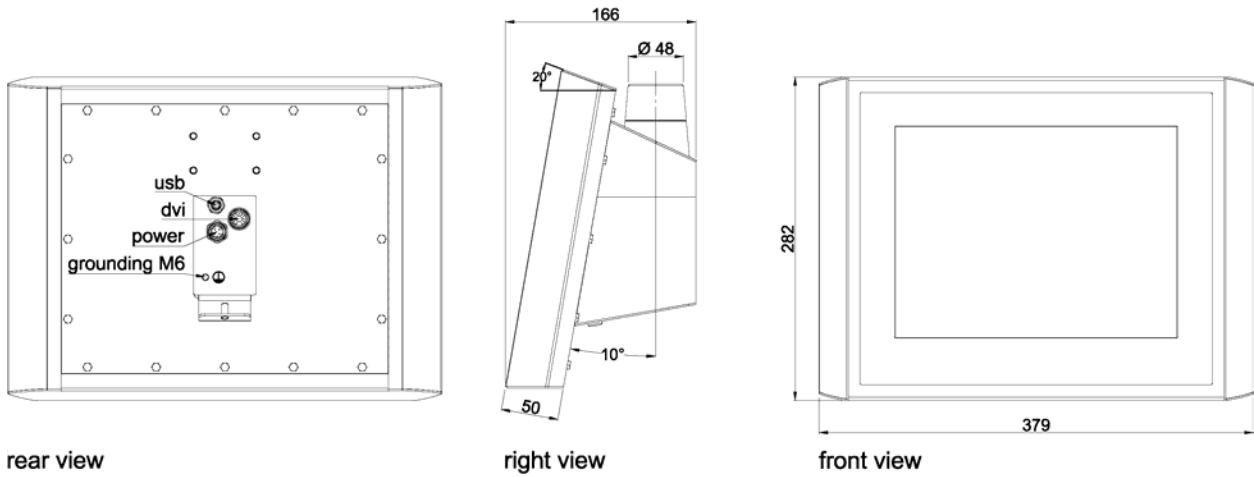


 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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CP7901-1400-M178

main dimensions and fixing points

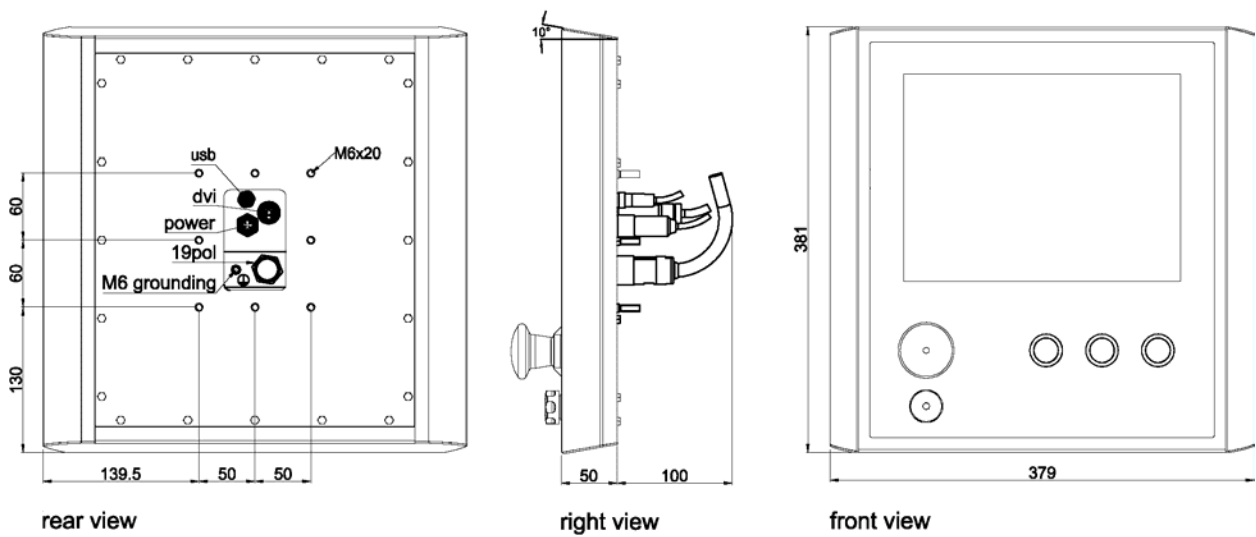
dimensions in mm




CP7901-1401

main dimensions and fixing points

dimensions in mm

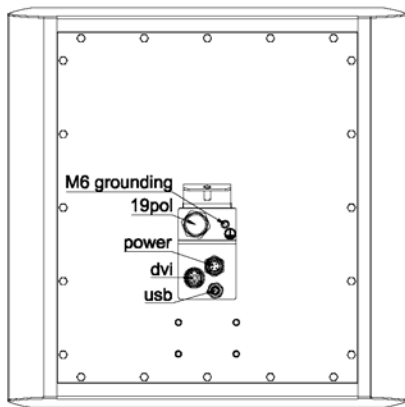


 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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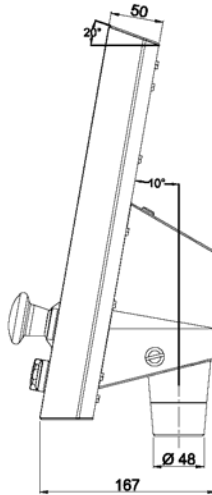
CP7901-1401-M177

