



Instruction manual

Industrial PCs

OPC8017 OPC8024 /

OPD8017 OPD8024



Industrial IT

Read these instructions carefully before using and store for future reference.

These instructions contain important information about the product, in particular about its intended use, safety, installation, utilisation, maintenance and disposal.

Hand over the instructions to the user following installation of the product, and pass the manual on to the new user if the product is resold.

These instructions can be downloaded from: www.ads-tec.de in the download area.

Publisher

ads-tec GmbH

Heinrich-Hertz-Straße 1

72622 Nürtingen

Phone: +49 7022 2522-0

Fax: +49 7022 2522-400

Internet: www.ads-tec.de

E-mail: mailbox@ads-tec.de

Table of Contents

1	<u>Device description</u>	<u>6</u>
2	<u>General information</u>	<u>8</u>
2.1	Information about documentation	8
2.1.1	General remark	8
2.1.2	Limitation of liability	8
2.1.3	Manufacturer and contact details	9
2.1.4	Relevant device documentation	9
2.1.5	Symbols	9
2.1.6	Data, figures and modifications	10
2.1.7	Trademarks	10
2.1.8	Copyright	10
2.1.9	Standards	10
2.2	Explanation of safety instructions	11
2.2.1	Structure of safety instructions	11
2.2.2	Explanation of signal words	12
2.3	Safety instructions	13
2.3.1	Basic safety instructions	13
2.3.2	Environmental conditions	14
2.3.3	Intended use	15
2.3.4	Improper use	15
2.3.5	Damage due to improper use	15
2.3.6	Warranty / repairs	16
2.3.7	Treatment and disposal of lithium batteries	16
2.3.8	Electrostatically sensitive components	17
3	<u>Scope of delivery</u>	<u>18</u>
3.1	Optional scope of delivery	19
4	<u>Installation</u>	<u>20</u>
4.1	Preparing installation location	22
4.2	Installing device	23

5	<u>Interfaces.....</u>	<u>26</u>
5.1	Interfaces of OPC8017/OPC8024	27
5.2	Interfaces of OPD8017/OPD8024	30
5.2.1	Maximum cable lengths	31
6	<u>HDBaseT™ Extender Kit.....</u>	<u>32</u>
6.1	Installation of receiver module	32
6.2	Interfaces of receiver module	33
6.3	Cabling	34
6.4	Interfaces of transmitter module	34
6.5	Status indicators	36
6.5.1	Status indicators on transmitter module	36
6.5.2	Status indicators on receiver module	37
7	<u>Commissioning.....</u>	<u>38</u>
8	<u>Operation.....</u>	<u>40</u>
8.1	Switching on and off	40
8.2	Multifunction touch-screen	40
8.3	Component replacement	41
8.3.1	Replacing BIOS battery (OPC8017/OPC8024)	41
8.3.2	Replacing mass storage device	43
8.3.3	Replacement parts list	45
9	<u>Maintenance, cleaning and disposal.....</u>	<u>46</u>
9.1	Maintenance	46
9.2	Cleaning	46
9.3	Disposal	47

10	Technical data	48
10.1	Technical data – OPD/OPC8000 series	48
10.1.1	Data sheet	48
10.1.2	External device dimensions OPC8017	49
10.1.3	External device dimensions OPC8024	50
10.1.4	External device dimensions OPD8017	51
10.1.5	External device dimensions OPD8024	52
10.2	HDBaseT™ Extender Kit technical data	53
10.2.1	Data sheet	53
10.2.2	External device dimensions – HDBaseT™ Extender Kit transmitter	54
10.2.3	External device dimensions – HDBaseT™ Extender Kit receiver	55
11	List of figures	56
12	Service & support	57
12.1	ADS-TEC support	57

1 Device description

OPC8017/OPC8024 (**O**perating **P**anel **C**omputer) and OPD8017/OPD8024 (**O**perating **P**anel **D**isplay) are designed for the control and visualisation of production processes in the pharmaceutical, foodstuff, beverage and chemical industry. In the case of the OPC, the processing unit is integrated in the housing, making an external PC unnecessary for control. The OPD is a display which can be controlled by an external computer, e.g. from the existing industrial computer environment. Cables can be used for distances of up to 15 m between the computer and OPD. The optional extender kit has been developed to bridge greater distances of up to 100 m. Both the computer and the display option are available in the 17 and 24 inch format.

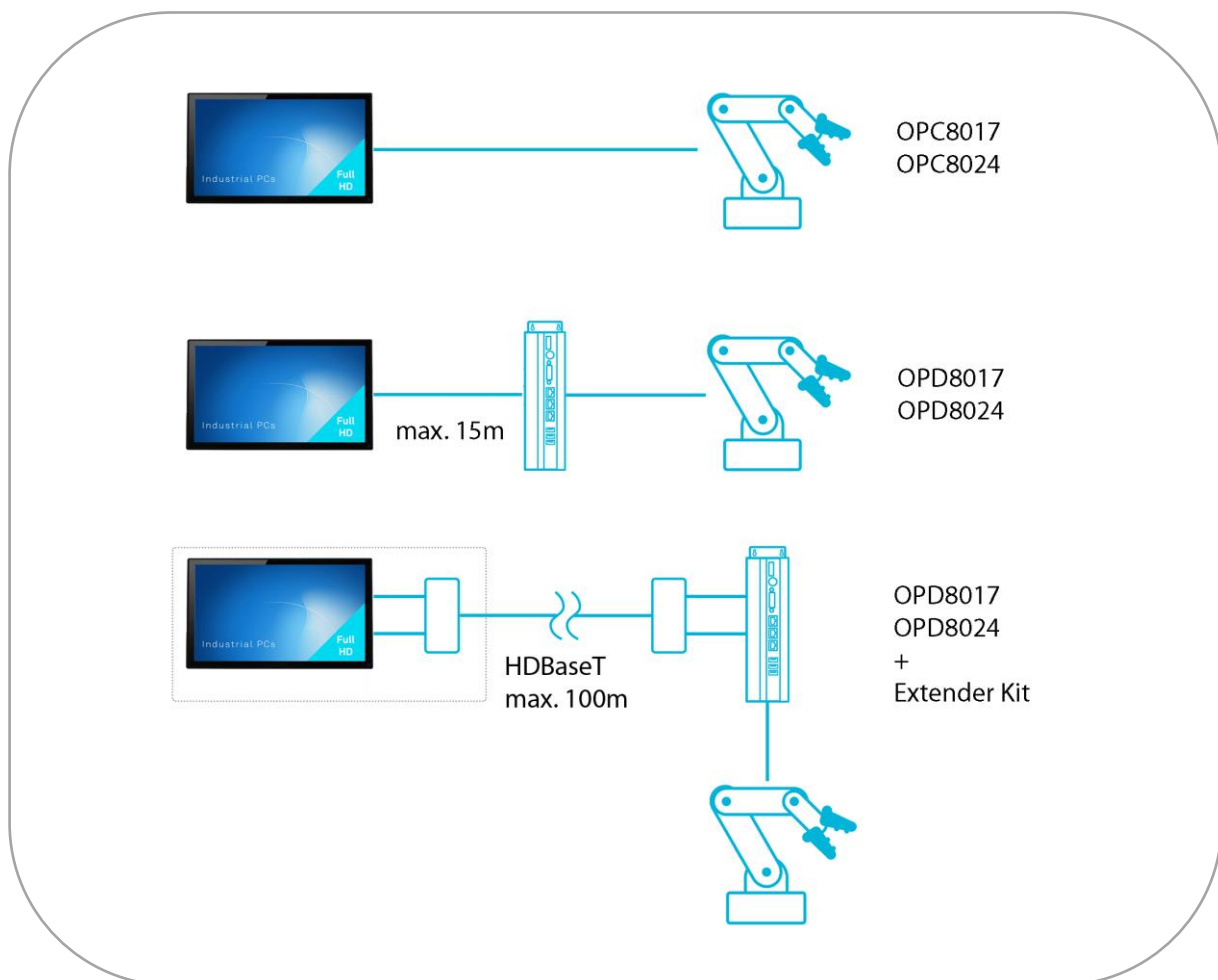


Figure 1: Use of OPC / OPD

The devices have been specially developed to fulfil strict hygiene requirements. This is achieved by the stainless steel housing of the device being completely closed at the front, having rounded edges and no external screws. This allows the device to be cleaned simply and effectively. The device has no fan, which means that the primary source of contamination is not present. Due to its robust, compact design, the device can also be operated under demanding environmental conditions.

Thanks to the very latest multi-touch technology, the display can be operated conveniently by tapping and also by means of swiping and dragging movements. Operation with gloves is also possible.

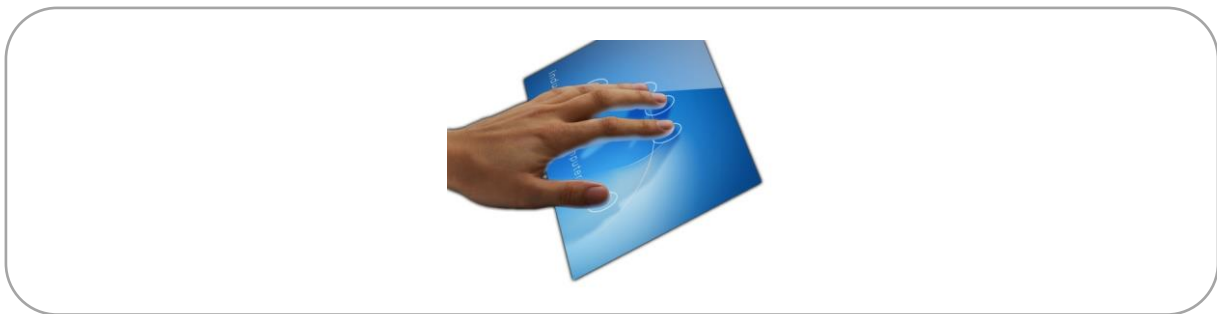


Figure 2: Touch surface

The devices are designed to be installed in a switch board or cabinet door. All of the necessary cables are routed on the rear side so that there are no exposed cables at the front.

2 General information

2.1 Information about documentation

2.1.1 General remark

This instruction manual is intended to ensure safe and efficient handling and operation of IT Infrastructure products.

The instruction manuals must be read carefully by personnel before commencing any type of work.

All of the safety instructions and handling instructions given in the manual must be obeyed in order to ensure that work is carried out safely.

Operation of the system is subject to the laws and regulations which are applicable in the respective country at national, federal, European and international level.

The generally accepted rules of technology, usually in the form of standards, directives, regulations, conditions and technical rules specified by national and federal organisations as well as trade associations and committees for the field of specialisation concerned, shall apply.

Figures used in this instruction manual are provided for basic understanding and may differ from the actual design.

The operator/operating company is independently responsible for compliance with and observance of any subsequently introduced technical innovations or new legal requirements, as well as for all usual obligations of the operator/operating company.

The original version of this instruction manual was written in German. All non-German versions of this instruction manual are translations of the German instruction manual.

2.1.2 Limitation of liability

ads-tec GmbH shall not be liable for personal injury, property damage or damage caused to the device as well as consequential damage that is/was the result of non-compliance with this instruction manual, improper use of the device, repairs and other actions on the device by unqualified electricians and electricians not certified by ADS-TEC, or that is/was the result of using unapproved replacement parts. Failure to observe the maintenance intervals shall also result in exclusion from liability. Furthermore, it is strictly forbidden to make any unauthorised alterations or technical modifications to the device.

2.1.3 Manufacturer and contact details

The manufacturer of the product is ads-tec GmbH. The company is referred to in the following as ADS-TEC.

ads-tec GmbH

Heinrich-Hertz-Str.1

72622 Nürtingen

Germany

Phone: +49 7022 2522-0

Fax: +49 7022 2522-400

Email: mailbox@ads-tec.de

Web: www.ads-tec.de

2.1.4 Relevant device documentation

The following documents are decisive to device setup and operation:




Instruction manual:

Contains information for installation, commissioning and operation of the device along with technical data of the device hardware.

Website

You can download the instruction manual as well as drivers, software, user manuals, leaflets and flyers from the *Download* area of our website www.ads-tec.de.

