Translation of the original
operating instructions v1.2

Manual

Stainless steel panel PC

SHP9000 series

adstec
Industrial IT

Status: 2025-10-30

Read these instructions carefully before use and keep them in a safe place.

The instructions contain important information on the product, in particular on its intended use, safety, installation, use, maintenance and disposal.

Pass the instructions on to the user after installation and with the product in the event of resale.

These instructions can be downloaded at: www.ads-tec-iit.com in the download area.

Publisher

ads-tec Industrial IT GmbH

Heinrich-Hertz-Straße 1

72622 Nürtingen

Phone: +49 7022 2522-0

Internet: www.ads-tec-iit.com

Email: mailbox@ads-tec.de

Contents

1 General notes on documentation

1.1 General information

These operating instructions are intended to ensure the safe and efficient use of the SHP9000 industrial PC, hereinafter referred to as the "device".

All specified safety instructions and instructions for action are a prerequisite for safe working and must be observed.

The operating instructions must be read by all users and must be accessible at all times.

The original of these operating instructions was written in German. Any non-German version of these operating instructions is a translation of the German operating instructions.

1.2 Explanation of the safety instructions

1.2.1 Structure of the safety instructions

The signal word classifies the hazard.

The type/consequence and source of the hazard are indicated below the signal word.

Instructions for avoiding the danger are marked with an arrow (➧).

DANGER

Type and source of danger!

Possible consequences of ignoring the hazard

➧ Measures for hazard avoidance

1.2.2 Explanation of the signal words

WARNING

Indicates a potentially imminent danger. If it is not avoided, death or serious injury may result.

CAUTION

Indicates a potentially imminent danger. If it is not avoided, slight or minor injuries may result.

ATTENTION

Indicates a potentially harmful situation. If it is not avoided, the system or something in its vicinity may be damaged.

Recommendation for use:
Provides information on conditions that must be observed to ensure error-free operation. It also provides tips and advice on the efficient use of devices and software optimisation.

1.2.3 Relevant documentation for the device

The following documentation is authoritative for setting up and operating the device:

- These operating instructions:
  Contains information on installation, commissioning and operation of the appliance as well as technical data.
- Website:
  In addition to the operating instructions, drivers, software, user manuals, brochures and flyers can be downloaded from the download area at www.ads-tec.com.

1.3 Symbols

Symbol	Meaning
	Labelling of batteries and electronic devices. These must not be disposed of with household waste, but must be collected separately. Used batteries and electronic devices must be returned to the point of sale or to a disposal system.
	Symbol for the protective conductor connection (PE)
	Symbol for the functional earth connection (FE)
	Symbol for hot surface

1.4 Data, illustrations, changes

All data, texts and illustrations have been compiled to the best of our knowledge and belief. They do not constitute a guarantee of properties. Despite the greatest possible care, no liability can be accepted for correctness, completeness and up-to-dateness. We reserve the right to make changes.

1.5 Trademark

Please note that the software and hardware designations and brand names of the respective companies used in this documentation are subject to general trademark protection.

Big-LinX® and X-Remote® are registered trademarks of ADS-TEC. All other third-party trademarks used are hereby recognised.

ADS-TEC reserves the right to assert all rights in the event of an infringement of the trademark rights.

1.6 Copyright

2 General information on the device

2.1 Manufacturer & Contact

The manufacturer of the device is ads-tec Industrial IT GmbH – hereinafter referred to as ADS-TEC.

ads-tec Industrial IT GmbH
Heinrich-Hertz-Str.1
72622 Nürtingen
Germany

Tel: +49 7022 2522-0
e-mail: mailbox@ads-tec.de
Web: www.ads-tec-iit.com

2.2 Intended use

The device is used to visualise and control a wide range of processes on systems and machines in different application environments.

Thanks to its IP class, the device can also be used in wet and dusty production environments.

The operator is solely responsible for compliance with the **operator's obligations** and for observing any technical or legal changes that may occur.

Installation, commissioning and operation may only be carried out by **trained and qualified personnel**.

take place.

Interventions by the user are only intended to carry out the processes described in this document. If further changes are to be made, the manufacturer or a service centre authorised by the manufacturer must be consulted.

The appliance must **be de-energised** during service work. Suitable measures must be taken to prevent **electrostatic discharge** to components.

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

2.3 Non-intended use

Any other operation of the appliance or operation beyond that described is considered improper use.

The device must not be used to control vehicles or for applications for which further approvals outside the manufacturer's declaration are required, e.g. hazardous areas, medical technology and shipping.

The device does not support the safety function of functional safety. Do not use the device to analyse safety-relevant data in order to transfer a system to a safe state.

The appliance must not be put into operation if it is damaged during transport or if the specifications are not met, and must be taken out of service if conditions change.

If the device is not used as intended, ADS-TEC accepts no responsibility or liability for personal injury or damage to property resulting directly or indirectly from handling the device.

If the appliance is opened by an unauthorised person, this may pose a risk to the user and invalidate the warranty.

If the appliance shows obvious signs of damage, e.g. caused by incorrect operating/storage conditions or improper handling, it must be shut down immediately and protected against unintentional use.

The device can be damaged by unauthorised mechanical modifications. Ensure that the device is not drilled into, chiselled into, shot through or otherwise altered in its external shape!

2.4 Environmental conditions

ATTENTION

Damage due to heat!

If the device is exposed to radiation from sunlight or other sources of light or heat, it may overheat and be damaged.

➧ Do not expose the device to direct sunlight or other light or heat sources.

The appliance may be operated under the environmental conditions specified in the **technical data**. If these specifications are not adhered to, the warranty for the device will be invalidated. ADS-TEC is not liable for damage caused by incorrect handling.

2.4.1 Vibration/shock

The swing/shock tests were carried out as follows:

Vibration near machines/conveyor belts

- Test specimen: functional device
- Test standard: EN 60068-2-6
- Oscillation form: sine wave
- Test axes: X / Y / Z
- Frequency: 5...200 Hz
- Frequency change: +1 octave/min
- Deflection: 3 mm
- Amplitude: 10 m/s²
- Test duration: 2 h per axle
- DUT status: DUT electrically in operation
- Test criterion: Visual inspection after the test and functionality of the test specimen during and after the test

Shock near machines/conveyor belts

- Test specimen: functional device
- Test standard: EN 60068-2-27
- Shock form: half-sine
- Test axes: +X / -X / +Y / -Y / +Z / -Z
- Amplitude: 250 m/s²
- Duration: 11 ms
- Pre/post compensation: 7 %
- Test duration: 10 shocks per direction and axis
- DUT status: DUT electrically in operation
- Test criterion: Visual inspection after the test and functionality of the test specimen during and after the test

2.5 Conformity

The manufacturer hereby declares that the product described in this manual complies with all relevant provisions of the following European Directives:

- 2011/65/EU RoHS Directive
- 2014/30/EU EMC Directive (devices w/o WiFi)
- 2014/53/EU RED Directive (devices with WiFi)
- 2014/35/EU Low Voltage Directive (AC devices w/o WiFi)
- 2023/1542/EU Battery Regulation
- EC 1907/2006 REACH Regulation

The device is a class A device (industrial area). This class may cause radio interference in residential areas.

The EU Declaration of Conformity is available at

https://www.ads-tec-iit.com/support/eu-konformitaetserklaerung for download.

Recommendation for use:

To comply with the statutory EMC requirements, the connected components and the cable connections must also fulfil these requirements. Shielded bus and LAN cables with shielded plugs must therefore be used and installed in accordance with the instructions in the respective operating manuals.

2.6 Warranty / Repair

During the warranty period, repairs may only be carried out by the manufacturer or by persons authorised by the manufacturer.

ATTENTION

Back up and delete all confidential data and reset passwords before handing over the device to the manufacturer or other persons outside your organisation for repair.

2.7 Limitation of liability

ADS-TEC accepts no liability for personal injury, damage to property, damage to the device or consequential damage caused by non-compliance with these operating instructions, improper use of the device, repairs and other actions on the device by unqualified electricians not certified by ADS-TEC or the use of unauthorised spare parts. Non-compliance with maintenance intervals also leads to exclusion of liability. It is also strictly forbidden to make unauthorised modifications or technical changes to the device.

2.8 Treatment and disposal of batteries

The device contains a lithium battery to power the system clock as long as no supply voltage is applied (CMOS battery aka BIOS battery).

The battery has a service life of 3-8 years depending on the load.

ATTENTION

Damage due to thermal loads

High thermal loads cause the battery to age more quickly.

➧ Operate the device within its specifications.

Recommendation for use

To prevent unexpected system downtime, the CMOS battery should be replaced as a precautionary measure as part of a maintenance plan (e.g. every 5 years).

⇨ Replacing the CMOS battery is described in **section 11.1**.

The used battery must be disposed of in accordance with local regulations.

3 Scope of delivery and nomenclature

Check that the contents of the packaging are intact: If you notice any damage, please contact the manufacturer immediately. The device must not be put into operation.

Check the contents of the packaging for completeness with regard to your order:

- 1 x device
- with DC devices: 1 x 5-pin plug for power supply and for digital input/output
- with AC devices: 1 x power supply cable with 2-pin connector
- Quick start guide
- Accessories according to order/delivery note

The type code of the SHP9000 has the following meaning.

Example:

DVG-	**SHP9024**	**001 -**	**AA**	**/AB**
A	**B**	**C**	**D**	**E**

A: Device with software

B: SHP90xx = name of device family: Smart Hygienic Panel PC
SHP9019: 19“ display
SHP9024: 24“ display

C: Configuration
Numbers 001…899: standard variants
Numbers 900…999: sample devices, e.g. for test purposes

D: Operating system: letters AA...ZZ

E: Exact specification of the parts list version and software configuration

4 Safety and security

4.1 Security vulnerabilities

We place the highest quality demands on our products and services. Our Product Security Incident Response Team (PSIRT) continuously monitors product security.

We will inform you of any potential security vulnerabilities via our cooperation partner **CERT@VDE**: https://certvde.com/en/advisories/vendor/ads-tec-iit/

If you would like to report a security vulnerability, please contact CERT@VDE

- by email at info@cert.vde.com or
- via the web form at https://certvde.com/helper/reportvuln/

4.2 Passwords – overview

To protect your system, you should use passwords, among other things. This section provides a brief overview of various options.

4.2.1 UEFI BIOS: Administrator password

- If set, it must be entered when the BIOS ([Del] or [Alt] + [Del]) or the boot manager ([Esc]) is called up during system startup.
- This password is useful for protecting the BIOS and boot settings. It does not otherwise interfere with system startup.
- This password is often used in industrial applications.

4.2.2 UEFI BIOS: User password

- If set, it must be entered each time the device is started.
- Once entered, the user has administrator rights in the BIOS. To prevent this, a different administrator password should also be set.
- In everyday industrial use, the user password is rarely used because it requires a hardware keyboard to be connected.

4.2.3 Windows passwords

- Access to the operating system should be protected by a password.
- Assign such a password when you start up the device for the first time.
- Do not use an administrator account in everyday industrial use, only user accounts with restricted rights.

4.2.4 Quality and storage of passwords

- Good passwords are long and complex.
- Do not store passwords in a simple file and do not write them down on a piece of paper lying on your desk.

4.3 UEFI BIOS – configuring settings

The UEFI BIOS (Unified Extensible Firmware Interface – Basic Input/Output System) is used in computers to initialise the hardware and start the operating system. At this level, you should pay particular attention to the aspects mentioned below.

4.3.1 Accessing the BIOS setup

1. Switch on the computer or restart it.
2. Immediately after switching on, repeatedly press the **[Del]** key (or **[Alt] + [Del]** to call up the advanced BIOS) until the BIOS setup appears.

4.3.2 Set, change or remove BIOS passwords

Please note:
All devices that can optionally include a wireless module (e.g. WiFi or mobile communications) will be equipped with an administrator password for accessing the UEFI-BIOS as standard ex works from 8/2025. This password can be found on a small sticker in the service slot (depending on the device model). Example:

Set/change:

1. In the BIOS setup, navigate to "Security".
2. Select "Administrator Password".
3. Enter a new password and confirm it.
4. Save with [F4] or switch to the "Save & Exit" tab. Confirm your selection with [Enter].

Remove:

- To remove a set password, leave the input field blank when prompted to enter the new password. [Enter].

4.3.3 Calling up the boot menu

To restore the device, adjust the boot sequence in the BIOS if necessary so that the system starts from the appropriate recovery medium (e.g. USB stick).

The BIOS boot menu allows you to select a boot medium (e.g. USB stick, network, etc.).

1. Restart the device.
2. During system startup, press the [Esc] key repeatedly until the boot menu appears.
3. Select the desired boot device using the arrow keys and confirm with [Enter].

Change boot order

1. Open the BIOS setup.
2. Switch to the "Boot" tab.
3. Under "Boot Option Priorities", you can adjust the order of the boot devices (e.g. USB, eMMC, network), whereby only devices that are actually connected will be offered.
4. Save with [F4] or switch to the "Save & Exit" tab. Confirm your selection with [Enter].

4.3.4 Enable/disable PXE boot

1. Open the BIOS setup by repeatedly pressing **[Del]** (standard BIOS) or **[Alt] + [Del]** (advanced BIOS).
2. In the standard BIOS:
   Navigate to the menu item "Settings > Network Stack Configuration".
   In the advanced BIOS:
   Navigate to the menu item "Advanced > Network Stack Configuration".
3. Enable or disable "Network Stack" and, if necessary, "PXE Support".
4. Save with [F4] or switch to the "Save & Exit" tab. Confirm your selection with [Enter].

4.4 Security features at the operating system level

There are a number of ways to increase security at the operating system level. The following aspects deserve special attention.

4.4.1 Login options

- Password: Standard method for logging in to user accounts.
- Security key ("token" / "dongle"): Login via FIDO2-compatible USB sticks.
- PIN: Alternative to password login, verified locally on the device.

4.4.2 Use of antivirus software

- Windows includes Microsoft Defender Antivirus as standard, which protects the system in real time against malware, ransomware and other threats.
- The protection feature is enabled by default.
- It is possible to install third-party virus protection solutions. This may be beneficial if industry-specific requirements exist.

4.4.3 Use of firewall software

- Windows includes a firewall that controls incoming and outgoing network connections. This firewall is enabled by default.
- Advanced settings can be configured via the Windows Security app or Group Policy.
- If necessary, a third-party firewall may be beneficial, e.g. for centralised management or special industry requirements.

4.4.4 Regular updating of the operating system

- Windows supports security updates that can be installed automatically via Windows Update.
- The update function can be controlled centrally via WSUS (Windows Server Update Services) or group policies.
- Recommendation: Keep the system regularly updated to avoid vulnerabilities.

4.4.5 Disable unnecessary interfaces

Interfaces and services are points of attack and should be disabled if they are not needed in everyday production. This applies, for example, to easily accessible USB interfaces on the front of devices.

4.5 Safety information on radio communications

The device optionally includes a WiFi radio card with additional Bluetooth functionality.

⚠ WARNING

Radio interference could have unpredictable effects in certain environments.

- The radio card must NOT be operated in the following environments:
  – near medical and life-saving equipment,
  – in explosive atmospheres (e.g. near fuel depots or chemical plants),
  – near blasting operations.
- Switch the device OFF in these environments and secure it against accidental start-up.

⚠ WARNING

Communication via radio connections cannot be guaranteed.

- The device must not be used for applications in which people or objects could be harmed due to a malfunction of the radio connection.

⚠ WARNING

Electromagnetic radiation could be hazardous to health.

- Maintain a minimum distance of 20 cm between the transmitting antennas and people.