main dimensions and fixing points

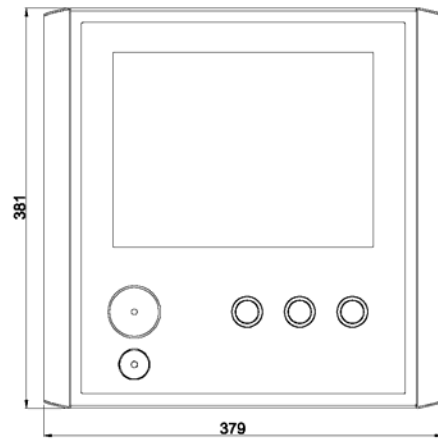
dimensions in mm



rear view



right view

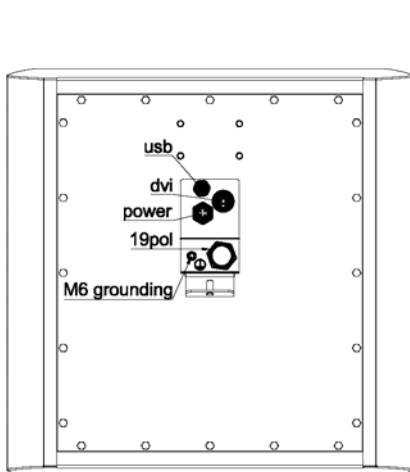


front view

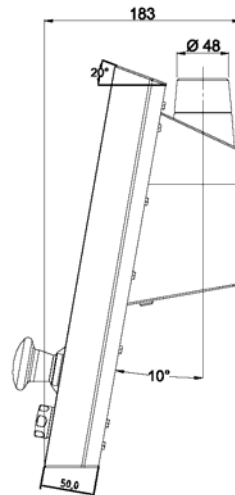
CP7901-1401-M178

main dimensions and fixing points

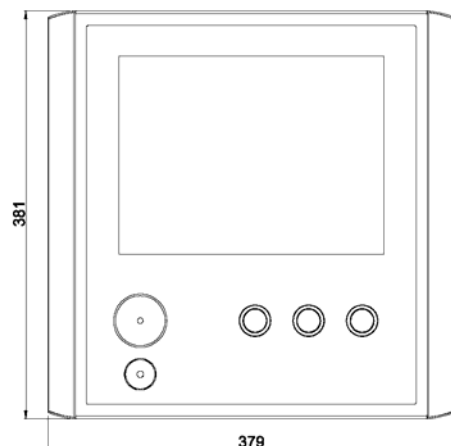
dimensions in mm




rear view



right view



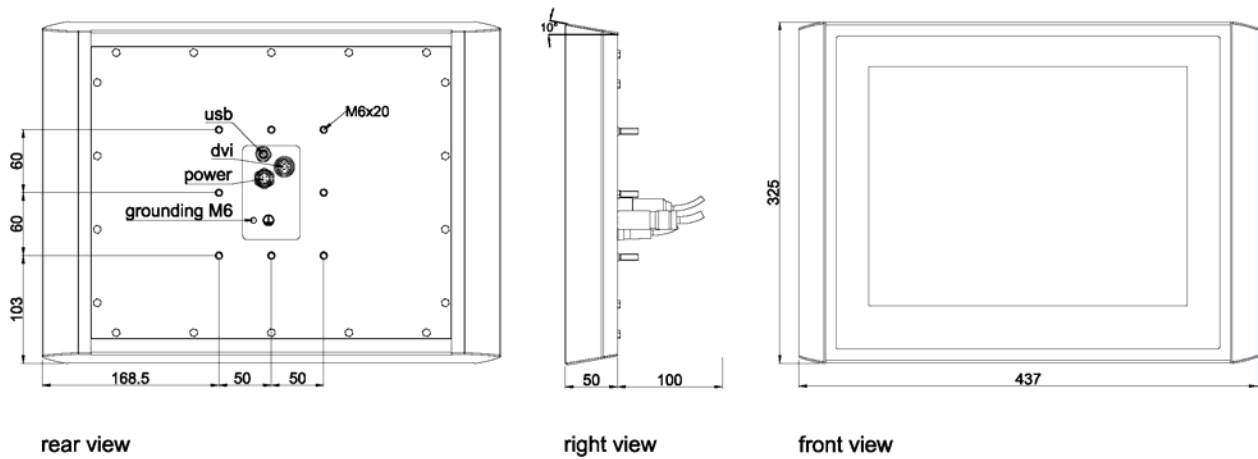
front view

 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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CP7902-1400