2.1.5 Symbols

Symbol	Meaning
	Designation of batteries in accordance with § 13 of the German Battery Act (BattG). Batteries may not be disposed of with household waste, but must rather be disposed of separately. Used batteries must be returned to the point of sale or a disposal system.
	Labelling of electrical and electronic devices in accordance with § 7 of the German Electrical and Electronic Equipment Act (ElektroG). Electrical and electronic devices must not be disposed of with household waste, but must rather be taken to a collection point for waste electrical equipment. Such a collection point is generally operated by public waste management authorities, i.e., by municipalities.
	Symbol for the protective earth connection

2.1.6 Data, figures and modifications

All data, text and figures were prepared to the best of our knowledge. They do not represent any assurance for the properties themselves. Despite taking utmost care, no liability can be assumed for accuracy, completeness and actuality of the information. Subject to changes.

2.1.7 Trademarks

It is noted that any software and/or hardware trademarks and any company brand names mentioned in this documentation are all subject to the general trademark protection rights.

StoraXe® and Big-LinX® are registered trademarks of ADS-TEC.

All other used third-party trademarks are hereby acknowledged.

In the case of trademark infringement, ADS-TEC reserves the right to exercise all rights.

2.1.8 Copyright

This instruction manual is protected by copyright. For the authorised user, simple usage rights are granted within the scope of the intent of the contract. Any modified use or exploitation of the provided content, particularly duplication, modification or publishing in whatever form is permitted only with the prior consent of ADS-TEC.

In the case of copyright infringement, ADS-TEC reserves the right to exercise all rights.

2.1.9 Standards



The manufacturer hereby declares that the product described in this instruction manual complies with all relevant stipulations of the following European directives:

- 2011/65/EU, RoHs Directive
- 2014/30/EU, EMC Directive
- 2014/53/EU, RED Directive
- 2014/35/EU, Low Voltage Directive

The product is a class B device.

Note: For full compliance with the EMC legislation, all components and cables used for device connection must also be compliant with these requirements. It is therefore necessary to employ BUS and LAN cables with shielded connectors and these must be installed as per the instructions contained in the instruction manual.

A corresponding EU conformity declaration is available for competent authorities at the manufacturer and can be viewed upon request.

The EU conformity declaration can be requested on our website www.ads-tec.de and downloaded in the Download area.

The product also complies with the following UL standards:

- UL 61010-1 Programmable Controllers
- UL 61010-2-201 UL file number E343358
- CAN/CSA-C22.2 No. 61010-1
- CAN/CSA-C22.2 No. 61010-2-201


2.2 Explanation of safety instructions

2.2.1 Structure of safety instructions

The signal word classifies the hazard.

Reference to the type/consequences and source of the hazard is made underneath the signal word.

Information on how to avoid the hazard is indicated by an arrow (➔).

DANGER	
	<p>Type and source of the hazard!</p> <p>Possible consequences if the hazard is disregarded</p> <p>➔ Measures for avoiding the hazard</p>

2.2.2 Explanation of signal words

DANGER



Indicates an imminent danger. If not avoided, death or severe injury will result.

WARNING



Indicates a possible danger. If not avoided, death or severe injury could result.

CAUTION



Indicates a possible danger. If not avoided, light or minor injuries could result.

ATTENTION

Indicates a possibly damaging situation. If not avoided, the system or something in its surroundings could be damaged.



Recommendation for use:

Indicates terms and/or conditions that strictly need to be observed to ensure optimised and/or zero-defect operation. Tips and suggestions for the efficient use of the device and software optimisation are also provided.

2.3 Safety instructions

2.3.1 Basic safety instructions

- All users must read this manual and have access to it at all times.
- The safety notices and the manual itself must be observed by all persons who work with this device.
- The manual contains the most important instructions on how to use this device in a safe way.
- Intervention by the user is required only for performing the actions described in this document. Should any further modifications be required, it is necessary to consult either with the manufacturer directly or with service personnel authorised by the manufacturer.
- The device must be de-energised during work. Appropriate measures must be taken to prevent electrostatic discharges on components.
- If the device is opened up by an unauthorised person, the user may be subject to hazards and the warranty is invalidated.
- Installation, commissioning and operation may only be performed by qualified and trained personnel.
- At the installation site the valid guidelines and regulations for accident prevention must be observed.
- Appropriate storage, proper transport, installation and commissioning, as well as careful operation are prerequisites for ensuring safe and proper operation of the device.
- The device can be cleaned using cleaning agents specified in the chapter 9.2.

2.3.2 Environmental conditions

ATTENTION

Damage caused by condensation!

If the temperature of the device is different to that of the room in which it is located, condensation can form.

ATTENTION

Damage caused by heat!

If the device is exposed to sunlight or any other light or heat source, it can overheat and suffer damage.

ATTENTION

Damage caused by heat!

If the device is installed in a panel, casing or similar, heat accumulation can occur.

Make sure that heat can be dissipated from the device!

The device can be put into operation and used under the following environmental conditions. Failure to observe any one of these conditions will invalidate the warranty of the device. ADS-TEC cannot be held liable for any damages arising from improper use and handling.

Use of the device is only permitted

- in enclosed buildings
- in non-explosive atmospheres
- at altitudes below 3000 m
- in environments with maximum contamination grade 2 (IEC/EN 61131-2)

The device can be operated under the environmental conditions (temperature, humidity, vibration and shock) which are specified in the data sheet in chapter 10. Failure to observe any one of these conditions will invalidate the warranty of the device. ADS-TEC cannot be held liable for any damages arising from improper use and handling.

The climatic conditions were tested according to:

IEC/EN 60068-2-1

IEC/EN 60068-2-2

IEC/EN 60068-2-14

Protection class: IP65 according to DIN EN 60529

2.3.3 Intended use

The control system is designed for use in the pharmaceutical, food, beverage and chemical industries. It was specially developed for the hygiene sector. The device is used for the visualisation and control of a wide range of processes on systems and machines in various application environments.

The device is only to be assembled, installed and operated within the permissible specifications. Use in non-specified environments is prohibited.

2.3.4 Improper use

Operation other than or beyond that described for the device shall be deemed improper use.

The device is not allowed to be used to control vehicles or for applications for which further approvals beyond the manufacturer's declaration are necessary, e.g. applications with explosion hazard, medical technology and shipping industry.

The device must not be put into operation in the case of transport damage or nonconformity with the specifications and, if necessary, must be taken out of operation in the case of changing conditions.

In the case of improper use, ADS-TEC shall not accept responsibility or liability for injury or damage that is directly or indirectly attributable to the handling of the device.

2.3.5 Damage due to improper use

ATTENTION

Risk of mechanical damage!

The device can be damaged as a result of unauthorised mechanical modifications.

- ➔ Make sure that the device is not drilled, chiselled or perforated and its exterior shape and design is not modified in any way!

Should the control system have evident signs of damages caused, e.g., by transport, nonconformity with the specifications, improper operation and storage conditions or due to improper use or handling, the device must be shut down immediately. Ensure that it is secured against being started up accidentally.

2.3.6 Warranty / repairs

During the device warranty period, any repairs must only be performed by the manufacturer or by service personnel that has been authorised by the manufacturer.

2.3.7 Treatment and disposal of lithium batteries

WARNING



Hazard due to explosion

Danger of explosion if using incorrect battery types.

→ Use the battery type recommended by the manufacturer!

ATTENTION

Hazard due to thermal loads

The more the battery is exposed to higher temperatures, the faster it ages.

→ Operate the device within its specifications!

ATTENTION

Damage to the battery

Incorrect handling of the battery can cause it to be damaged or destroyed

→ Lithium batteries should not be exposed to fire, soldered, recharged, opened, short-circuited, reversed or heated above 100 °C and they should be disposed of properly as well as protected against sunlight, moisture and condensation!

This device contains a lithium battery for supplying the system clock with power as long as the supply voltage is not connected. The battery has a life cycle of 3-5 years depending on which load is applied.

The battery type to be used is:

Lithium battery CR2032 230 mAh

ADS-TEC part number: DZ-SONS-04075-1

The used lithium battery should be disposed of in accordance with local legal regulations.

2.3.8 Electrostatically sensitive components

ATTENTION

Damage due to electrostatically sensitive components

Damage to the device can be caused by electrostatically sensitive components.

➔ All installation and service work performed on the device must be performed only under safe, secure and de-energised conditions!



Recommendation for use:

Always adhere to the safety measures applicable when handling components at risk of being damaged by electrostatic discharges.

The provisions of DIN EN 61340-5-1 / DIN EN 61340-5-2 apply

3 Scope of delivery

ATTENTION

Damage to components containing soft parts!

If the soft material is subjected to a concentrated load, e.g., by placing it on a grating, irreversible impressions will form after some time.

➔ Make sure that a suitable surface is provided when setting down the device on its display side!

➔ Please check that all of the following components are contained in the packaging:

OPC8017

Device	DVG-OPC8017
4-pin plug (power supply)	DZ-SONS-01222-1/*
18 x clamping block M4	DZ-MECH-31024-0
18 x threaded pin M4x30	DZ-MECH33695-0/A

OPC8024

Device	DVG-OPC8017
4-pin plug (power supply)	DZ-SONS-01222-1/*
26 x clamping block M4	DZ-MECH-31024-0
26 x threaded pin M4x30	DZ-MECH33695-0/A

OPD8017

Device	DVG-OPD8017
3-pin plug (power supply)	DZ-SONS-00994-2
18 x clamping block M4	DZ-MECH-31024-0
18 x threaded pin M4x30	DZ-MECH33695-0/A

OPD8024

Device	DVG-OPD8024
3-pin plug (power supply)	DZ-SONS-00994-2
26 x clamping block M4	DZ-MECH-31024-0
26 x threaded pin M4x30	DZ-MECH33695-0/A

3.1 Optional scope of delivery

Operating system (only for OPC8017 and OPC8024)

HDBaseT™ Extender Kit (only for OPC8017 and OPC8024)

Transmitter module	DV-MMDEXT-TX
Receiver module	DV-MMDEXT-RX
USB cable	DZ-SONS-05647-0/*
HDMI cable	DZ-SONS-05646-0/*
Cable for power supply	DZ-SONS-09796-0/*

4 Installation

ATTENTION

Damage caused by heat!

If the device is installed in a panel, casing or similar, heat accumulation can occur.

→ Make sure that heat can be dissipated from the device.

ATTENTION

Damage caused by heat!

If the device is exposed to sunlight or any other light or heat source, it can overheat and suffer damage.

→ Do not expose the device to direct radiation by sunlight or any other light or heat source.

ATTENTION

Damage to the electronics!

If a device with data drive is not installed vertically, the electronics may suffer damage.

→ Install devices with data drive vertically only. Deviations must be arranged with ADS-TEC.

ATTENTION

Mechanical damage!

If the device is not mounted correctly, IP65 protection will not be provided.

→ Tighten the screws to a torque of 0.5 Nm.

ATTENTION

Damage caused by heat!

If an unsuitable installation housing is selected, this can result in excessive heat generation.

- When selecting the installation housing, the total power dissipation of the system including installed PCBs must be taken into account. The max. permissible ambient temperature must not be exceeded.

Recommendation for use:



Connect the power supply using a screw connection. For additional earthing to an earthing screw, use a wire with a cross section of at least 2.5 mm².

This device is designed for integration. For installation and operation reasons (connector access), the installation location must be accessible from the rear. The wall thickness of the installation location must be between 2 and 13 mm. We recommend at least 3 mm for proper installation with IP65 on the front.

4.1 Preparing installation location

- ➔ Cut an opening (as shown in the installation layout) for the device in the switch board or cabinet door in which you want to install the device.