4.6 Radio communications and cyber security

ATTENTION

Security risks in unsecure networks

The radio connections of the device via the optional integrated modem may constitute publicly accessible network connections and is therefore considered untrustworthy in accordance with EN 18031-1:2024.

- Please observe the following notes.

Mandatory requirement

For secure operation via wide area connections (e.g. also for Internet uplink via Ethernet), the use of an additional secure communication mechanism is mandatory. Permissible measures are:

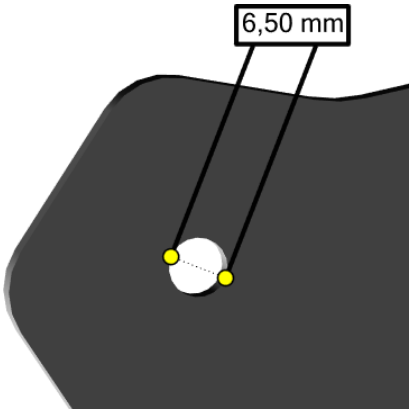
- VPN connections, e.g. via the ADS-TEC Big-LinX© service
- OpenVPN or IPsec-based tunnels
- Use of mutual TLS/HTTPS for direct communication between end devices

5 Mechanical assembly

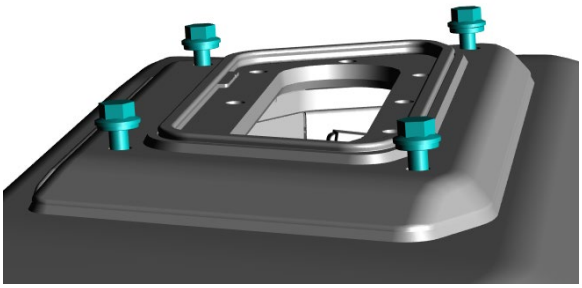
The **external dimensions** of the device can be found in chapter **12 Dimensional drawings.**

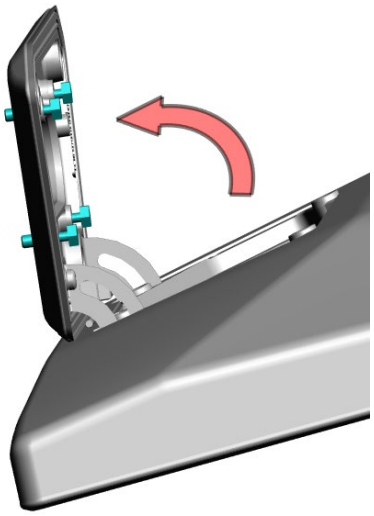
5.1 Attachment to VESA 100 interface

1. Screw the optional VESA 100 flange to a wall that can safely support the weight of the device (M6 or ¼" screw connection; torque and screw lock of the customer's choice and responsibility).

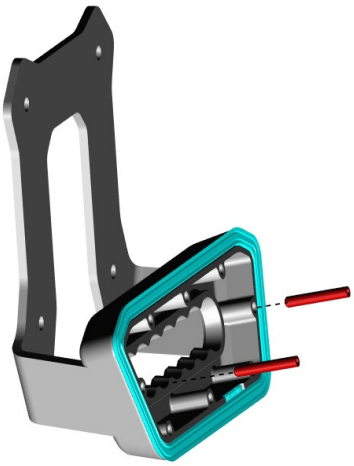


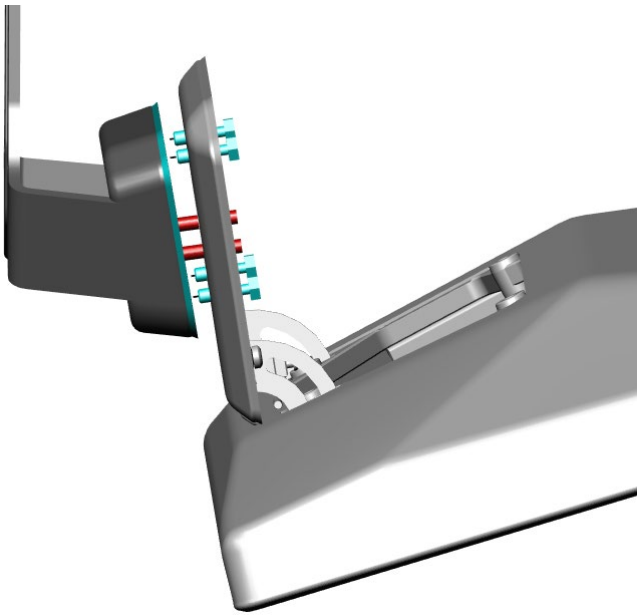
2. Loosen the screws and open the interface cover.



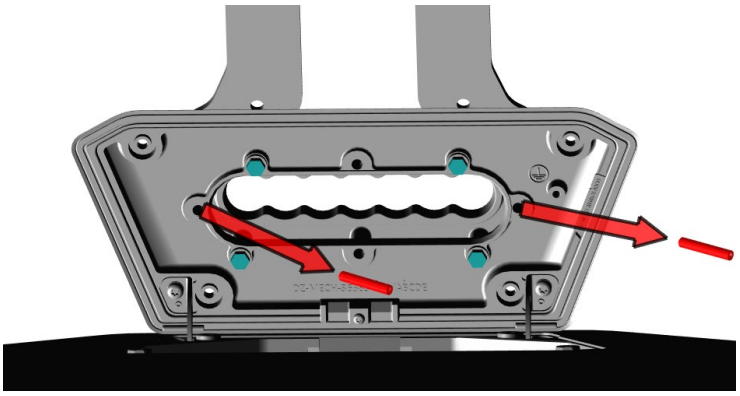


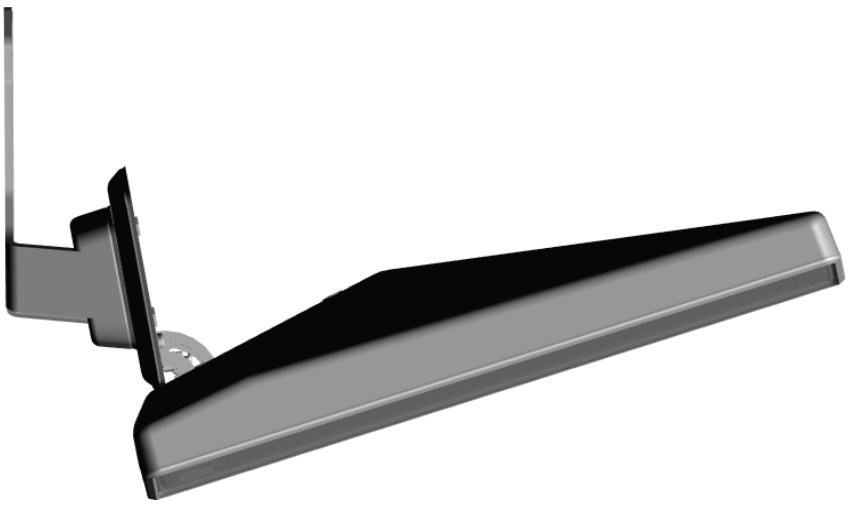
3. Place the device with the interface cover on the pre-mounted VESA flange.
   Two threaded pins (M5x30, Allen key 4 mm, ISO 4026) can be used to make this easier.
   Tighten the four **mounting screws**.



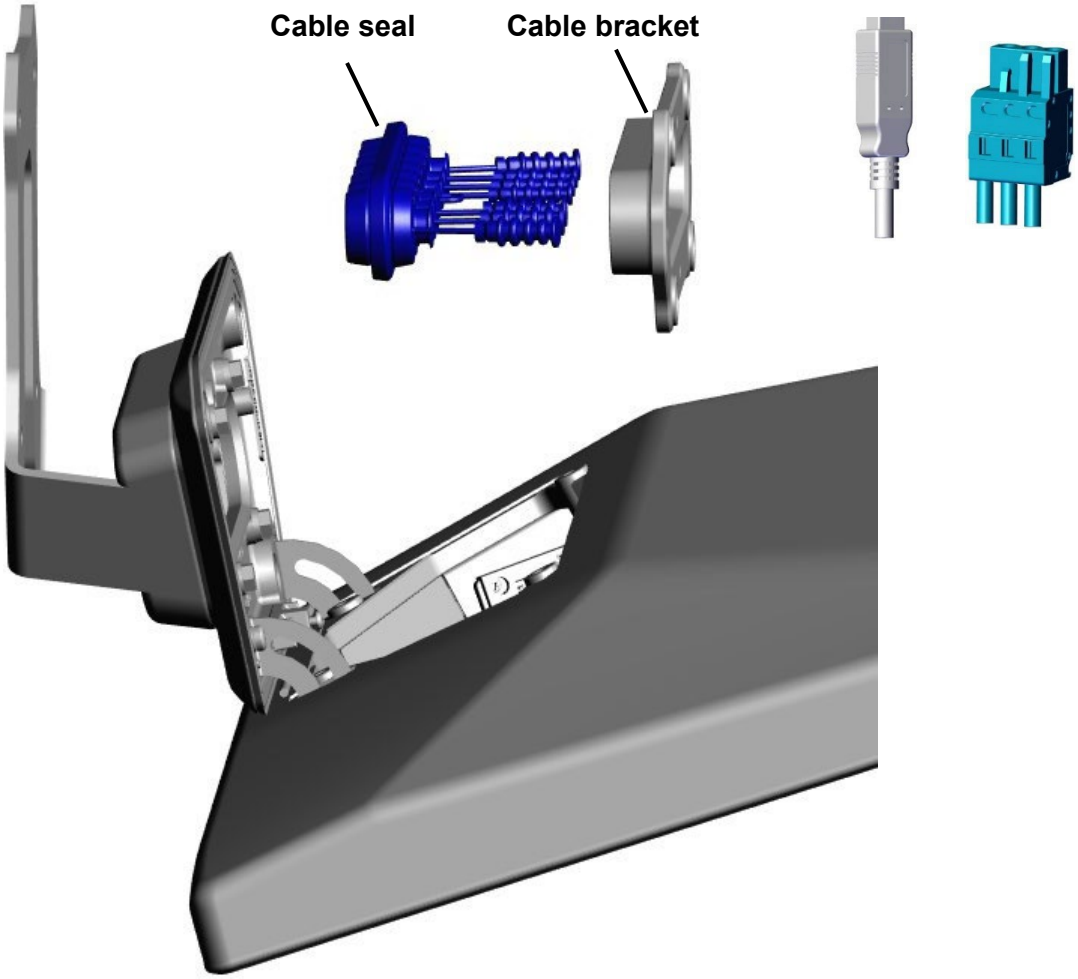


After tightening the mounting screws, remove the two threaded pins (if used).

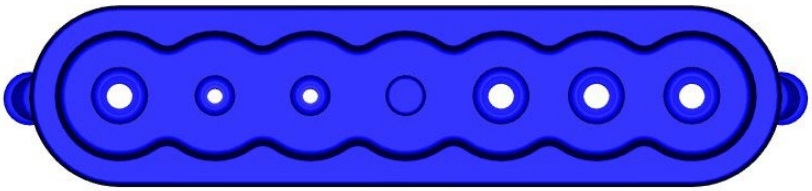




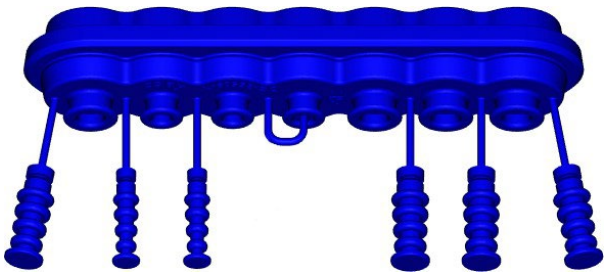
4. Route all cables through the **VESA flange, slotted cable seal** and **cable bracket**.
   To comply with the IP protection class: Note the different hole diameters.



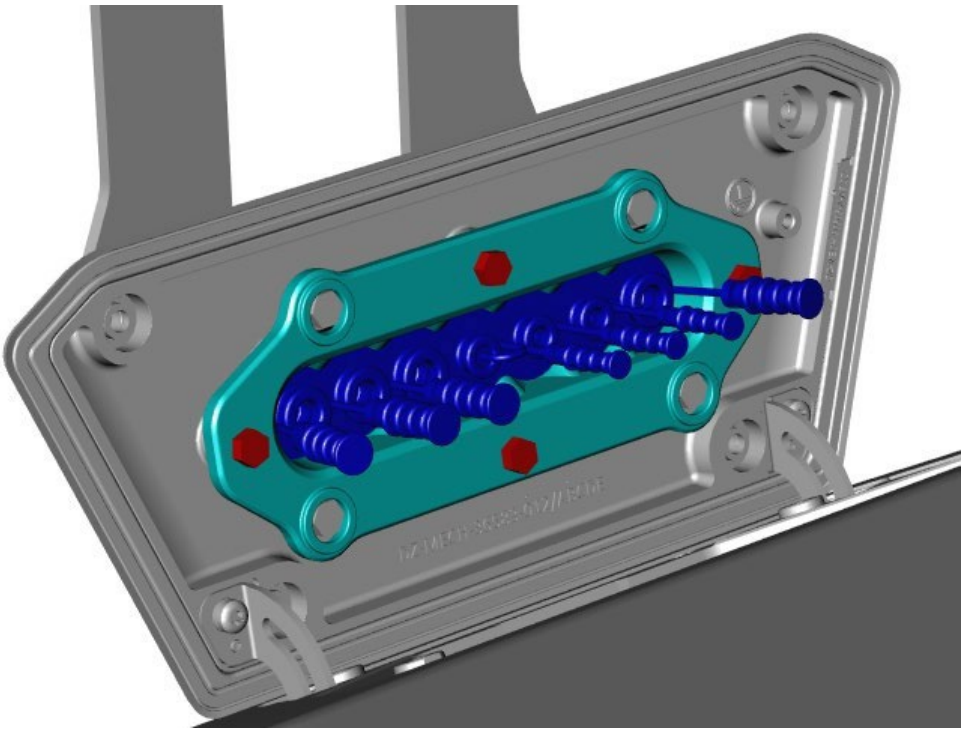
Large holes for cable diameters 5...7 mm, small holes for cable diameters 3...5 mm



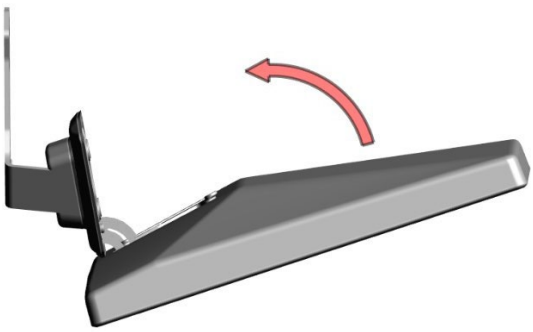
Seal any unused holes with plugs:



5. Press the **seal** into the cut-out in the interface cover. Fit the **cable bracket** and screw tight (M5x18 screws supplied).