main dimensions and
fixing points

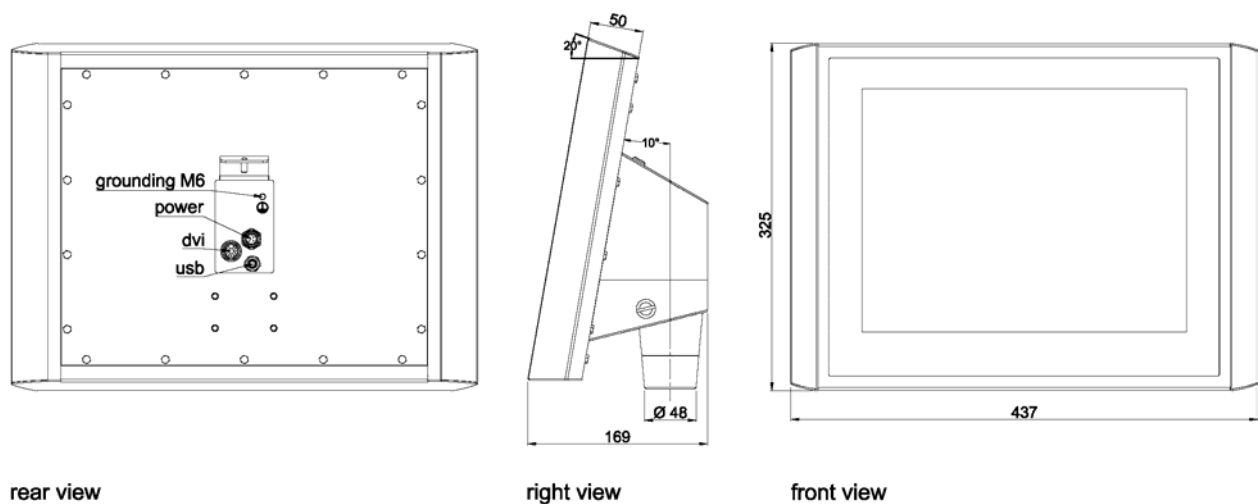
dimensions in mm




CP7902-1400-M177

main dimensions and
fixing points

dimensions in mm

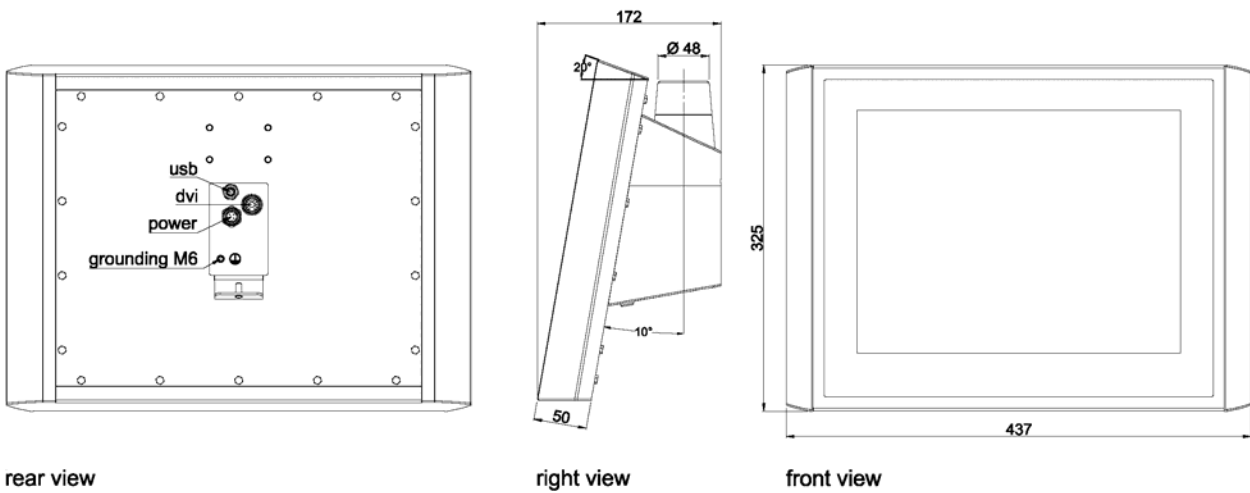


 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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CP7902-1400-M178