Installation layout – OPC8017 and OPD8017

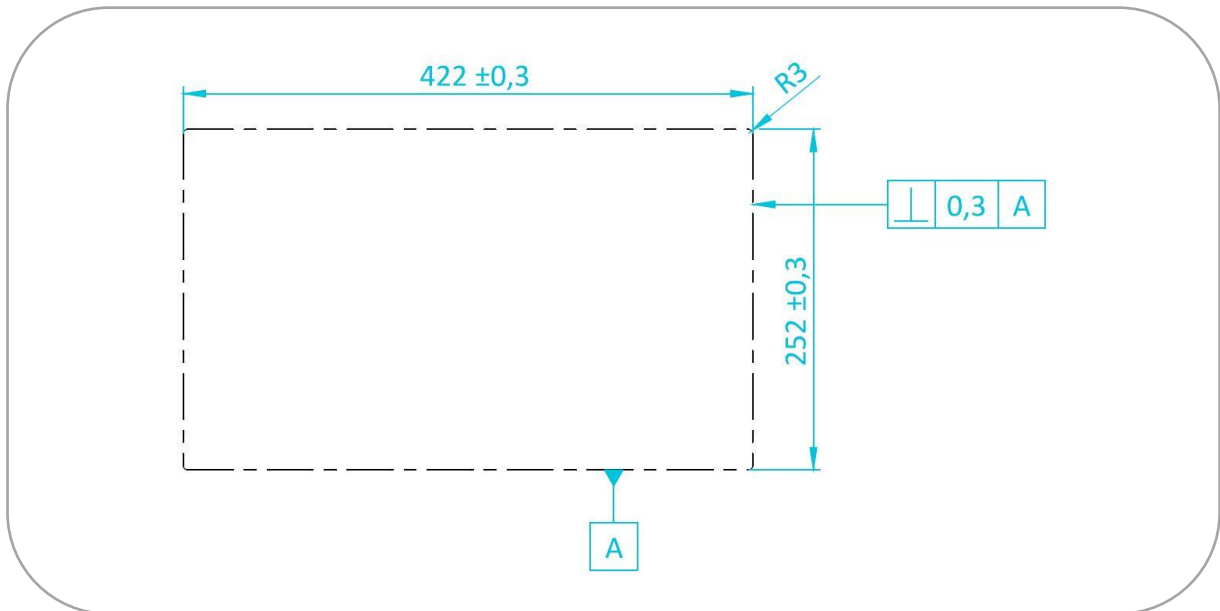


Figure 3: Installation layout – 17 inch

Installation layout – OPC8024 and OPD8024

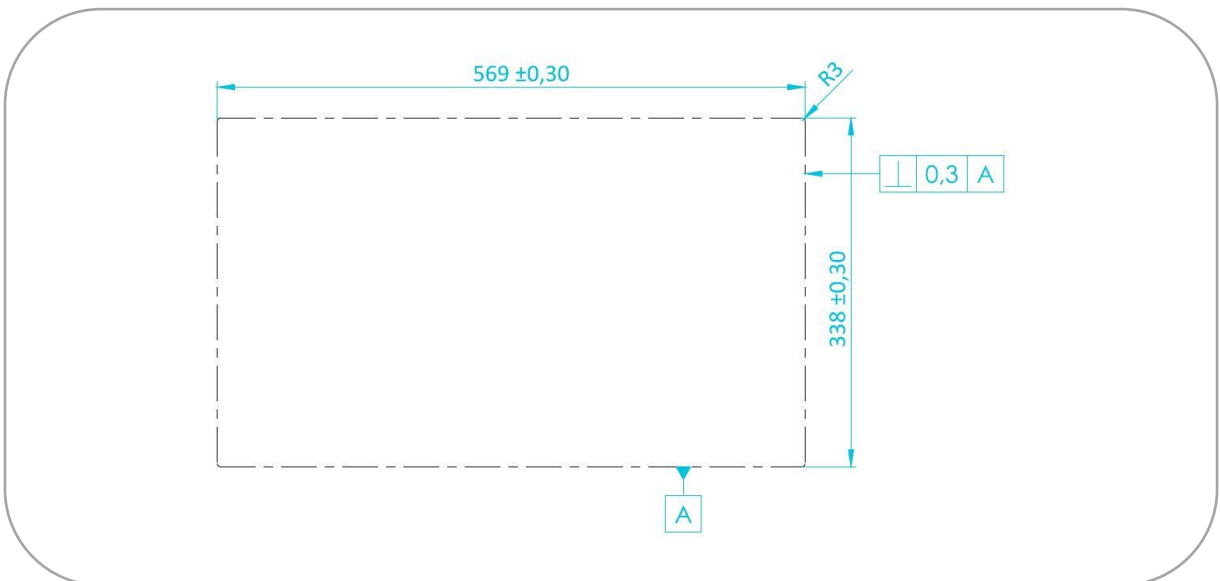


Figure 4: Installation layout – 24 inch

4.2 Installing device

- ➔ Carefully insert the device from the front into the installation location.

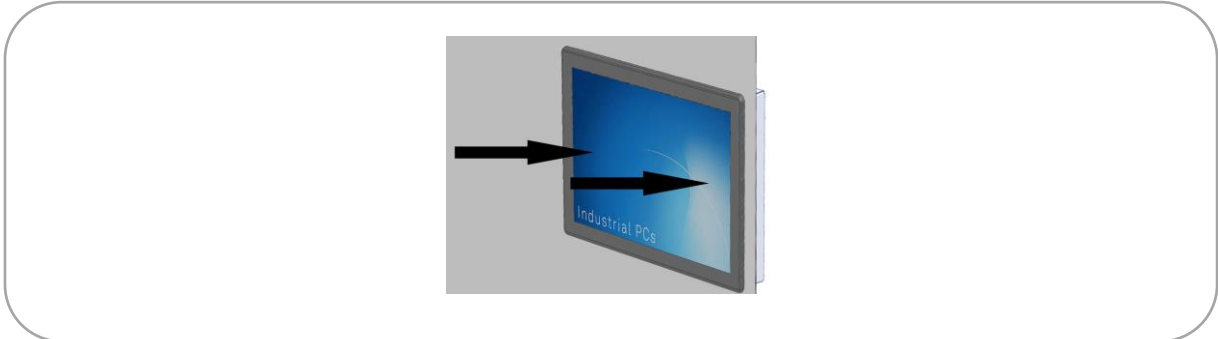


Figure 5: Inserting device into installation location

- ➔ Insert the clamping blocks into the openings as shown in the drawing.

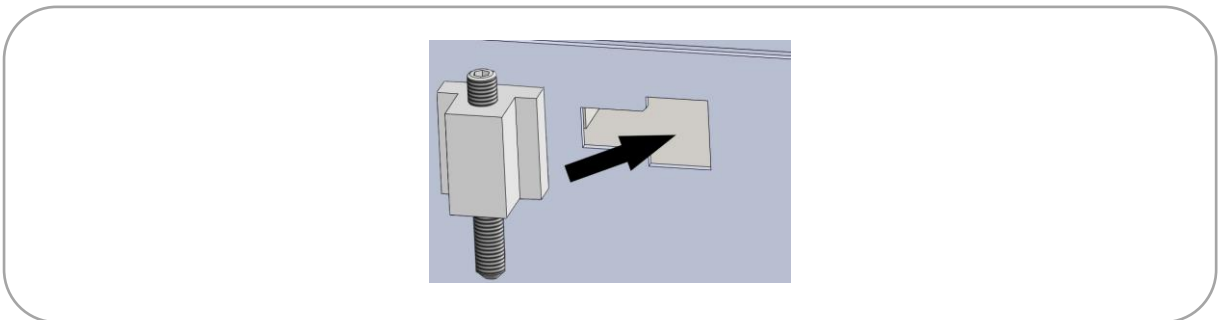


Figure 6: Positioning clamping blocks

- ➔ Slide the clamping blocks from the wide part of the opening into the narrow part.
- ➔ Tighten the clamping blocks using the threaded pins.
 - Tighten the threaded pins only slightly at first.
 - Always tighten clamping blocks positioned furthest apart in sequence; this will prevent mechanical tension.