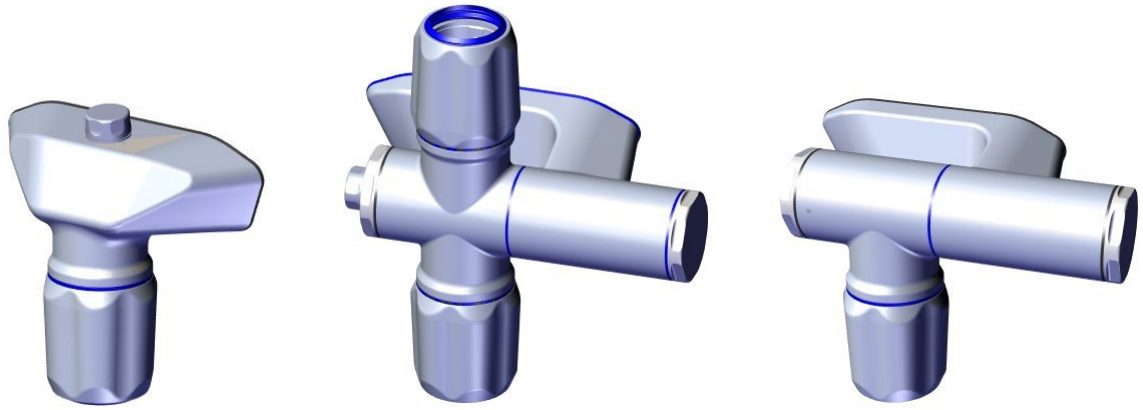


6. Fold up the device. Tighten the interface cover.

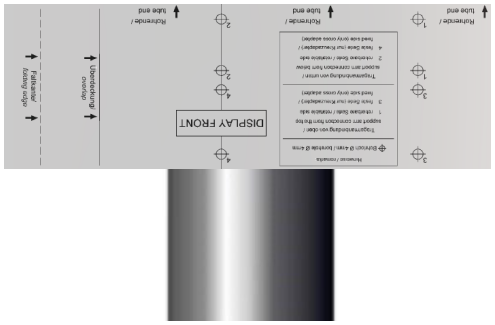


5.2 Attachment to a tube end

The different swivel and tilt adapters are always attached to the end of a tube in the same way.

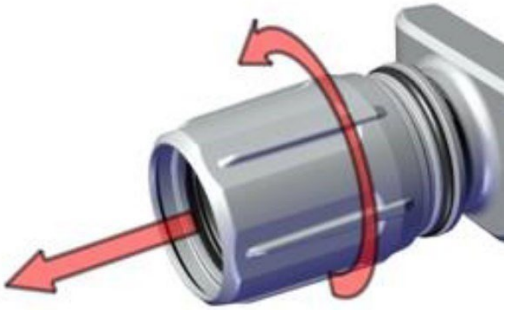


1. **Deburr** the end of your holder tube (diameter 48.3 mm).
2. Stick the **drilling template** around the end of the holder tube. Then drill two 4 mm holes in the positions indicated by the drilling template, depending on the mounting option.

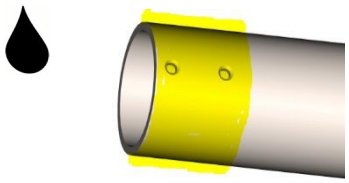


Please note: In the appendix to this operating manual, you will find additional dimensional drawings and schematic diagrams of the individual mounting options in the document ‘SHX9000 attaching tube adapter’.

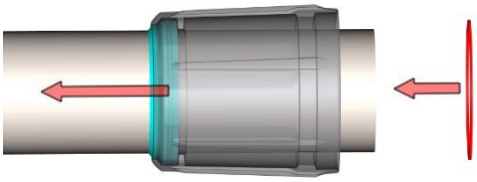
3. Unscrew the **sealing sleeve**. Make sure that the **spacer ring** that is exposed does not get lost (see step 5).



4. Apply a suitable **lubricant** to the seal and tube shoulder to make it easier to push on the sealing sleeve (depending on the application, e.g. penetrating oil, soap or fitting grease).



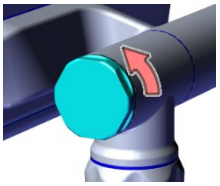
5. Push the sealing sleeve onto the tube and check once again that the **seal** is seated correctly. Then insert the spacer ring.



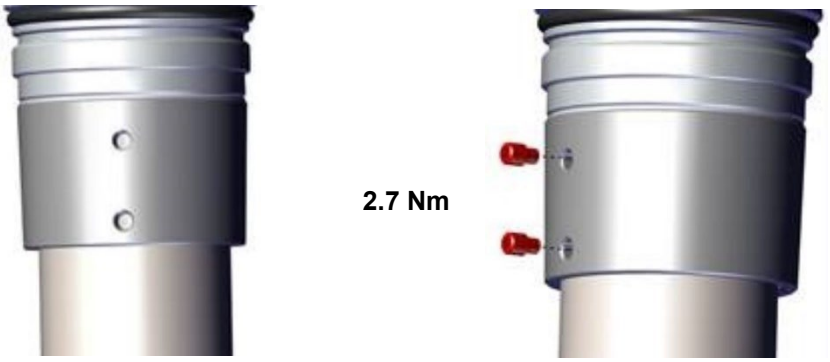
6. Remove the grub screws (if present):

7. Feed all required lines through the tube adapter and tube.

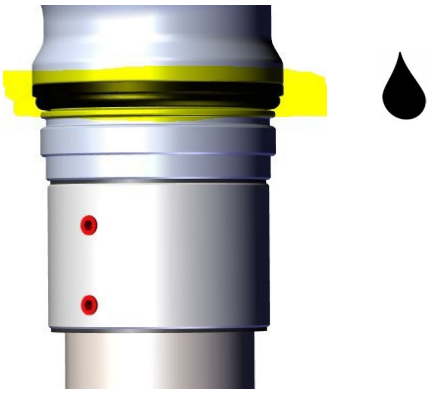
Tip: Remove the end cap on **swivel and tilt adapters** for better accessibility, see section 5.4.



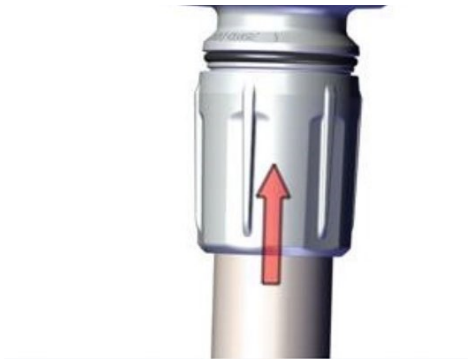
8. Push the tube adapter onto the tube. Align the parts so that the holes in the tube and tube adapter are on top of each other and the grub screws can be screwed back in.



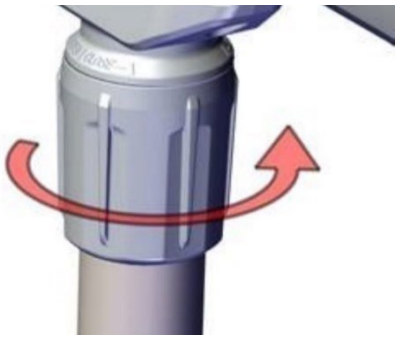
9. Lubricate the upper seal thinly with a suitable **lubricant** (depending on the application, e.g. penetrating oil, soap or fitting grease).



10. Slide on the sealing sleeve:



... and tighten them as much as necessary:



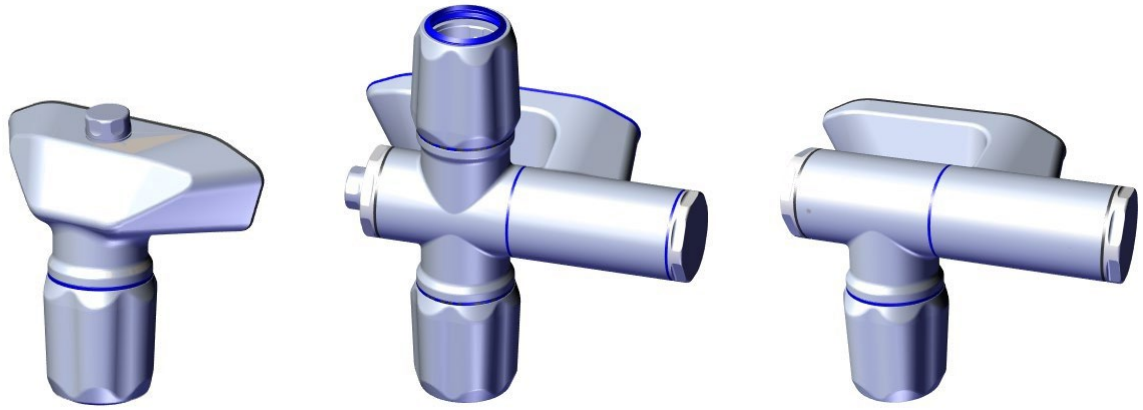
Recommendation:

In the first step, the sealing sleeve is used to eliminate any remaining play (wobble). It is screwed on until the tube adapter is seated on the appliance **without play.**

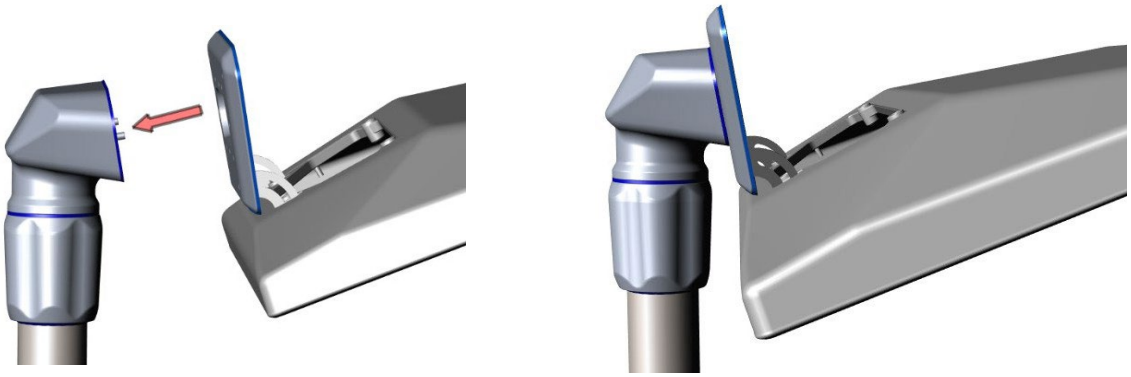
If the sleeve is then turned further, this can increase the **rotational resistance**.

5.3 Attachment to a swivel or tilt adapter

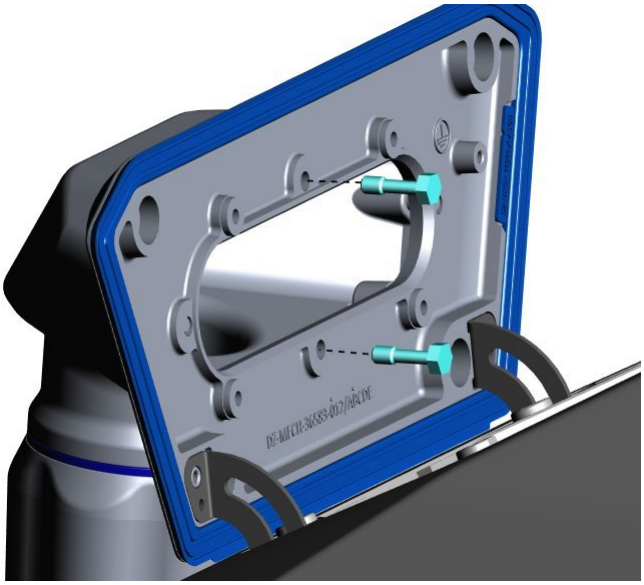
The device is always attached to an adapter flange in the same way for the various swivel and tilt adapters.



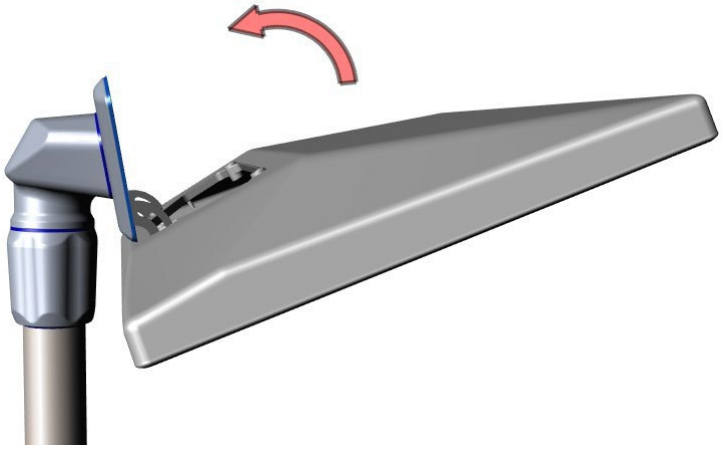
1. Route all cables, then place the device on the two pins on the flange with the interface cover open:



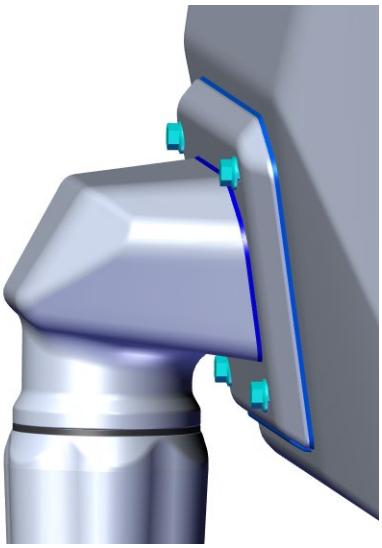
2. Tighten the **mounting screws**. Then, connect all cables.