main dimensions and fixing points

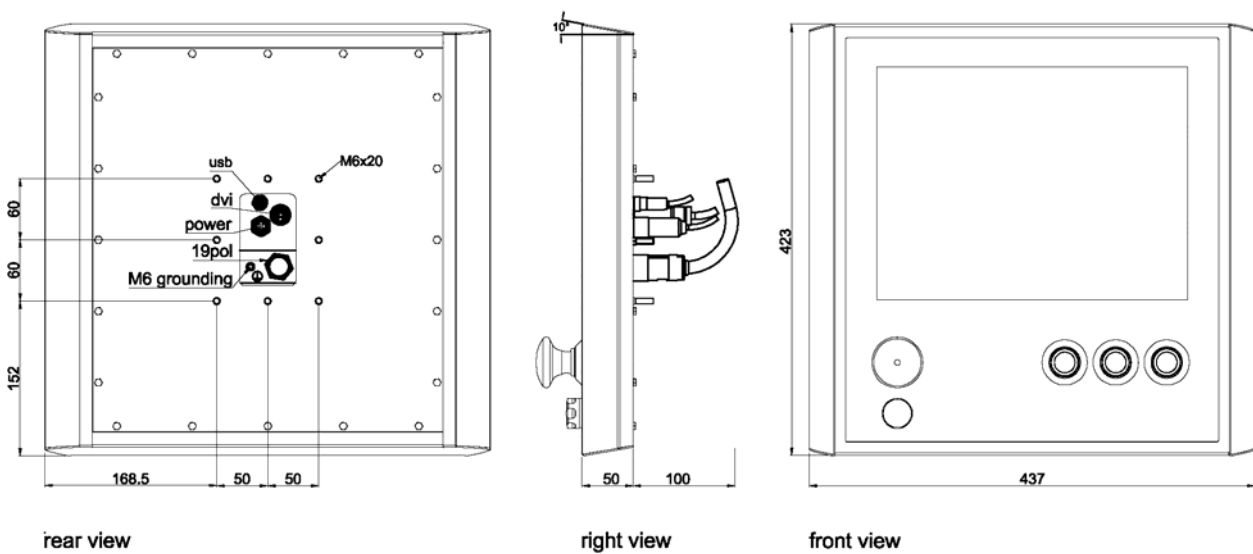
dimensions in mm




CP7902-1401

main dimensions and fixing points

dimensions in mm

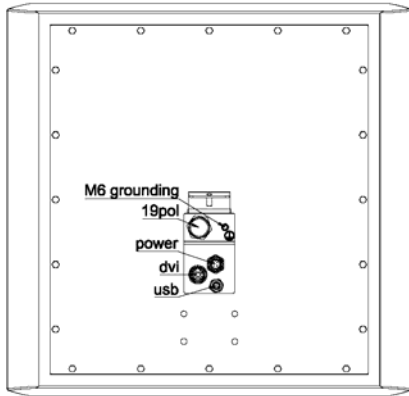


 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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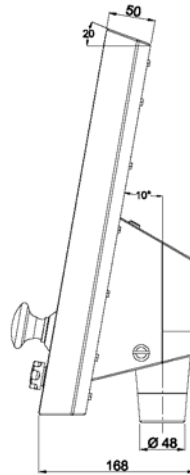
CP7902-1401-M177

