



# Installation Manual



SHARK Device Platform

ET-xx8 / MT-xx8

Series 400 Panel PCs

Series 500 Thin Clients

Series 600 KVM Systems



THE STRONGEST LINK.

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# 1 Intended use and location

The SHARK device platform ET-/MT-xx8 devices (SERIES 400 / 500 and 600) have been developed particularly for the oil and gas industry. They can be mounted on rig floors (fixed or mobile) drilling rigs and crane / container cabins as well as in wireline applications or in tankfarms. Suitable for hazardous areas zone 1, 21, 2 and 22 (depending on device type), these devices are ideal for a great number of applications.

## 2 Explanation of symbols

### 2.1 Symbols used in the Installation Manual

| Symbol                                                                              | Meaning                                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
|    | Useful hint for making work easier, important note                                        |
|    | Reference to another chapter, another section, another documentation or another web page. |
|    | Work step, the number indicates the sequence in which the steps are to be carried out.    |
|    | Material specification / listing, sequence                                                |
|   | Important work step, note must be complied with                                           |
|  | Indicator arrow (blue)                                                                    |
|  | Movement arrow (brown) indicating movement that can be / is done with or to the material. |

### 2.2 Warning notes

|                                                                                     |                                                                           |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|  | <b>DANGER</b><br>Non-compliance will result in serious or fatal injuries. |
|  | <b>WARNING</b><br>Non-compliance may result in serious or fatal injuries. |
|  | <b>CAUTION</b><br>Non-compliance may result in minor injuries.            |
|                                                                                     | <b>NOTICE</b><br>Non-compliance may result in material damage.            |

### 3 General information



If not otherwise specified, all information, descriptions and illustrations apply in the same way to devices x38 and x98 as well as versions "Standard" and "Top Connect", even if the illustrations only show one version.

### 4 Operating the touchdisplay

#### NOTICE

**Material damage resulting from touching the touchscreen with pointed or sharp items !**

Non-compliance may result in damage to the touchdisplay, reduced life-span or total breakdown.

- Only operate the touchscreen with your finger or a touchpen.

#### NOTICE

**Damage to the touchscreen resulting from electromagnetic interference !**

Non-compliance will result in malfunction and functional impairment of the touchdisplay.

- Integrate the device into the facility's functional earth. The functional earth is used to suppress electromagnetic interference.

Incorrect operation of the touchscreen may result in accidental functions and errors. The device will then be unable to execute orders, may execute them incorrectly or in a way not intended.

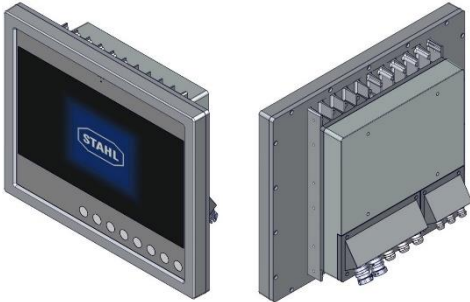
- Do not realise safety-relevant functions via the touchdisplay.
- Avoid accidental multiple touches.
- Do not touch the touchdisplay across a large section.
- Only use fingers, thin gloves, special gloves or a conductive touchpen for operation.
- Before operating the device, thoroughly acquaint yourself with the multi-touch functions of the operating system and the application.
- Avoid contamination of the touchdisplay with salt water.
- Protect the device from rain, snow and splashes, for example by using a sun shade or some other protective roof-type construction. Also take into consideration possible strong winds, saltwater and rain offshore.
- Switch off the device before maintenance or cleaning.

## 5 Mounting

The devices with the SHARK device platform are designed to withstand vibrations and shocks. In regards of different applications and ambient conditions we recommend following installation types:

For installations in locations with greater exposure to shocks and vibration consider using wire rope isolators for absorbing these shocks and vibrations.

### 5.1 Mounting types

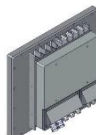
|                                                                                      |                                                                                       |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Mounted on stand / pedestal<br>with / without external keyboard                      | Wall-mounting on brackets,<br>with / without external keyboard                        |
|     |     |
| Mounting on VESA 200                                                                 | Mounting with handle and feet                                                         |
|    |  |
| Mounting with wire rope isolators                                                    |                                                                                       |
|  |                                                                                       |

## 5.2 Recommended mounting type

The following recommended mounting types are the result of trying out many different types over the years. Please follow these recommendations to ensure the optimum mounting type for your device.

Before deciding on how to mount the device, particularly in oil and gas applications, you need to check the vibration and shock conditions. We cannot accept any responsibility if you select an unsuitable mounting type that results in damage or failure of the device !

| Conditions present at the point of installation                                                                                                                                                     | Mounting / installation type                                                        |                                                                | Recommendation                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No vibration and no shocks                                                                                                                                                                          |    | Mounting on stand / pedestal, with / without external keyboard | No restriction                                                                                                                                                                          |
|                                                                                                                                                                                                     |    | Mounting on VESA 200                                           | No restriction                                                                                                                                                                          |
|                                                                                                                                                                                                     |    | Mounting with handle and feet                                  | No restriction                                                                                                                                                                          |
|                                                                                                                                                                                                     |   | Wall-mounting with brackets, with / without external keyboard  | No restriction                                                                                                                                                                          |
| Vibration (sinusoidal)<br><br>5 ... 13.2 Hz: $\pm 1$ mm<br>13.2 ... 100 Hz: $\pm 0.7$ g<br>change cycle 1 oct/min<br>X, Y, Z axes<br><br>acc. to IEC 60068-2-6 and DNV certification No. 2.4 (2006) |  | Mounting on stand / pedestal, with / without external keyboard | Mounting requires secure fixing on ground. In addition, stand should also be fixed to the wall close to the coupling. This mounting option is critical for greater acceleration forces. |
|                                                                                                                                                                                                     |  | Mounting on VESA 200                                           | Not recommended                                                                                                                                                                         |
|                                                                                                                                                                                                     |  | Mounting with handle and feet                                  | Not recommended                                                                                                                                                                         |
|                                                                                                                                                                                                     |  | Wall-mounting with brackets, with / without external keyboard  | Recommended mounting type<br>(DNV tested)                                                                                                                                               |
|                                                                                                                                                                                                     |  | Mounting with wire rope isolators                              | Recommended mounting type                                                                                                                                                               |

| Conditions present at the point of installation                                   | Mounting / installation type                                                        |                                                                | Recommendation                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shock<br><br>18 shocks 25 g / 6 ms,<br>X, Y, Z axes<br><br>acc. to IEC 60068-2-27 |    | Mounting on stand / pedestal, with / without external keyboard | Mounting requires secure fixing on ground. In addition, stand should also be fixed to the wall close to the coupling. This mounting option is critical for greater acceleration forces. |
|                                                                                   |    | Mounting on VESA 200                                           | Not recommended                                                                                                                                                                         |
|                                                                                   |    | Mounting with handle and feet                                  | Not recommended                                                                                                                                                                         |
|                                                                                   |    | Wall-mounting with brackets, with / without external keyboard  | Recommended mounting type                                                                                                                                                               |
|                                                                                   |  | Mounting with wire rope isolators                              | Recommended mounting type                                                                                                                                                               |
| Vibrations<br>5...1000 Hz<br>5 g                                                  |  | Wall-mounting with brackets, with / without external keyboard  | Use of wire rope isolators as vibration and shock absorbers.                                                                                                                            |
|                                                                                   |  |                                                                |                                                                                                                                                                                         |
|                                                                                   |  | Other installations                                            | Not recommended                                                                                                                                                                         |

### 5.3 Mounting notes

- The tightening torques for the cable glands depend on the cables and wires used. This means the users themselves have to determine the required torques.
- The recommended tightening torque for the M8 screws of the VESA bracket is 25 to 30 N.
- The recommended tightening torque for the M6 screws of the lateral mounting options is 10 to 12 N.
- The recommended tightening torque for the torx screws connecting the E-Box to the display module is 10 N.
- The recommended tightening torque for the terminal box cover screws is 1 to 1.5 N.
- The handle might have to be removed prior to mounting the sun shade.

## 6 Variations of operating temperature range

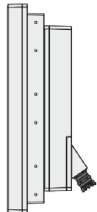
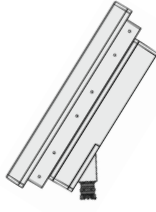
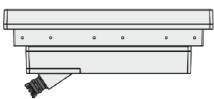
The devices' operating temperature range is impacted by how they are mounted. The minimum and maximum permitted operating temperature may vary depending on the mounting type.

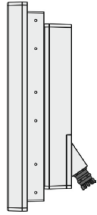
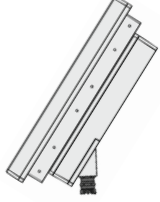
These values are listed in the table below.

|                                                                                   |                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Exposure to direct sunlight might contribute to further increase in temperature of the device and may result in a further reduction of the maximum permitted operating temperature !<br/>We recommend you protect the device from direct sunlight !</p> |
|                                                                                   | <p>Wind may cool down the device and thus have an impact on the minimum operating temperature.</p>                                                                                                                                                         |
|                                                                                   | <p>The storage temperature is not impacted by the type of installation.</p>                                                                                                                                                                                |

The following values apply:

- LTC = Lower ambient temperature in °C  
           -40 °C for devices with internal heater  
           -10 °C for devices without heater
- LTF = Lower ambient temperature in °F  
           -40 °F for devices with internal heater  
           +14 °F for devices without heater
- HTC = highest permissible ambient temperature in °C
- HTF = highest permissible ambient temperature in °F

| Screen position                                                                     | Inclination                                                                         | Description                                                                                           | Highest permissible ambient temperature |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------|
|  |  | <p>landscape,<br/>horizontal 90°<br/>free standing</p>                                                | <p>HTC = +65 °C<br/>HTF = +149 °F</p>   |
|  |  | <p>landscape,<br/>horizontal 45°<br/>free standing</p>                                                | <p>HTC = +60 °C<br/>HTF = +140 °F</p>   |
|  |  | <p>landscape,<br/>horizontal 0°<br/>free standing<br/>minimum distance<br/>10 cm below<br/>device</p> | <p>HTC = 60 °C<br/>HTF = +140 °F</p>    |

| Screen position                                                                     | Inclination                                                                         | Description                                                                         | Highest permissible ambient temperature |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------|
|    |    | portrait<br>vertical 90°,<br>free standing                                          | HTC = +60 °C<br>HTF = +140 °F           |
|    |    | portrait<br>vertical 45°,<br>free standing                                          | HTC = +60 °C<br>HTF = +140 °F           |
|   |   | landscape,<br>horizontal<br>mounted in<br>enclosure<br>any degree of<br>inclination | HTC = +50 °C<br>HTF = +122 °F           |
|  |  | portrait, horizontal<br>mounted in<br>enclosure<br>any degree of<br>inclination     | HTC = +50 °C<br>HTF = +122 °F           |

## 7 Design

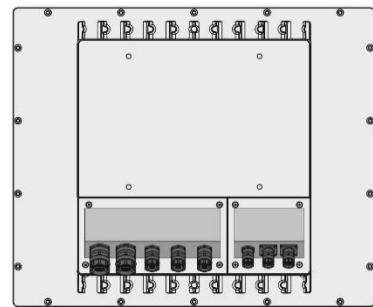
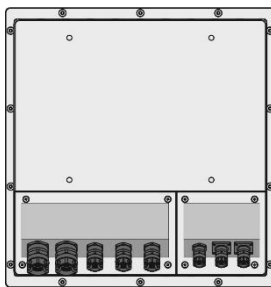
ET-/MT-x38 (15")



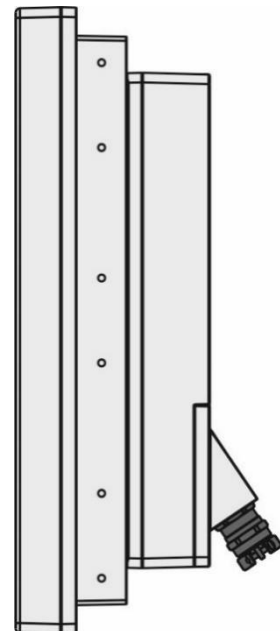
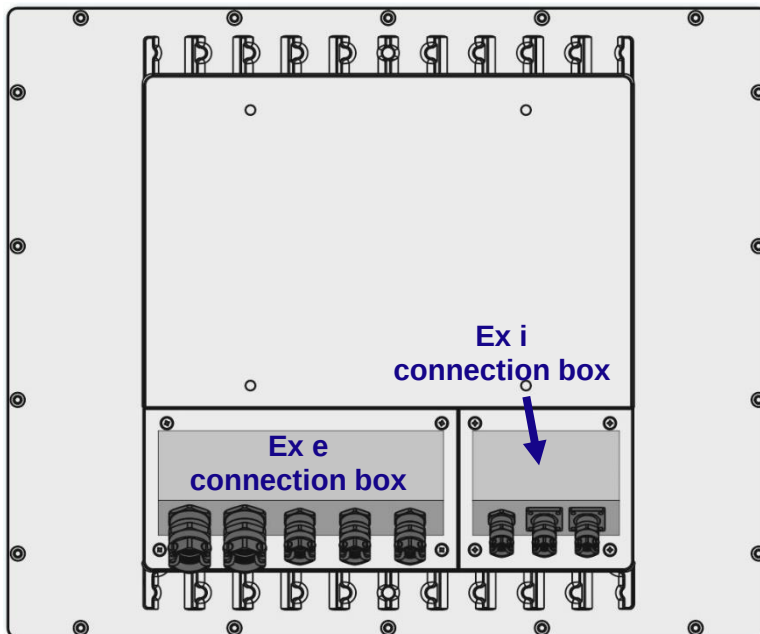
ET-/MT-x98 (21.5")



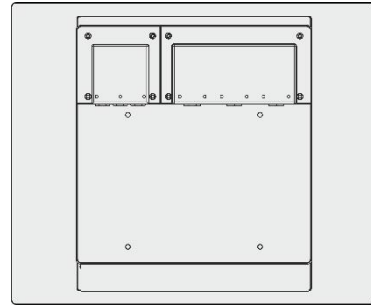
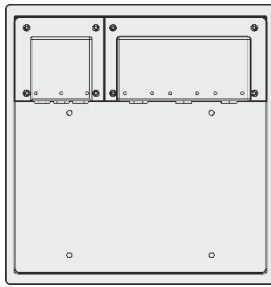
### 7.1 Back view VESA 200 Standard



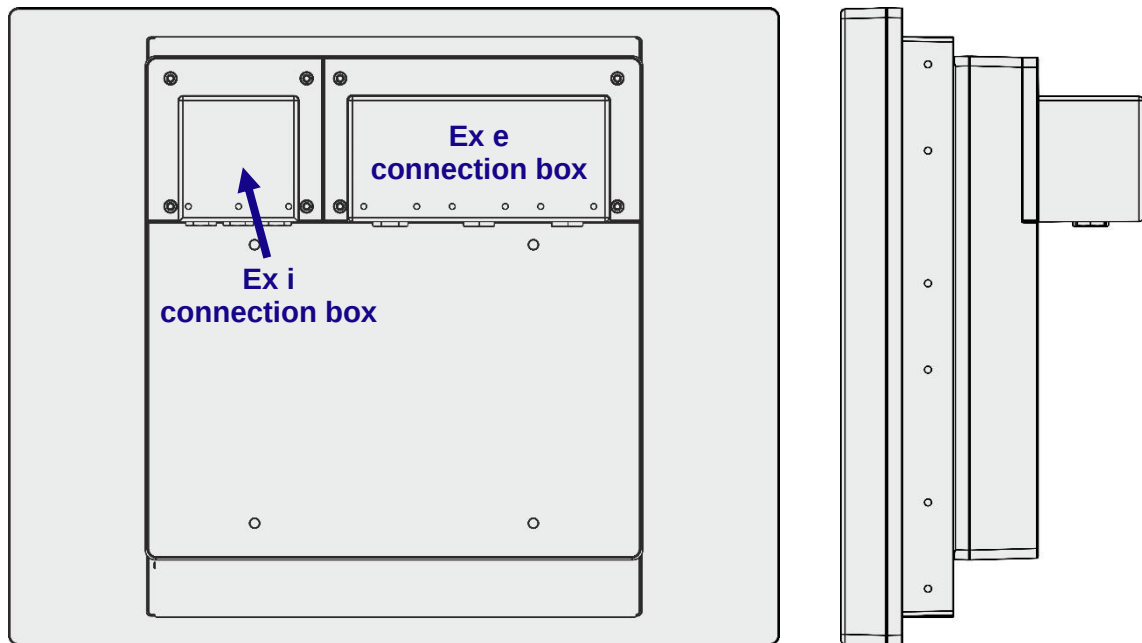
#### 7.1.1 Connection box and lateral view



## 7.2 Back view VESA 200 Top Connect



### 7.2.1 Connection box and lateral view



## 8 Tools



1x side cutter  
 1x wire stripper  
 Spanners size SW 10, 13, 14, 17, 20, 24  
 Phillips screwdrivers size 1 and 2  
 Slotted screwdrivers 2.5 mm and 4.5 mm  
 1x torx wrench TX 30  
 1x allen key 5 mm  
 1x conical drill bit ca. 16-32 mm  
 1x drill

## 9 Mechanical Installation



### WARNING

#### Falling or dropped device !

Non-compliance can result in severe injuries and damage to the device.

- Always have two people mount the devices.



If not otherwise specified, devices x38 and x98 as well as versions "Standard" and "Top Connect" are mounted in the same way.

### 9.1 Accessories

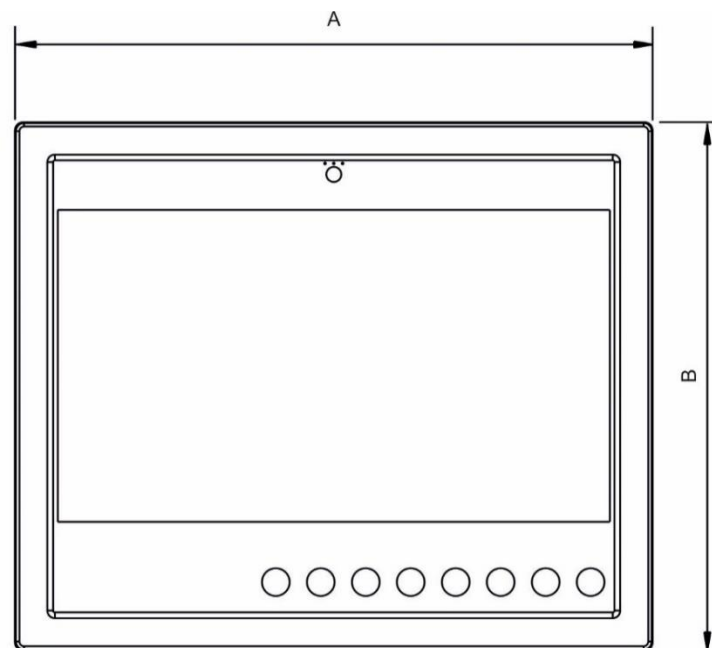


The installation instructions for further accessories not described in this manual are located in the following documents.

| Connection kit              |                                          |                                           |
|-----------------------------|------------------------------------------|-------------------------------------------|
| Variant                     | Description                              | Document                                  |
| CON-xx8-CAT-ROTA-AC-ROTA-00 | for the CAT version with AC power supply | IM_Top-Connect_xx8-*.pdf                  |
| CON-xx8-FO-HMA-AC-ROTA-00   | for the FO version with AC power supply  | IM_Top-Connect_xx8-*.pdf                  |
| Power / Reset button        |                                          |                                           |
| CON-xx8-PSW-ext             | On/off button                            | IFI-PB-an-xx8-Sidemounting-de-en_V_01.pdf |

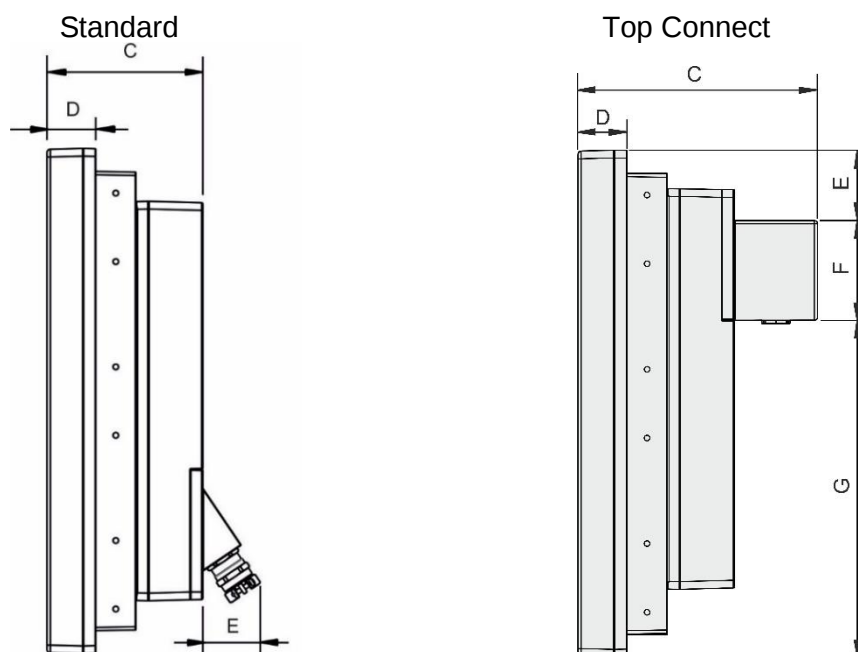
## 9.2 Device dimensions

### 9.2.1 Front:



| Device          | Dimensions (mm) |     |
|-----------------|-----------------|-----|
|                 | A               | B   |
| ET-x38 / MT-x38 | 380             | 394 |
| ET-x98 / MT-x98 | 553             | 458 |

### 9.2.2 Side



| Standard device | Dimensions (mm) |    |    | Top Connect device | Dimensions (mm) |    |    |    |     |
|-----------------|-----------------|----|----|--------------------|-----------------|----|----|----|-----|
|                 | C               | D  | E  |                    | C               | D  | E  | F  | G   |
| ET-x38 / MT-x38 | 137             | 40 | 52 | ET-x38 / MT-x38    | 212             | 40 | 46 | 90 | 257 |
| ET-x98 / MT-x98 | 141             | 44 | 52 | ET-x98 / MT-x98    | 216             | 44 | 64 | 90 | 304 |

## 9.3 Cable glands



You may use any Ex-certified cable glands that meet the technical requirements.