3. Fold up the device:

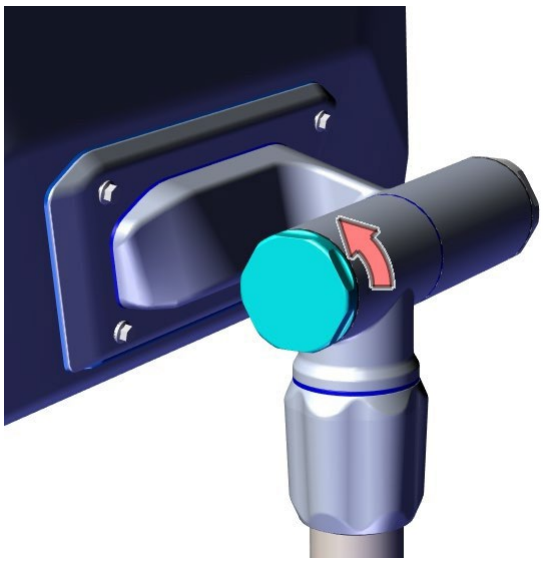


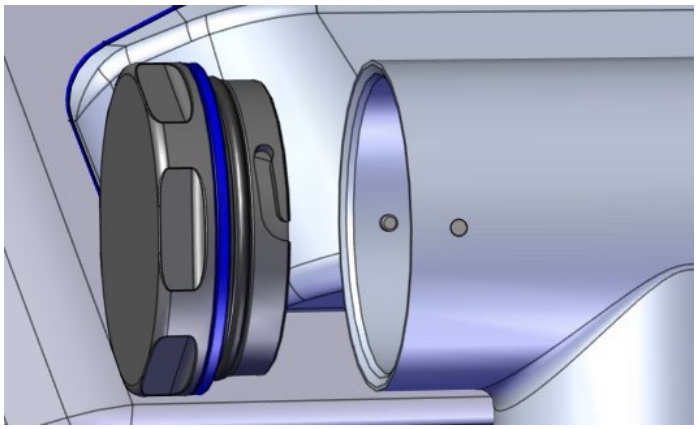
4. Tighten the interface cover



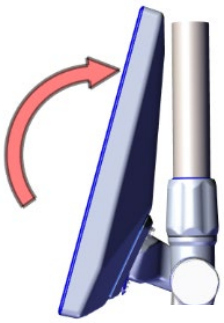
5.4 Mounting a button module

1. If an end cap is fitted to the turn/tilt adapter, remove it (bayonet lock, spanner size 56 mm).

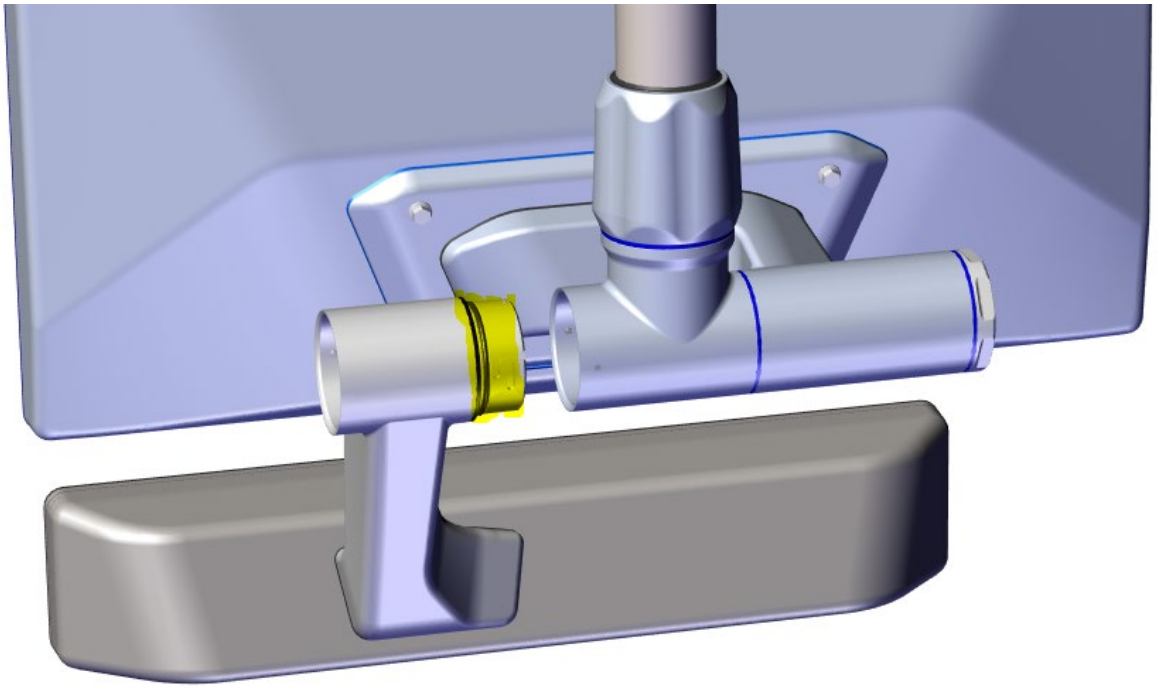


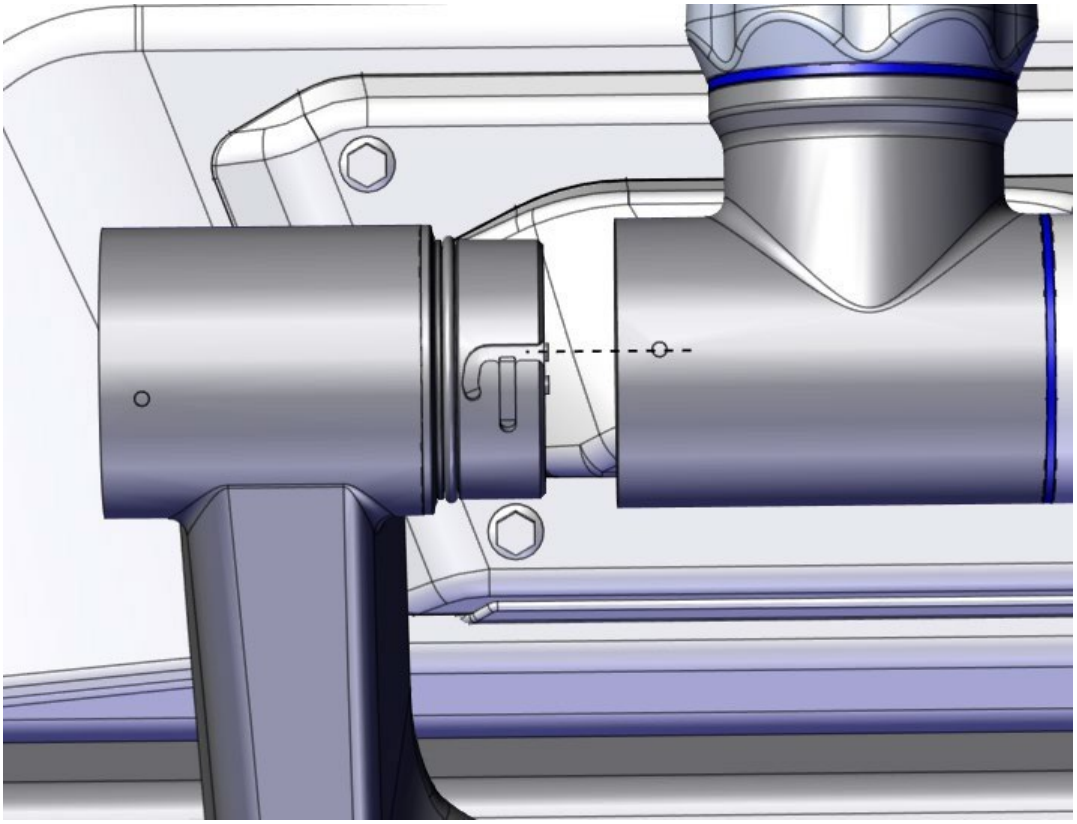


Swivel the PC all the way up:



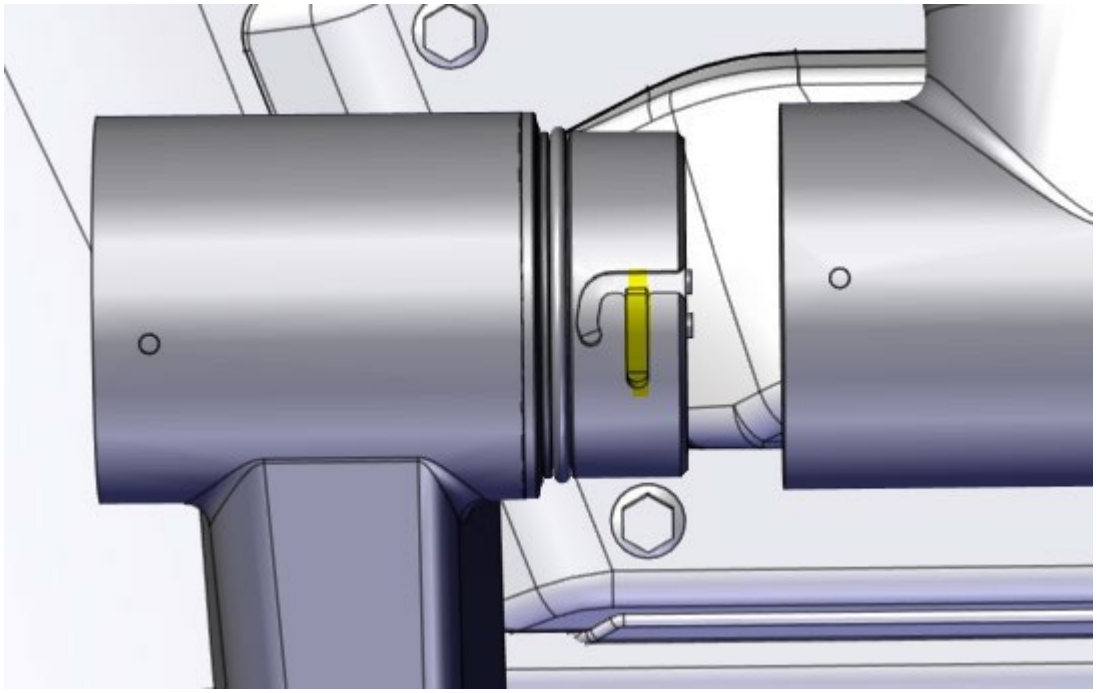
2. Lightly grease the connection tube of the button module (e.g. with penetrating oil, soap or tap grease). Then, insert the connection tube into the turn/tilt adapter. Ensure that the grooves of the bayonet catch are aligned with the two pins inside the adapter.

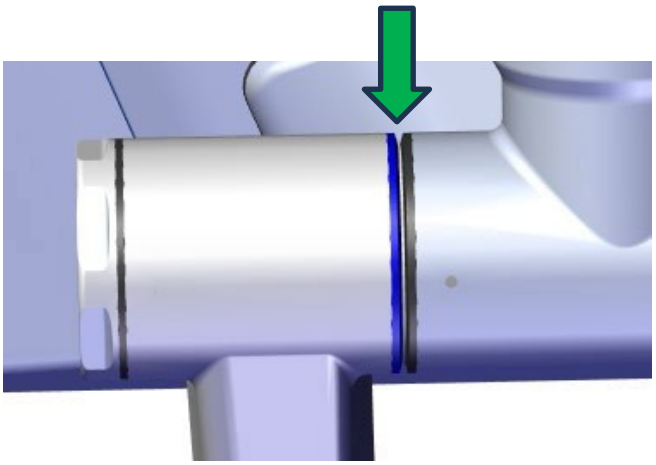




3. **Bayonet catch, groove 1**: The use of groove 1 (yellow in the image) allows the push-button module to be swivelled further down, making it easier to route the connection cables.

> This position is **not intended for normal operation**, but only to simplify the laying of cables and wires.

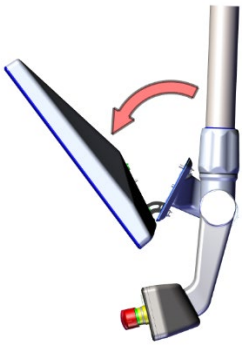




Note: When using groove 1, there is a small gap between the two tube sections (green arrow in the picture above).

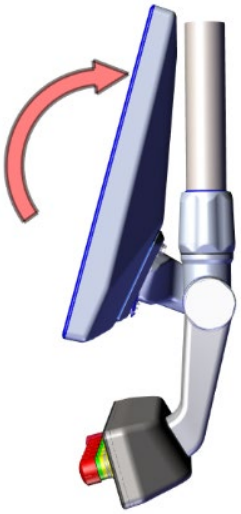
4. **To use slot 1 for easier cable connection**:

   Loosen the screws on the interface cover and fold the PC downwards.

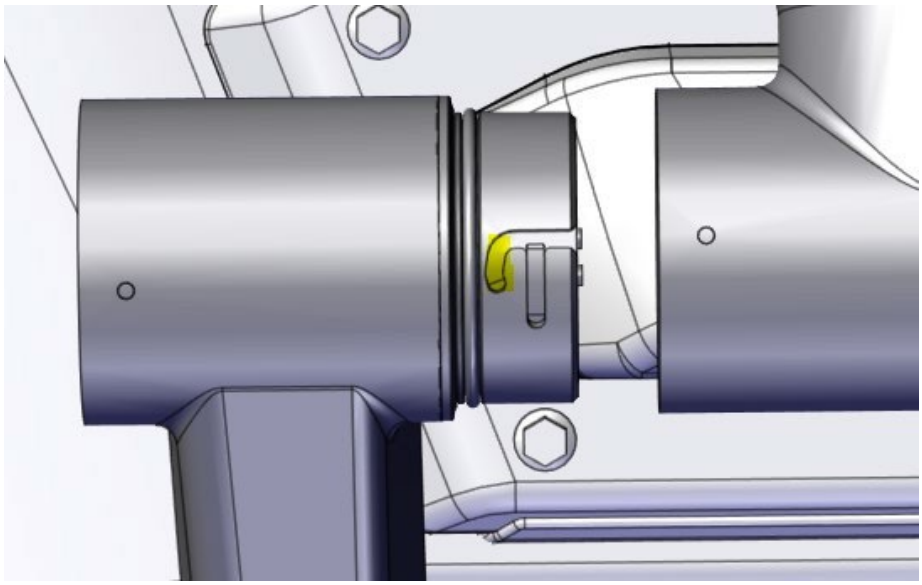


Now, connect all cables.

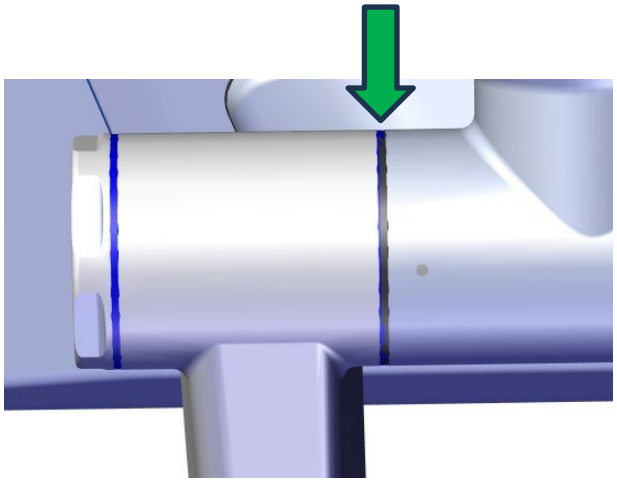
After connecting the cables, fold the PC back up and tighten the screws on the interface cover.



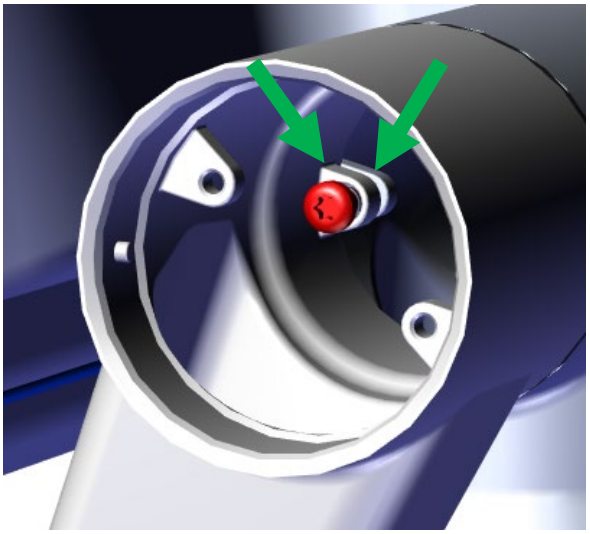
5. **Bayonet lock, groove 2**: After connecting all cables, the button module should be moved so that the pins inside engage in groove 2 (marked yellow in the following image).



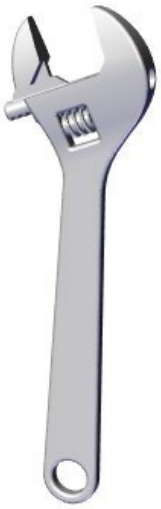
The gap between the tube sections is now completely closed. The push-button module is in the working position:



6. Check that the two fastening lugs are aligned (green arrows in the picture).
   Then screw in the two locking screws (Tx 20).