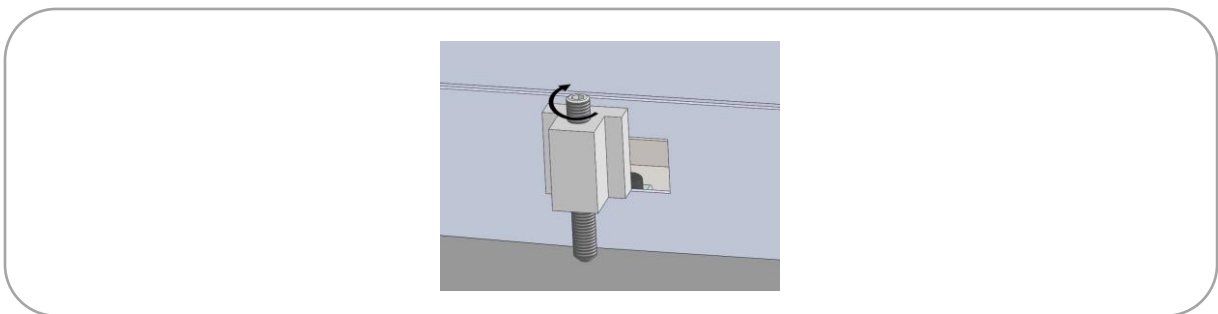


Figure 7: Tightening clamping blocks

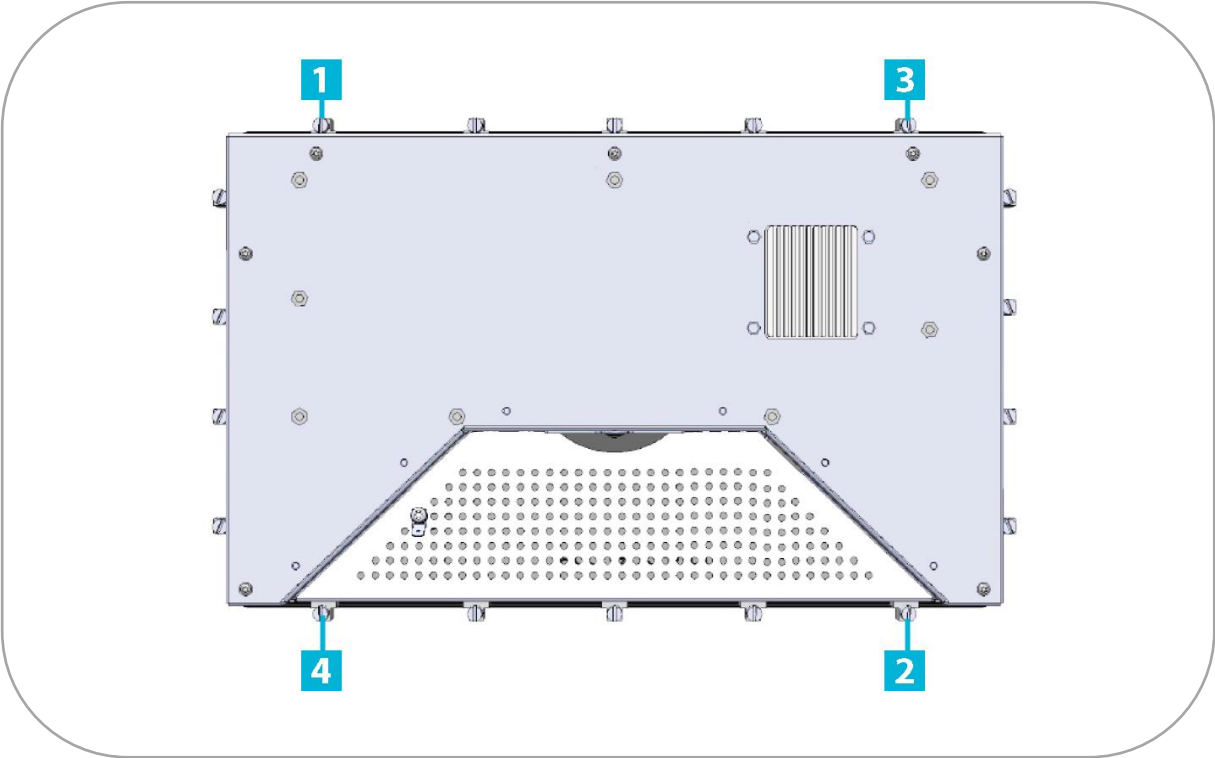


Figure 8: Tightening clamping blocks, step 1

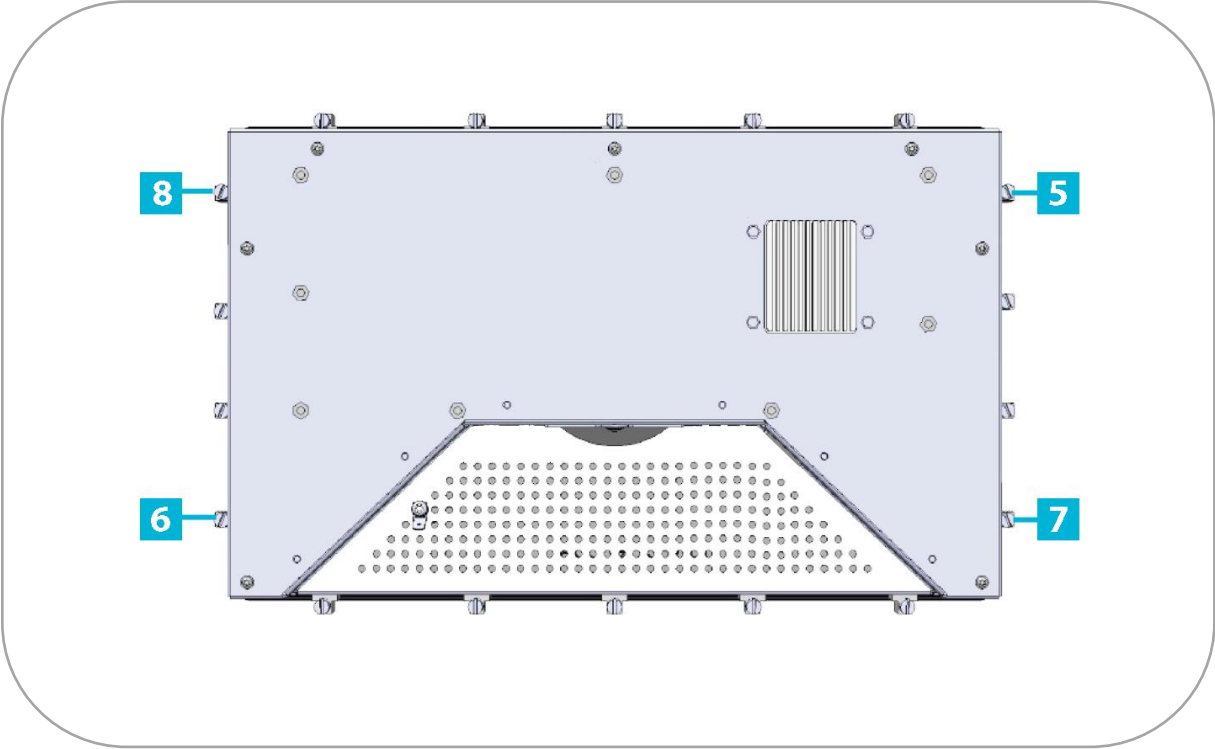


Figure 9: Tightening clamping blocks, step 2

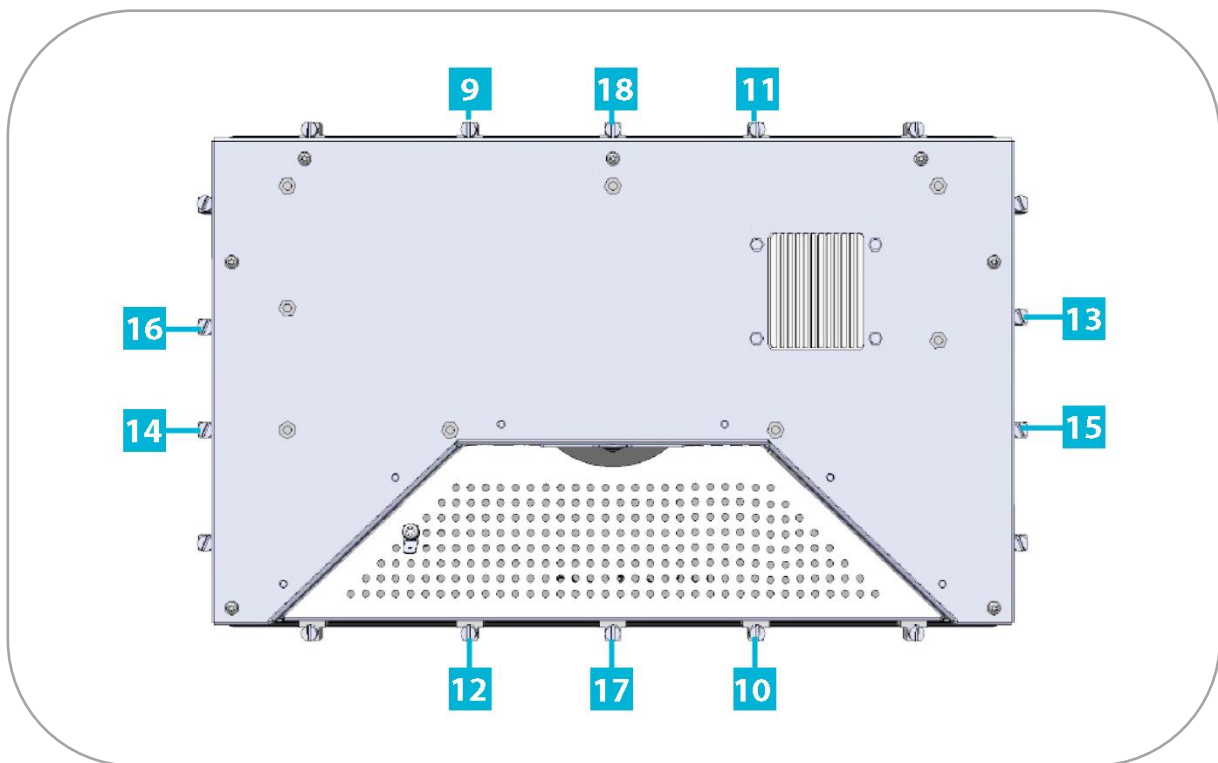


Figure 10: Tightening clamping blocks, step 3

➔ Then tighten all threaded pins to a torque of 0.5 Nm in the same sequence.

The pressure of the clamping block against the wall stabilises the OPC/OPD. Installation of the device is complete when all clamping blocks are properly clamped.

5 Interfaces

WARNING

**Hazard due to excessive current!**

Excessive current can cause overloading of the electronics which could then result in injury or damage.

- Operate the device only with a power supply that complies with NEC Class 2!

WARNING

**Hazard due to overvoltage!**

In case of no protective earth, there is a danger of overvoltage at the device.

- Always attach the protective earth!

ATTENTION

Damage to the electronics!

The electronics can be damaged if plug-in connections are connected or disconnected while power is still being applied.

- Make sure that no power is being applied while connecting and disconnecting cables!

5.1 Interfaces of OPC8017/OPC8024

All device connections are in the recessed area on the rear side of the device.

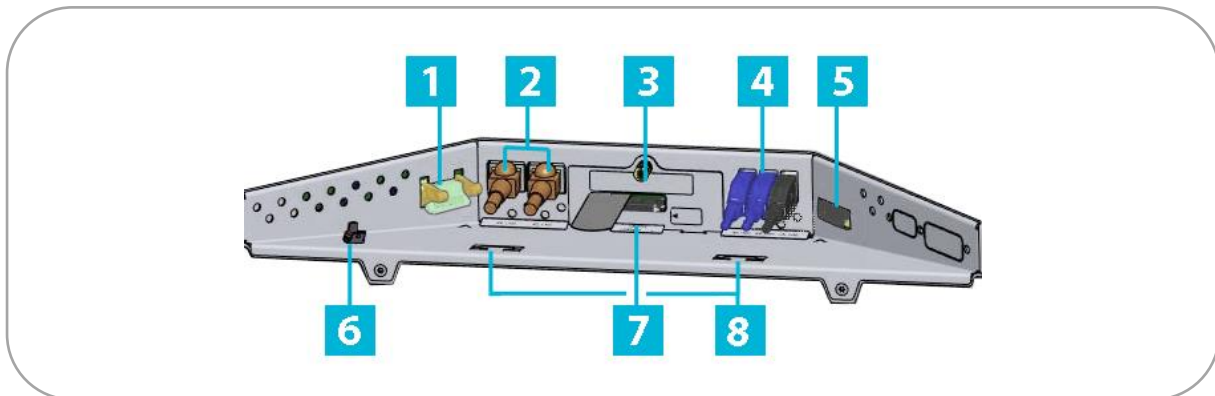


Figure 11: Interfaces of OPC8017/OPC8024

1	Power supply
2	2 x LAN RJ45
3	1 x 2.5" mass storage
4	2 x USB 3.0 1 x USB 2.0
5	1 x SD-Card Slot
6	Earth connection
7	Battery
8	Strain relief fixture

Power supply

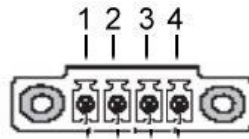
You will need a power adapter with the following technical data:

Input voltage: 18 to 30 V $\overline{\text{---}}$ (NEC Class 2)

Max. switch on current: 3 A (MMT8017) / 4 A (MMT8024)

- ➔ For the power supply, use only the 4-pole plug connector (see the scope of delivery, chap. 3).
(The figure shows the socket inside the device).

1	NC*
2	0 V $\overline{\text{---}}$
3	PE
4	24 V $\overline{\text{---}}$



*Can be used for shutdown function of a UPS

Earth connection

- ➔ Attach a 6.35 mm blade terminal with retainer tab to the PE cable for the earth connection.

If you have a key module:

- ➔ Use one earth connection for the earthing cable of the key module and the other for that of your external power supply.

USB

The sockets comply with the USB 2.0 standard (white interface) and the USB 3.0 standard (blue interfaces). The USB 2.0 interfaces are downward compatible to USB 1.0, and the USB 3.0 interfaces are downward compatible to USB 2.0 and USB 1.0.

LAN

You can integrate the device in an Ethernet network which supports 1 Gbit/s. For this purpose, use the 1Gbit RJ45 LAN ports. If required, the necessary drivers can be downloaded at www.ads-tec.de. The specifications for the network topology must be observed.

Mass storage

Hard disk / Flash SSD

The following storage options are available:

1. mSATA module (permanently installed)
2. 2.5" SSD mass storage with up to 500 GB via SATA (removable)

External drives

External storage media can be connected via USB interfaces.

ATTENTION

Risk of data loss!

Data can be lost if an external data drive is connected or disconnected during operation.

- ➔ Switch off the device before connecting or disconnecting an external data drive!

5.2 Interfaces of OPD8017/OPD8024

All device connections are in the recessed area on the rear side of the device.

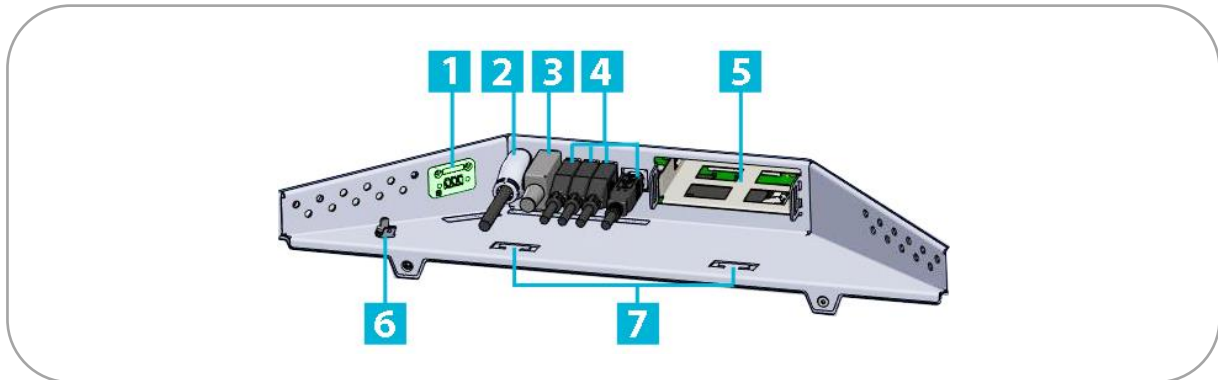


Figure 12: Interfaces of OPD8017/OPD8024

1	Power supply
2	1 x HDMI
3	1 x display port
4	4 x USB 2.0
5	Mounting slot for extender kit
6	Earth connection
7	Strain relief fixtures

Power supply

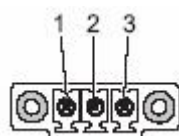
You will need a power adapter with the following technical data:

Input voltage: 18 to 30 V $\overline{=}$ (NEC Class 2)

Max. switch on current: 2 A (MMD8017)/2.5 A (MMD8024)

For the power supply, use only the supplied 3-pole plug connector (see the scope of delivery, chap.3) (the figure shows the socket in the device).