### 9.3.1 VESA 200 Standard

| Hummel type standard gland |        |           |                     |             |               |
|----------------------------|--------|-----------|---------------------|-------------|---------------|
| Position                   | Number | Size      | Cable diameter [mm] | Hummel type | Hummel number |
| Ex e connection cover      | 2      | M25 x 1.5 | 14 - 18             | HSK-MZ-Ex   | 1.611.2500.50 |
|                            | 3      | M20 x 1.5 | 10 - 14             | HSK-MZ-Ex   | 1.641.2016.50 |
| Ex i connection cover      | 3      | M16 x 1.5 | 5 - 10              | HSK-MZ-Ex   | 1.641.1611.50 |

### 9.3.2 VESA 200 Top Connect

| Screw plugs           |        |           |
|-----------------------|--------|-----------|
| Position              | Number | Size      |
| Ex e connection cover | 3      | M20 x 1.5 |
| Ex i connection cover | 3      | M16 x 1.5 |



In their factory state, the VESA 200 Top Connect devices come with screw plugs.

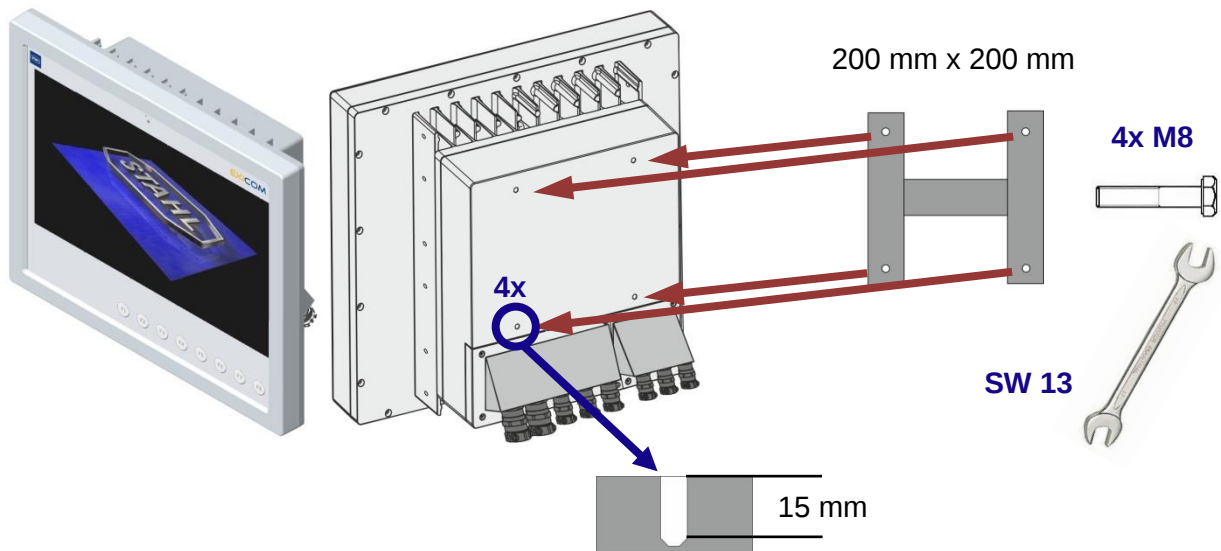
Various sets are available for the connection of cables as accessories. These must be mounted by the customer.

| Connection kit              |                                          |         |
|-----------------------------|------------------------------------------|---------|
| Variant                     | Description                              | SAP no. |
| CON-xx8-CAT-ROTA-AC-ROTA-00 | for the CAT version with AC power supply | 260583  |
| CON-xx8-FO-HMA-AC-ROTA-00   | for the FO version with AC power supply  | 260958  |

### 9.3.3 Coupling cover

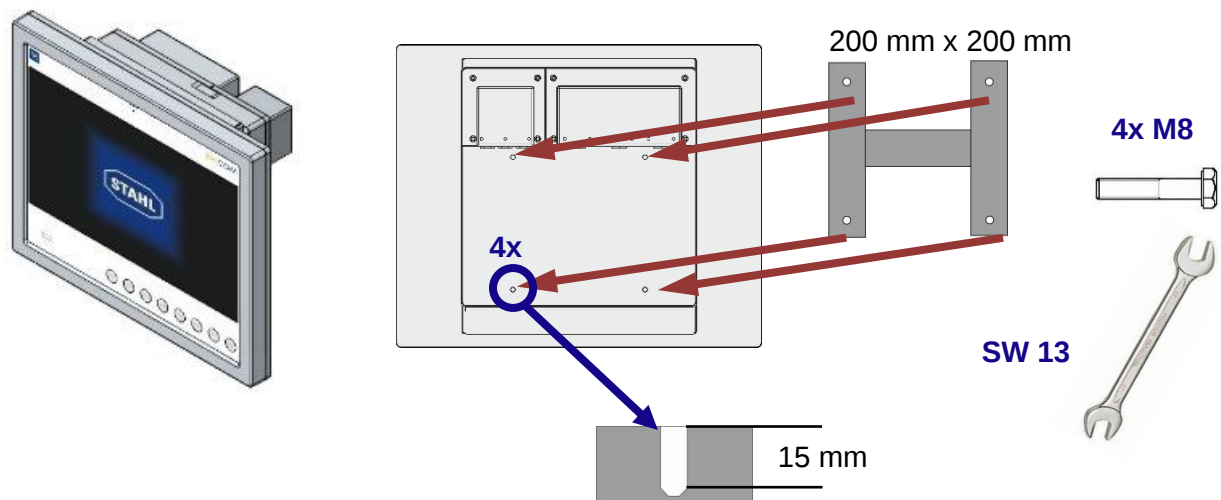
| Cable gland      |        |           |                     |          |          |
|------------------|--------|-----------|---------------------|----------|----------|
| Position         | Number | Size      | Cable diameter [mm] | Type     | Number   |
| Connection cover | 2      | M25 x 1.5 | 9 - 17              | EMSKV 25 | 10065003 |
|                  | 1      | M20 x 1.5 | 9 - 13              | Perfect  | 50.620 M |

## 9.4 VESA 200 Standard mounting option



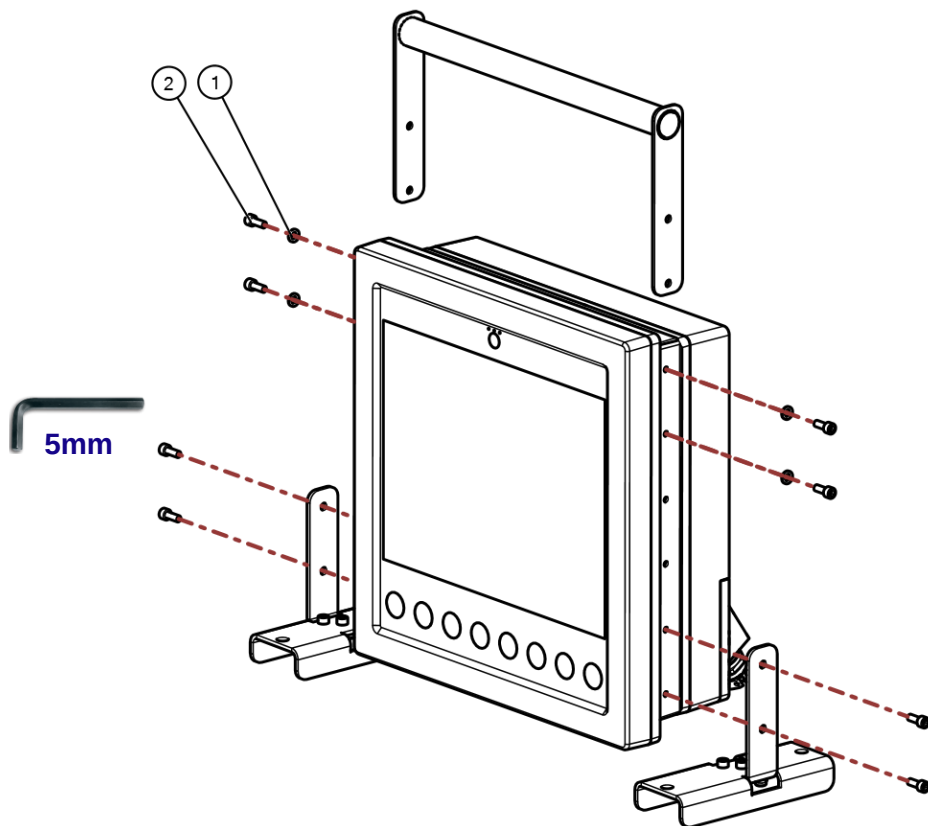
Recommended torque for M8 screws: 25 N to 30 N

## 9.5 VESA 200 Top Connect mounting option

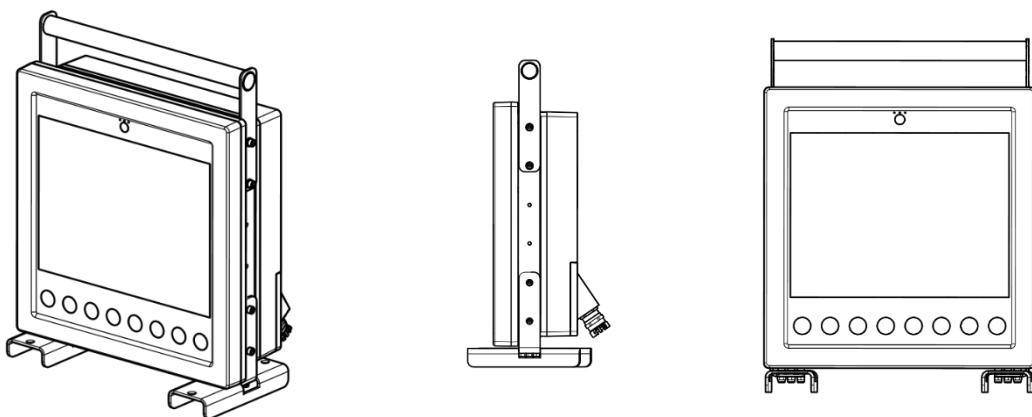


Recommended torque for M8 screws: 25 N to 30 N

## 9.6 Mounting option with handle and feet



| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Washer 6.4          | 8      |
| 2   | Allen screw M6 x 16 | 8      |



## 9.7 Wall mounting

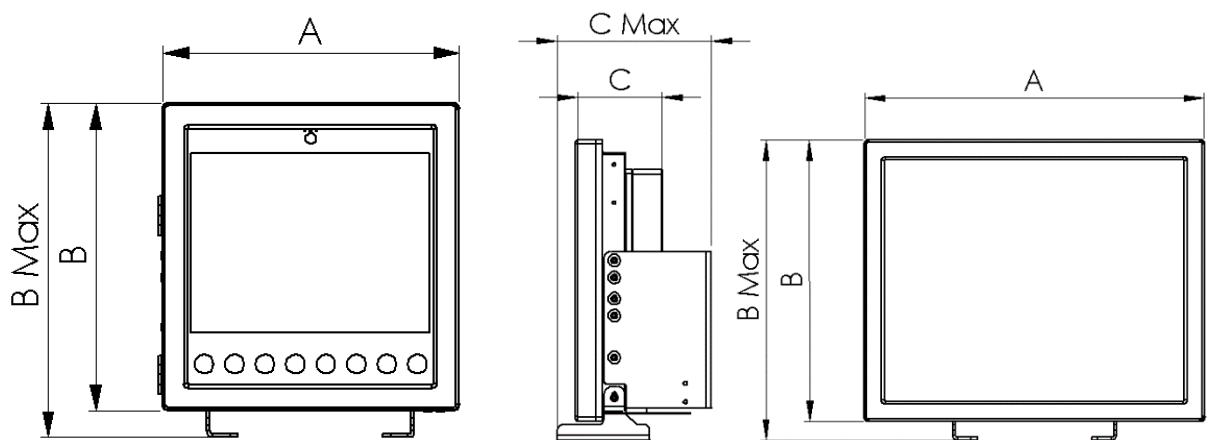
### 9.7.1 View

ET-/MT-x38 (15")

ET-/MT-x98 (21.5")



### 9.7.2 Dimensions

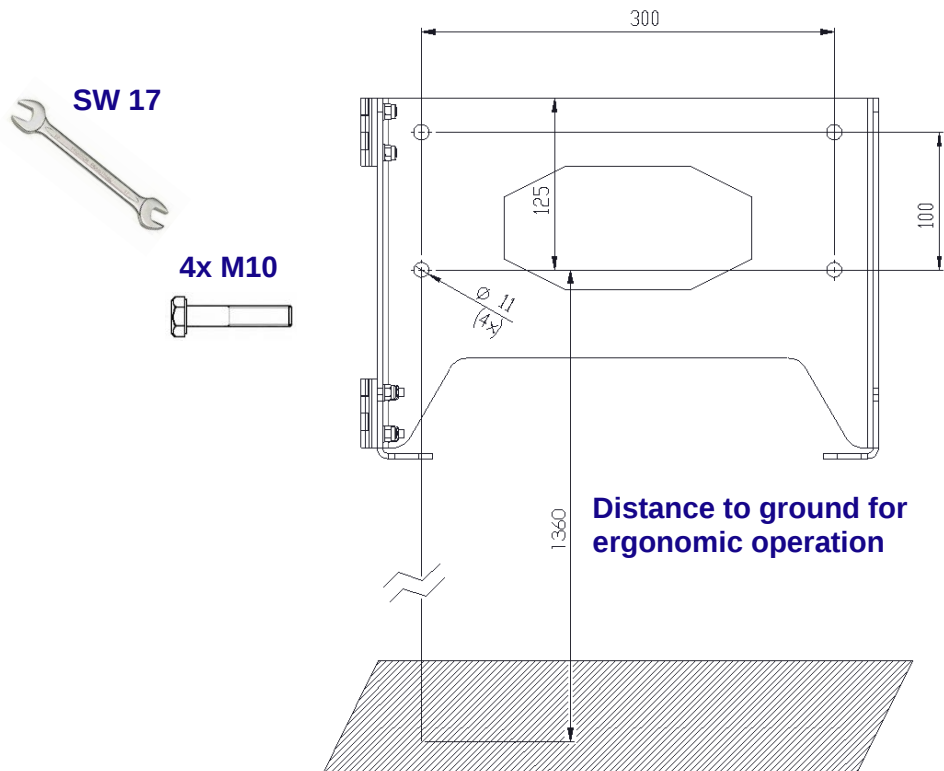


| Device          | Dimensions [mm] |     |       |     |       |
|-----------------|-----------------|-----|-------|-----|-------|
|                 | A               | B   | B Max | C   | C Max |
| ET-x38 / MT-x38 | 380             | 394 | 428   | 216 | 250   |
| ET-x98 / MT-x98 | 553             | 458 | 483   | 220 | 250   |

### 9.7.3 Wall mounting bracket



### 9.7.3.1 Hole sizes wall mounting



#### 9.7.4 Step-by-step mounting instructions

- 1 Mount the wall mounting bracket to a wall / support first.**

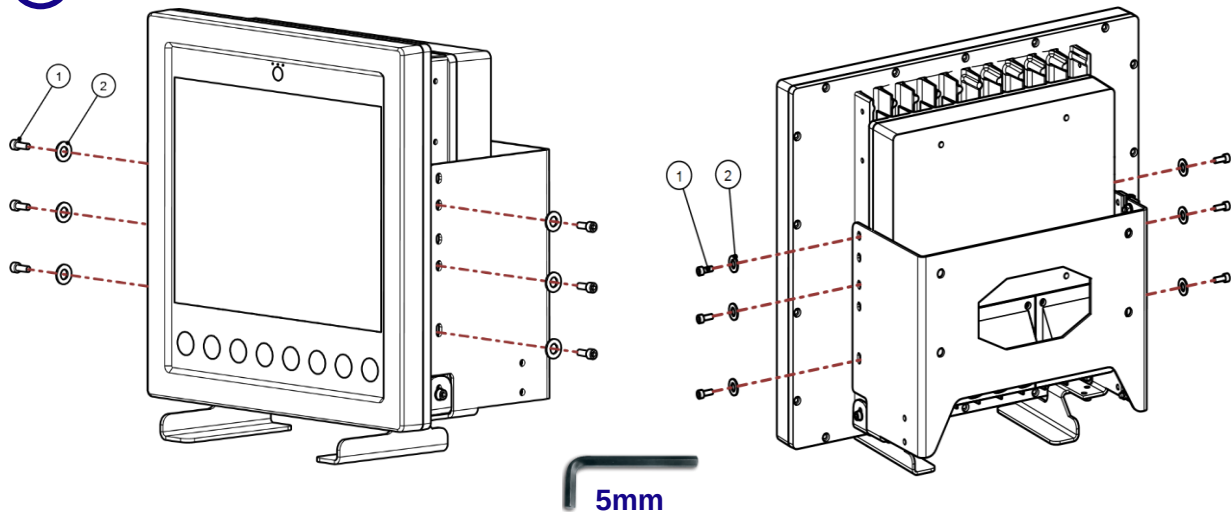
- 

| No. | Designation            | Number |
|-----|------------------------|--------|
| 1   | Allen screw<br>M6 x 25 | 2      |
| 2   | Washer 6.4             | 2      |

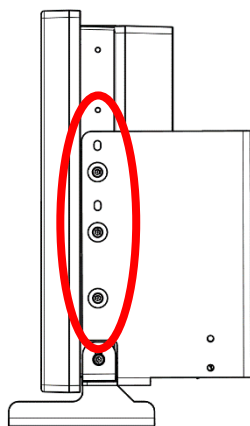
3

ET-/MT-x38 (15")

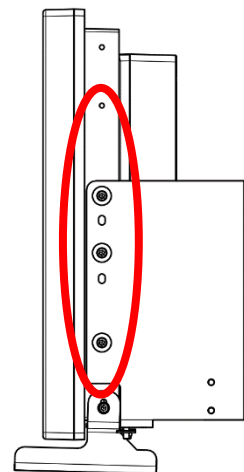
ET-/MT-x98 (21.5")



| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Allen screw M6 x 16 | 6      |
| 2   | Washer 6.4          | 6      |



Note the positions  
of the fixing screw  
holes !