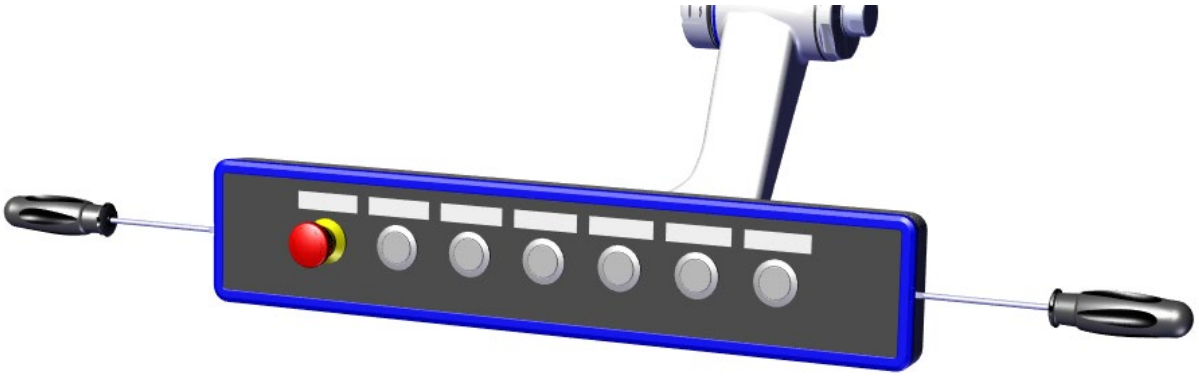


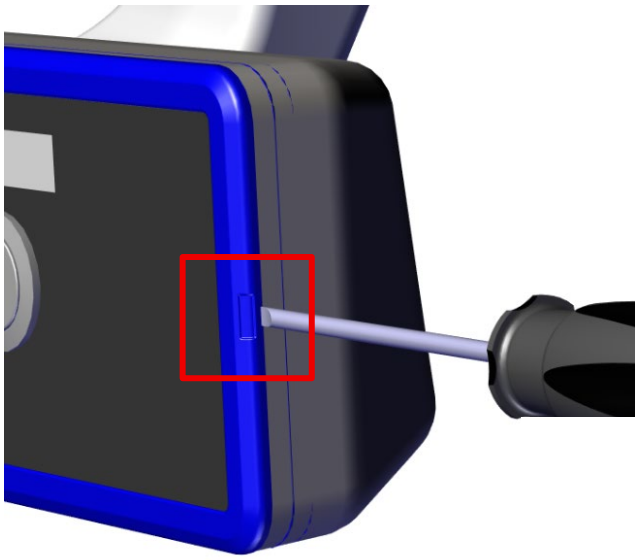
7. Attach the end cover (bayonet lock, spanner size 56 mm):

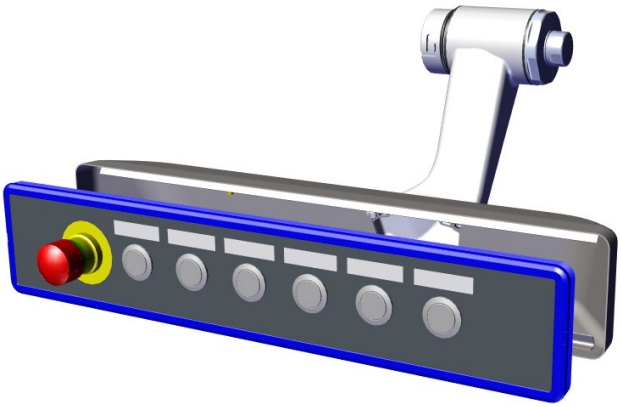


5.5 Opening the button module

To open the button module, use a flat-head screwdriver to press into the **recesses** on the left or right of the front panel and then lever the front panel out.







WARNING

Risk of electric shock!

The housing of the push-button module is made of metal and has no special insulation.

- Do not use dangerous electrical voltages in the push-button module.
- Connect the PE earth connection of the push-button module to the PE connection cable of the device.

6 Electrical connections

6.1 Prerequisites

WARNING

Risk of electric shock with fatal consequences

For appliance variants with **an AC voltage supply**, the electrical connection must be carried out by a qualified electrician.

Before commissioning, a **protective conductor test** must be carried out **in accordance with VDE 0701/0702** to ensure that the protective conductor is functioning correctly.

ATTENTION

Damage due to electrostatic discharge

Electrostatic discharges can cause damage to the appliance.

- Observe the relevant safety measures when handling electrostatically sensitive components.

ATTENTION

Damage to the electronics

The electronics can be damaged if plug connections are plugged in or unplugged while the system is energised.

- Ensure that no voltage is present when connecting or disconnecting connectors.

When using the optional push-button module:

WARNING

Risk of electric shock!

The housing of the push-button module is made of metal and has no special insulation.

- Do not use dangerous electrical voltages in the push-button module.
- Connect the PE earth connection of the push-button module to the PE connection cable of the device.

6.2 Earthing concept

The earthing concept essentially depends on the conditions at the installation site and must be planned and implemented by a qualified electrician.

The following are provided on the device side:

- For 24 VDC devices only: one **FE** connection in the power supply connector as **Reference potential of the EMC filters**,

  ATTENTION

  This connection is required for **compliance with** EMC **regulations**.

- a **PE** earthing lug **in the service slot**.

Recommendation:
FE and PE should be connected to the central earthing busbar via **separate** cables if possible.

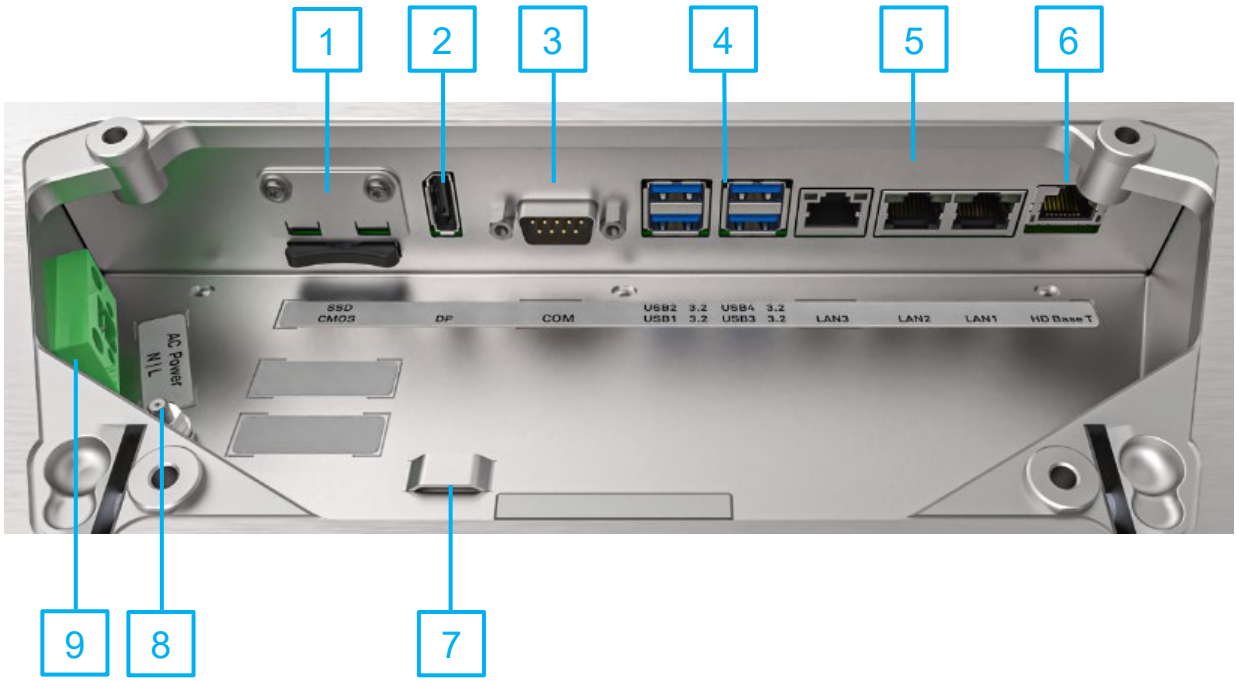
Conductor cross-sections for individual cables:

- **PE**: Up to a maximum cable length of 5 m: ≥ AWG 17 (≙ 1 mm²).
  Optimum: AWG 13 (≙ 2.5 mm²).
  The cable colour must be green-yellow and the effectiveness of the protective earthing must be confirmed by a **protective conductor test in accordance with VDE 0701/0702**.
- **FE**: AWG 18 (≙ 0.75 mm²). The cable colour must not be green-yellow.

6.3 Interfaces

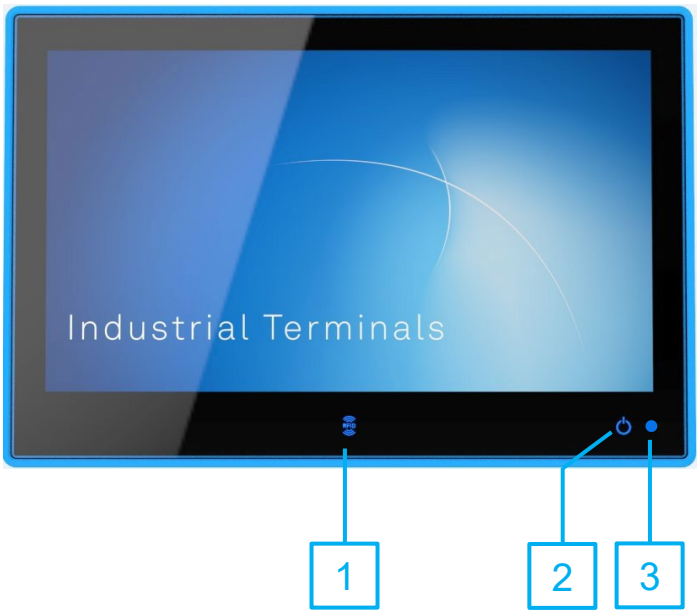
6.3.1 Overview rear (service slot)

Example illustration, different configuration depending on variant:



No.	Description
1	Slot for second SSD mass storage device and for CMOS battery (= BIOS battery)
2	DisplayPort++™ (2.1)
3	COM interface (RS232, 9-pin), see section 8.6
4	4 x USB 3.2 type A (10 Gbit/s, max. 0.5 A per port)
5	3 x LAN (RJ45). Controllers used: 2 x Intel i226-IT and 1x Intel i219-LM. See section 6.3.5
6	Optional at this position: HDBaseT transmitter (RJ45), see section 8.2
7	Lugs for cable strain relief
8	Connection for protective earth (PE), see section 6.2
9	Power supply and, depending on the device variant, digital input/output ⇨ For 24 VDC devices: see section 6.3.3 and 6.3.5 ⇨ For AC devices: see section 6.3.4

6.3.2 Overview front side



No.	Description of the
1	Optional: RFID reader
2	On/off button (can be activated and deactivated in the *Configuration Centre*)
3	SYS LED (only visible when the on/off button is deactivated)

6.3.3 Devices with 24 VDC power supply

DO	Digital output +24 VDC ± 20 %
DI	Digital input +24 VDC ± 20 %
0V	Reference potential
⏚	Functional earth (FE, required for EMC)
V+	+24 VDC ± 20 %

DO DI 0V ⏚

(Image shows socket in the device)

The power consumption values can be found in chapter **13 Technical data**.

Requirements for the power supply

The following requirements also apply to the operation of the digital inputs and outputs:

- Conformity of the power supply unit: Class PS2 according to IEC 62368-1 - or -
  Limited Power Source (LPS) according to IEC 60950-1 - or -
  SELV/PELV according to IEC 61140
- Conductor cross-sections: AWG 18 (≙ 0.75 mm²)
- Minimum temperature resistance of the connecting cables: 105 °C
- Short-circuit current: < 8 A

Additional information for devices with UL approval for use in the USA and Canada:

- Limited-Energy Circuit according to UL/CSA 61010-1/ UL/CSA 61010-2-201 or
- Limited Power Source (LPS) according to PCB/CSA 60950-1 or
- Class 2 according to National Electrical Code (NEC), NFPA 70, Clause 725.121 and Canadian Electrical Code (CEC), Part I, C22.1.
- Only use copper conductors for connecting the power supply.

6.3.4 Devices with alternating voltage supply

N / L Alternating voltage VAC	

The permissible voltages and the maximum power consumption values can be found in chapter **13 Technical data**.

Connection to the mains voltage

The device can be operated from a protective earth socket with a mains voltage of 230/120 V - 50/60 Hz.

Requirement for circuit breaker: **16 A type C** (max. 16 A)

The enclosed supply cable with a conductor cross-section of 1 mm^2 can be used for the power supply. If you assemble your own cable, we recommend the following:

- Wire end ferrules: Length 8 mm with approval according to the area of application. Examples: Panduit FSD77-8-D or Klauke 4708
- Flat receptacle for PE core: 6.3 x 0.8 mm without branch with approval according to the area of application. Examples: JST FVDDF1.25-250A or Klauke 720

6.3.5 Ethernet ports (RJ45)

ATTENTION

Damage to the electronics

- Only route the connected LAN cables indoors to minimise the risk of voltage transients induced by indirect lightning strikes, for example.
- Do not connect to telecommunication circuits and telecommunication network voltage (TNV).
- Use additional surge protection devices if necessary.

6.3.6 Digital input and output for 24 VDC devices

Digital output

Type 3 according to IEC61131 (without self-diagnostic function)

0 signal = 0 V (high-impedance) / 1 signal = 24 VDC, max.50 mA.

Protection against reverse polarity voltage connection.

Automatic restart after fault condition (e.g. after short circuit at the output).

Initialisation time: 150 ms from switching ON the device

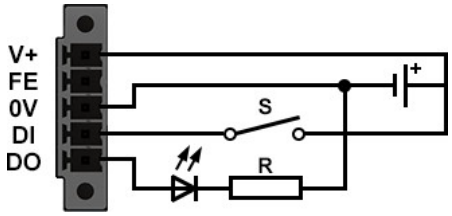
Digital input

Type 3 according to IEC61131

0 signal: < 8.7 VDC / 1 signal: > 10.95 VDC / 8.7...10.95 VDC = undefined (hysteresis)

Current: max. 2.7 mA.

Principle circuit diagram



6.4 Maximum cable lengths

Recommendation for use:

Observe the maximum cable lengths for the respective application.

The maximum length of cables you can use to connect the monitor and computer is:

- HDMI up to max. 15 m
- DisplayPort up to max. 10 m
- USB 2.0 up to max. 15 m (with active hubs, otherwise 5 m)

For large distances between the display and computer, you need the HDBaseT version:

- HDBaseT™ up to max. 100 m, see also section 7.2

7 Commissioning

7.1 Prerequisites

Devices with AC voltage supply:

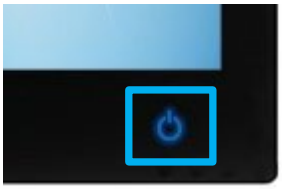
WARNING

Risk of electric shock with fatal consequences

Before commissioning an appliance with **an AC voltage supply**, a **protective conductor test** must be carried out **in accordance with VDE 0701/0702** to ensure that the protective conductor is functioning correctly.

7.2 Switching on and configuring the device

The device can be started as standard using the **capacitive button** on the front of the device. To do this, the button must be pressed for **at least 1 second**, depending on the configuration in the *Configuration Centre*:



The button has a blue-grey LED and signals the following statuses:

- LED lights up grey: Device is supplied with power but is switched off.
- LED lights up blue: Device is switched on.
- LED flashes blue-grey: Device is in an energy-saving state.

This button can be activated and deactivated in the *Configuration Centre*.

Alternatively, the device starts when the power supply is switched on. To do this, the function "Autostart" must have been activated in the *Configuration Centre*.