1	24 V $\overline{=}$
2	PE
3	0 V $\overline{=}$



Earth connection

- ➔ Attach a 6.35 mm blade terminal with retainer tab to the PE cable for the earth connection.

USB

These interfaces comply with the USB 2.0 standard (3 x type A and 1 x type B). They are downward compatible to USB 1.0.

HDMI

The HDMI connection complies with version 1.4 of the HDMI standard.

Display port

The display port complies with version 1.2a of the VESA DisplayPort* standard.

5.2.1 Maximum cable lengths



Recommendation for use:

Note the maximum cable lengths for the respective application type.

The maximum length of cables which can be used to connect the display and computer is:

- HDMI up to max. 15 m
- Display port up to max. 10m
- USB 2.0 up to max. 15 m

The HDBaseT™ Extender Kit (chap. 0) is required for greater distances between the display and computer. This kit can be ordered from ADS-TEC.

HDBaseT™ Extender Kit:

- HDBaseT™ up to max. 100 m

6 HDBaseT™ Extender Kit

WARNING



Hazard due to excessive current!

Excessive current can cause overloading of the electronics which could then result in injury or damage.

➔ Operate the device only with a power supply that complies with NEC Class 2.

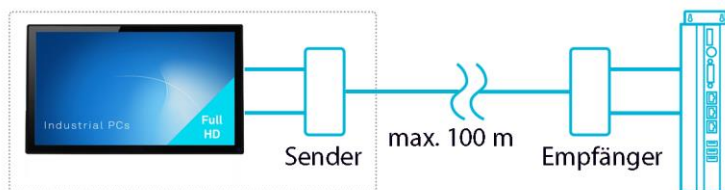


Figure 13: Use of extender kit

The HDBaseT™ Extender Kit allows data transmission between the computer and MMD over distances of up to 100 m. The scope of delivery is given in chapter 3.

6.1 Installation of receiver module

- ➔ Open the service slot of the machine mounted display.
- ➔ Slide the receiver module into the mounting slot.
 - The catches of the two retainer tabs on the receiver module must engage in the retainer clips.

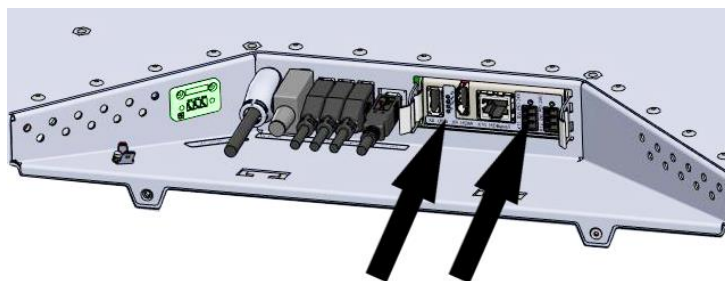


Figure 14: Installation of receiver module

6.2 Interfaces of receiver module

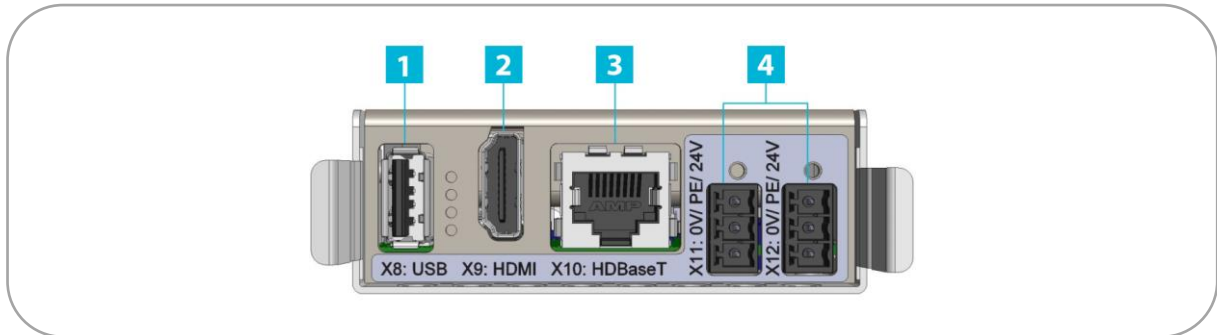


Figure 15: Interfaces of receiver module

1	1 x USB 2.0
2	1 x HDMI
3	1 x HDBaseT™ 100Mbit
4	2 x 24 V $\overline{=}$, connected in parallel

Power supply

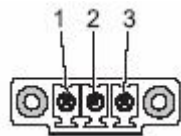
You will need a power adapter with the following technical data:

Input voltage: 18 to 30 V $\overline{=}$ (NEC Class 2)

Max. switch on current: 0.8 A

For the power supply, use only the supplied 3-pole plug connector (chap.3) (the figure shows the socket in the receiver module).

1	24 V $\overline{=}$
2	PE
3	0 V $\overline{=}$



6.3 Cabling

- ➔ When connecting and disconnecting cables, make sure that no power is being applied to the device or cables.
- ➔ Connect the OPD and receiver module using the supplied cables for the power supply, HDMI connection and USB connection.

6.4 Interfaces of transmitter module

The transmitter module is intended for top-hat rail mounting in the cabinet.

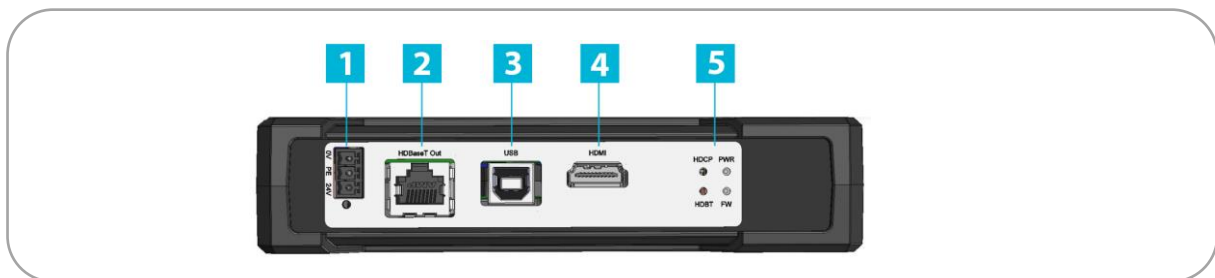


Figure 16: Interfaces of transmitter module

1	24 V $\overline{---}$
2	HDBaseT™ 100Mbit
3	USB 2.0
4	HDMI
5	SYS LEDs

- ➔ Connect the receiver module to the transmitter module via the HDBaseT™ connection.



Recommendation for use:

The following CAT cables are recommended for connecting the transmitter to the receiver module: CAT6a cable 80 m with min. 24AWG / 27AWG

Power supply

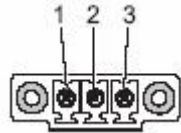
You will need a power adapter with the following technical data:

Input voltage: 18 to 30 V $\overline{\text{---}}$ (NEC Class 2)

Max. switch on current: 0.6 A

For the power supply, use only the supplied 3-pole plug connector (chap.3)
(the figure shows the socket in the transmitter module).

PIN number	Signal name
1	24 V $\overline{\text{---}}$
2	PE
3	0 V $\overline{\text{---}}$



6.5 Status indicators

6.5.1 Status indicators on transmitter module

The transmitter module has LEDs which indicate the status of the transmitter. They provide information about the graphics link (HDCP), the power supply (PWR), the firmware (FW) and the HDBaseT™ connection (HDBT).

The table below lists the various states.

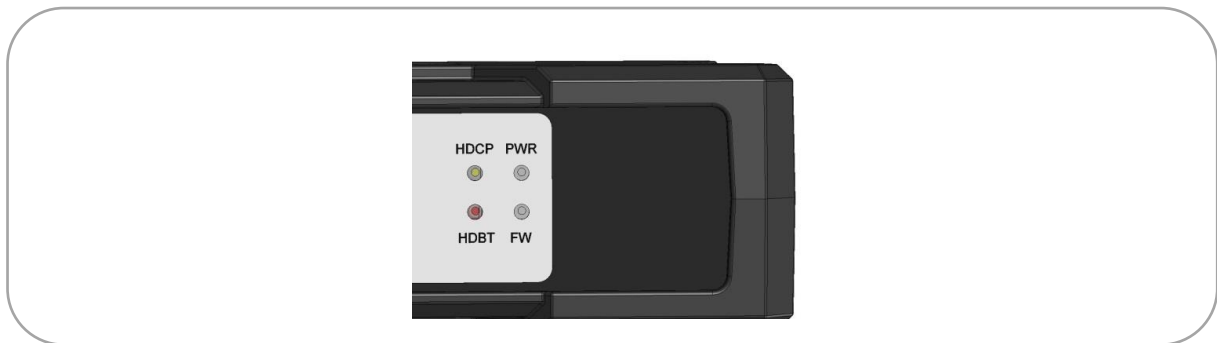


Figure 17: Status indicators on transmitter module

	LED signal	Action
HDCP	<input checked="" type="checkbox"/> Flashing	Graphics link is present
	<input type="checkbox"/> Off	No graphics link
PWR	<input checked="" type="checkbox"/> On (blue)	The device is supplied with voltage via POWER and is ready for operation
	<input type="checkbox"/> Off	No power supply
HDBT	<input checked="" type="checkbox"/> On	HDBaseT™ link present
	<input type="checkbox"/> Flashing slowly	Low Power Mode
	<input type="checkbox"/> Flashing rapidly	Ethernet Fallback Mode
	<input type="checkbox"/> Off	No link
FW	<input type="checkbox"/> Flashing	Firmware is loaded and ready for operation
	<input type="checkbox"/> Off	No firmware action

6.5.2 Status indicators on receiver module

The transmitter module has LEDs which indicate the status of the transmitter. They provide information about the graphics link (HDCP), the power supply (PWR), the firmware (FW) and the HDBaseT™ connection (HDBT).

The table below lists the various states.

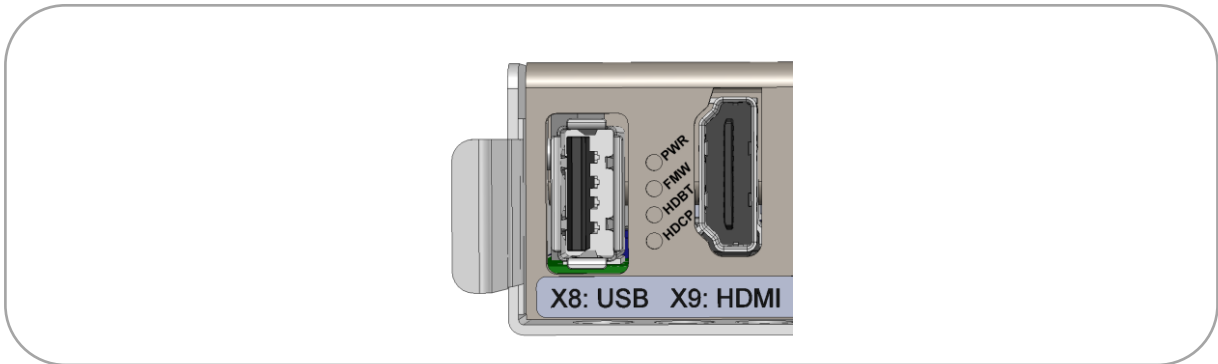


Figure 18: Status indicators on receiver module

	Signal	Action
PWR	<input checked="" type="checkbox"/> On (blue)	The device is supplied with voltage via POWER and is ready for operation
	<input type="checkbox"/> Off	No power supply
FW	<input checked="" type="checkbox"/> Flashing	Firmware is loaded and ready for operation
	<input type="checkbox"/> Off	No firmware action
HDBT	<input checked="" type="checkbox"/> On	HDBaseT™ link present
	<input checked="" type="checkbox"/> Flashing slowly	Low Power Mode
	<input checked="" type="checkbox"/> Flashing rapidly	Ethernet Fallback Mode
	<input type="checkbox"/> Off	No link
HDCP	<input checked="" type="checkbox"/> Flashing	Graphics link is present
	<input type="checkbox"/> Off	No graphics link

7 Commissioning

WARNING

**Hazard due to excessive current!**

Excessive current could result in injury or damage.