## 9.8 Wall mounting with keyboard

### 9.8.1 View

ET-/MT-x38 (15")

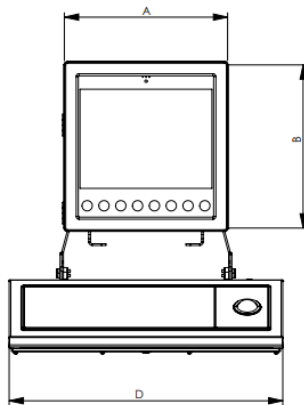


ET-/MT-x98 (21.5")

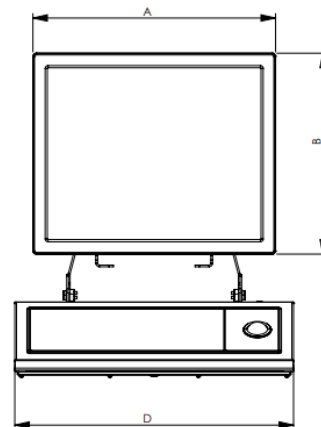


### 9.8.2 Dimensions

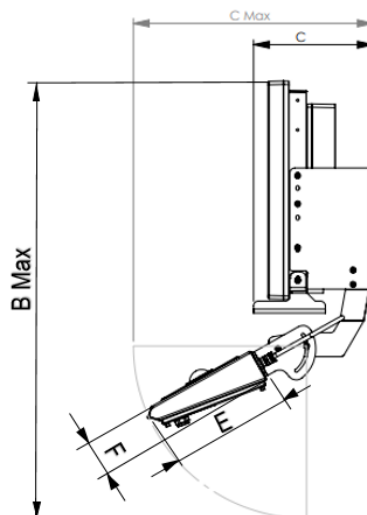
ET-/MT-x38 (15")



ET-/MT-x98 (21.5")

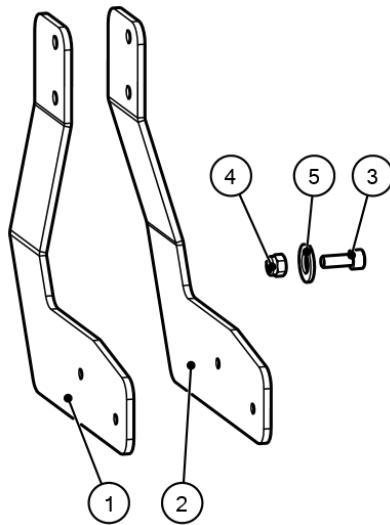


ET-/MT-xx8 (15" / 21.5")



| Device          | Dimensions [mm] |     |       |     |       |     |     |    |
|-----------------|-----------------|-----|-------|-----|-------|-----|-----|----|
|                 | A               | B   | B Max | C   | C Max | D   | E   | F  |
| ET-x38 / MT-x38 | 380             | 394 | 804   | 250 | 501   | 635 | 260 | 68 |
| ET-x98 / MT-x98 | 553             | 458 | 864   | 250 | 501   | 635 | 260 | 68 |

### 9.8.3 Keyboard



| No. | Designation            | Number |
|-----|------------------------|--------|
| 1   | Keyboard holder left   | 1      |
| 2   | Keyboard holder right  | 1      |
| 3   | Allen screw<br>M6 x 16 | 2      |
| 4   | M6 lock nut            | 2      |
| 5   | Washer 6.4             | 4      |

### 9.8.4 Wall mounting bracket



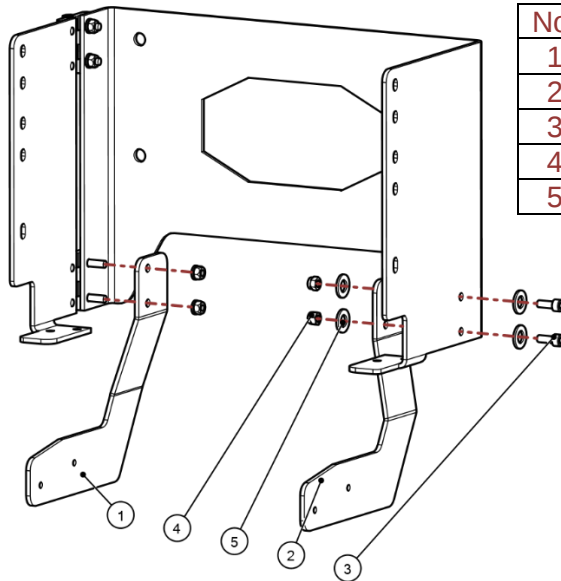
See chapter 9.7.3

## 9.8.5 Step-by-step mounting instructions

1

**Mount the wall mounting bracket to a wall / support first.**

2



| No. | Designation           | Number |
|-----|-----------------------|--------|
| 1   | Keyboard holder left  | 1      |
| 2   | Keyboard holder right | 1      |
| 3   | Allen screw M6 x 16   | 2      |
| 4   | M6 lock nut           | 2      |
| 5   | Washer 6.4            | 4      |



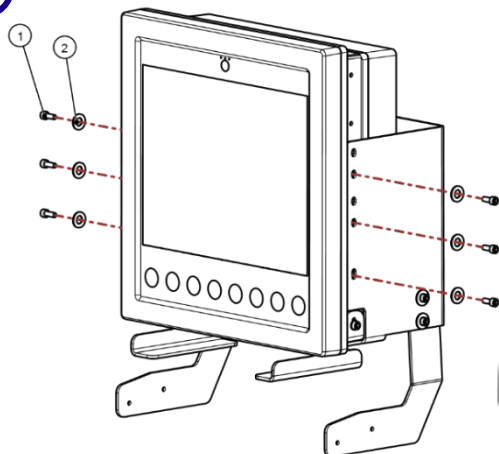
5 mm



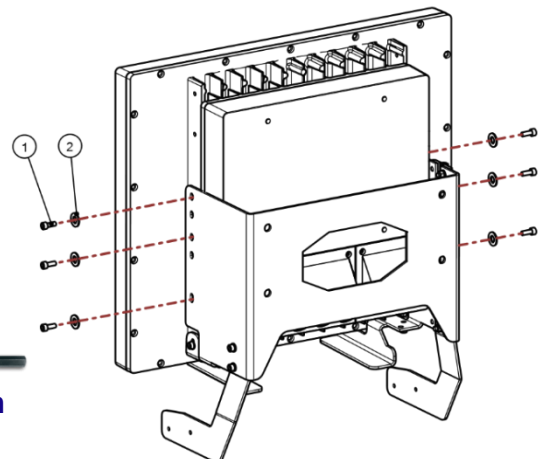
SW 10

3

ET-/MT-x38 (15")

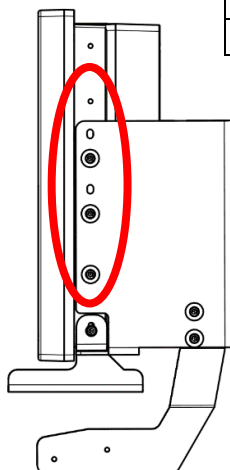


ET-/MT-x98 (21.5")

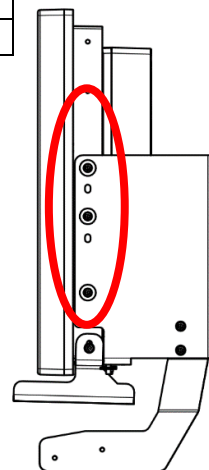


5 mm

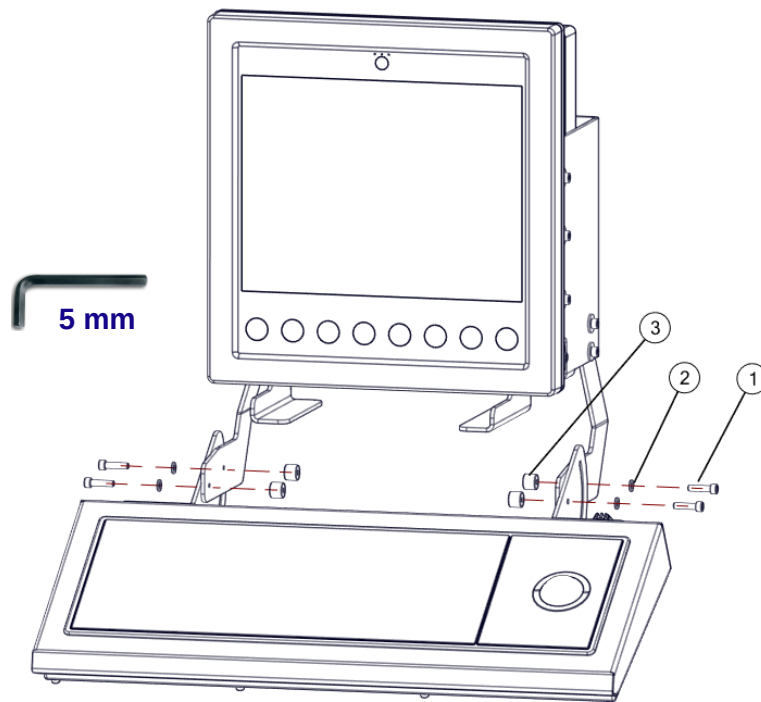
| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Allen screw M6 x 16 | 6      |
| 2   | Washer 6.4          | 6      |



**Note the positions  
of the fixing screw  
holes!**



4



| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Allen screw M6 x 16 | 4      |
| 2   | Washer 6.4          | 4      |
| 3   | M6 lock nut         | 4      |

5

**Adjustable  
angle /  
inclination**



## 9.9 Wall mounting with barcode scanner

### 9.9.1 View

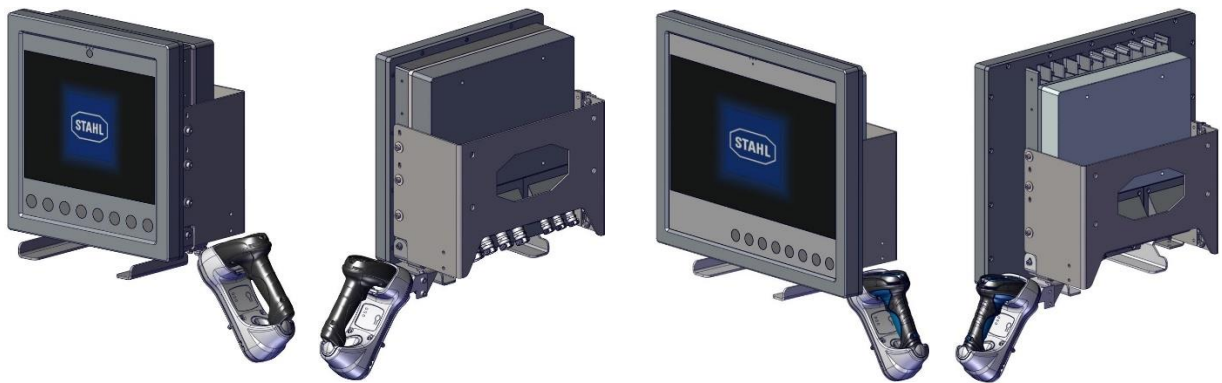
ET-/MT-x38 (15")

ET-/MT-x98 (21.5")

Wired barcode scanner

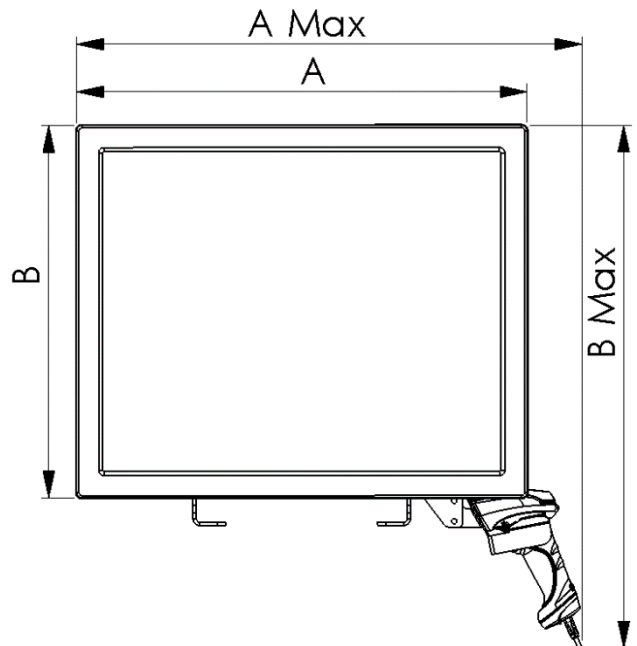
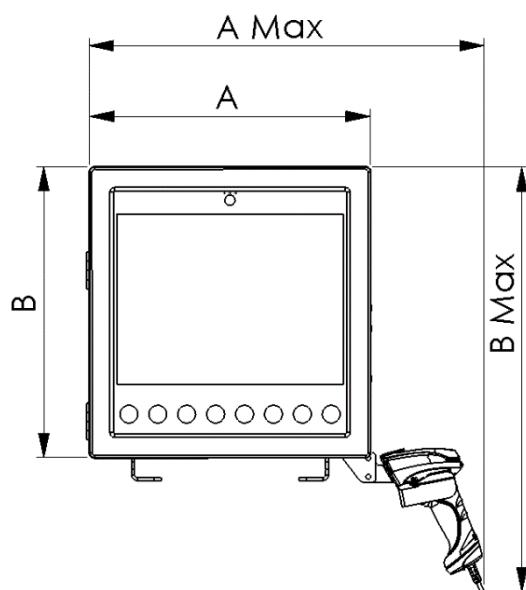


Bluetooth barcode scanner

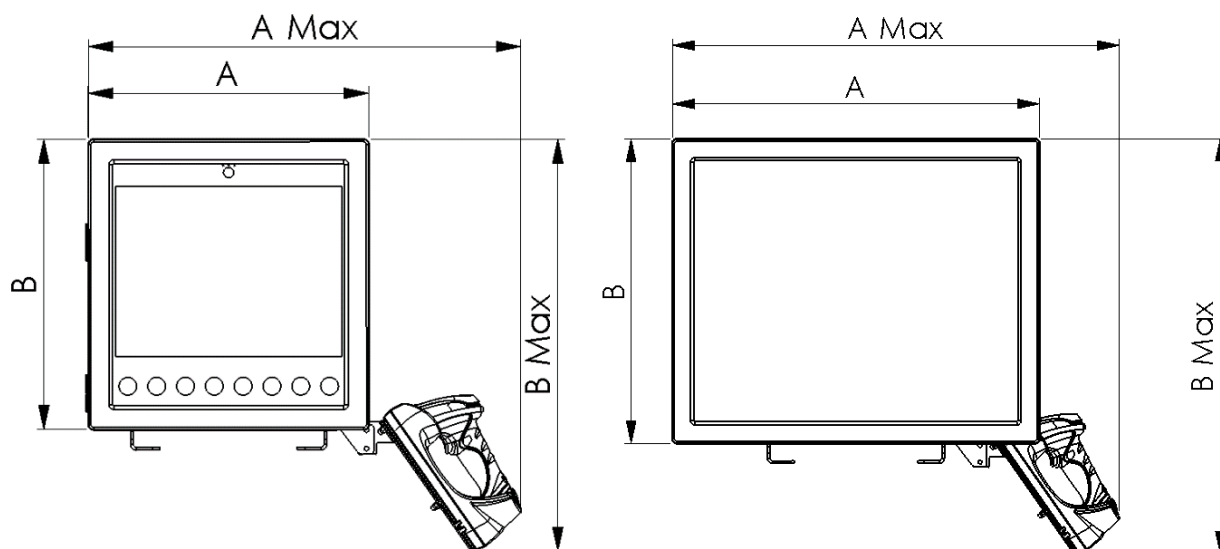


### 9.9.2 Dimensions

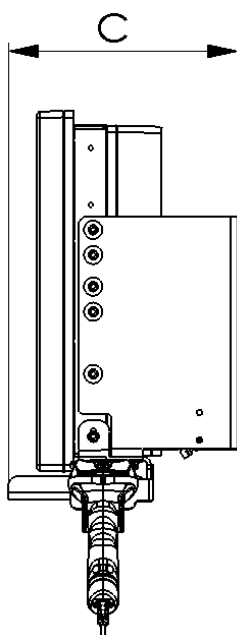
Wired barcode scanner



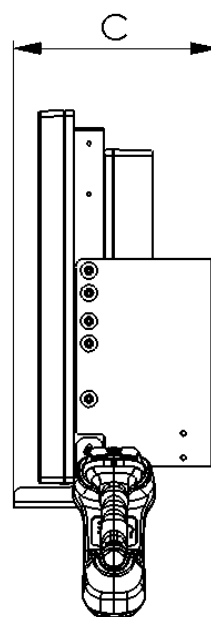
Bluetooth barcode scanner



Wired barcode scanner



Bluetooth barcode scanner



Dimensions (mm) for wall mounting with wired barcode scanner

| Device          | A   | A Max | B   | B Max | C   |
|-----------------|-----|-------|-----|-------|-----|
| ET-x38 / MT-x38 | 380 | 537   | 394 | 586   | 250 |
| ET-x98 / MT-x98 | 553 | 622   | 458 | 644   | 250 |

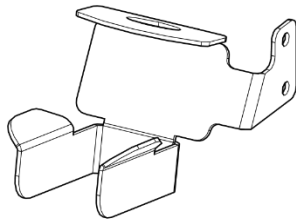
Dimensions (mm) for wall mounting with Bluetooth barcode scanner

| Device          | A   | A Max | B   | B Max | C   |
|-----------------|-----|-------|-----|-------|-----|
| ET-x38 / MT-x38 | 380 | 592   | 394 | 571   | 250 |
| ET-x98 / MT-x98 | 553 | 677   | 458 | 630   | 250 |

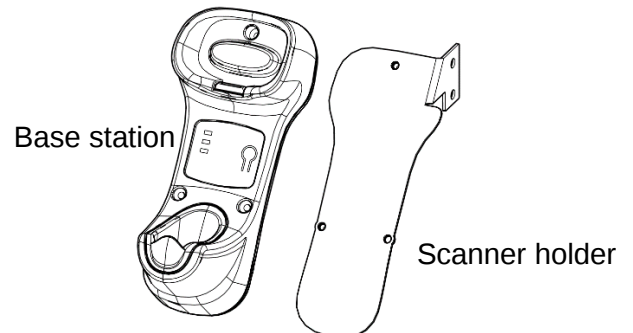
### 9.9.3 Mounting versions

#### 9.9.3.1 Scanner holder

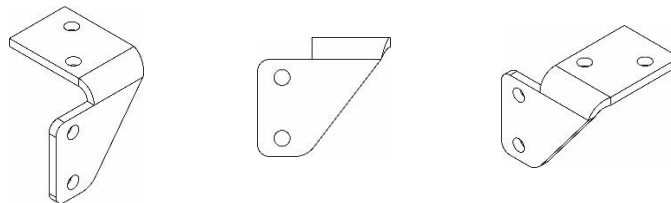
Scanner holder for wired barcode scanner



Scanner holder for Bluetooth barcode scanner



#### 9.9.3.2 Adapter for scanner holder

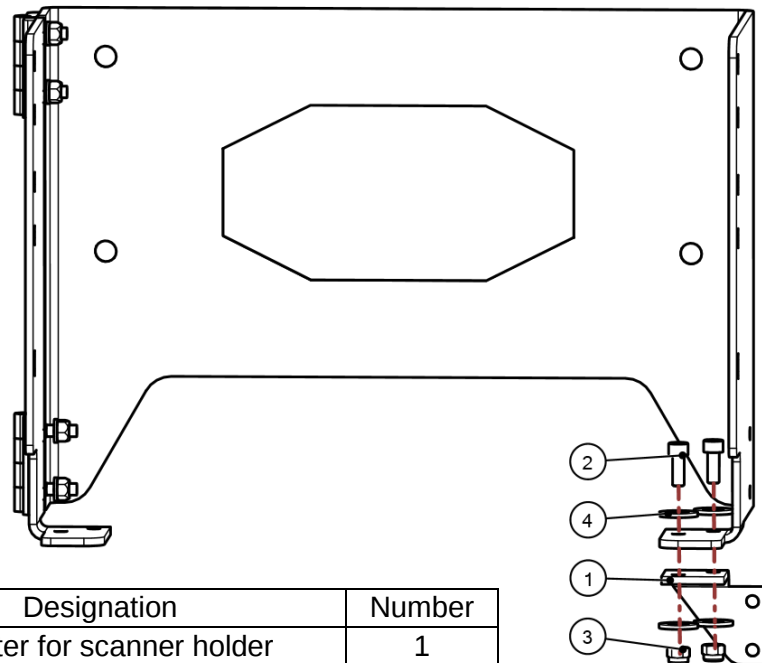


### 9.9.4 Step-by-step mounting instructions

1

Mount the wall mounting bracket to a wall / support first.