7.2.1 Secure initial configuration – step by step

These instructions describe the recommended initial configuration of an industrial PC with Windows 10/11 in accordance with EN 18031-1:2024.

a) Secure physical access and protect against theft

- Where possible: Install the device securely in a protected environment.
- Deactivate any interfaces that are not required or prevent access to them by means of a physical barrier.
- After commissioning: Close the service compartment with screws.

b) UEFI BIOS: Activate security

Please note:
All devices that can optionally include a wireless module (e.g. WiFi or mobile communications) will be equipped with an administrator password for accessing the UEFI-BIOS as standard ex works from 8/2025. This password can be found on a small sticker in the service slot (depending on the device model). Example:

a. Access to BIOS setup: Switch on the device and press [Del] or [Alt] + [Del] until the BIOS setup appears.
b. Set administrator password (Security > Administrator Password)
c. Enable Secure Boot (Security > Secure Boot > Enabled) to allow only signed boot loaders.
d. Check the boot sequence (Boot tab) and disable unused interfaces (e.g. USB or PXE).
e. Save changes with [F4] or by switching to the "Save & Exit" tab.

c) Secure Windows account

a. Start the system and set up a local administrator account with a strong password
b. Create an additional user account with restricted rights (no admin)

d) Activate security features

a. Activate Microsoft Defender Antivirus and update if necessary. Activate real-time monitoring.
b. Enable Windows Firewall
c. Enable data encryption / BitLocker
d. Check network connections: only leave necessary services active
e. Check and minimise autostart programmes

e) Secure your network

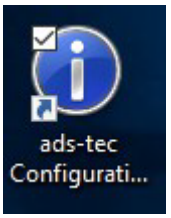
a. First connect the system to a secure, trusted network.
b. For Wi-Fi connections, only use WPA2 or WPA3-encrypted networks.
c. Segment your network architecture using subnets and/or VLANs.
d. Disable unused network adapters (e.g. Wi-Fi for pure LAN operation) to reduce the attack surface.
e. No open ports unless required (e.g. disable IPv6 and NetBIOS)

f) Updates and patch management

- Enable Windows updates unless managed centrally via WSUS (Windows Server Update Services).
- Check BIOS and firmware updates, only use signed versions

7.2.2 Configuration Center

After booting up, you will find an icon on the Windows desktop that you can use to call up the **ADS-TEC Configuration Centre**.



Important: To be able to make settings, you must **start** the Configuration Centre **with administrator rights** (right-click and select "Run as administrator" from the context menu).

You can make the following settings in the **Configuration Centre**:

- Behaviour of the on/off button
- Locking the USB interfaces
- Write-protect the mass storage device or parts of it
- Configure a soft keyboard
- Activate or deactivate radio modules (= wireless devices)
- Many other modules already available or in preparation

7.3 Operation of several monitors on one SHP9000

7.3.1 Quantity

Up to three screens can be operated in parallel:

- the integrated display of the SHP9000,
- a FullHD monitor on the DP connection of the SHP9000,
- a FullHD monitor via HDBaseT.

®Tip: Using the **X-Remote** software from ADS-TEC, you can clone a desktop on up to 8 computers and operate it alternately from all computers thanks to clearly defined access rights.

7.3.2 Windows display settings

Possible display arrangements using the "Display settings" integrated in Windows:

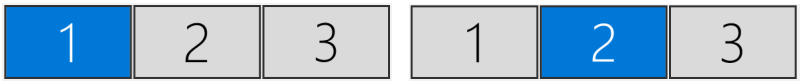
a) Extend desktop to all three displays (do not clone).

b) Duplicate desktop on 1 and 2 (desktop clone); monitor 3 as extended desktop.

c) Duplicate desktop on 1 and 3 (desktop clone); monitor 2 as extended desktop.

Notes:

- You can open the Windows display settings via:
  Desktop -> right mouse button -> Display settings
- The settings on the Display settings page always refer to the screen or screens selected above.



- The arrangement of the screens can be customised to requirements using drag and drop.

- Switching from one clone mode to the other (b->c or c->b) is done via the triple extended display.

7.3.3 Screen resolution for cloned displays

If clones are created, the operating system automatically uses the smallest common value for the screen resolution.

Application recommendation: Only use Full HD monitors with 1920 x 1080 px for the parallel connection.

7.3.4 Display of a start screen

The following applies to the display of a **boot screen**:

- Apart from the integrated screen, a boot screen is only displayed on monitors connected via DisplayPort.

The following applies to the display of the **login screen**:

- The login screen is only shown on the integrated display of the SHP9000 and on another monitor configured as a clone.
- Monitors that are configured as an extended desktop are only supplied with an image signal by the operating system after successful login

8 Features (partly optional)

8.1 DisplayPort™

The devices have a DisplayPort connection in the DisplayPort++™ (2.1) version as standard for data transmission to a monitor.

8.2 HDBaseT™

With HDBaseT™, the connection between the computer and monitor is established using a LAN cable with RJ45 plugs. The distances that can be bridged depend on the network infrastructure used:

- with CAT6a patch cable without sockets etc.: max. 70 m
- With LAN installation cable Cat. 7 or 7a + Sockets + Two 1 m patch cables: max. 100 m

Status displays of the transmitter module

The two LEDs in the socket signal various system statuses:

	LED signal	Action
HDCP	flashes red	No encryption active
	lights up red	Encryption active
HDBT	on	Connection available
	off	No connection available

HDCP = High-bandwidth Digital Content Protection; HDBT = HDBaseT™

8.3 Big-LinX® (IoT platform)

Big-LinX provides a versatile and scalable platform for IoT applications.

https://www.ads-tec-iit.com/en/reliable-remote-access/biglinx/

The use of Big-LinX is possible with the purchase of a separately available software certificate.

8.4 WLAN / Wi-Fi

This optional function is used by means of the respective operating system using an internal antenna.

8.5 Bluetooth™

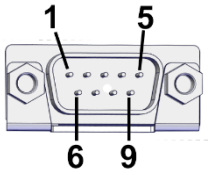
For devices with WLAN, Bluetooth is also available to connect a mouse or headphones, for example.

This function is used with the means of the respective operating system using an internal antenna.

8.6 RS232

The RS232 interface can be connected using a 9-pin Sub-D cable.

Pin	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI



The interface is not galvanically isolated.

5 V voltage supply

A software switch in the **Configuration Centre** can be used to provide a +5 VDC voltage on pin 9 (e.g. for powering serial barcode scanners).

⇨ See module **Serial port data forwarding** in the Configuration Center.

9 Software/driver installation

9.1 Reinstalling the operating system

The devices are delivered with a pre-installed operating system at the customer's request. If the mass storage device has been reformatted, the operating system can be reinstalled via the existing interfaces (alternatively via USB or PXE).

The files required for this (image, driver, firmware) are available on request from ADS-TEC support together with a detailed description of the procedure.

9.2 Write protection

If the mass storage device or parts of it have been write-protected in the **Configuration Centre**, this write protection must be removed before changes are made to the software installation. ⇨ Unified Write Filter

After changing the software installation, the write protection must be set again and the device restarted.

10 Materials and cleaning

The following materials are used on the exterior:

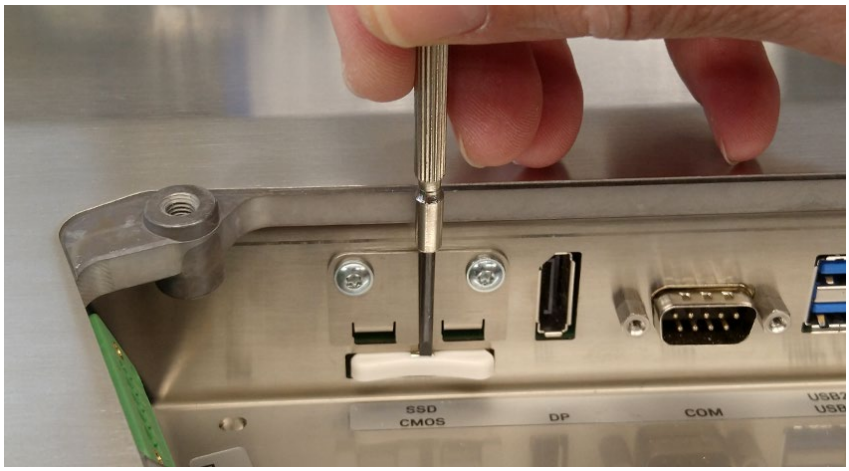
- Housing: stainless steel (AISI 316L)
- Seals: silicone
- Anti-splinter film on the display: polyethylene (PE)

Please take these materials into account when selecting cleaning agents.

11 Maintenance

11.1 Replacing the CMOS battery

Pull out the battery drawer using a small screwdriver.



WARNING

Danger of explosion

There is a risk of explosion if the wrong type of batteries are used.

⇨ Use the type of batteries recommended by the manufacturer:

CR2032, e.g. Varta 6032 (UL Recognition: MH 13654 (N))

ATTENTION

Damage to the battery

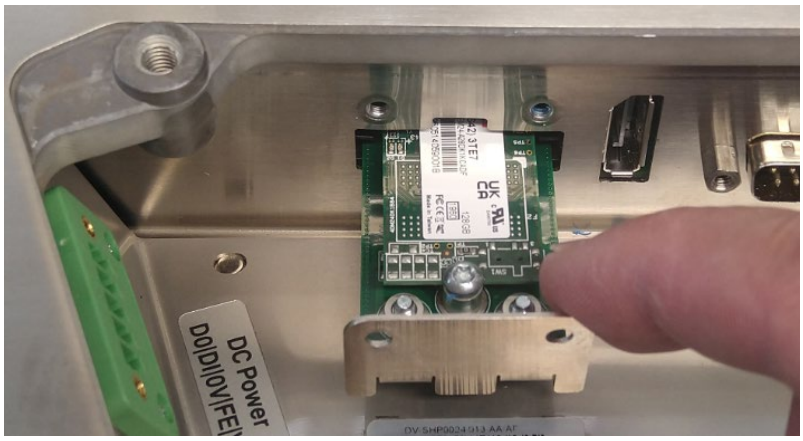
Incorrect handling can damage or destroy the battery.

➧ Do not throw lithium batteries into a fire, do not solder them to the cell body, do not recharge them, do not open them, do not short-circuit them, do not reverse their polarity, do not heat them above 100 °C, dispose of them in accordance with regulations and protect them from sunlight, moisture and condensation.

Insert the new battery so that the **positive terminal is on the underside**:

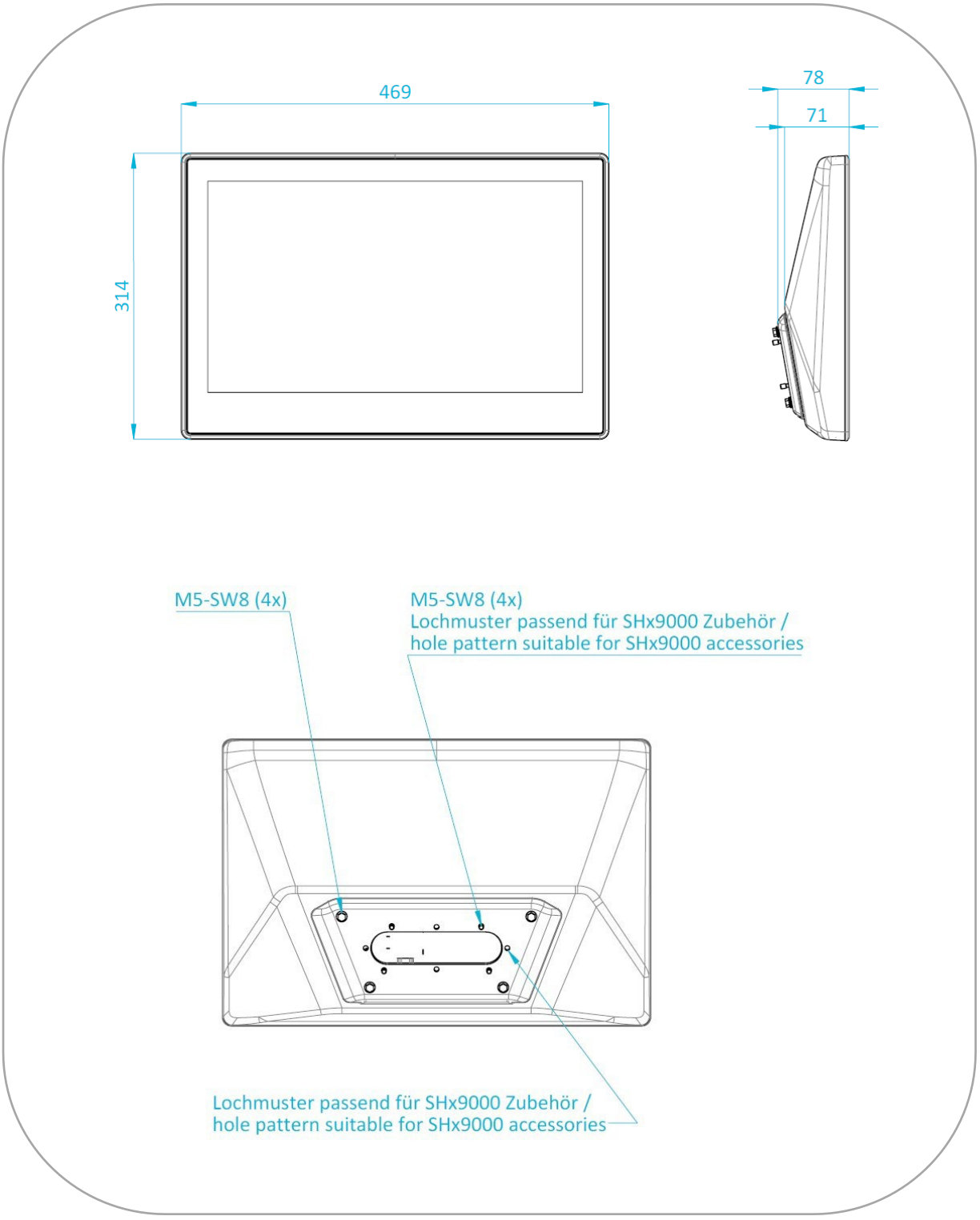
11.2 Replacement of SSD mass storage

Loosen the screw(s) on the retaining plate and carefully pull out the card.