- Operate the device only with a power supply that complies with NEC Class 2.

WARNING

**Hazard due to overvoltage!**

In case of no protective earth, there is a danger of overvoltage at the device.

- Always attach the protective earth!

ATTENTION

Damage to the electronics!

The electronics can be damaged if the permissible voltage is exceeded.

- Make sure to meet the permissible voltage for this device.

ATTENTION

Damage to the electronics!

The electronics can be damaged if plug-in connections are connected or disconnected while power is still being applied.

- Make sure that no power is being applied while connecting and disconnecting cables.

ATTENTION

Damage to the electronics!

Condensation can damage the device.

- Switch on the device only after it has acclimated to the ambient temperature.



Recommendation for use:

The shielding of a data cable must always be connected with the connector housing (EMC).



Recommendation for use:

Insofar as they are specified in the scope of delivery or in the replacement parts list, only connectors and cables offered by ADS-TEC are to be used for commissioning and during operation. All other connectors and cables which you use for commissioning and during operation must have been approved.

Check for operational readiness

- Make sure that the threaded pins of the clamping blocks are tightened to 0.5 Nm.

Commissioning device

- When connecting and disconnecting cables, make sure that no power is being applied to the device or cables.
- Connect the cables in any order.
- Connect the cables to the strain relief fixtures
- Make sure that the 24 V power supply complies with NEC Class 2.
- Switch on the device by connecting the power adapter to the external power supply.

8 Operation

8.1 Switching on and off

ATTENTION

Damage to the electronics!

The electronics can be damaged if the device is switched off and then on again too quickly.

➔ After switching off and before switching on you must wait for at least 5 seconds!

➔ Switch on the device by connecting the power adapter to the external power supply.

If an operating system (Windows or Linux) is installed, it now starts.

When the device is on, the status LED of the monitor lights up. This LED is on the front at the bottom right.

➔ Switch off the device by shutting down the operating system.

8.2 Multifunction touch-screen

**Recommendation for use:**

The touch calibration data is stored independent of the operating system and requires no additional calibration by the user.

**Recommendation for use:**

With older operating systems, a driver may be required for the touch-screen functionality.

➔ Operate the multifunction touch-screen using up to 10 fingers. It is not only possible to tap elements – swiping and dragging movements are also possible.

The necessary driver software is already integrated in the respective operating system.

- ➔ If you need other drivers, you can download them at <http://www.ads-tec.de> in the Download area.



Figure 19: Touch surface

8.3 Component replacement

ATTENTION

Risk of short circuit!

A short circuit can occur if components are replaced while the device is still switched on.

- ➔ Before replacing components, disconnect the power supply from the device!

8.3.1 Replacing BIOS battery (OPC8017/OPC8024)

ATTENTION

Risk of explosion!

Hazard due to overheating of the battery

- ➔ Make sure that the battery is of the correct type and that it is inserted with the correct polarity!



Recommendation for use:

Avoid touching both battery poles at the same time.

The device of the MMT8000 series contains a lithium battery for supplying the system clock with power as long as the supply voltage is not connected. The battery has a life cycle of 3-5 years depending on which load is applied. It is in the service slot (chap.5.1).

The battery type to be used is:

lithium battery type CR2032 (230 mAh / 3 V)



Recommendation for use:

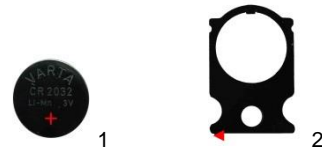
Use only the battery type recommended by ADS-TEC.

Replacing battery

1. Pull out the battery drawer (pull both sides of the battery drawer at the same time).



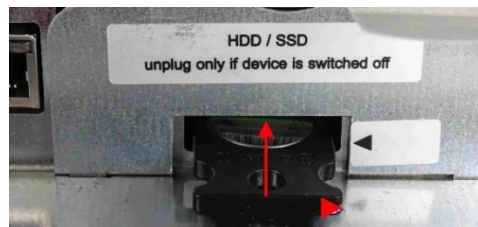
2. Press the battery (1) (with the positive pole facing upwards) into the drawer (2) until it engages.



3. Turn the drawer (3) over so that the negative terminal is pointing upwards.



4. Insert the drawer into its slot (4); the drawer must engage in the slot.



8.3.2 Replacing mass storage device

On the OPC8017/OPC8024, there may be a mass storage device in the service slot.

Removing mass storage device

1. Remove the cover plate.

To do so, undo the fastening screw (1) (PH1 cross-tip screwdriver).



2. Grip the mass storage device by its removal aid (2) and pull it carefully and parallel along its guides (3) into the slot.



3. Then remove the mass storage device at an angle in an upward direction (4).



Installing mass storage device

1. Insert the mass storage device into the slot at an angle.

-
2. Lower the mass storage device and push it back in all the way parallel to its guides.



-
3. Position the retainer tabs of the cover in the guide slots at an angle and close the cover.




-
4. Screw in the fastening screw finger-tight (PH1 cross-tip screwdriver)



8.3.3 Replacement parts list

Insofar as they are specified in the scope of delivery or in the replacement parts list, only connectors and cables offered by ADS-TEC are to be used for commissioning and during operation. All other connectors and cables which you use for commissioning and during operation must have been approved.

The following components can be ordered as replacement parts from ADS-TEC:

Device/designation	Designation	Part number
OPC		
Plug	4-pole plug with locking lever, green	DZ-SONS-01222-x
BIOS battery	Lithium battery CR2032 230mAh	DZ-SONS-04075-1
PE cable connection	6.35 mm blade terminal with retainer tab	DZ-HAND-36102-0
OPD		
Plug	3-pole plug, black	DZ-SONS-01212-x
PE cable connection	6.35 mm blade terminal with retainer tab	DZ-HAND-36102-0
Cable tie	Cable tie 98 x 2.5 mm, natural	DZ-HAND-03225-0
Transmitter Tx		
Cable	USB2.0 1 m	DZ-SONS-05642-x
Cable	HDMI Male-Male 1 m	DZ-SONS-05643-x
Cable	HDMI Male-DP Male 1 m	DZ-SONS-05644-x
Plug	3-pole plug, black	DZ-SONS-01212-x
Receiver Rx		
Cable	24 V  power supply	DZ-SONS-09796-x
Cable	USB2.0	DZ-SONS-05647-x
Cable	HDMI Male-Male	DZ-SONS-05646-x
Plug	3-pole plug, black	DZ-SONS-01212-x

9 Maintenance, cleaning and disposal

Maintenance and cleaning must be performed by appropriately qualified personnel.

The following activities can be carried out by the operator:

9.1 Maintenance

The following maintenance intervals must be observed:

Interval	Location	Activity
Daily	Overall device	Visually inspect for loose objects and visible damage
Monthly	Fixing screws	Check that they are seated securely; tighten as necessary
3 years	BIOS battery	Change
Optional, if installed		
Daily	Emergency stop button	Check that it functions correctly

9.2 Cleaning

Clean and maintain your system regularly. How often you need to clean the system depends on your work and the operating environment. If necessary, follow the on-site cleaning plan.

Cleaning agents and disinfectants

We recommend cleaning the devices using commercially available glass cleaning agents.

The following cleaning agents have also been tested:

Ethanol and isopropanol based:

- Deconex Solarsept
- Bacillol
- Meliseptol

Neutral cleaning agents:

- P3-Cosa Foam 40
- P3-Cosa PUR 80

Disinfectants:

- Hydrogen peroxide < 30 %

Acidic cleaning agents:

- P3-cosa CIP 72

Quarternary ammonium compounds:

- Klerdice-CR Biocide A
- Deconex Surface AF
- P3-cosa DES


9.3 Disposal

Electrical and electronic devices must not be disposed of with household waste, but must rather be taken to a collection point for waste electrical equipment. Such a collection point is generally operated by public waste management authorities, i.e., by municipalities.

10 Technical data

10.1 Technical data – OPD/OPC8000 series

10.1.1 Data sheet

	OPC8017	OPC8024	OPD8017	OPD8024
Housing	Galvanised sheet-metal housing			
Display	17.3" LED backlight	23.8" LED backlight	17.3" LED backlight	23.8" LED backlight
Resolution	1920 x 1080 pixels	1920 x 1080 pixels	1920 x 1080 pixels	1920 x 1080 pixels
Touch	PCAP multi-touch / toughened glass			
Processor	Intel® Celeron™ 1.6 GHz (2980U) Intel® Core™ i5 1.9 GHz (4300U)		-	
RAM	to 8 GB DDR3		-	
Mass storage	SSD to 500 GB mSATA SSD to 128 GB		-	
Network	2 x 1 Gbit Ethernet RJ45		-	
Interfaces	1 x USB 2.0 / 2x USB 3.0		1 x HDMI, 1 x display port 3 x USB 2.0 / 1 x USB 2.0 slave	
Power adapter	18 – 30 V  NEC Class 2			
Operating system	Windows Embedded Standard 7 (64 bit) Windows 7 Ultimate [for Embedded Systems] (64 bit) Windows Embedded 8.1 Industry Pro (64 bit) Windows 10 IoT (64 bit)		-	
Protection class	IP65 at front, IP20 at rear (not verified by UL, tested by ADS-TEC)			
Operating temperature	0 °C to +50 °C	0 °C to +45 °C	0 °C to +50 °C	0 °C to +45 °C
Dimensions (W x H x D)	433 x 263 x 79 mm	580 x 349 x 79 mm	433 x 263 x 79 mm	580 x 349 x 79 mm
Weight	Approx. 4.8 kg	Approx. 6.3 kg	Approx. 4.5 kg	Approx. 6.0 kg
Vibration	10 m/s ² ; 2 – 200 Hz (class 3M5 of standard IEC/EN 60721-3-3)			
Shock resistance	250 m/s ² ; t=6 ms (class 3M5 of standard IEC/EN 60721-3-3)			
Humidity	10 to 85% non-condensing			