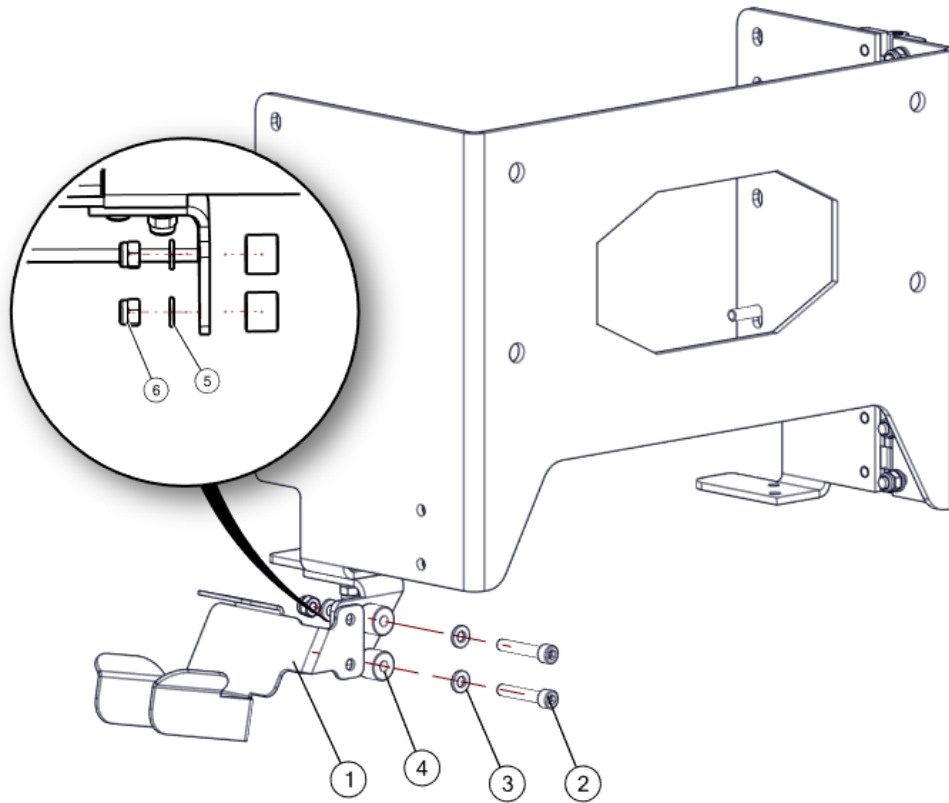
2



| No. | Designation                | Number |
|-----|----------------------------|--------|
| 1   | Adapter for scanner holder | 1      |
| 2   | Allen screw M6 x 16        | 2      |
| 3   | Self-locking M6 nut        | 2      |
| 4   | Washer 6.4                 | 4      |

### 3

### Mounting for wired barcode scanner

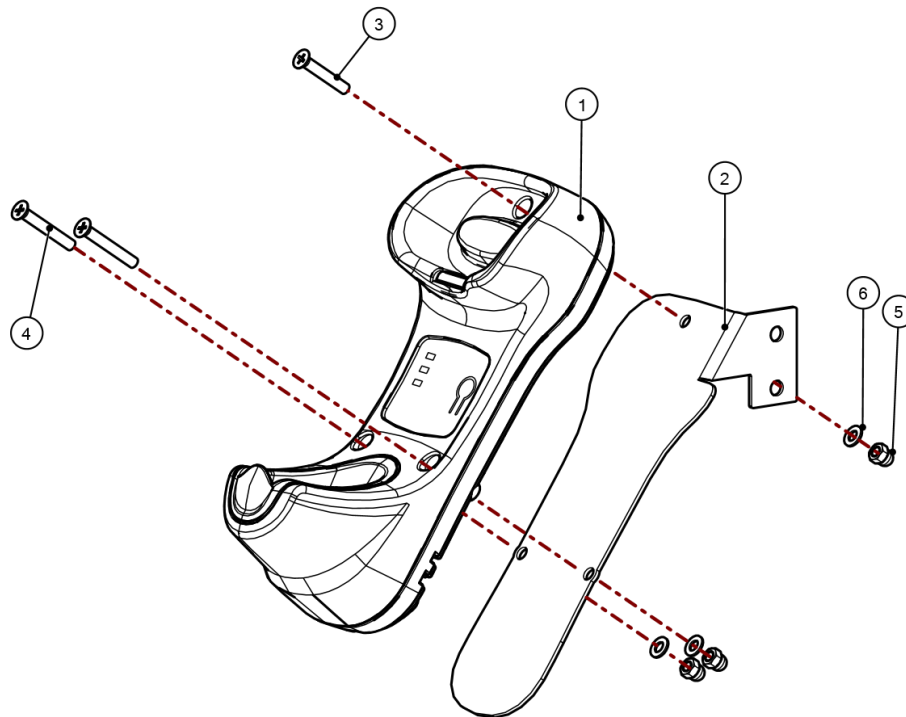


| No. | Designation                              | Number |
|-----|------------------------------------------|--------|
| 1   | Scanner holder for wired barcode scanner | 1      |
| 2   | Allen screw M6 x 35                      | 2      |
| 3   | Washer 6.4                               | 2      |
| 4   | Spacer                                   | 2      |
| 5   | Washer 6.4                               | 2      |
| 6   | Self-locking M6 nut                      | 2      |

4a



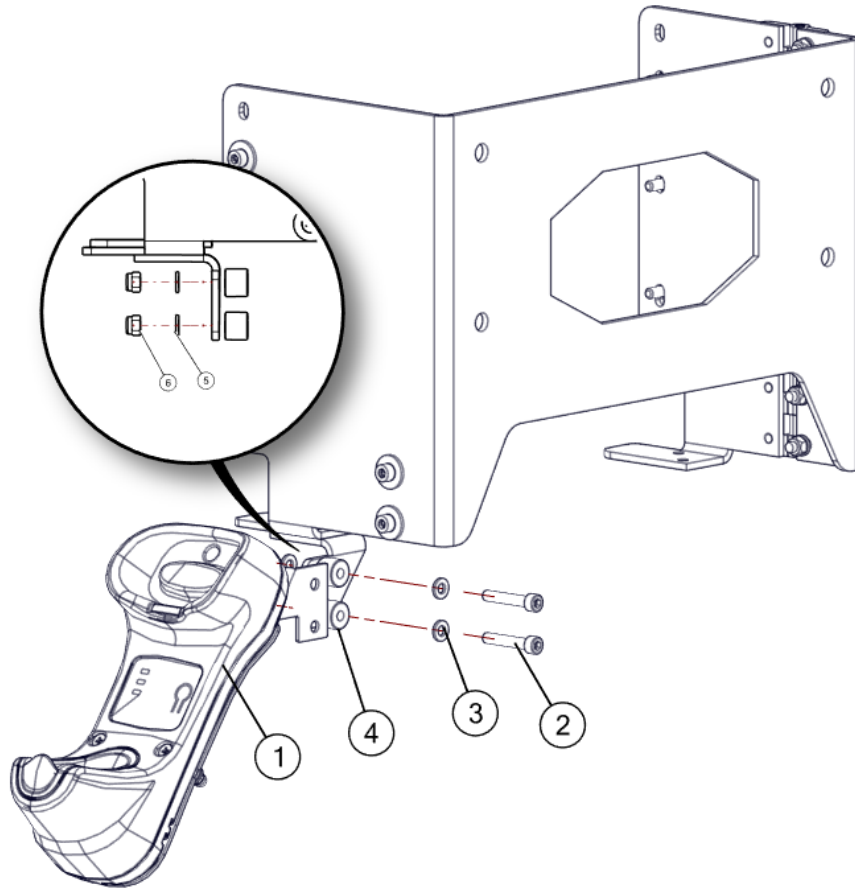
Extra step for Bluetooth barcode scanner only



| No. | Designation                                  | Number |
|-----|----------------------------------------------|--------|
| 1   | Base station                                 | 1      |
| 2   | Scanner holder for Bluetooth barcode scanner | 1      |
| 3   | Countersunk screw M5 x 30                    | 1      |
| 4   | Countersunk screw M5 x 35                    | 2      |
| 5   | Self-locking M5 nut                          | 3      |
| 6   | Washer 5.3                                   | 3      |

4b

## Mounting for Bluetooth barcode scanner



| No. | Designation                                                            | Number |
|-----|------------------------------------------------------------------------|--------|
| 1   | Scanner holder for Bluetooth barcode scanner with mounted base station | 1      |
| 2   | Allen screw M6 x 35                                                    | 2      |
| 3   | Washer 6.4                                                             | 2      |
| 4   | Spacer                                                                 | 2      |
| 5   | Washer 6.4                                                             | 2      |
| 6   | Self-locking M6 nut                                                    | 2      |

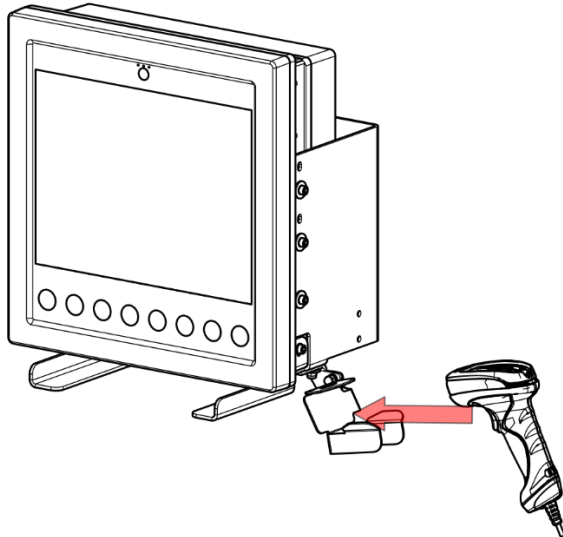
5



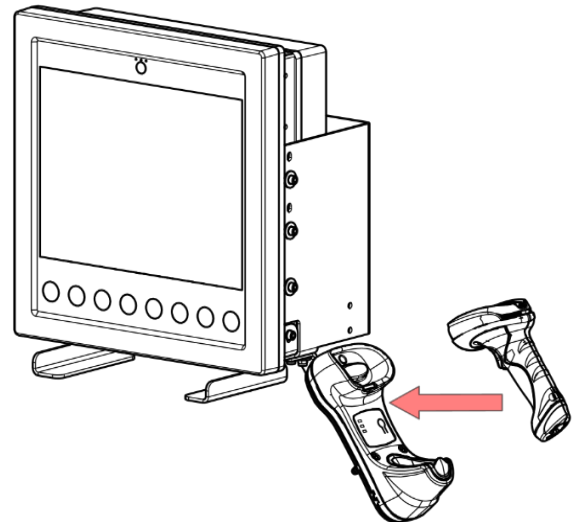
Take steps 2 and 3 from chapter 8.7.4

6

Wired barcode scanner



Bluetooth barcode scanner



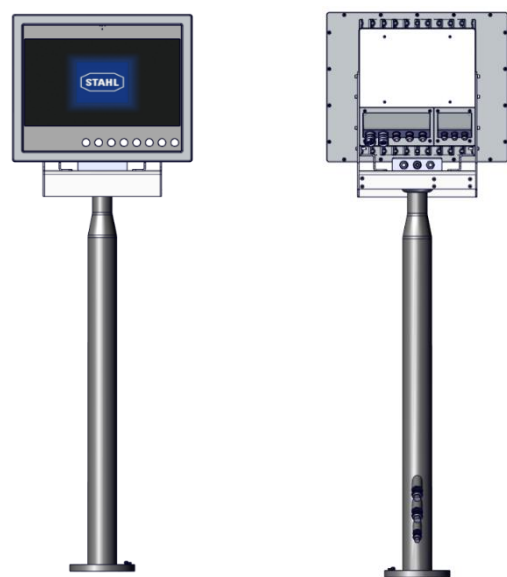
## 9.10 Mounting on stand

### 9.10.1 View

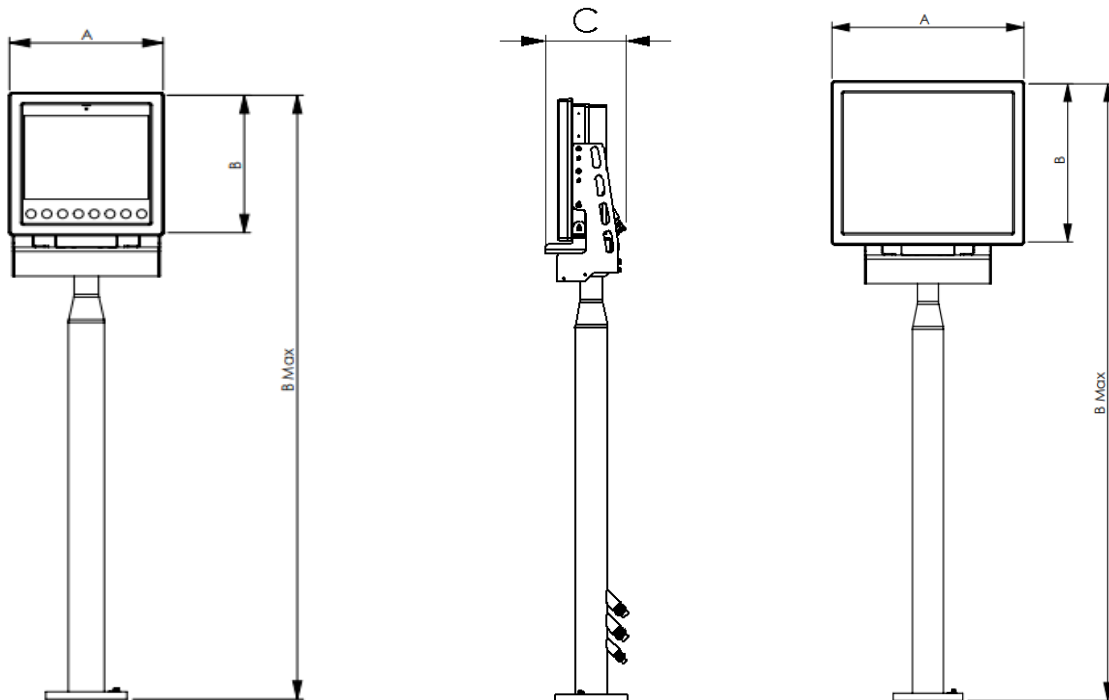
ET-/MT-x38 (15")



ET-/MT-x98 (21.5")

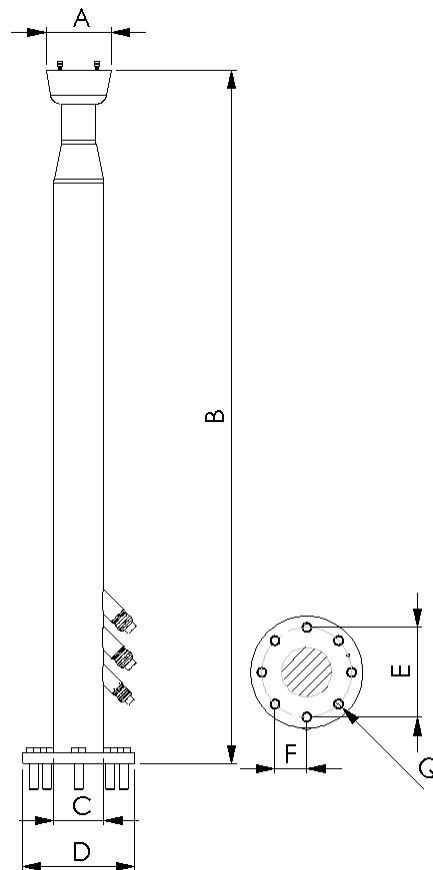


### 9.10.2 Dimensions



| Device          | Dimensions [mm] |     |       |     |
|-----------------|-----------------|-----|-------|-----|
|                 | A               | B   | B Max | C   |
| ET-x38 / MT-x38 | 380             | 394 | 1673  | 221 |
| ET-x98 / MT-x98 | 553             | 458 | 1733  | 190 |

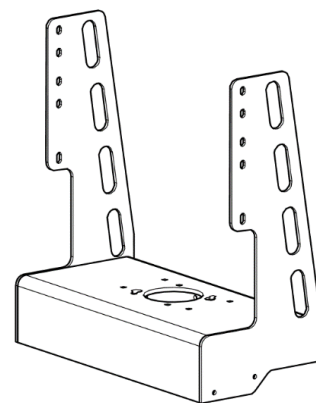
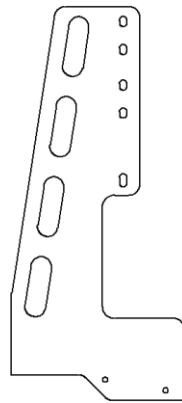
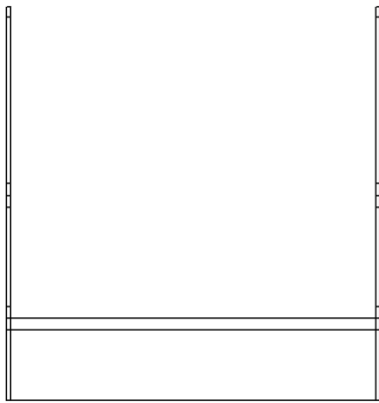
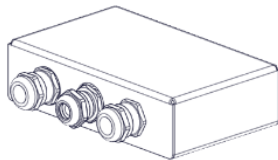
## 9.10.3 MPFL stand



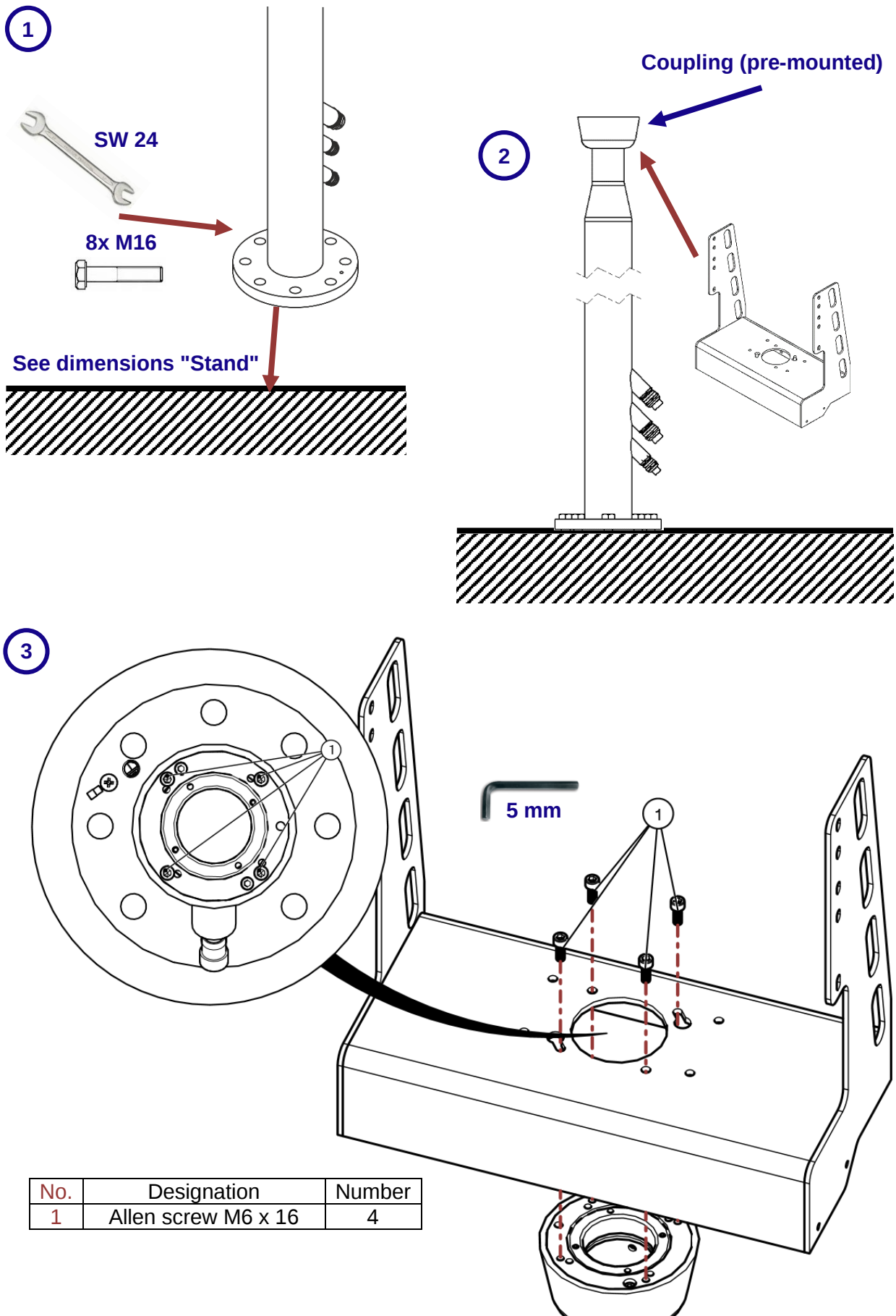
| Dimensions (mm) |      |        |     |     |          |           |
|-----------------|------|--------|-----|-----|----------|-----------|
| A               | B    | C      | D   | E   | F        | G         |
| Ø 116           | 1240 | Ø 88.9 | 200 | 160 | 45° (8x) | Ø 18 (8x) |

| Cable glands |           |                     |              |
|--------------|-----------|---------------------|--------------|
| Number       | Size      | Cable diameter [mm] | Type         |
| 2            | M25 x 1.5 | 9 - 17              | EMSKV 25     |
| 1            | M20 x 1.5 | 9 - 13              | 50.620 M/EMV |

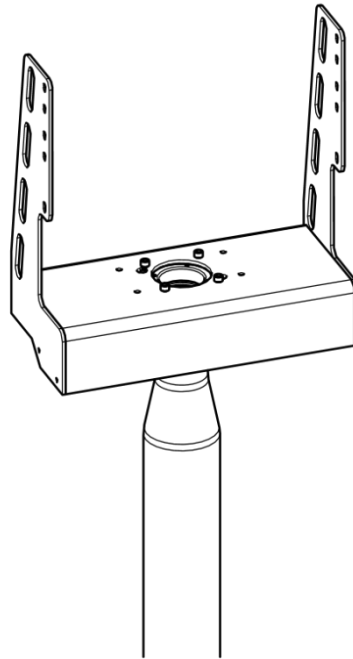
| Earthing material (available at stand) |        |         |
|----------------------------------------|--------|---------|
| Type                                   | Number | Size    |
| Hexagon head screw                     | 1      | M6 x 16 |
| Washer                                 | 2      | M6      |
| Spring washer                          | 1      | B6      |
| Serrated lock washer                   | 1      | A6      |