main dimensions and fixing points

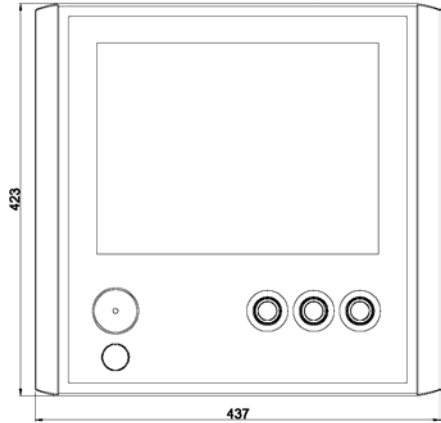
dimensions in mm



rear view



right view

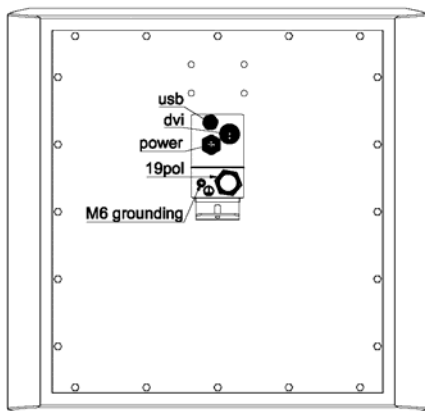


front view

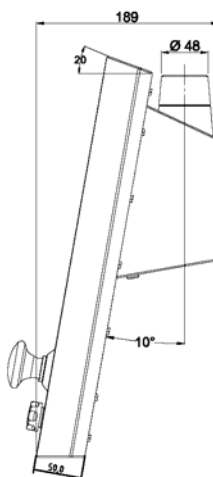
CP7902-1401-M178

main dimensions and fixing points

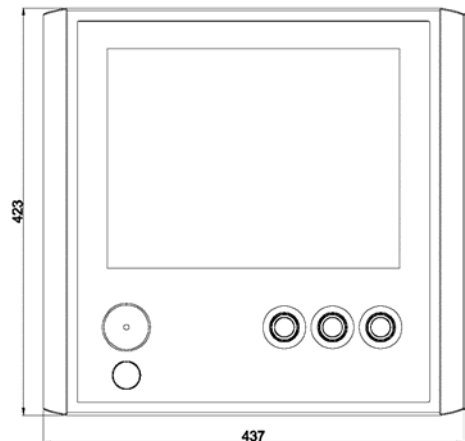
dimensions in mm




rear view



right view



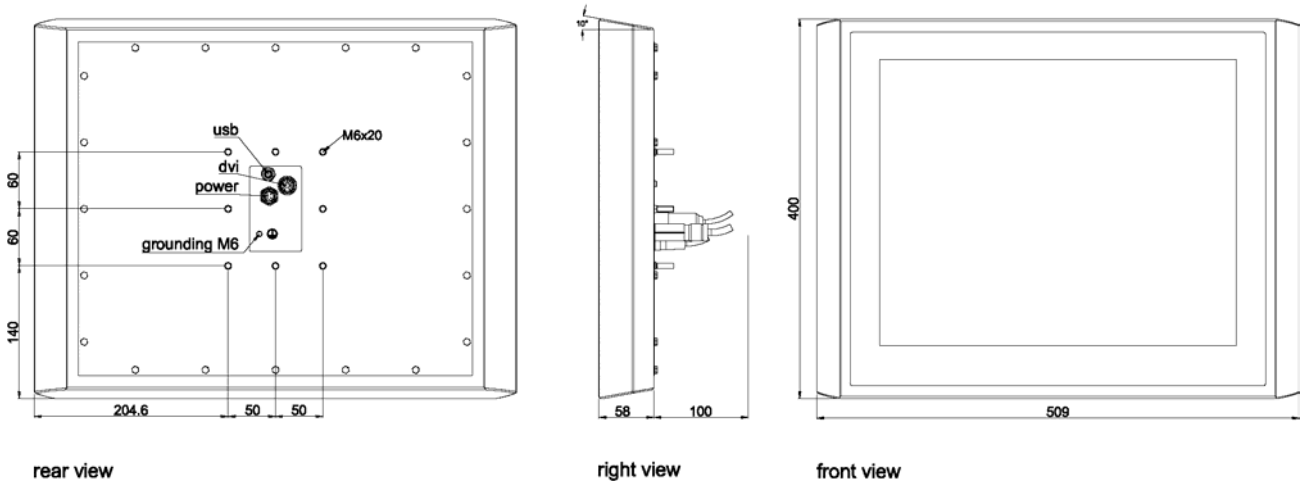
front view

 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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CP7903-1400

main dimensions and fixing points

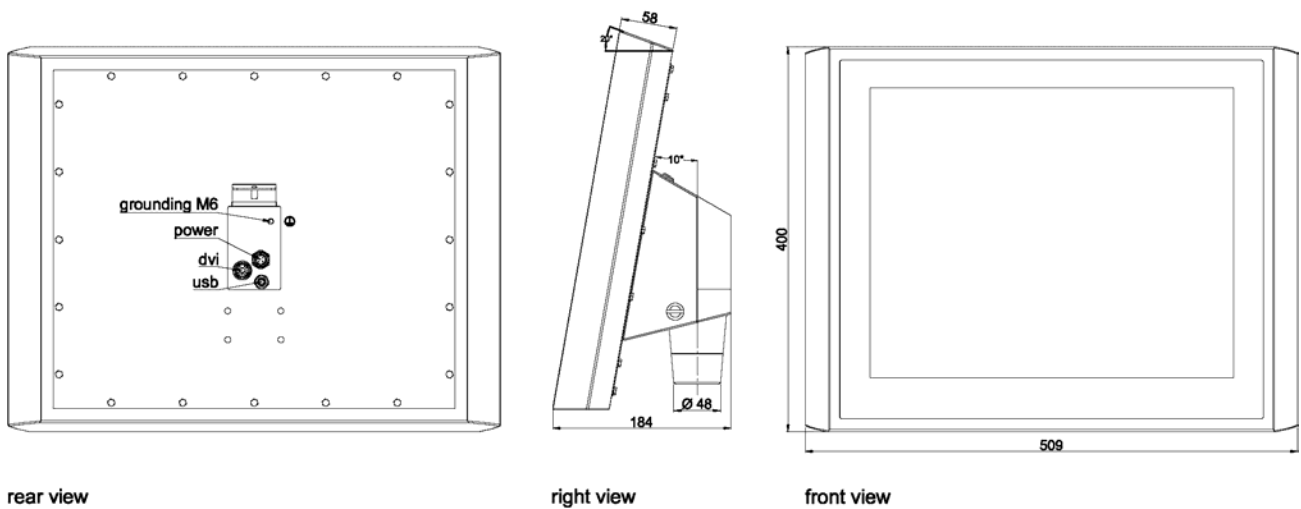
dimensions in mm




CP7903-1400-M177

main dimensions and fixing points

dimensions in mm

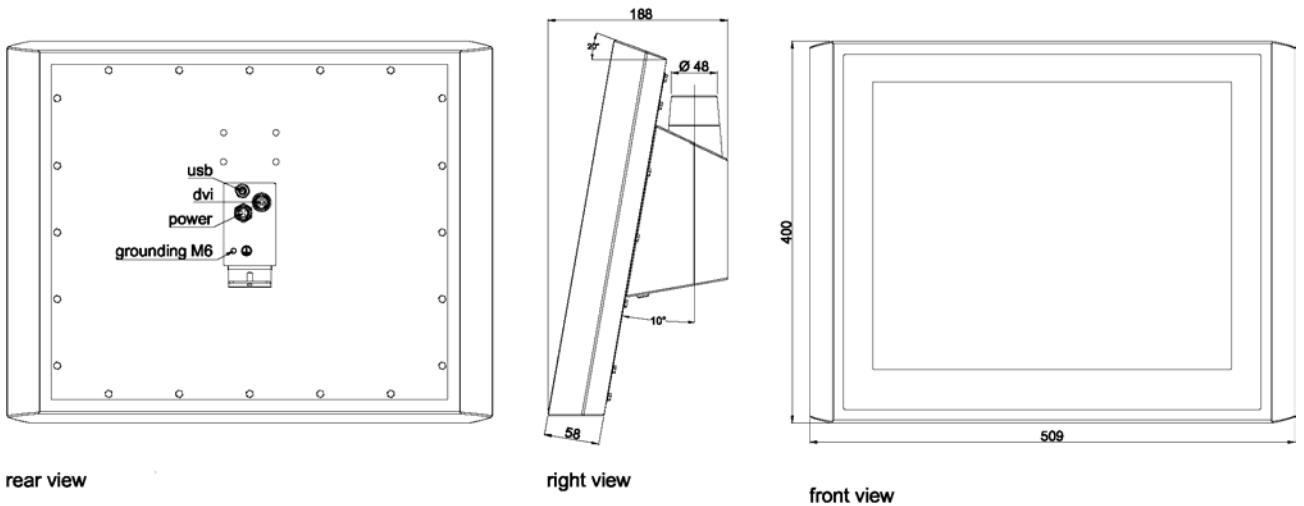


 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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CP7903-1400-M178