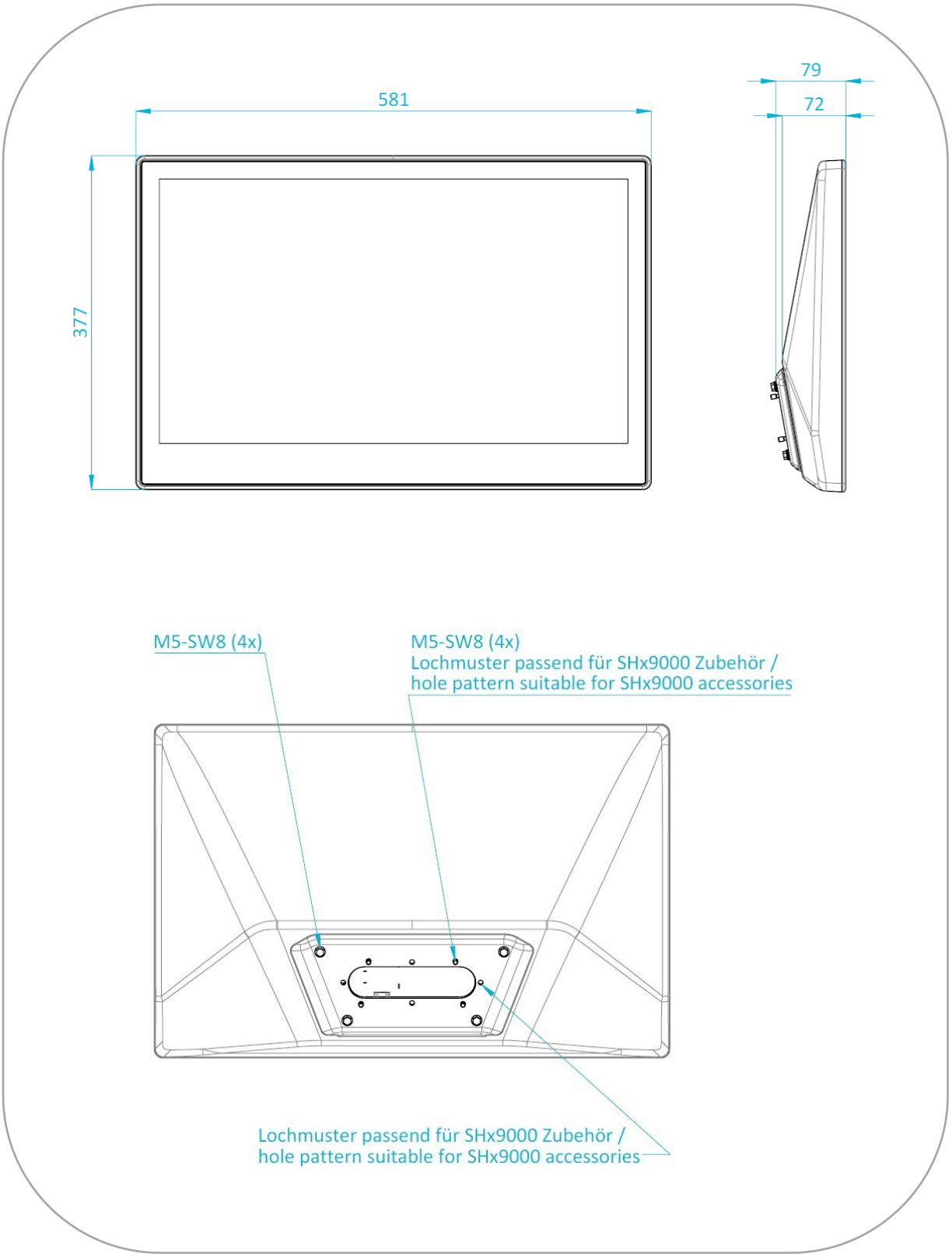


12 Dimensional drawings

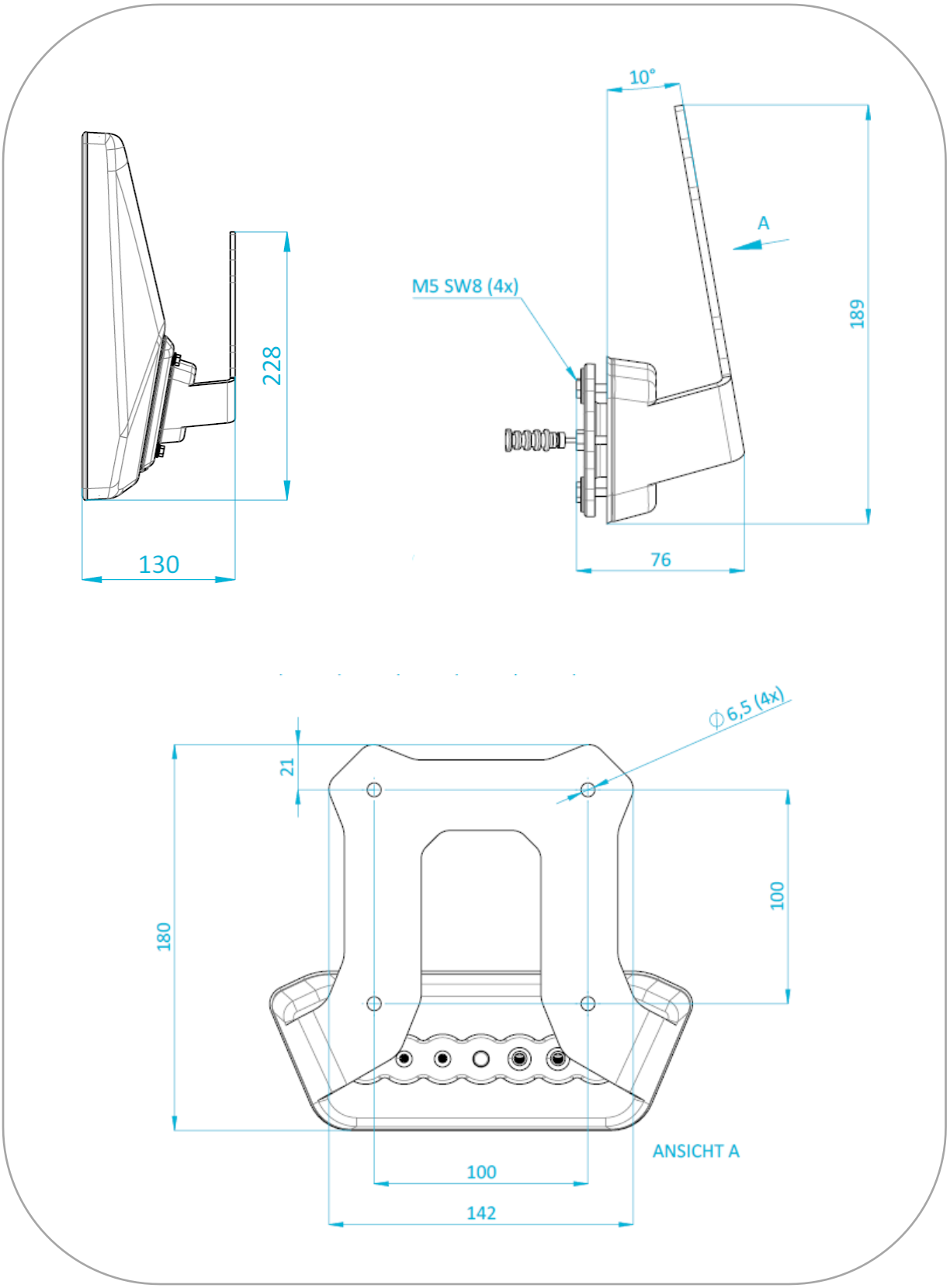
12.1 SHP9019



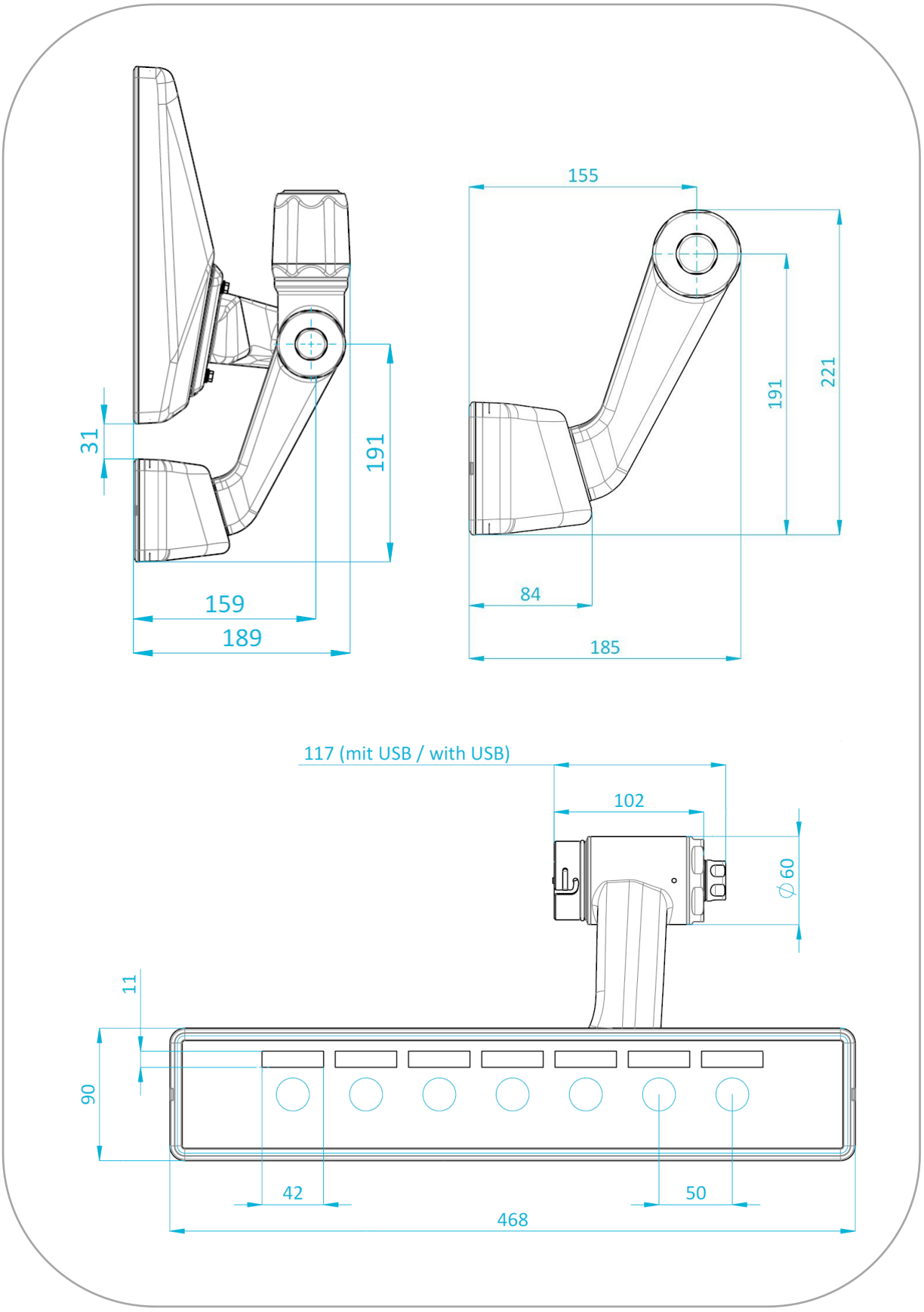
12.2 SHP9024



12.3 VESA mount (SHP90xx)



12.4 Push-button module (SHP90xx)



13 Technical data

	SHP9019	SHP9024
Display	18.5" LED backlight 1920 x 1080 pixels	23.8" LED backlight 1920 x 1080 pixels
Touch	PCAP multi-touch, tempered glass with shatter protection film	
Housing	All-round enclosed stainless steel housing (V4A)	
Cooling	Passive cooling, fanless	
Processors	Intel® 13th Generation "Raptor Lake": U300E (5 cores) or Core i5-1345UE (10 cores)	
RAM	2 x RAM slot with up to 2 x 16 GB DDR5	
Mass storage *)	2 x SSD slot with up to 2 x 256 GB m.2 SATA3 (one slot accessible by customer) *) Due to additional security functions implemented by the SSD manufacturer, the freely available capacity of the mass storage device may be slightly reduced.	
Interfaces	4 x USB 3.2 type A (10 Gbit/s, max. 0.5 A per port) 3 x Ethernet (10 / 100 / 1000 Mbit/s) DisplayPort++™ (2.1) 1 x COM RS232 SubD 9-pin For 24 VDC devices: 1 x digital input, 1 x digital output	
optional	HDBaseT™ transmitter, WLAN, Bluetooth, RFID	
Interfaces on the front	Capacitive on/off button (can be deactivated on the software side) / SYS LED / RFID (optional)	
Voltage DC variants	24 V ± 20 %	
Voltage AC variants	100-240 V ± 10 %, 50/60 Hz	
Power consumption	max. 92 W	max. 82 W
Overvoltage	DC: category I acc. to DIN EN 60664-1 AC: category II acc. to DIN EN 60664-1	
Perm. ambient temperature	In operation: 0...+50 °C During storage: -25...+70 °C	
Protection class	IP69 (not verified by UL, tested by ADS-TEC) Humidity: 5...95 %, non-condensing UL rating of enclosure: Type 1 acc. to UL61010-2-201	
Pollution	Degree 2 as per IEC 61010-1	
Operating height	Max. 3048 m above sea level	

Vibration/shock	See section 2.4.1 "Environmental conditions"	
EMC	Class A (industrial area) according to EN 61000-6-2/4	
Dimensions	See section 12 "Dimensional drawings"	
Operating system	Windows 11 IoT Enterprise LTSC 2024	
Weight	approx. 6.5 kg	approx. 8 kg

14 Service & Support

ADS-TEC and its partner companies offer their customers comprehensive service and support, providing fast and competent assistance with all questions relating to ADS-TEC products and assemblies.

As ADS-TEC devices are also used by partner companies, these devices may have customised configurations. If questions arise regarding these special configurations and software installations, these can only be answered by the partner.

No support is provided for devices that were not purchased directly from ADS-TEC. In this case, support will be provided by our partner company.

14.1 ADS-TEC Support

The ADS-TEC support team is available for direct customers from Monday to Friday

from 8.30 a.m. to 5 p.m. on the telephone number below:

Tel: +49 7022 2522-202

E-mail: support.iit@ads-tec.de

Alternatively, you can use the support form on our website www.ads-tec.com to contact us. Our support team will then get in touch with you as soon as possible.

14.2 Company address

ads-tec Industrial IT GmbH

Heinrich-Hertz-Str.1

72622 Nürtingen

Germany

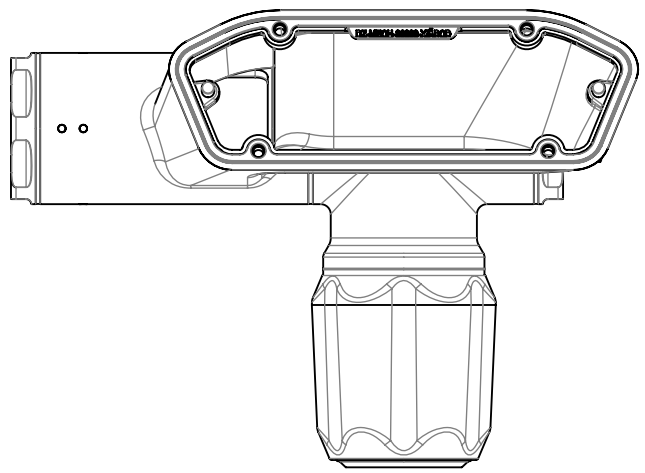
Tel: +49 7022 2522-0

e-mail: mailbox@ads-tec.de

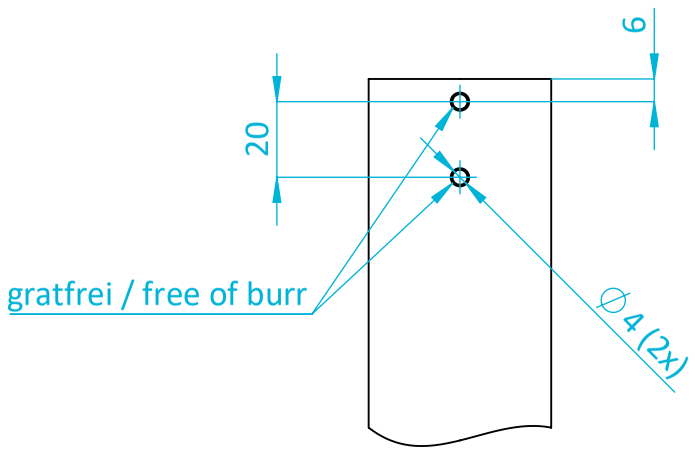
Home: www.ads-tec-iit.com

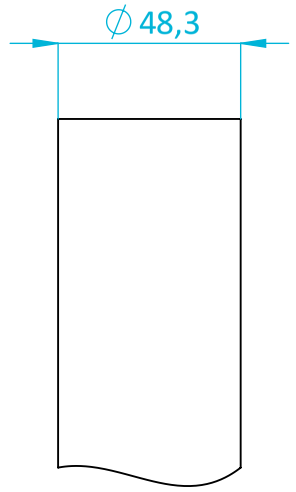
SHx9000 Dreh-Neige-Adapter "T-Form" unten drehbar
SHx9000 Swivel-tilt adapter from bottom "T-shape"