**9.10.4 Yoke****9.10.5 Coupling cover**

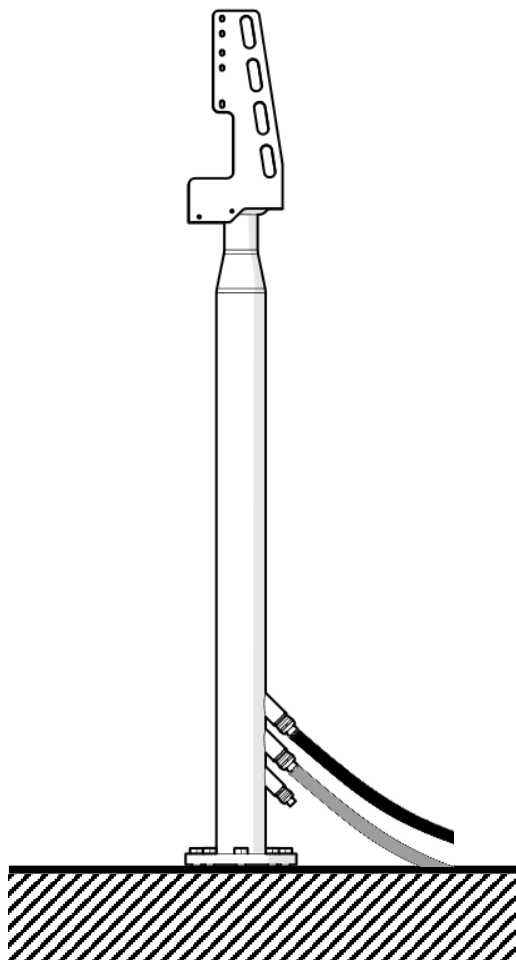
## 9.10.6 Step-by-step mounting instructions



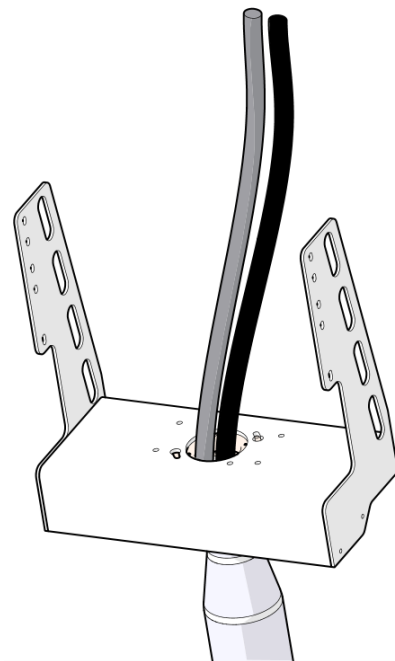
4



5



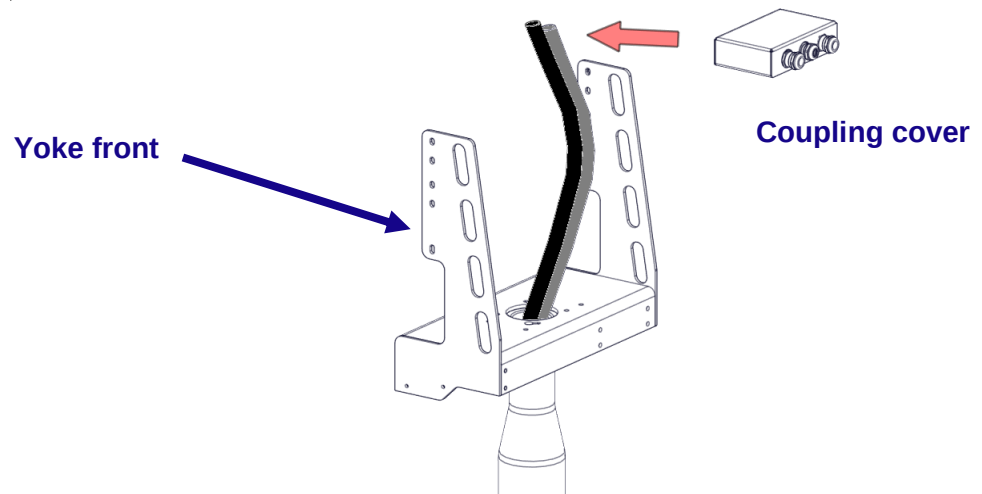
6



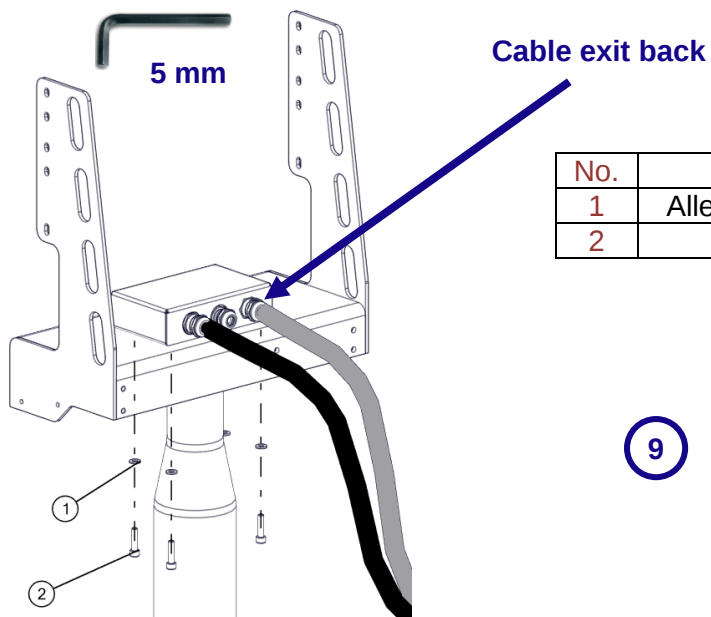
7



Adhere to direction of mounting !

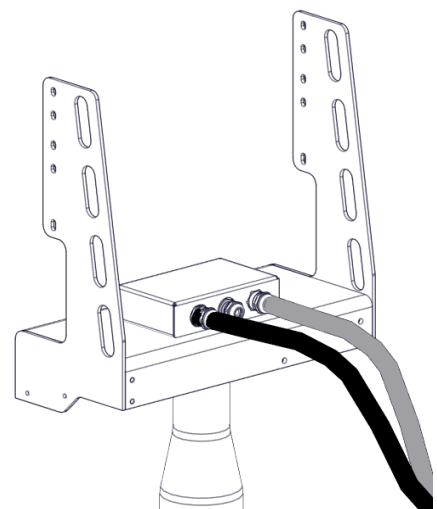


8

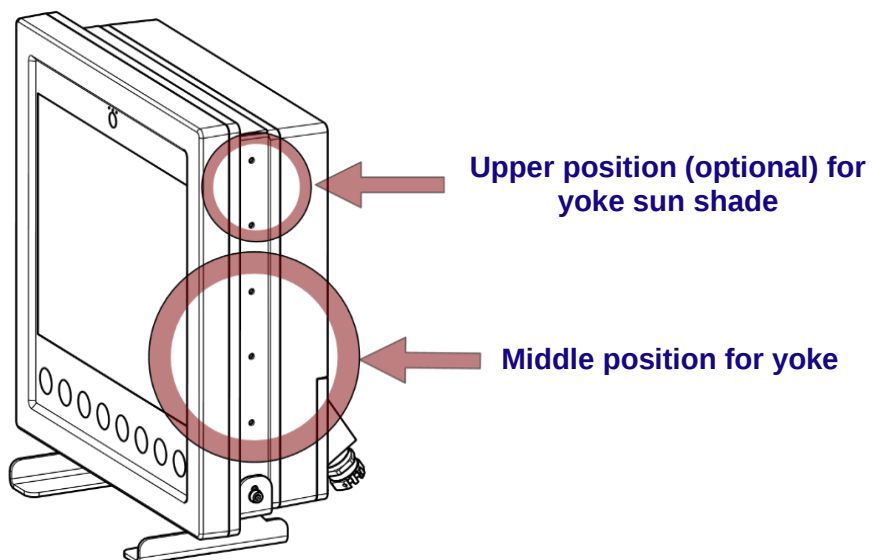
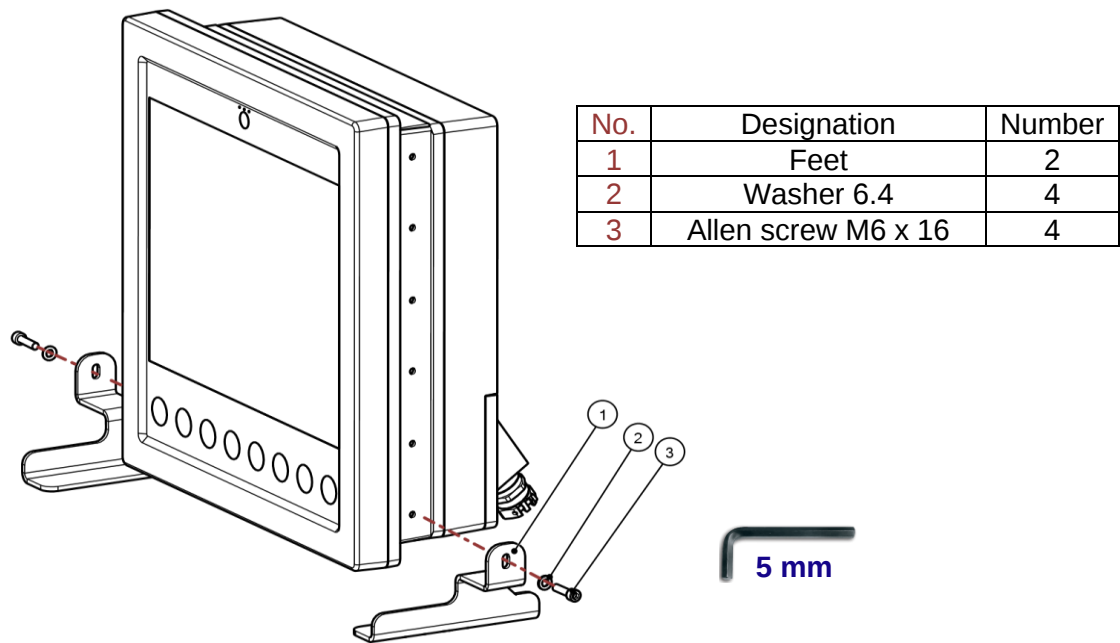


| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Allen screw M6 x 16 | 4      |
| 2   | Washer 6.4          | 4      |

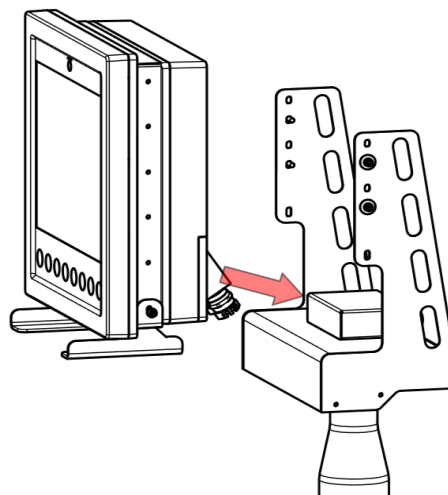
9



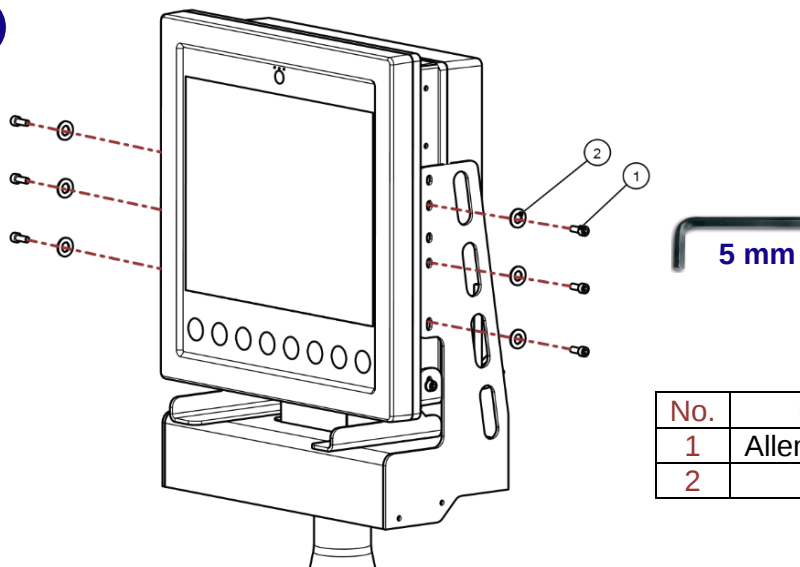
10



11

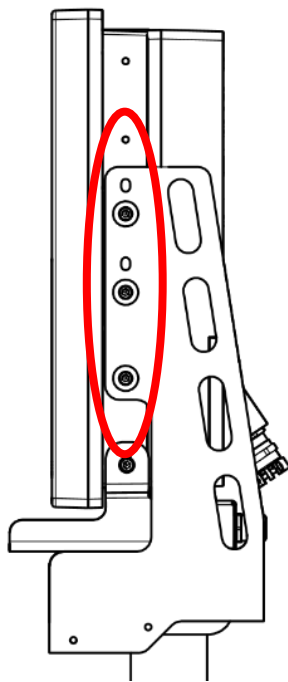


12

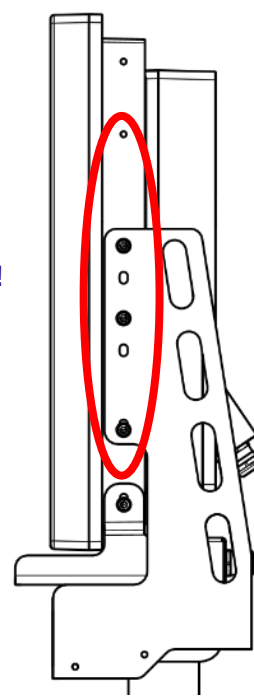


| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Allen screw M6 x 16 | 6      |
| 2   | Washer 6.4          | 6      |

ET-/MT-x38 (15")



ET-/MT-x98 (21.5")



Note the positions of  
the fixing screw holes !

## 9.11 Mounting on stand with keyboard

### 9.11.1 View

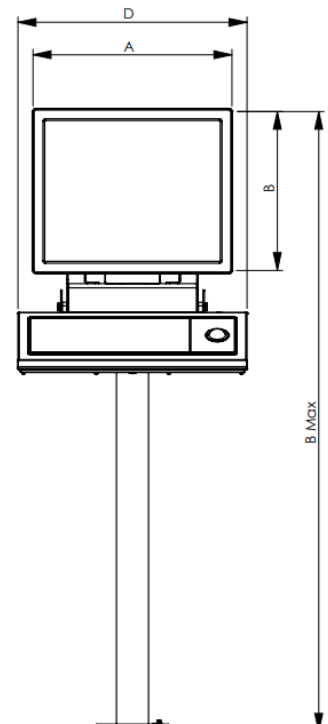
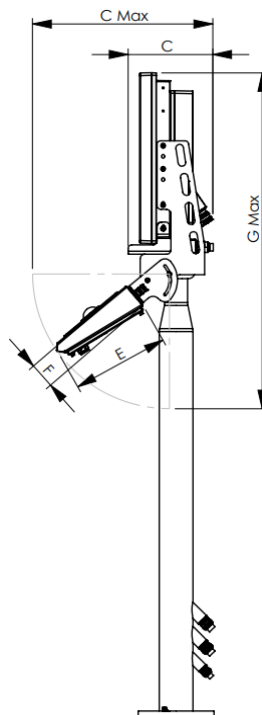
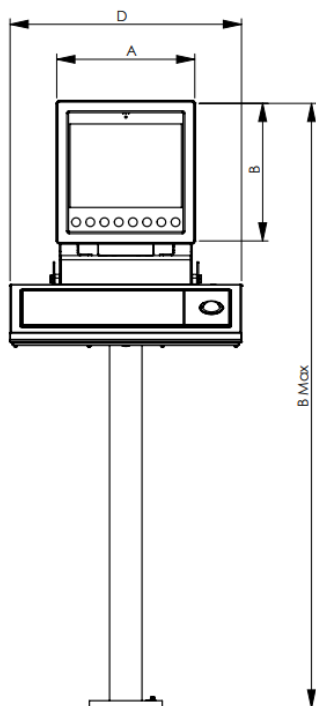
ET-/MT-x38 (15")



ET-/MT-x98 (21.5")

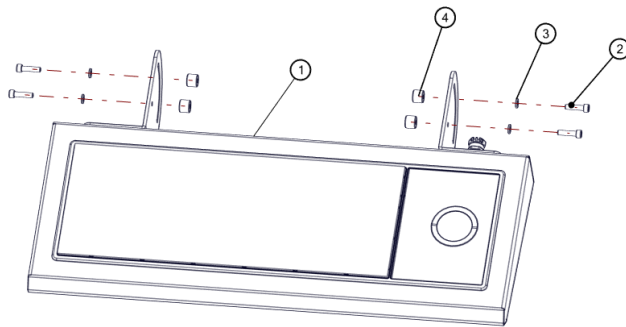


### 9.11.2 Dimensions



| Device          | Dimensions [mm] |     |       |     |       |     |     |    |       |
|-----------------|-----------------|-----|-------|-----|-------|-----|-----|----|-------|
|                 | A               | B   | B Max | C   | C Max | D   | E   | F  | G Max |
| ET-x38 / MT-x38 | 380             | 394 | 1673  | 223 | 475   | 635 | 260 | 68 | 847   |
| ET-x98 / MT-x98 | 553             | 458 | 1731  | 223 | 475   | 635 | 260 | 68 | 900   |

### 9.11.3 Keyboard



| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Keyboard            | 1      |
| 2   | Allen screw M6 x 25 | 4      |
| 3   | Washer 6.4          | 4      |
| 4   | Spacer              |        |

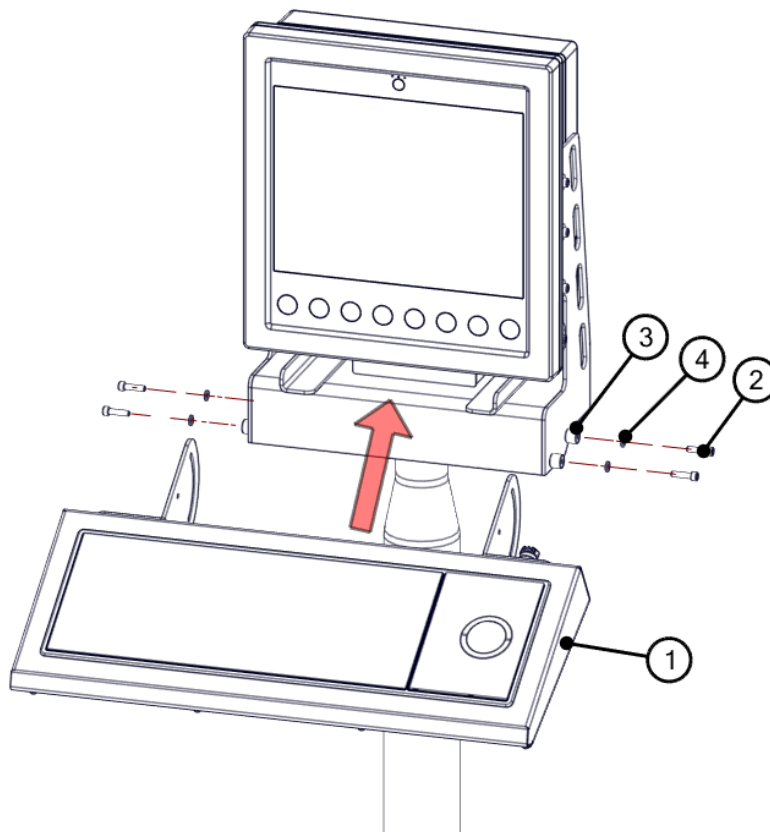
### 9.11.4 Step-by-step mounting instructions

1



Proceed exactly as outlined in chapter 9.10.6.