10.1.2 External device dimensions OPC8017

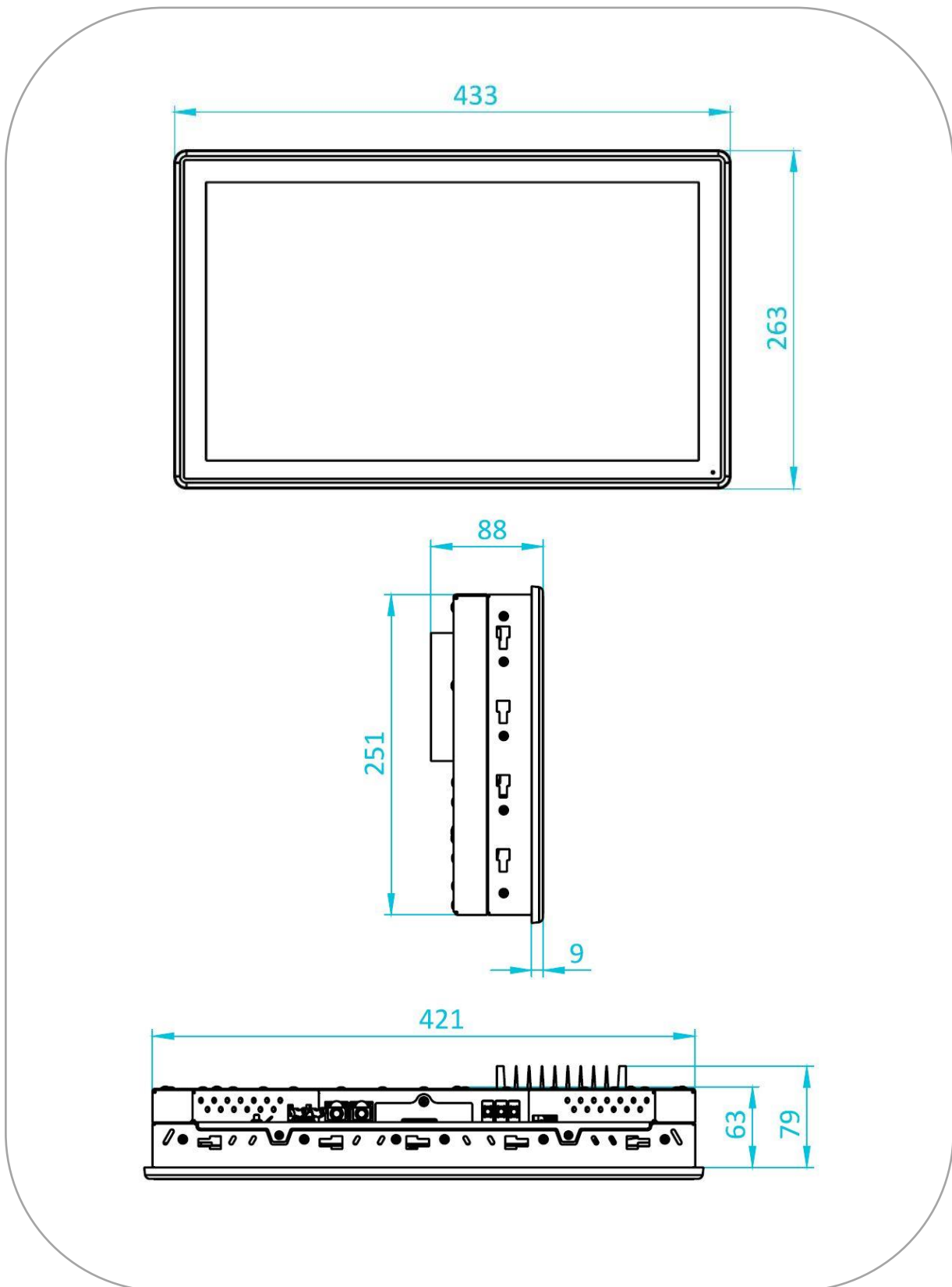


Figure 20: External device dimensions OPC8017

10.1.3 External device dimensions OPC8024

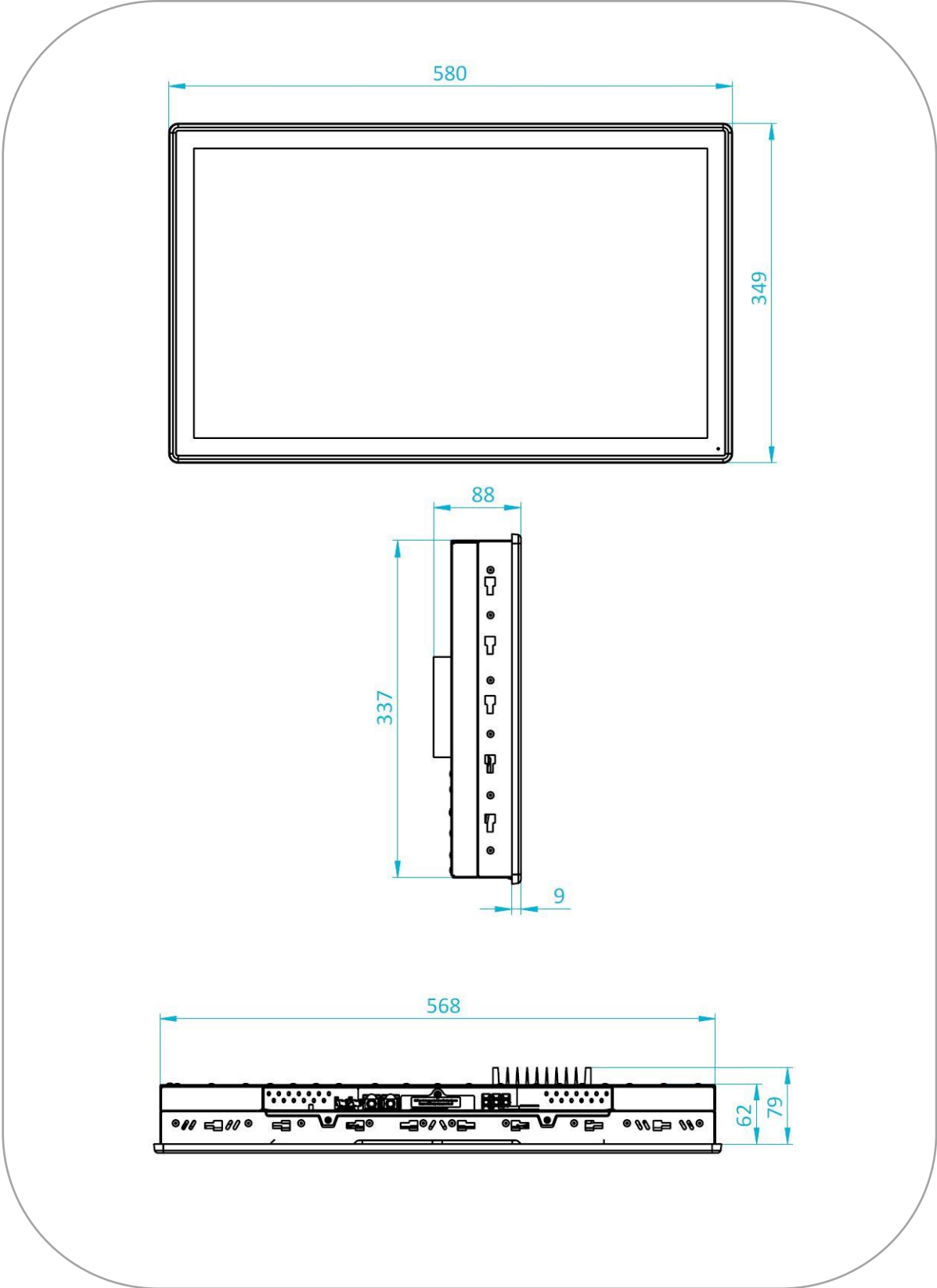


Figure 21: External device dimensions OPC8024

10.1.4 External device dimensions OPD8017

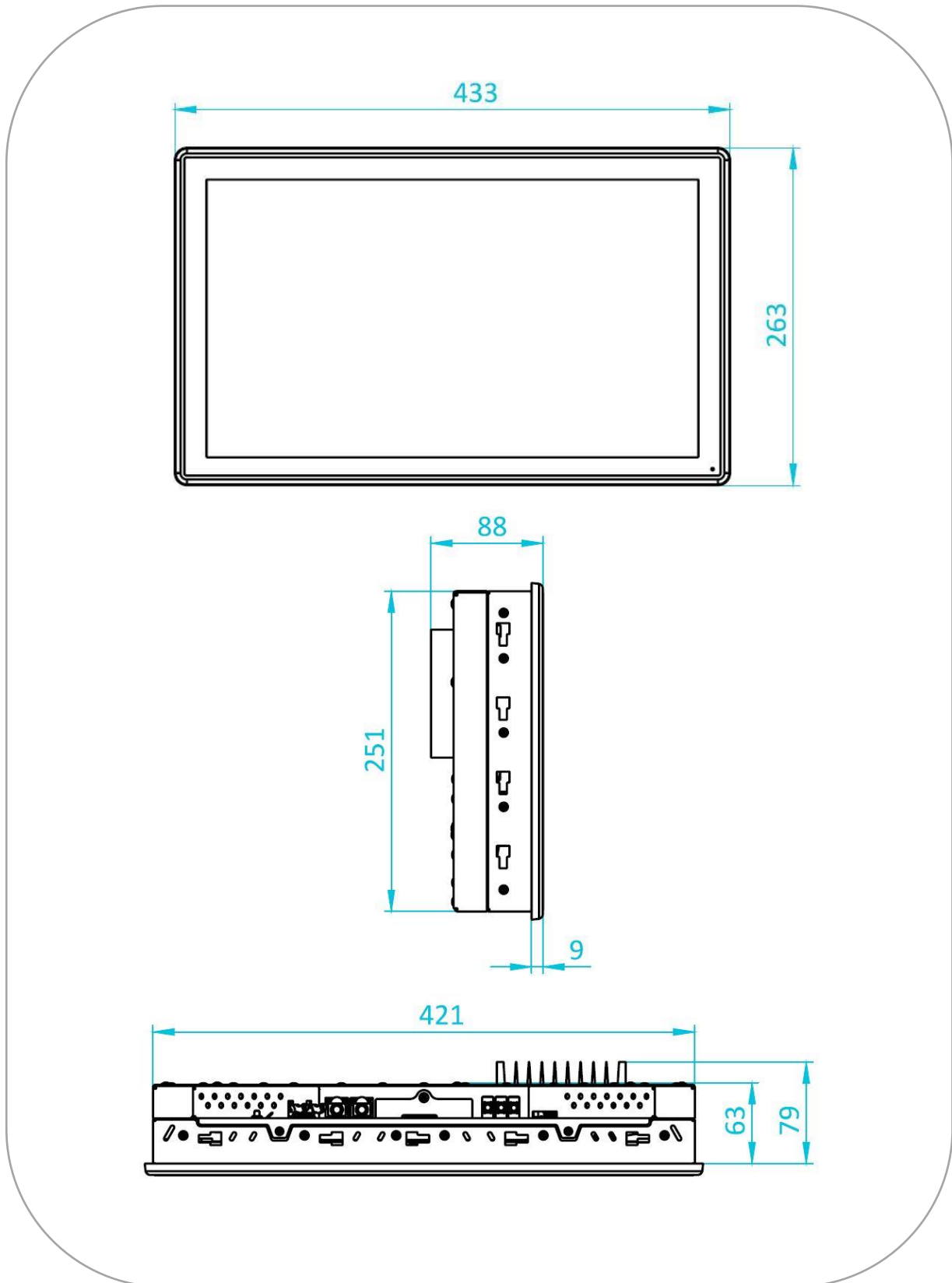


Figure 22: External device dimensions OPD8017

10.1.5 External device dimensions OPD8024

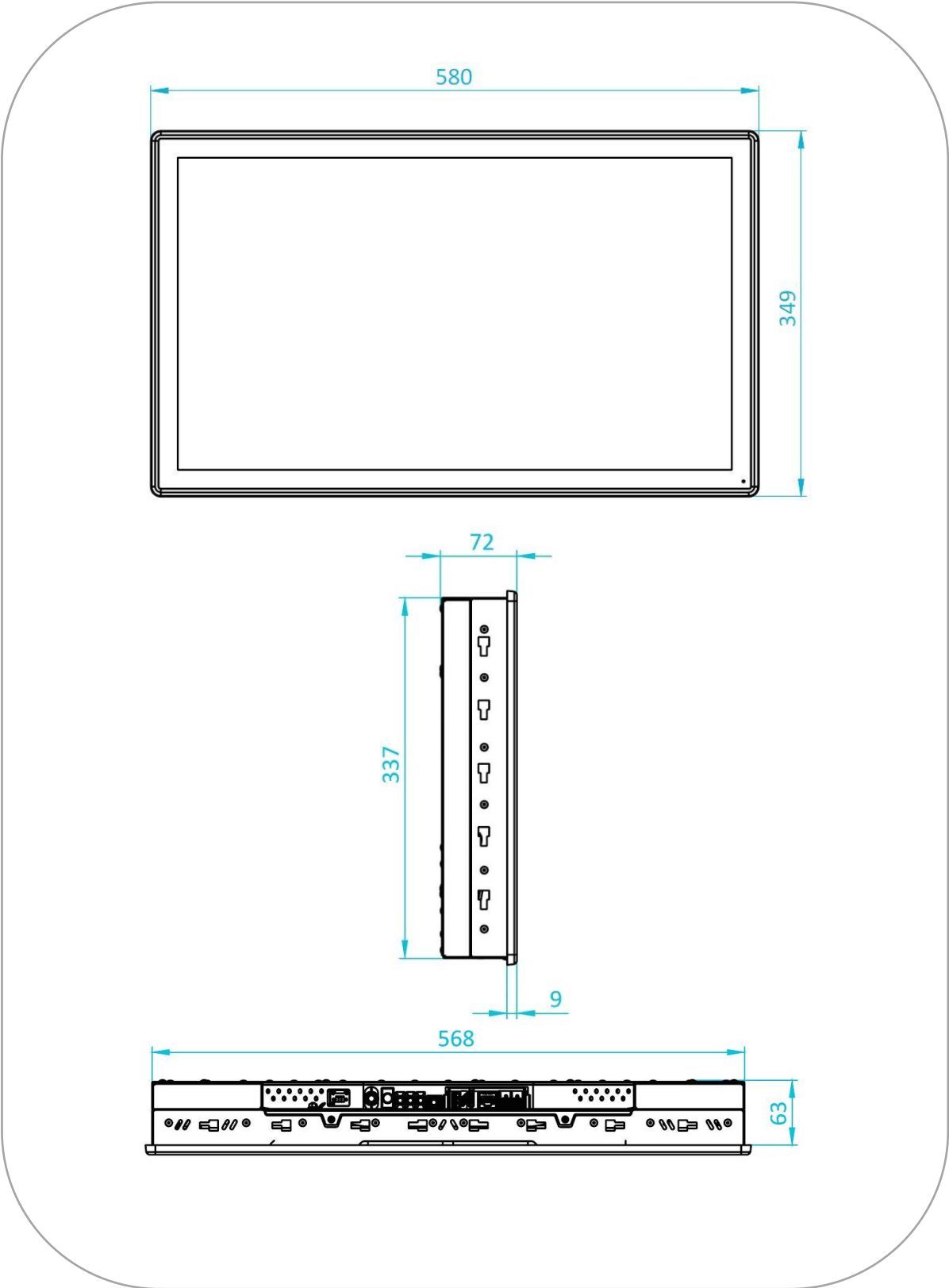




Figure 23: External device dimensions OPD8024

10.2 HDBaseT™ Extender Kit technical data

10.2.1 Data sheet

	Transmitter Tx	Receiver Rx
Housing	Aluminium die-casting housing	-
Interfaces	1 x USB 2.0 1 x HDMI 1 x HDBaseT™ 100Mbit	1 x USB 2.0 1 x HDMI 1 x HDBaseT™ 100Mbit
Power supply	18 – 30 V 	18 – 30 V 
Protection class	IP 20	IP 20
Operating temperature	0° to 55°C	0° to 50°C
Dimensions (W x H x D)	135 x 159 x 35 mm	74 x 105 x 27 mm
Weight	0.7 kg	0.2 Kg
Humidity	10 to 85% non-condensing	

10.2.2 External device dimensions – HDBaseT™ Extender Kit transmitter

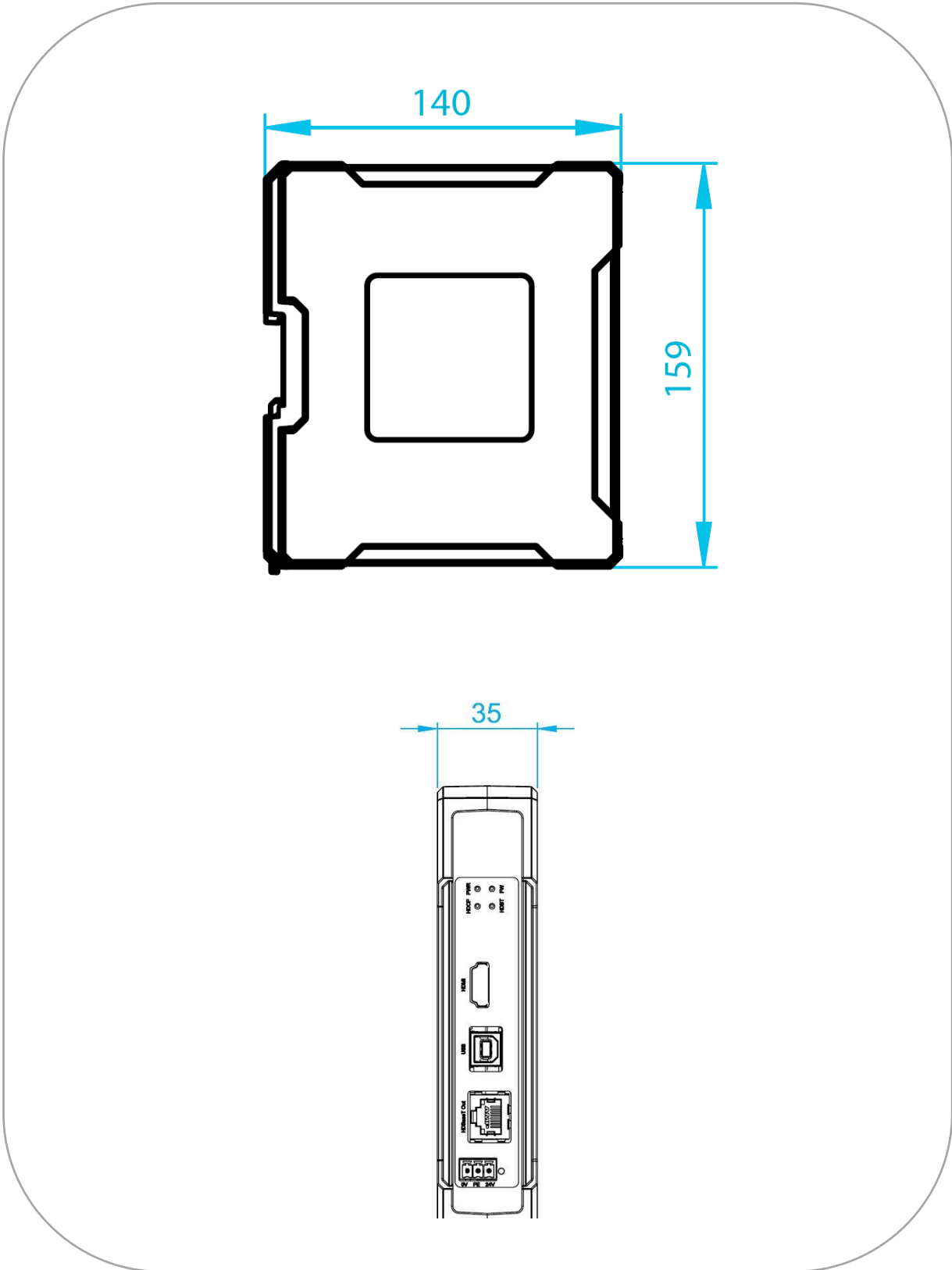


Figure 24: External device dimensions – HDBaseT™ Extender Kit transmitter

10.2.3 External device dimensions – HDBaseT™ Extender Kit receiver

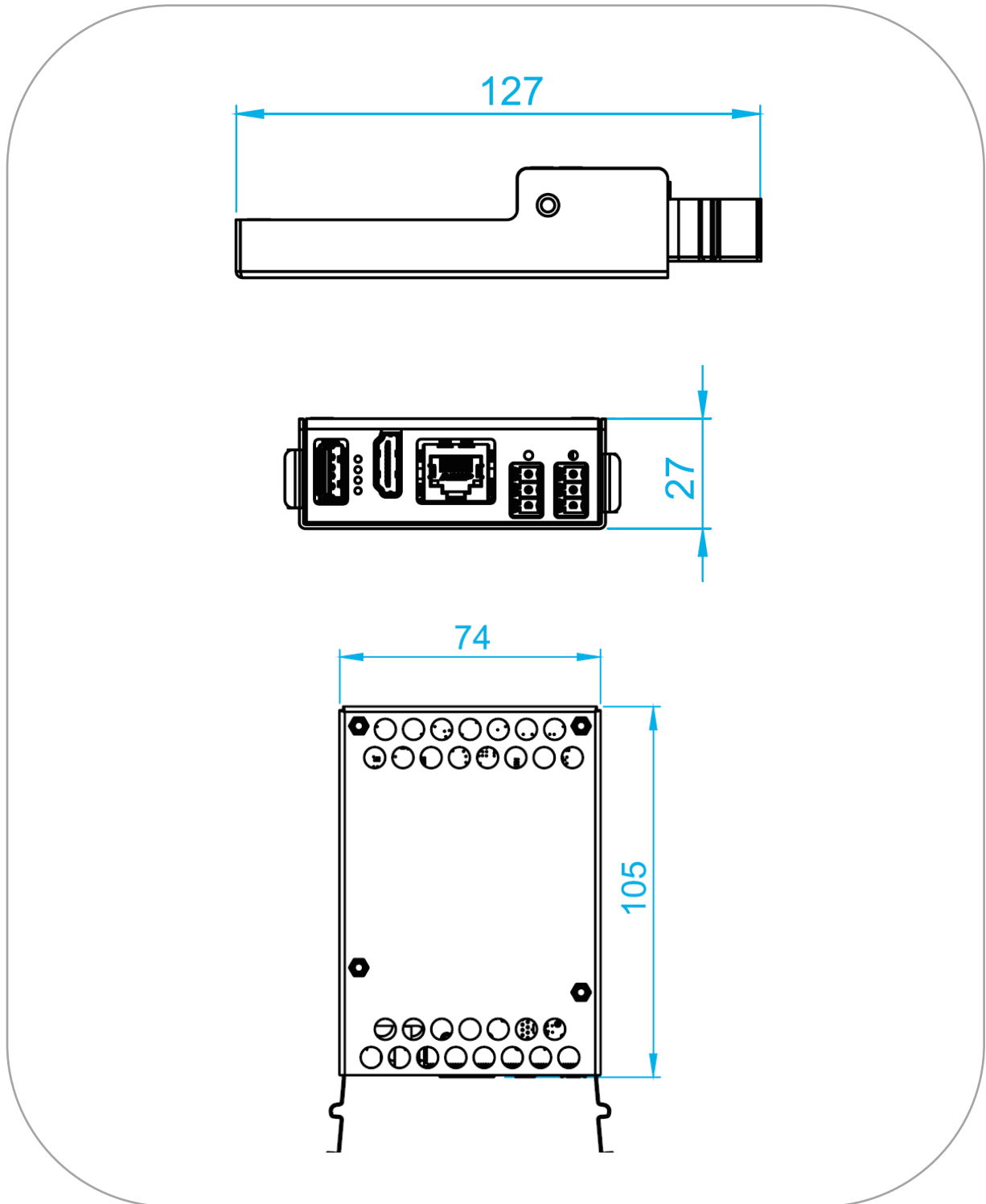


Figure 25: External device dimensions – HDBaseT™ Extender Kit receiver

11 List of figures

Figure 1: Use of OPC / OPD	6
Figure 2: Touch surface.....	7
Figure 3: Installation layout – 17 inch.....	22
Figure 4: Installation layout – 24 inch.....	22
Figure 5: Inserting device into installation location.....	23
Figure 6: Positioning clamping blocks	23
Figure 7: Tightening clamping blocks.....	23
Figure 8: Tightening clamping blocks, step 1	24
Figure 9: Tightening clamping blocks, step 2	24
Figure 10: Tightening clamping blocks, step 3	25
Figure 11: Interfaces of OPC8017/OPC8024.....	27