main dimensions and fixing points

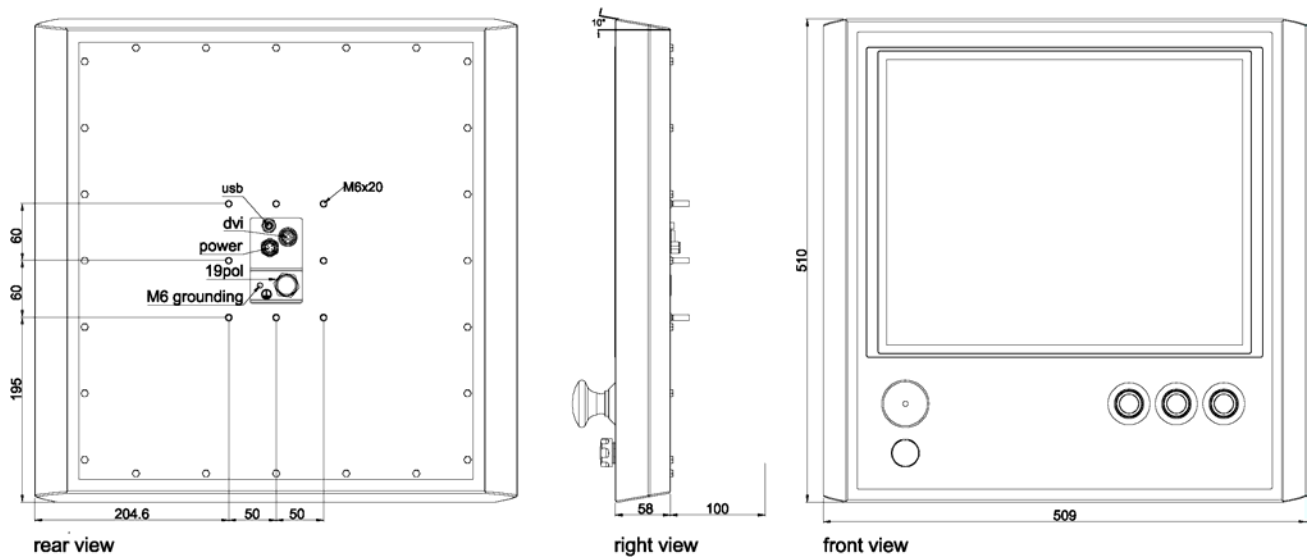
dimensions in mm




CP7903-1401

main dimensions and fixing points

dimensions in mm

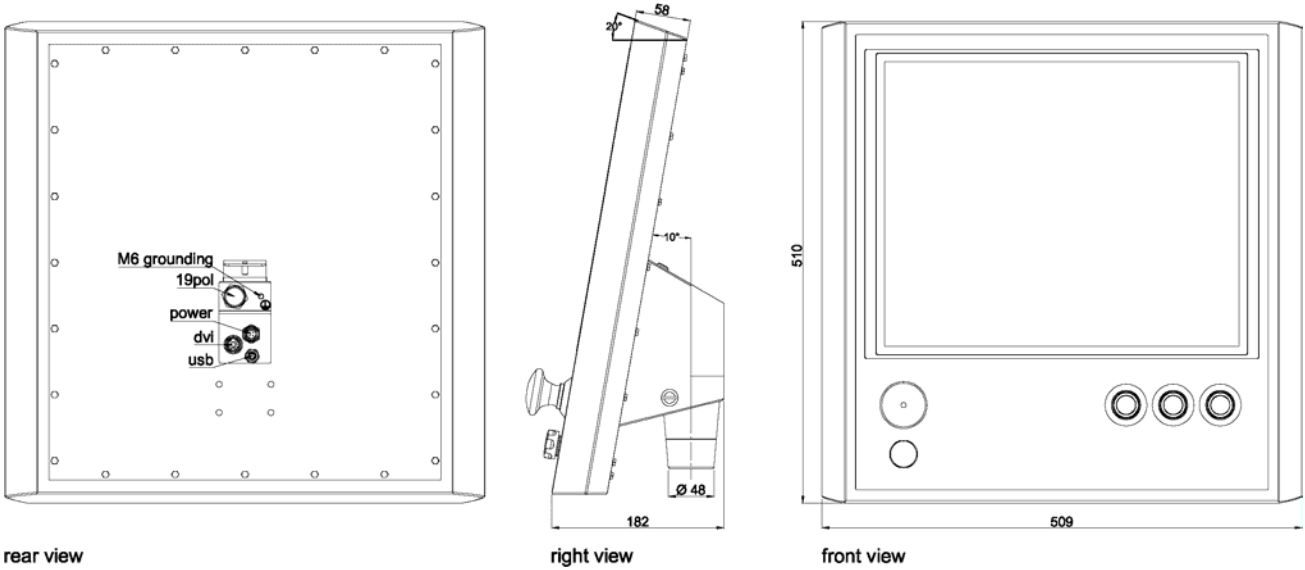


 Warning	<p>Notice mounting orientation</p> <p>The assembly of the unit must take place with the orientation diagrammed here.</p>
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CP7903-1401-M177