2



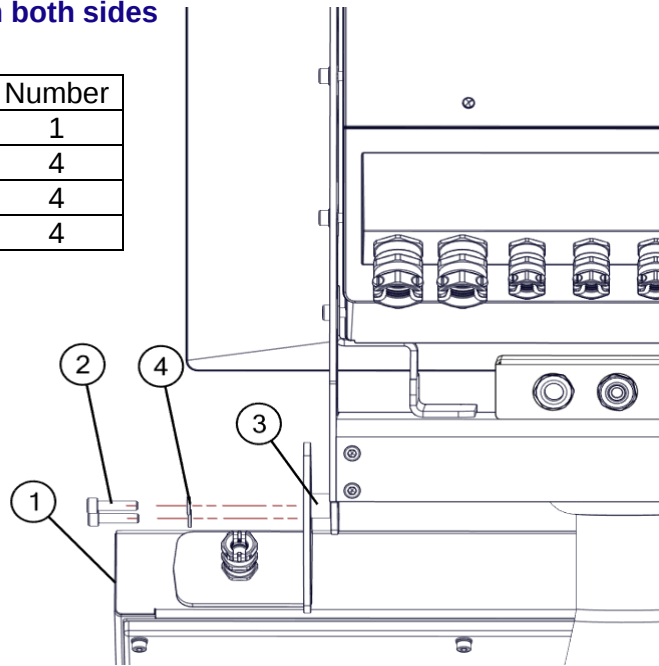
| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Keyboard            | 1      |
| 2   | Allen screw M6 x 25 | 4      |
| 3   | Spacer              | 4      |
| 4   | Washer 6.4          | 4      |

3

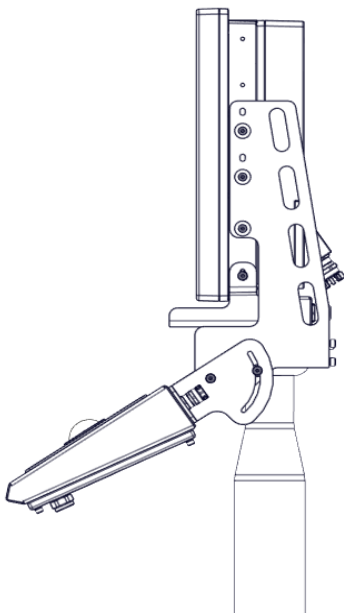


on both sides

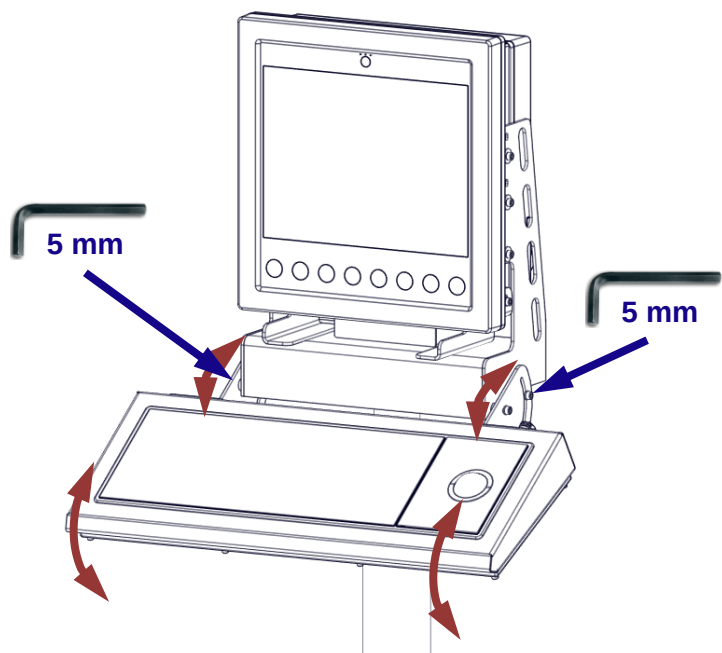
| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Keyboard            | 1      |
| 2   | Allen screw M6 x 16 | 4      |
| 3   | Spacer              | 4      |
| 4   | Washer 6.4          | 4      |



4



5

Adjustable angle /  
inclination

## 9.12 Mounting on stand with barcode scanner

### 9.12.1 View

ET-/MT-x38 (15")

ET-/MT-x98 (21.5")

Wired barcode scanner

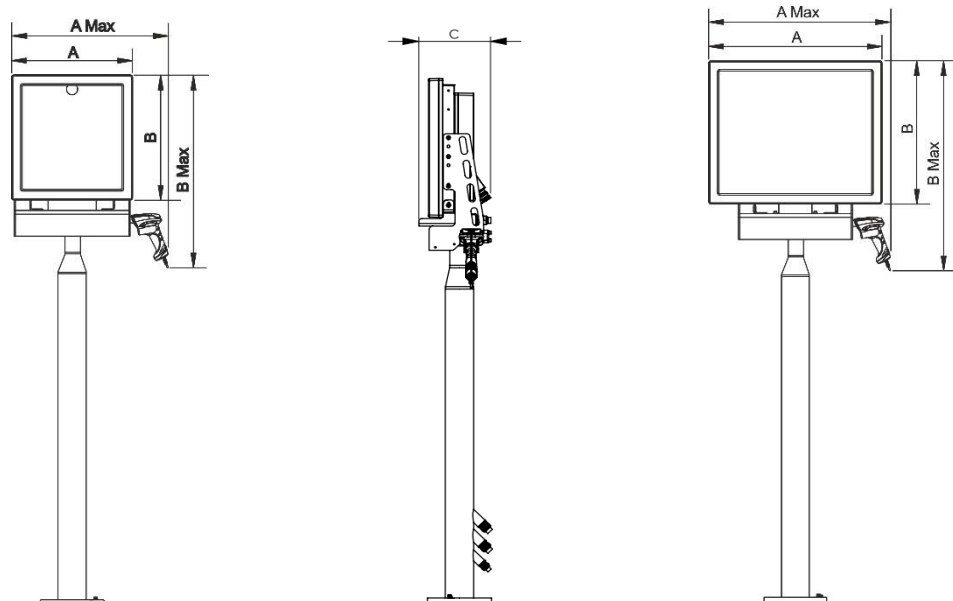


Bluetooth barcode scanner

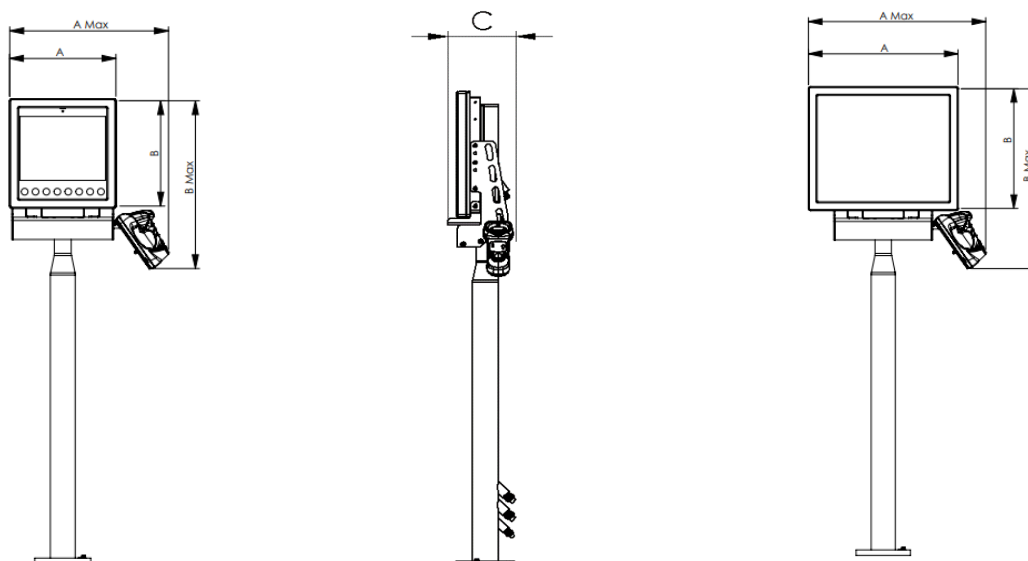


### 9.12.2 Dimensions

Wired barcode scanner



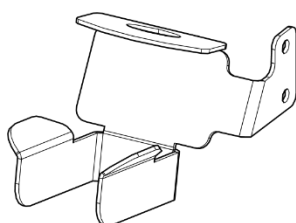
## Bluetooth barcode scanner



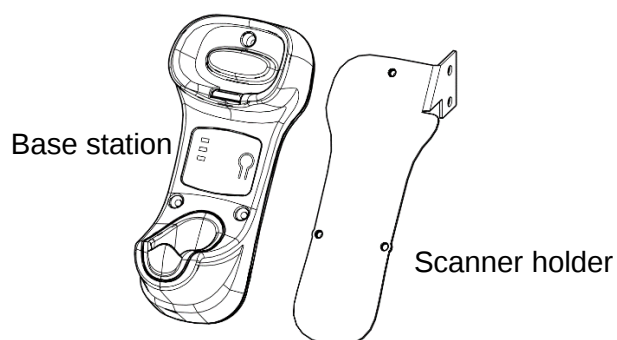
| Dimensions (mm) for mounting on stand with wired barcode scanner     |     |       |     |       |     |
|----------------------------------------------------------------------|-----|-------|-----|-------|-----|
| Device                                                               | A   | A Max | B   | B Max | C   |
| ET-x38 / MT-x38                                                      | 380 | 525   | 394 | 638   | 202 |
| ET-x98 / MT-x98                                                      | 553 | 610   | 458 | 693   | 209 |
| Dimensions (mm) for mounting on stand with Bluetooth barcode scanner |     |       |     |       |     |
| Device                                                               | A   | A Max | B   | B Max | C   |
| ET-x38 / MT-x38                                                      | 380 | 577   | 394 | 615   | 214 |
| ET-x98 / MT-x98                                                      | 553 | 658   | 458 | 667   | 227 |

## 9.12.3 Scanner holder

Scanner holder for wired barcode scanner



Scanner holder for Bluetooth barcode scanner



## 9.12.4 Step-by-step mounting instructions

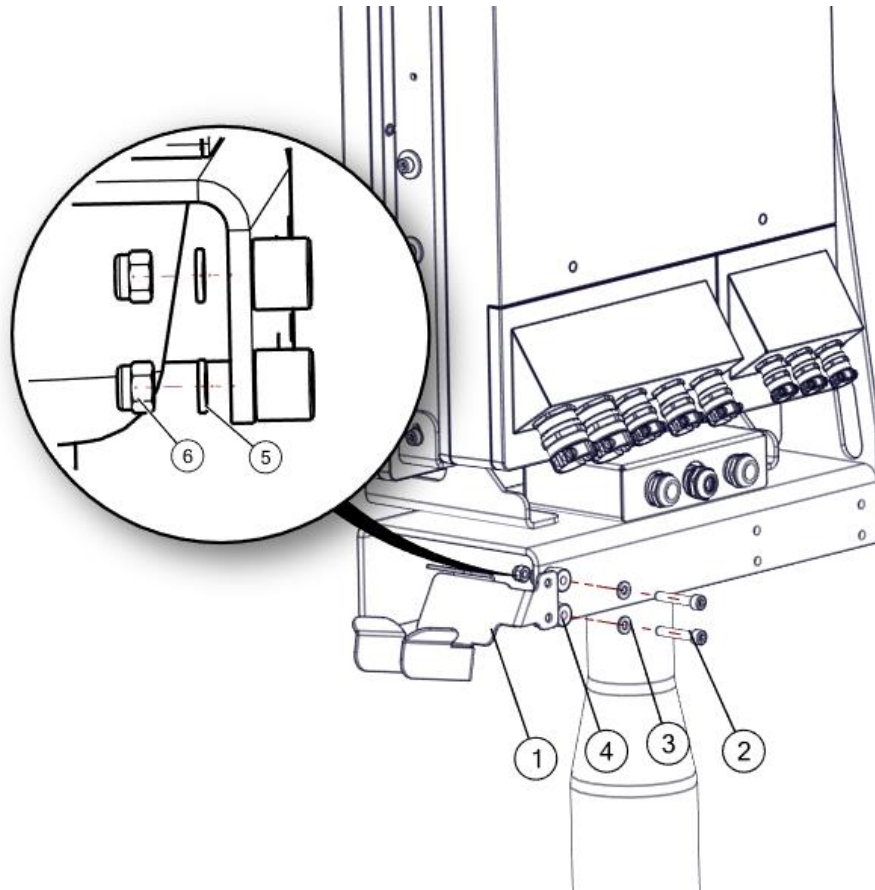
1



Proceed exactly as outlined in chapter 9.10.6.

2

## Mounting for wired barcode scanner

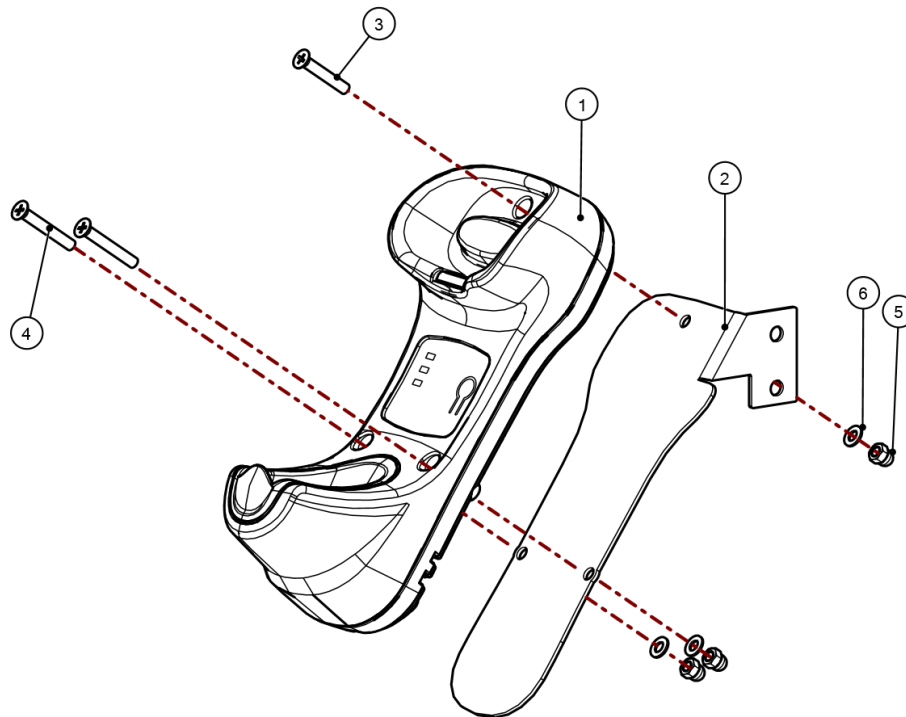


| No. | Designation                              | Number |
|-----|------------------------------------------|--------|
| 1   | Scanner holder for wired barcode scanner | 1      |
| 2   | Allen screw M6 x 35                      | 2      |
| 3   | Washer 6.4                               | 2      |
| 4   | Spacer                                   | 2      |
| 5   | Washer 6.4                               | 2      |
| 6   | Self-locking M6 nut                      | 2      |

3a



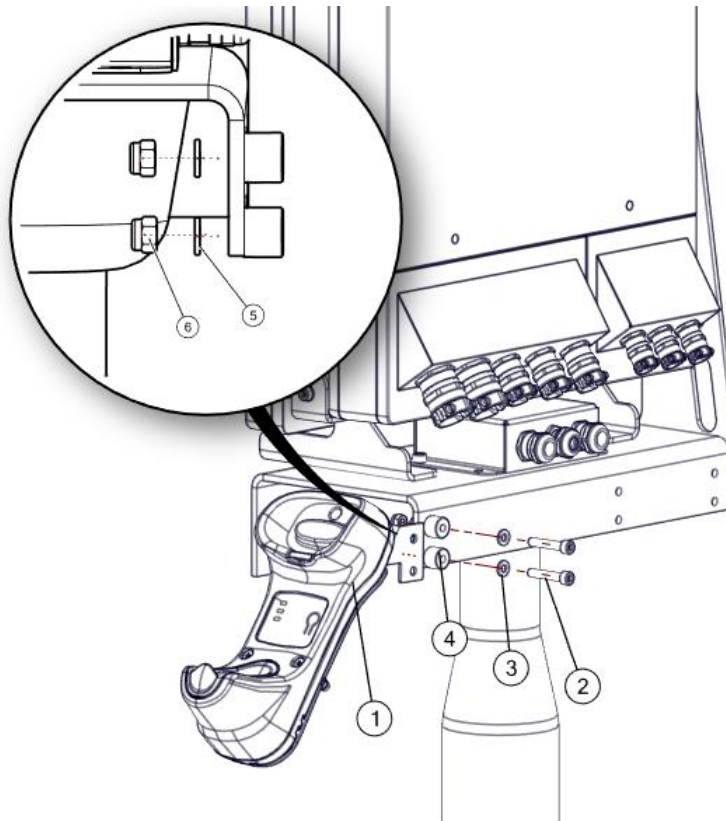
Extra step for Bluetooth barcode scanner only



| No. | Designation                                  | Number |
|-----|----------------------------------------------|--------|
| 1   | Base station                                 | 1      |
| 2   | Scanner holder for Bluetooth barcode scanner | 1      |
| 3   | Countersunk screw M5 x 30                    | 1      |
| 4   | Countersunk screw M5 x 35                    | 2      |
| 5   | Self-locking M5 nut                          | 3      |
| 6   | Washer 5.3                                   | 3      |

3b

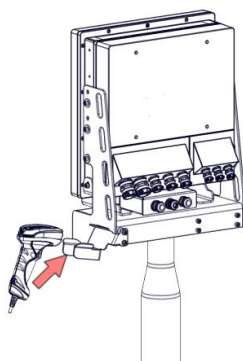
## Mounting for Bluetooth barcode scanner



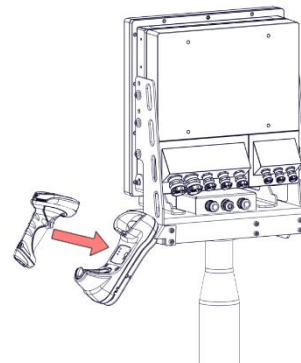
| No. | Designation                                                            | Number |
|-----|------------------------------------------------------------------------|--------|
| 1   | Scanner holder for Bluetooth barcode scanner with mounted base station | 1      |
| 2   | Allen screw M6 x 35                                                    | 2      |
| 3   | Washer 6.4                                                             | 2      |
| 4   | Spacer                                                                 | 2      |
| 5   | Washer 6.4                                                             | 2      |
| 6   | Self-locking M6 nut                                                    | 2      |

4

## Wired barcode scanner



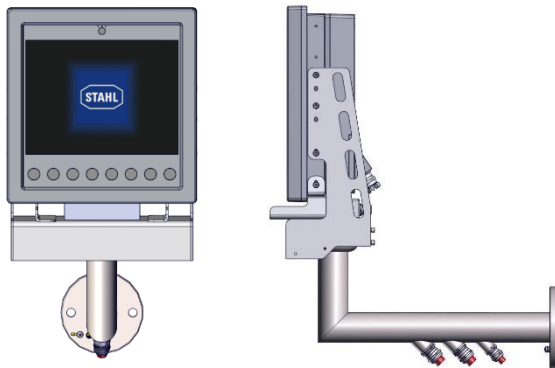
## Bluetooth barcode scanner



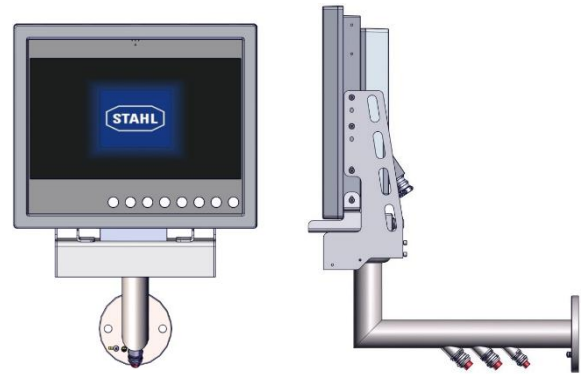
## 9.13 Mounting on elbow

### 9.13.1 View

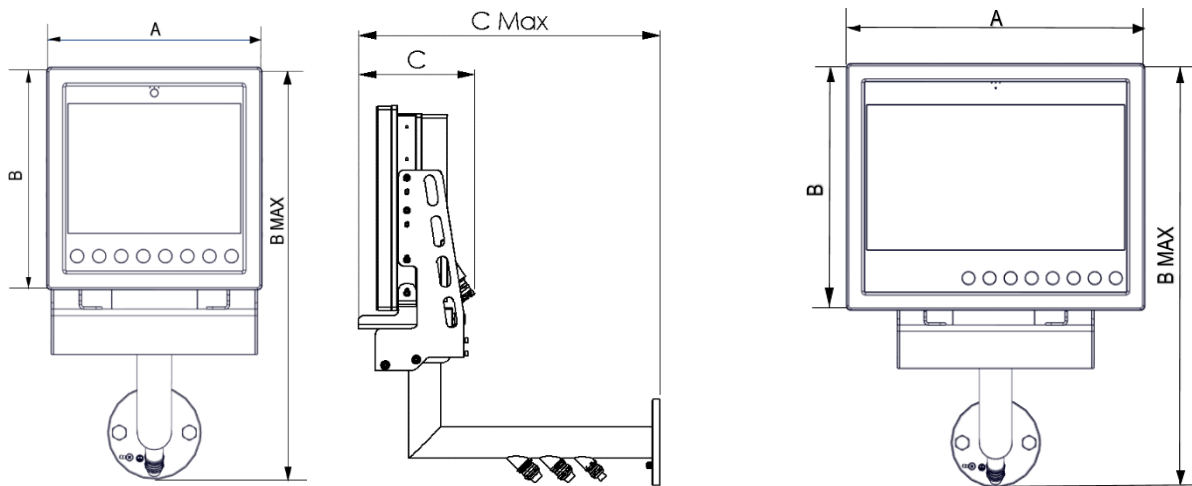
ET-/MT-x38 (15")



ET-/MT-x98 (21.5")