Vorderseite / front view



Rohr / tube





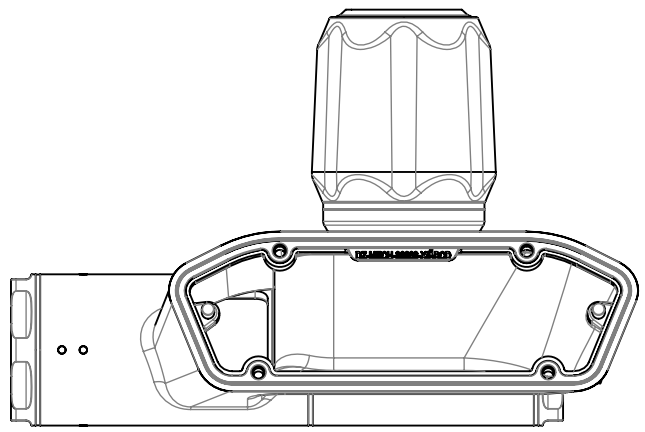
Vorderseite / front view

Rückseite / back view

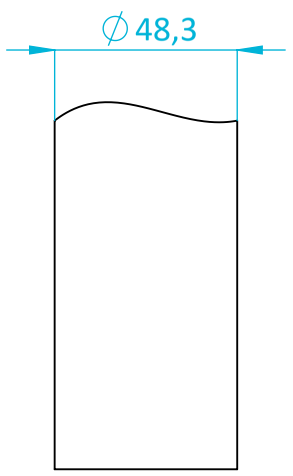
Anmerkung /
Bohrschablone im Lieferumfang enthalten /
drilling template included in delivery

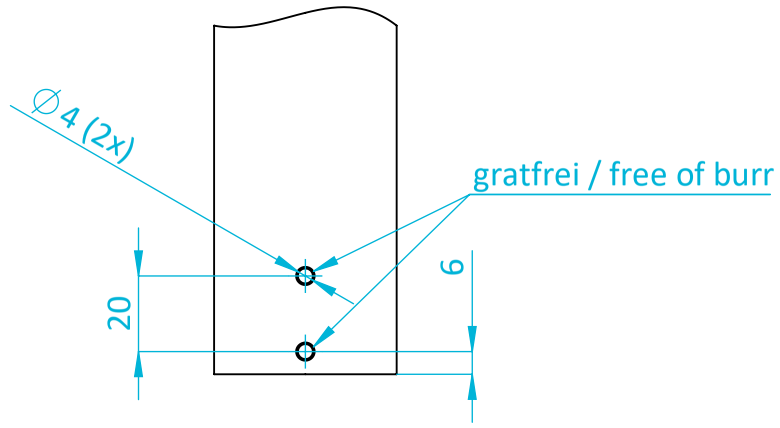
SHx9000 Dreh-Neige-Adapter "T-Form" oben drehbar
SHx9000 Swivel-tilt adapter from above "T-shape"

Vorderseite / front view



Rohr / tube





Vorderseite / front view

Rückseite / back view

Anmerkung /
Bohrschablone im Lieferumfang enthalten /
drilling template included in delivery

Industrial IT

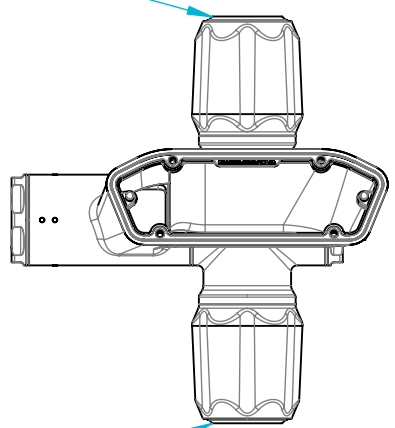
SHx9000 Befestigung Rohradapter

SHx9000 attaching tube adapter

SHx9000 Dreh-Neige-Adapter "K-Form" unten drehbar
SHx9000 Swivel-tilt adapter from bottom "K-shape"

Vorderseite / front view

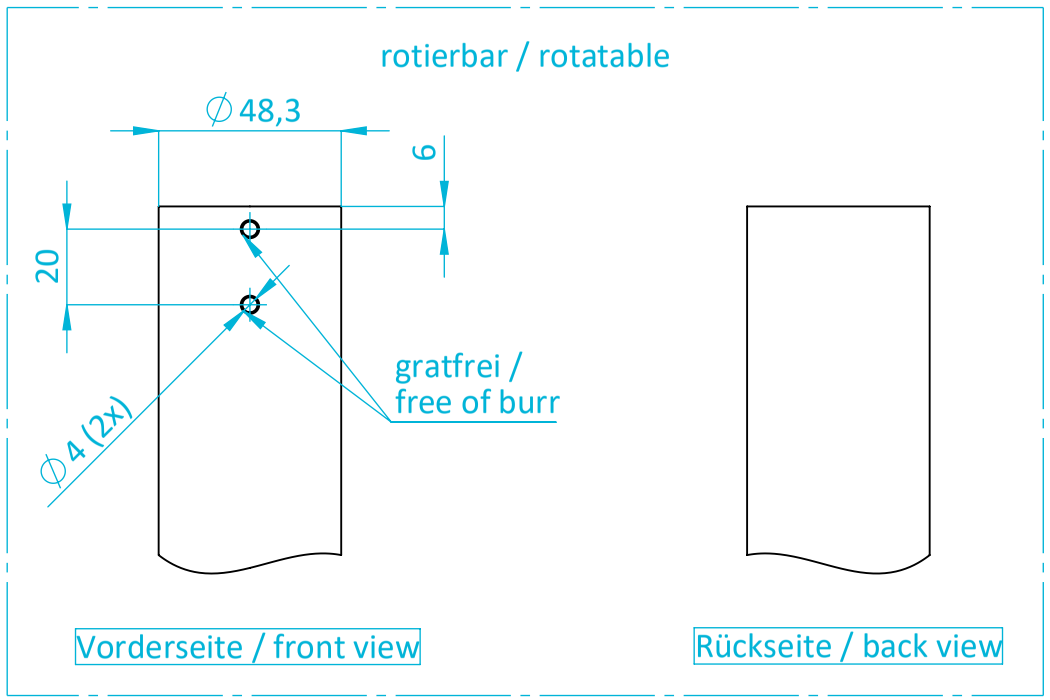
fix, nicht rotierbar /
fixed, not rotatable



rotierbar / rotatable

Rohr / tube

rotierbar / rotatable

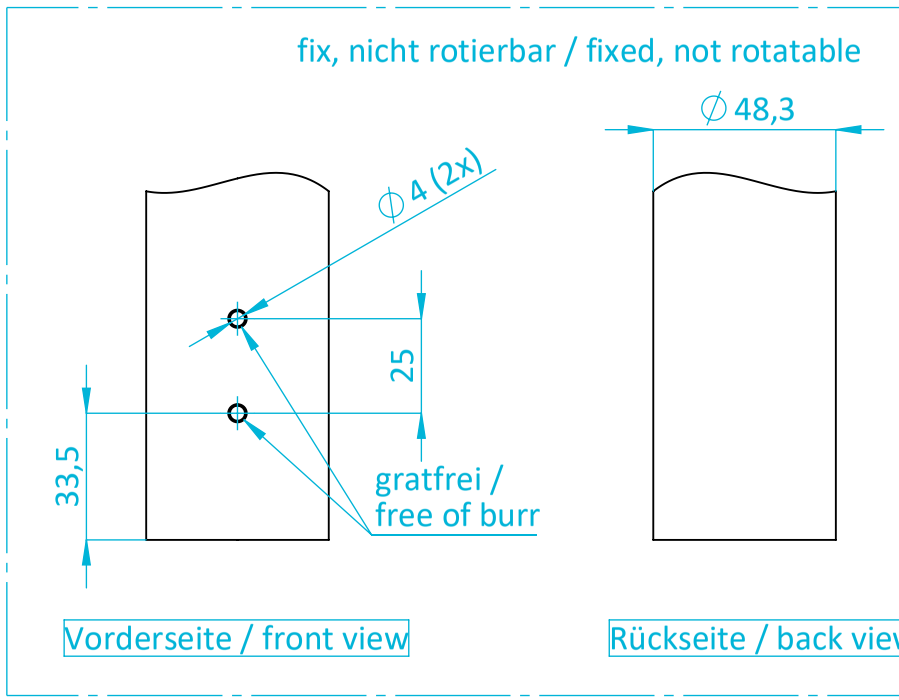


Vorderseite / front view

Rückseite / back view

Anmerkung /
Bohrschablone im Lieferumfang enthalten /
drilling template included in delivery

fix, nicht rotierbar / fixed, not rotatable



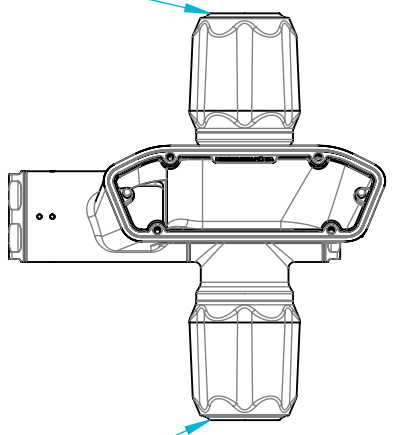
Vorderseite / front view

Rückseite / back view

SHx9000 Dreh-Neige-Adapter "K-Form" oben drehbar
SHx9000 Swivel-tilt adapter from above "K-shape"

Vorderseite / front view

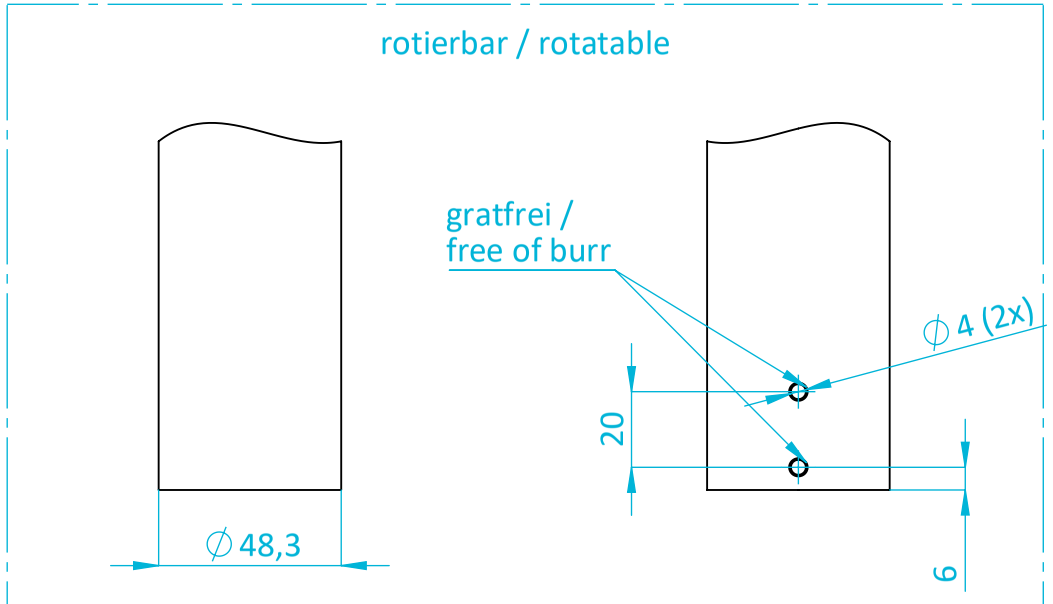
rotierbar / rotatable



fix, nicht rotierbar /
fixed, not rotatable

Rohr / tube

rotierbar / rotatable

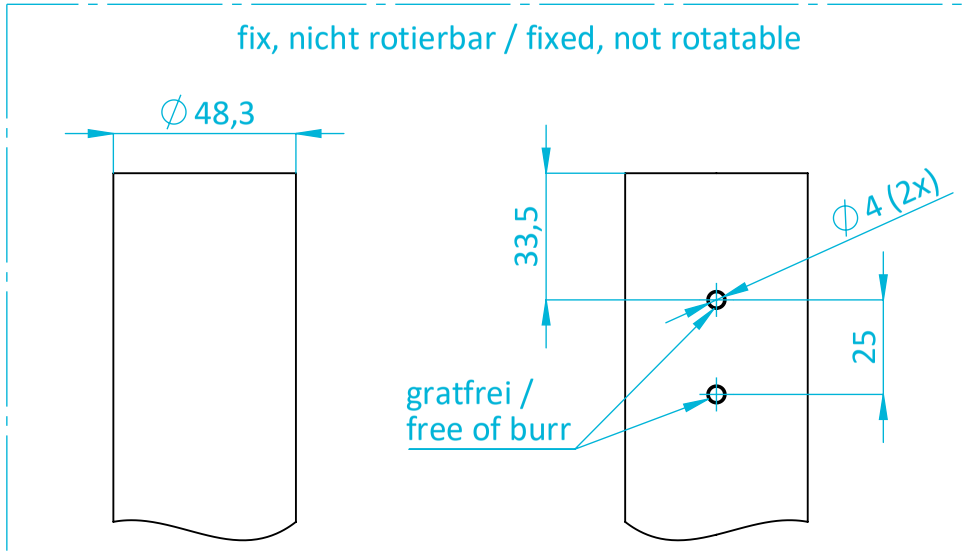


Vorderseite / front view

Rückseite / back view

Anmerkung /
Bohrschablone im Lieferumfang enthalten /
drilling template included in delivery

fix, nicht rotierbar / fixed, not rotatable



Vorderseite / front view

Rückseite / back view

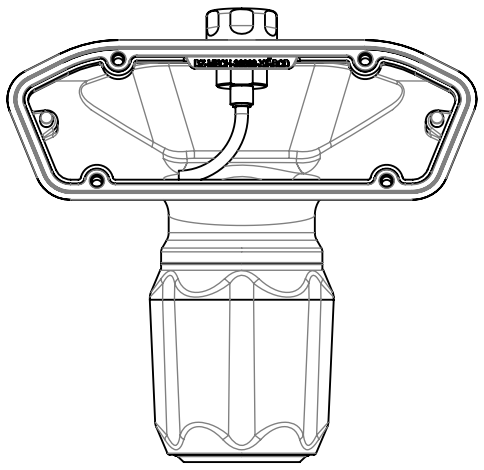
Industrial IT

SHx9000 Befestigung Rohradapter

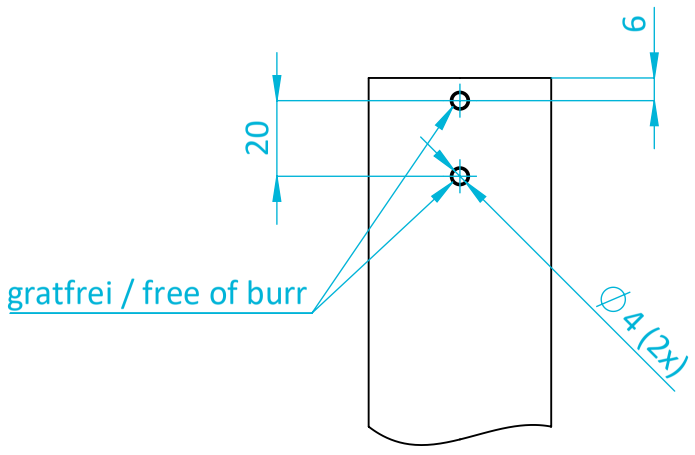
SHx9000 attaching tube adapter

SHx9000 Dreh-Adapter von unten
SHx9000 Swivel-adapter from below

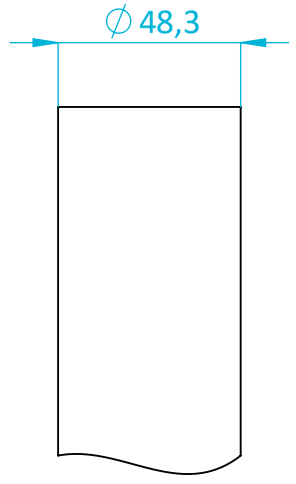
Vorderseite / front view



Rohr / tube



Vorderseite / front view



Rückseite / back view

Anmerkung /
Bohrschablone im Lieferumfang enthalten /
drilling template included in delivery

SHx9000 Befestigung Rohradapter

SHx9000 attaching tube adapter