main dimensions and fixing points

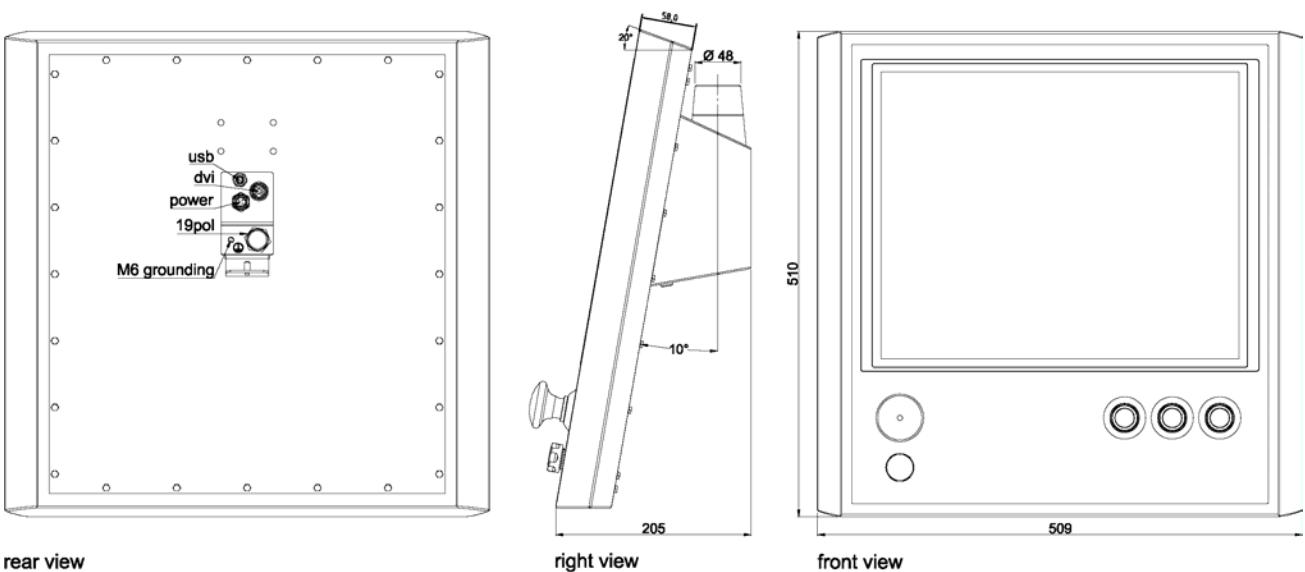
dimensions in mm



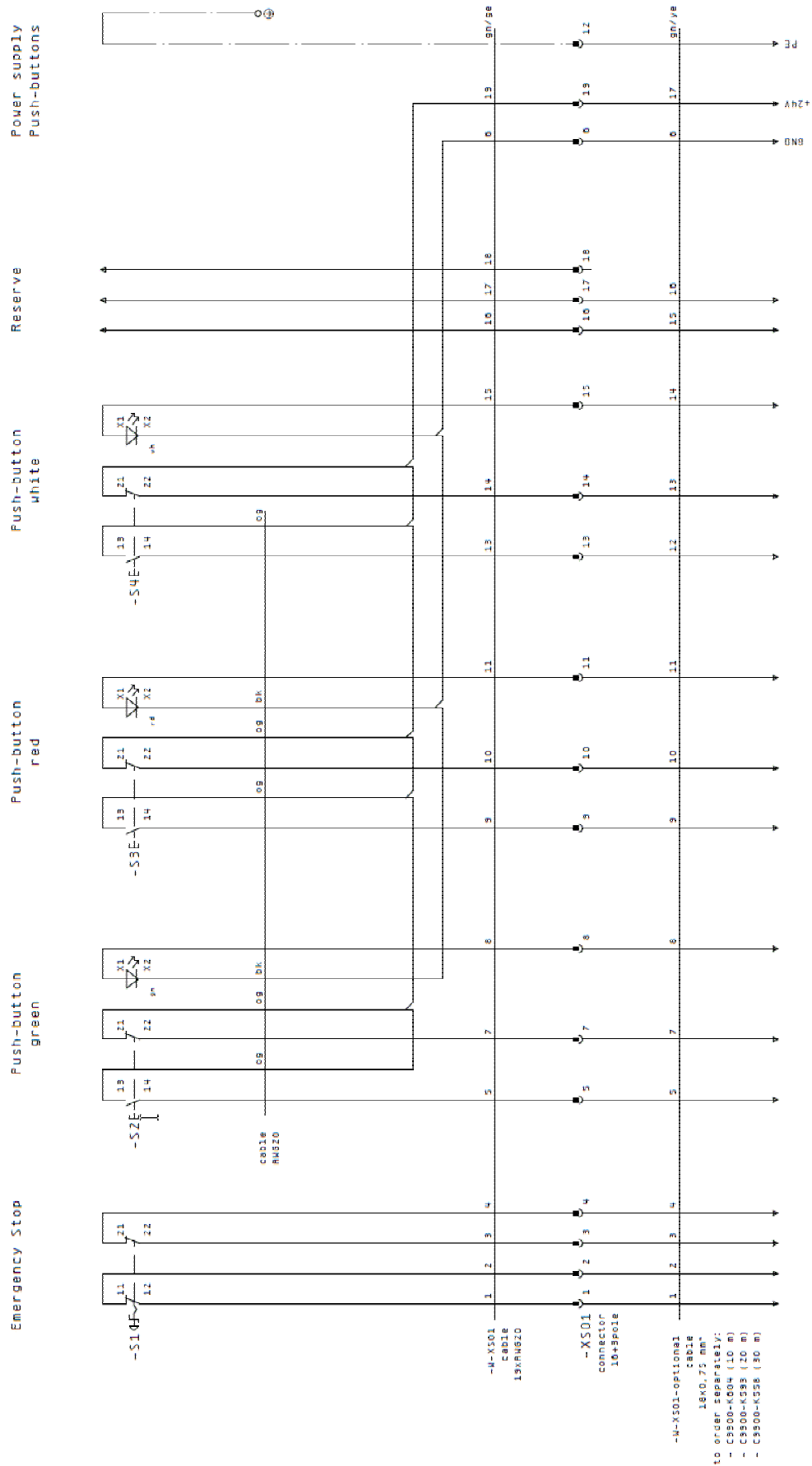
CP7903-1401-M178

main dimensions and fixing points

dimensions in mm





8 Wiring Diagram Emergency stop button and push-buttons



by customer

9 Technical Data

 Danger	<p>Risk of explosion!</p> <p>Do not use the Control Panel in areas of explosive hazard!</p>
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 Note	<p>Pixel errors</p> <p>Pixel errors in the TFT display are production-caused and represent no complaint-reason!</p>
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Product name	CP790x-140x
Dimensions (B x H x T)	See chapter Assembly dimensions
Weight without/ with mounting arm adapter	CP7901-1400: 5.3 kg/ 7.2 kg CP7901-1401: 7.0 kg/ 8.9 kg CP7902-1400: 7.2 kg/ 9.1 kg CP7902-1401: 8.9 kg/ 10.8 kg CP7903-1400: 10.6 kg/ 12.5 kg CP7903-1401: 12.3 kg/ 14.2 kg
Supply voltage	24 V _{DC} (20.4 – 28.8 V _{DC})
Power consumption	app. 14 W with 12" Display app. 25 W with 15" Display app. 32 W with 19" Display
UL-compliance	<ul style="list-style-type: none"> Using a power supply class 2 or Fuse protection with 4 A, according to UL 60950.2 chapter 2.5, table 2C
Interfaces CP790x-1400	1 x DVI-E interface 1 x USB-E interface
Interfaces CP790x-1401	1 x DVI-E interface 1 x USB-E interface Additional: USB-port, emergency stop button and electromechanical push-buttons in the front
Protection class	IP65
Shock resistance (Sinusoidal vibration)	EN 60068-2-6: 10 to 58 Hz: 0.035 mm 58 to 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 compatibility	Resistance to interference conforms to EN 61000-6-2
EMC compatibility	Emission of interference conforms to EN 61000-6-4
Permissible ambient temperature	0°C to +55°C (operation) -25°C to +65°C (transport/ storage)
Permissible relative humidity	to 95%, no condensation