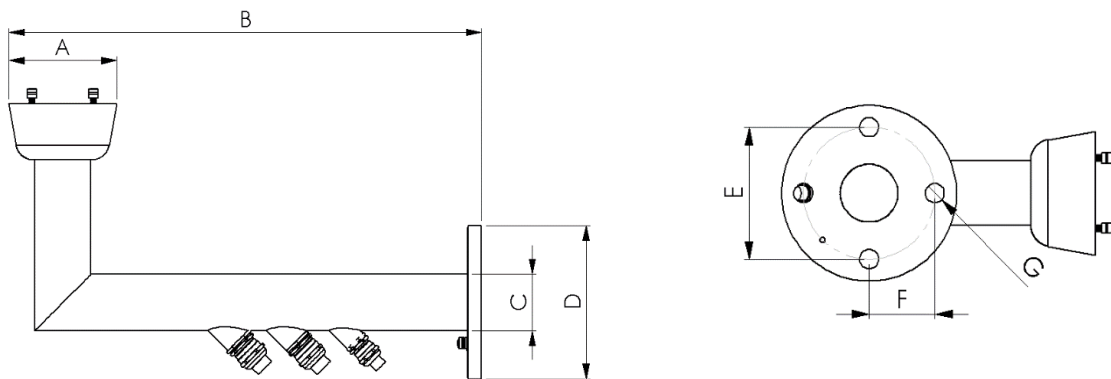


### 9.13.2 Dimensions



| Device          | Dimensions [mm] |     |       |     |       |
|-----------------|-----------------|-----|-------|-----|-------|
|                 | A               | B   | B Max | C   | C Max |
| ET-x38 / MT-x38 | 380             | 394 | 729   | 221 | 578   |
| ET-x98 / MT-x98 | 553             | 458 | 786   | 221 | 578   |

### 9.13.3 MPW elbow



| Dimensions (mm) |     |         |       |     |          |           |
|-----------------|-----|---------|-------|-----|----------|-----------|
| A               | B   | C       | D     | E   | F        | G         |
| Ø 116           | 509 | Ø 60.30 | Ø 165 | 124 | 90° (4x) | Ø 18 (4x) |

| Cable glands |           |                     |              |
|--------------|-----------|---------------------|--------------|
| Number       | Size      | Cable diameter [mm] | Type         |
| 2            | M25 x 1.5 | 9 - 17              | EMSKV 25     |
| 1            | M20 x 1.5 | 9 - 13              | 50.620 M/EMV |

| Earthing material (available at stand) |        |         |
|----------------------------------------|--------|---------|
| Type                                   | Number | Size    |
| Hexagon head screw                     | 1      | M6 x 16 |
| Washer                                 | 2      | M6      |
| Spring washer                          | 1      | B6      |
| Serrated lock washer                   | 1      | A6      |

### 9.13.4 Yoke

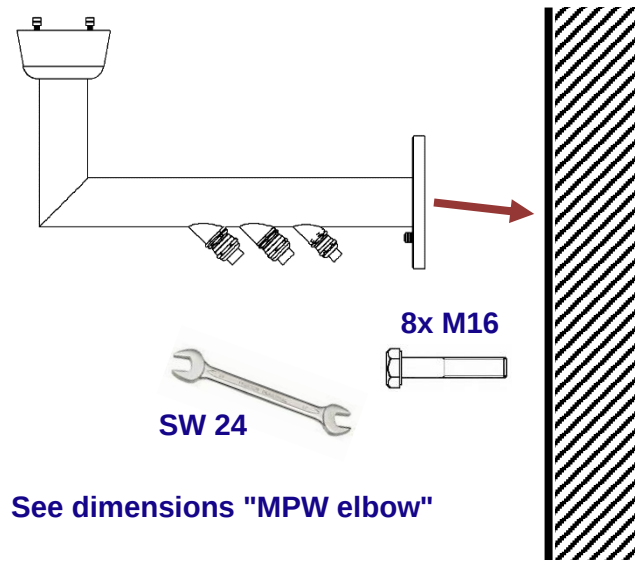
|  |                    |
|--|--------------------|
|  | See chapter 9.10.4 |
|--|--------------------|

### 9.13.5 Coupling cover

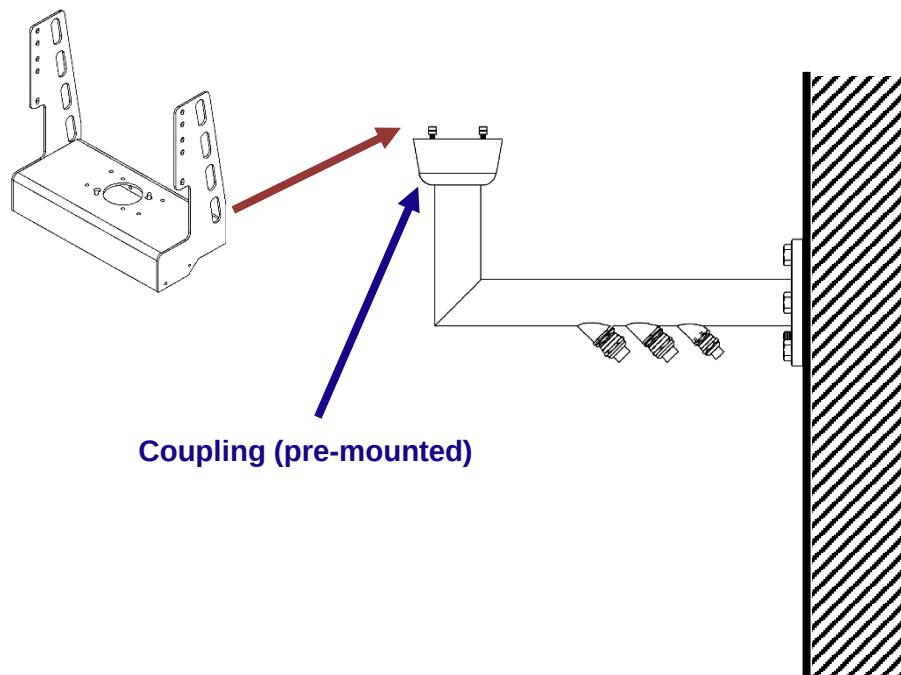
|  |                    |
|--|--------------------|
|  | See chapter 9.10.5 |
|--|--------------------|

## 9.13.6 Step-by-step mounting instructions

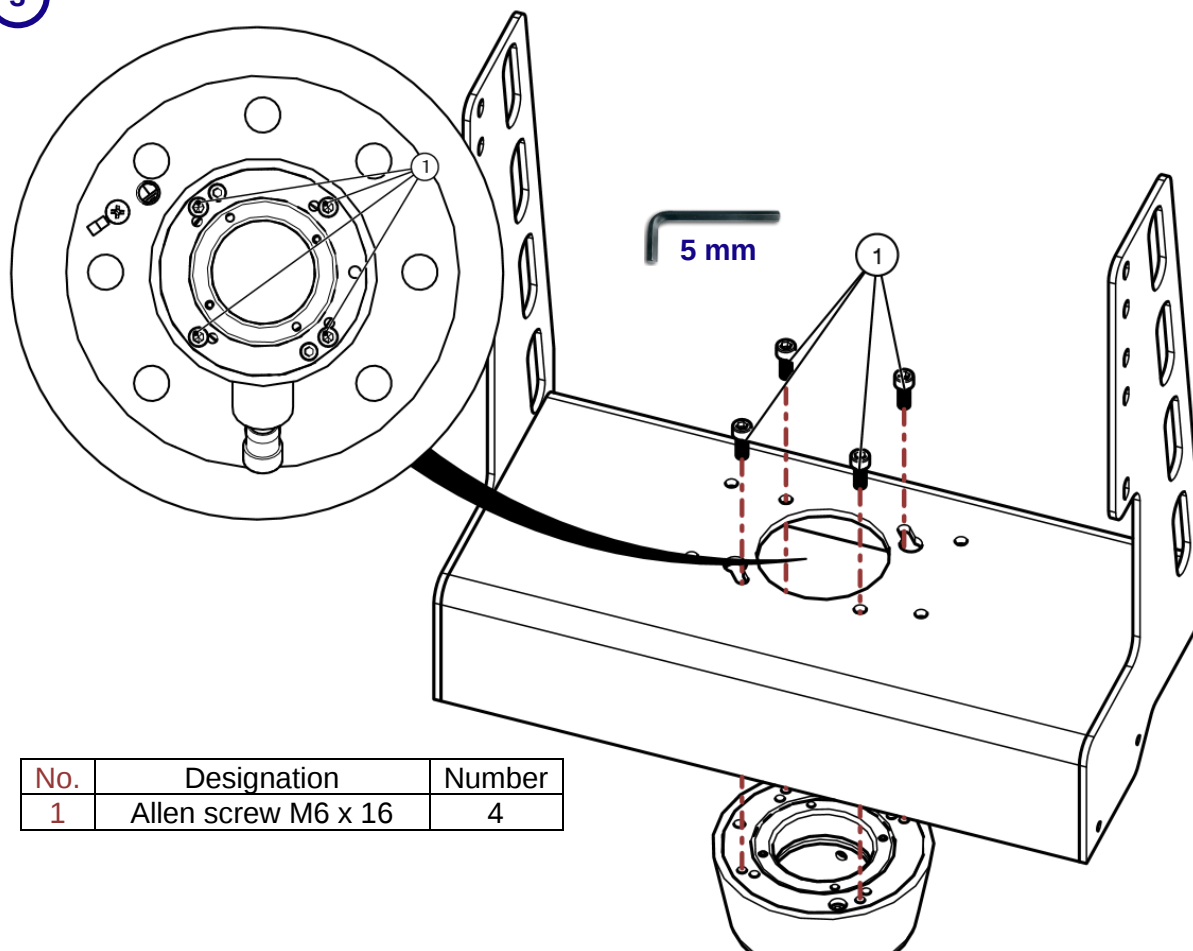
1



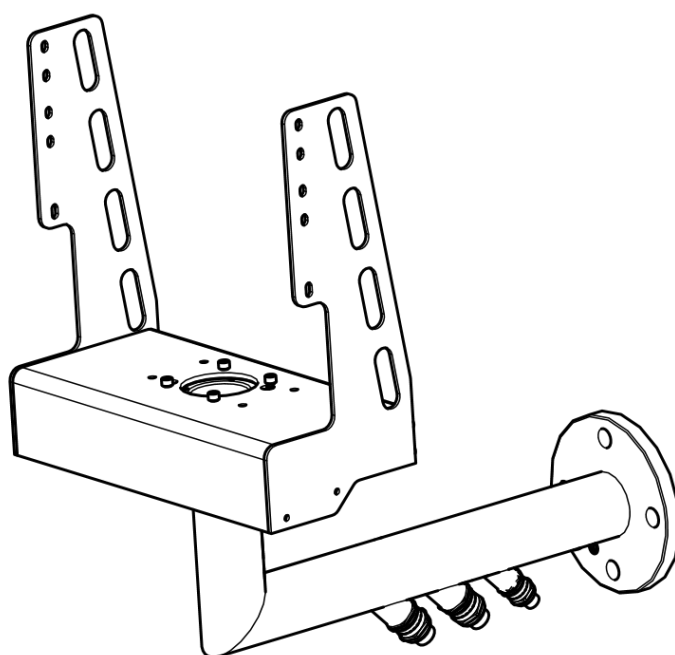
2



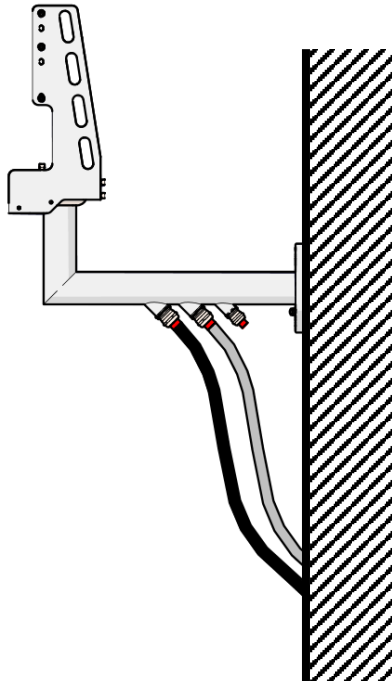
3



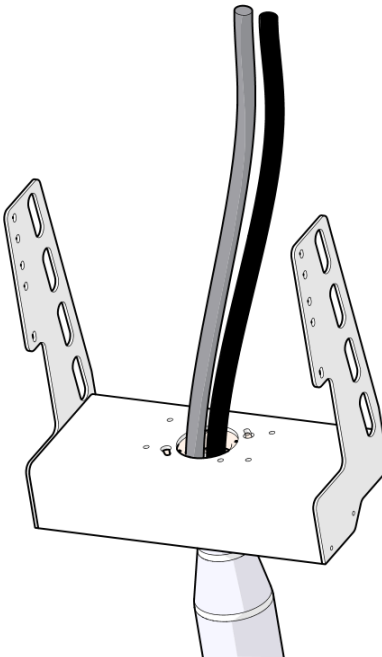
4



5



6



7

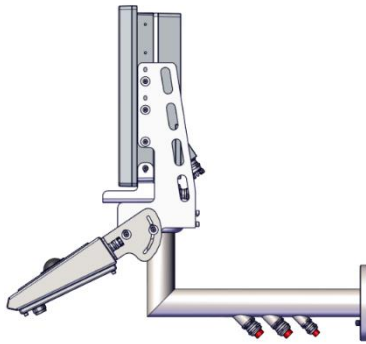


For further mounting steps see chapter 9.10.6 from step 7

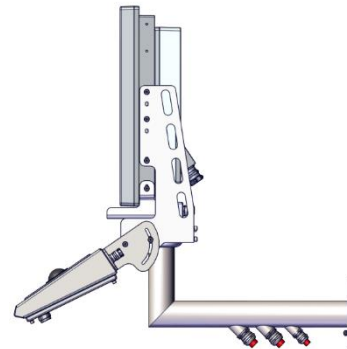
## 9.14 Mounting on elbow with keyboard

### 9.14.1 View

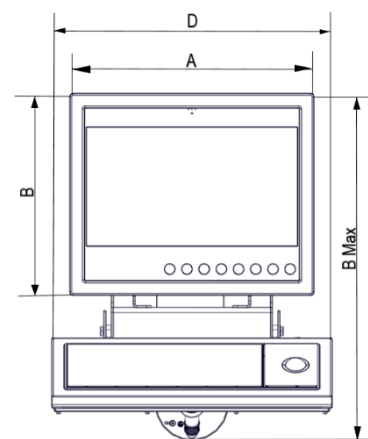
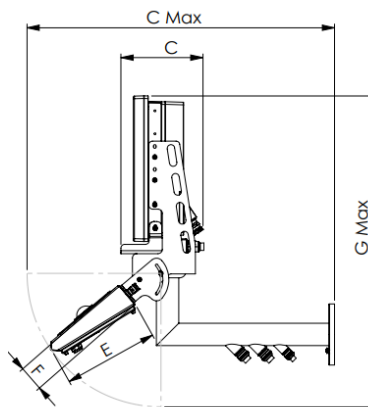
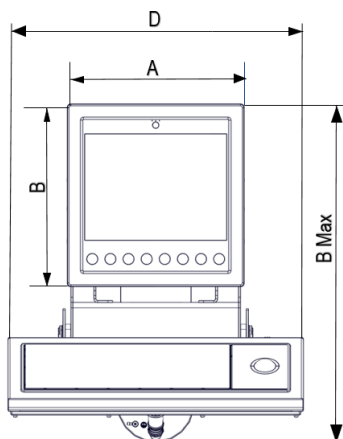
ET-/MT-x38 (15")



ET-/MT-x98 (21.5")



### 9.14.2 Dimensions



| Device          | Dimensions [mm] |     |       |     |       |     |     |    |       |
|-----------------|-----------------|-----|-------|-----|-------|-----|-----|----|-------|
|                 | A               | B   | B Max | C   | C Max | D   | E   | F  | G Max |
| ET-x38 / MT-x38 | 380             | 394 | 729   | 223 | 829   | 635 | 260 | 68 | 840   |
| ET-x98 / MT-x98 | 553             | 458 | 786   | 223 | 829   | 635 | 260 | 68 | 900   |

### 9.14.3 Keyboard



See chapter 9.11.3

### 9.14.4 Step-by-step mounting instructions

1



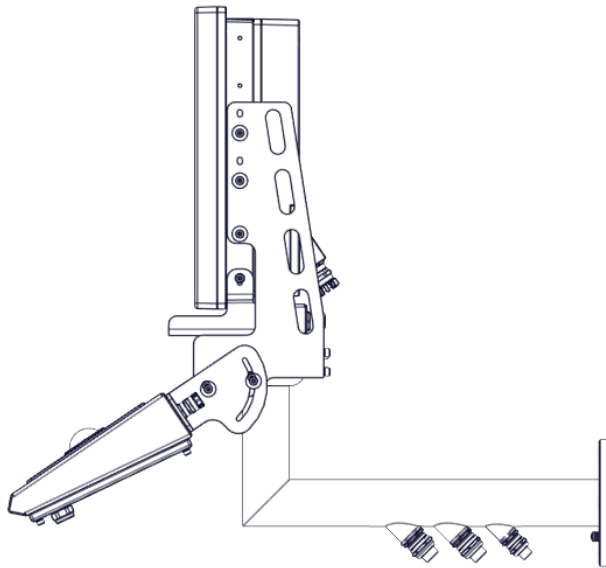
Proceed exactly as outlined in chapter 9.13.6.

2



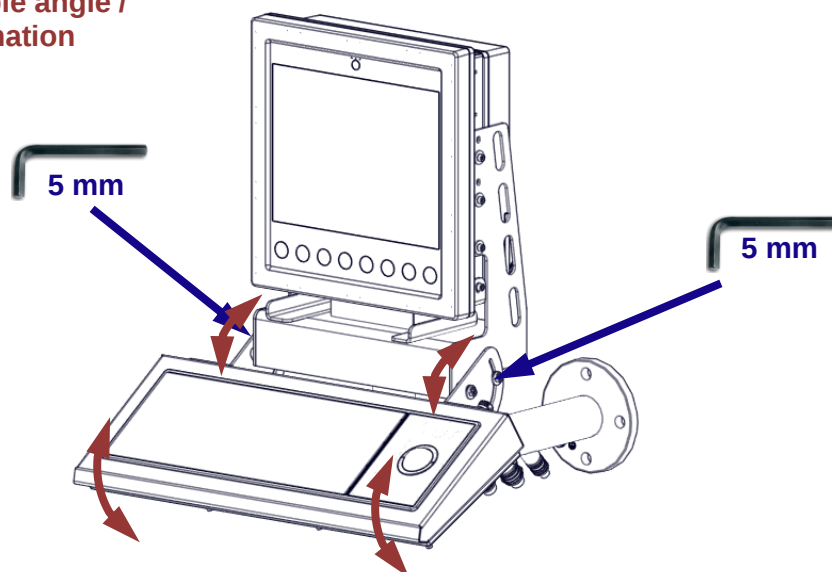
Mount keyboard as described in chapter 8.11.4 from step 2

3



4

Adjustable angle /  
inclination



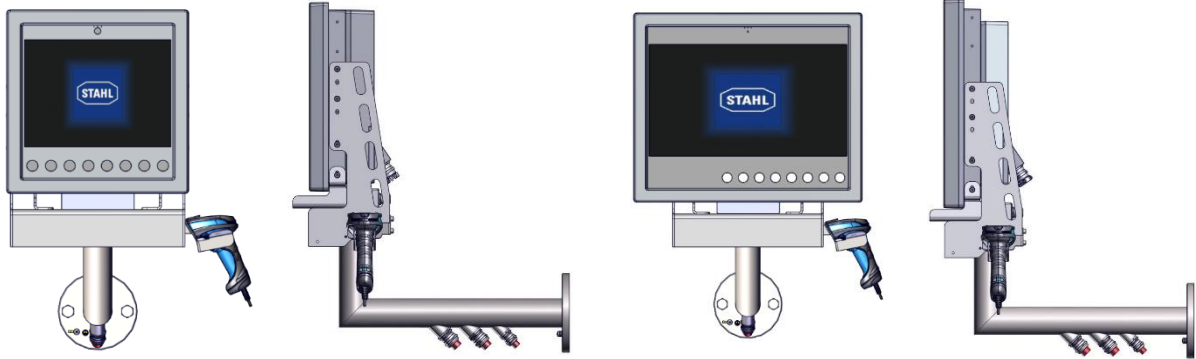
## 9.15 Mounting on elbow with barcode scanner

### 9.15.1 View

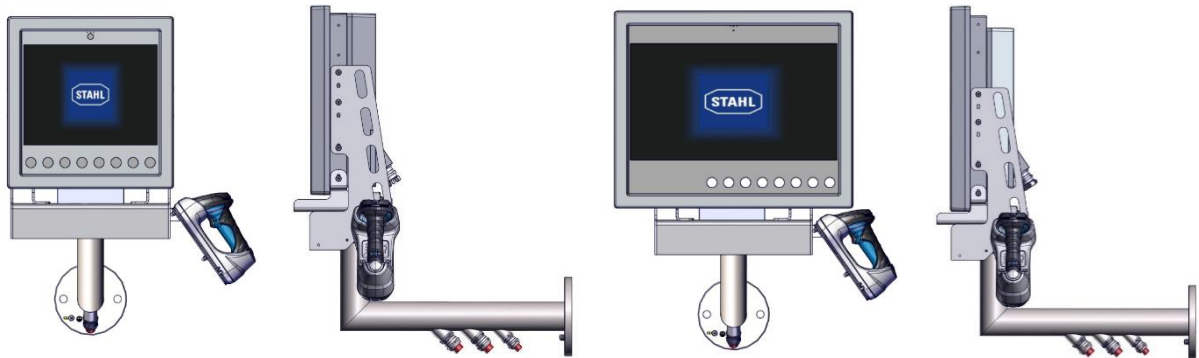
ET-/MT-x38 (15")