Figure 12: Interfaces of OPD8017/OPD8024.....	30
Figure 13: Use of extender kit	32
Figure 14: Installation of receiver module	32
Figure 15: Interfaces of receiver module.....	33
Figure 16: Interfaces of transmitter module.....	34
Figure 17: Status indicators on transmitter module.....	36
Figure 18: Status indicators on receiver module	37
Figure 19: Touch surface.....	41
Figure 20: External device dimensions OPC8017	49
Figure 21: External device dimensions OPC8024	50
Figure 22: External device dimensions OPD8017	51
Figure 23: External device dimensions OPD8024	52
Figure 24: External device dimensions – HDBaseT™ Extender Kit transmitter	54
Figure 25: External device dimensions – HDBaseT™ Extender Kit receiver	55

12 Service & support

ADS-TEC and its partner companies offer you comprehensive maintenance and support services, ensuring quick and competent support should you have any questions or concerns with regard to ADS-TEC products and equipment.

Because ADS-TEC products are also used by partner companies, these devices may have customised configurations. Should any questions arise with regard to such specific configurations and software installations, please contact the system supplier in question as ads-tec will not be able to answer such questions.

ADS-TEC does not provide support services for any device that was not purchased directly from ADS-TEC. In this case, maintenance and support is provided by the partner company.

12.1 ADS-TEC support

The ADS-TEC support team is available for inquiries from direct customers between 8:30am and 5:00pm, Monday to Friday

and can be reached via phone, fax or e-mail:

Phone: +49 7022 2522-202

Fax: +49 7022 2522-400

Email: support@ads-tec.de

Alternatively, you can contact us by completing a support form on our website www.ads-tec.de. Our Support team will then get in touch with you as soon as possible.