Transport and storage	The same values for atmospheric humidity and shock resistance are to be observed during transport and storage as in operation. Suitable packaging of the Panel PC can improve the resistance to impact during transport.
Certifications	CE, UL

10 Appendix

10.1 Beckhoff Support and Service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

10.1.1 Beckhoff branches and partner companies

Please contact your Beckhoff branch office or partner company for [local support and service](#) on Beckhoff products!

The contact addresses for your country can be found in the list of Beckhoff branches and partner companies: www.beckhoff.com. You will also find further [documentation](#) for Beckhoff components there.

10.1.2 Beckhoff company headquarters

Beckhoff Automation GmbH
Eiserstraße 5
33415 Verl
Germany

Phone: + 49 (0) 5246/963-0
Fax: + 49 (0) 5246/963-198
E-mail: info@beckhoff.de
Web: <http://www.beckhoff.de/>

Beckhoff Support

Support offers you comprehensive technical assistance, helping you not only with the application of individual Beckhoff products, but also with other, wide-ranging services:

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

Hotline: + 49 (0) 5246/963-157
Fax: + 49 (0) 5246/963-9157
E-mail: support@beckhoff.com

Beckhoff Service

The Beckhoff Service Center supports you in all matters of after-sales service:

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

Hotline: + 49 (0) 5246/963-460
Fax: + 49 (0) 5246/963-479
E-mail: service@beckhoff.com

If servicing is required, please quote the **project number** of your product.

10.2 Approvals for USA and Canada

10.3 FCC Approvals for the United States of America

FCC: Federal Communications Commission Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Note****Technical modifications**

Technological changes to the device may cause the loss of the FCC approval.

10.4 FCC Approval for Canada

FCC: Canadian Notice

This equipment does not exceed the Class A limits for radiated emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.