ET-/MT-x98 (21.5")

Wired barcode scanner

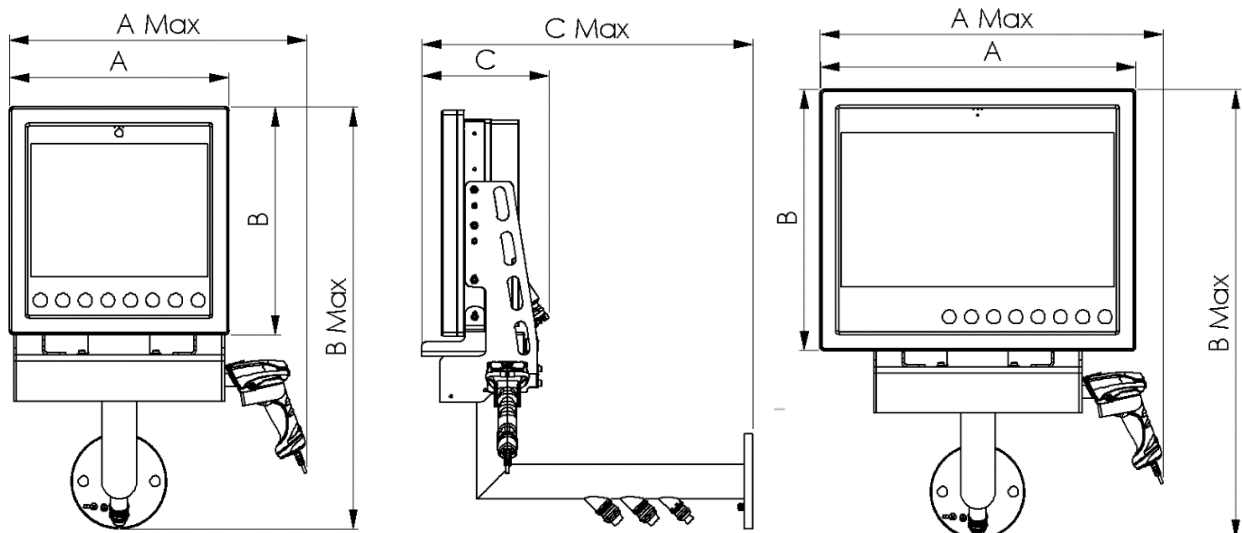


Bluetooth barcode scanner

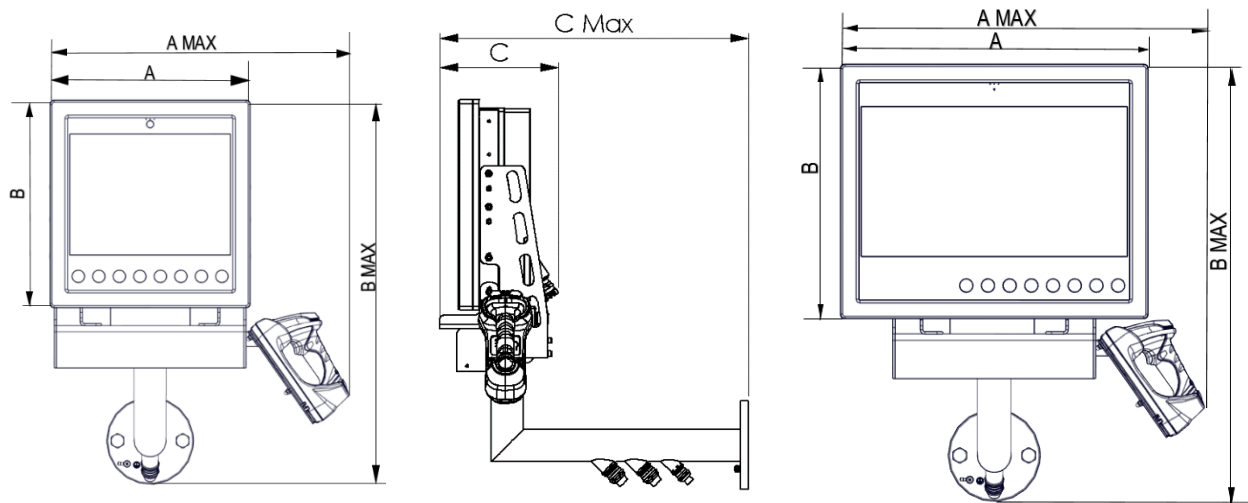


### 9.15.2 Dimensions

Wired barcode scanner



## Bluetooth barcode scanner



| Dimensions (mm) for mounting on elbow with wired barcode scanner     |     |       |     |       |     |
|----------------------------------------------------------------------|-----|-------|-----|-------|-----|
| Device                                                               | A   | A Max | B   | B Max | C   |
| ET-x38 / MT-x38                                                      | 380 | 525   | 394 | 517   | 221 |
| ET-x98 / MT-x98                                                      | 553 | 610   | 458 | 576   | 221 |
| Dimensions (mm) for mounting on elbow with Bluetooth barcode scanner |     |       |     |       |     |
| Device                                                               | A   | A Max | B   | B Max | C   |
| ET-x38 / MT-x38                                                      | 380 | 577   | 394 | 729   | 221 |
| ET-x98 / MT-x98                                                      | 553 | 658   | 458 | 786   | 221 |

## 9.15.3 Scanner holder



See chapter 9.12.3

## 9.15.4 Step-by-step mounting instructions

1



Proceed with steps as described in chapter 8.13.6

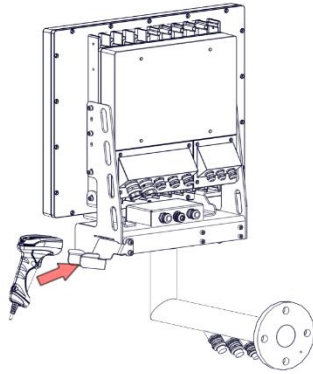
2



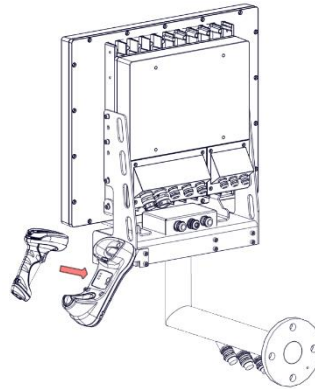
Mount scanner holders as described in chapter 8.12.4 from step 2

**3**

Wired barcode scanner



Bluetooth barcode scanner

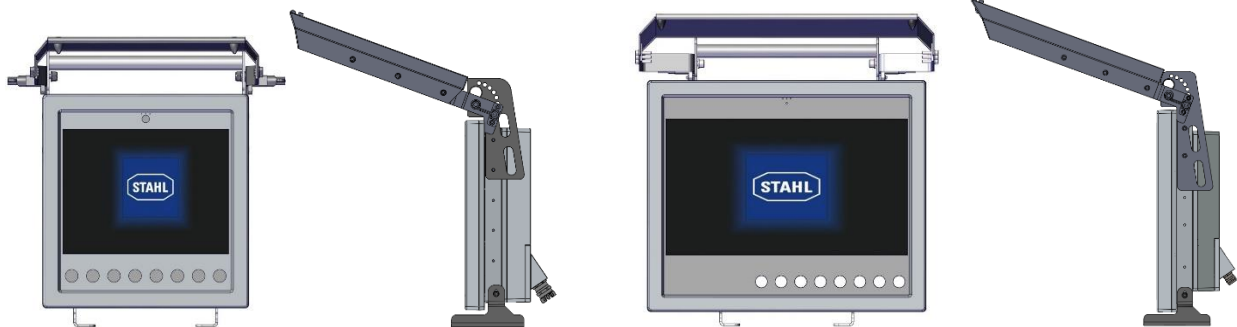


## 9.16 Mounting of sun shade

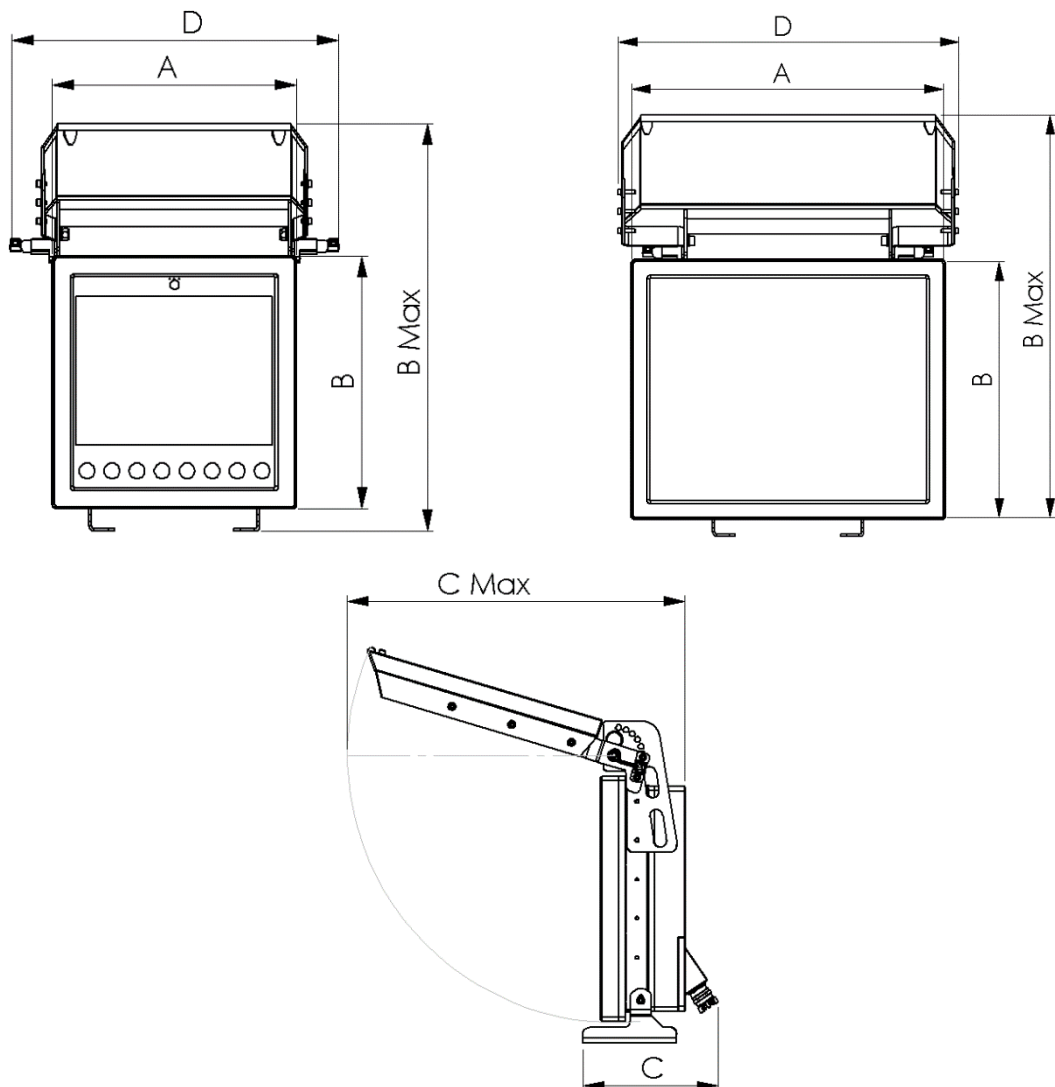
### 9.16.1 View

ET-/MT-x38 (15")

ET-/MT-x98 (21.5")

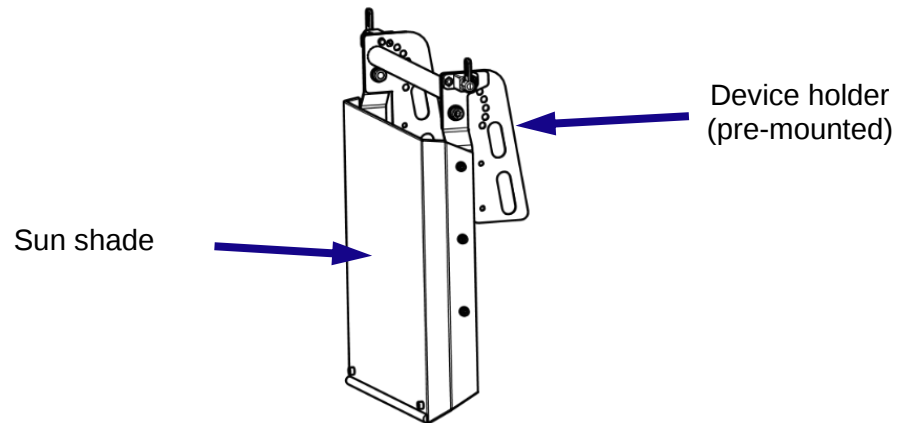


### 9.16.2 Dimensions



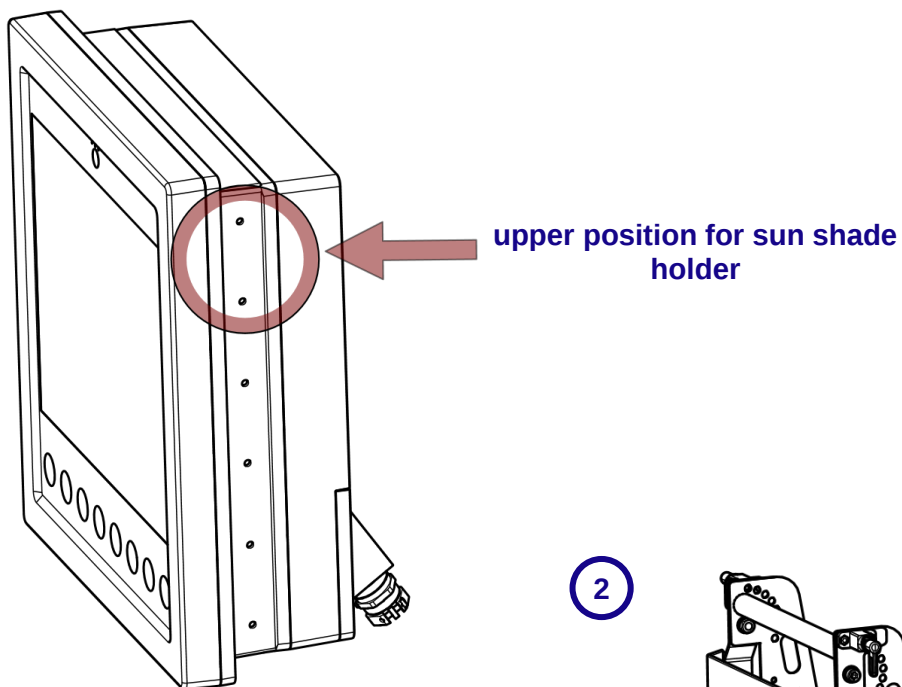
| Device                  | A   | B   | B Max | C   | C Max | D   |
|-------------------------|-----|-----|-------|-----|-------|-----|
| ET-x38 / MT-x38 (15")   | 380 | 394 | 657   | 216 | 540   | 513 |
| ET-x98 / MT-x98 (21.5") | 553 | 458 | 741   | 220 | 603   | 600 |

### 9.16.3 Sun shade

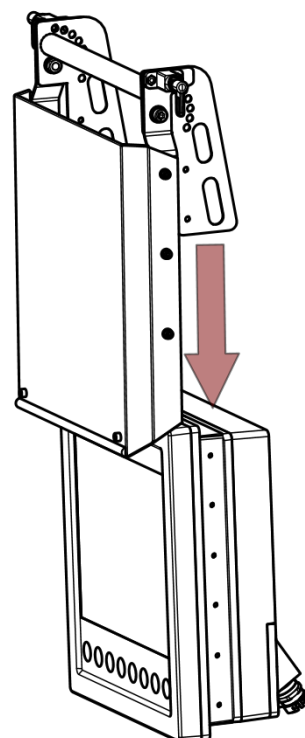


### 9.16.4 Step-by-step mounting instructions

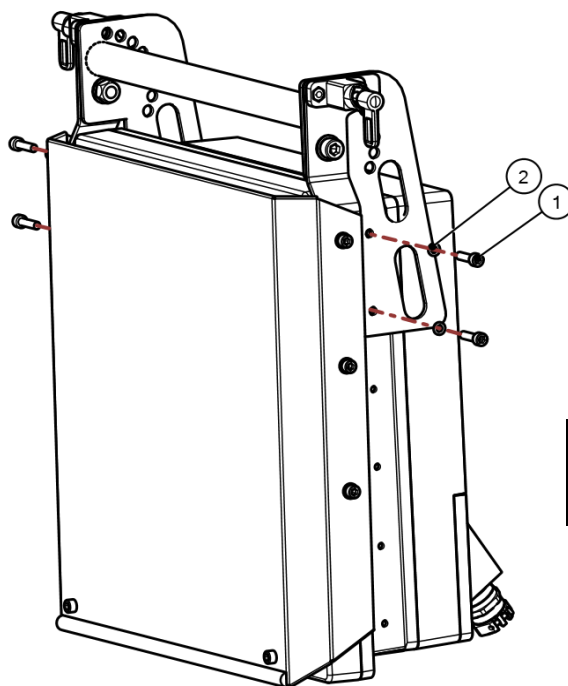
1



2



3



Recommended torque for allen  
screws: 10 to 12 N

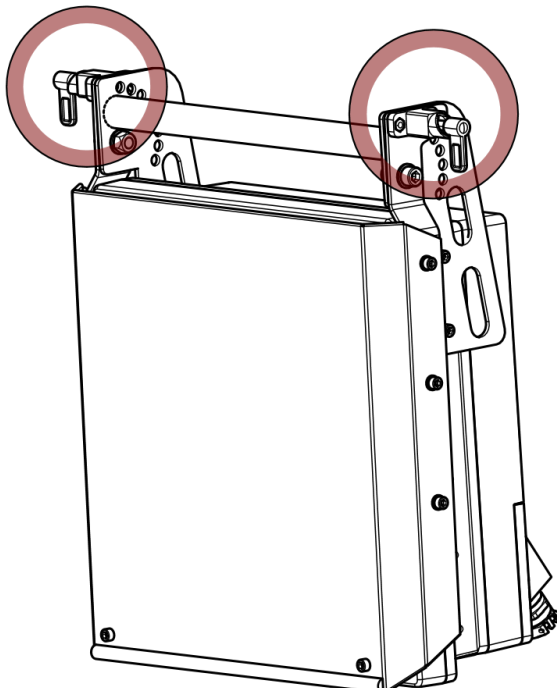


| No. | Designation         | Number |
|-----|---------------------|--------|
| 1   | Allen screw M6 x 16 | 4      |
| 2   | Washer 6.4          | 4      |

#### 9.16.5 Sun shade lock

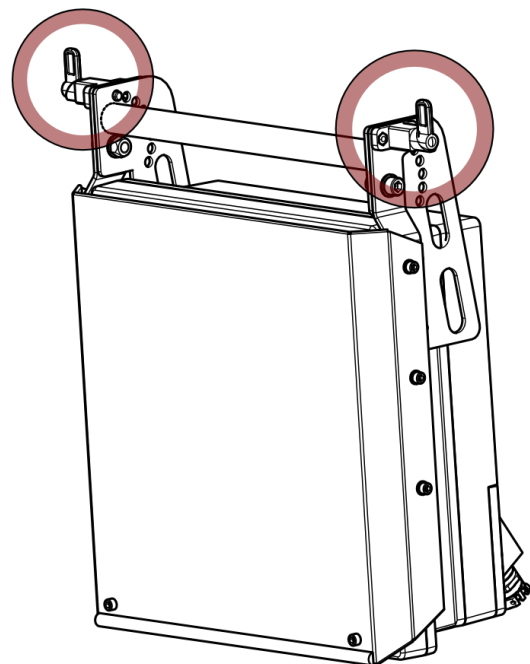
Lock open

Lever down = open



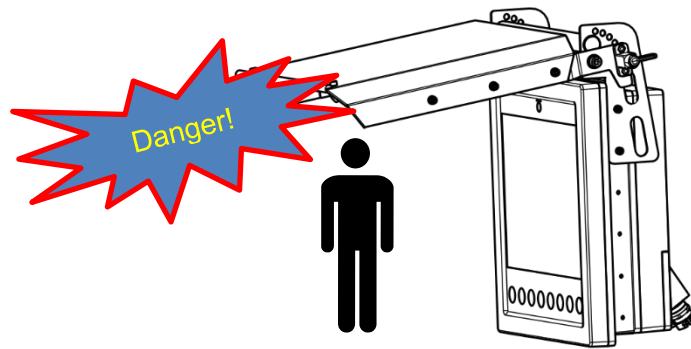
Lock closed

Lever up = closed



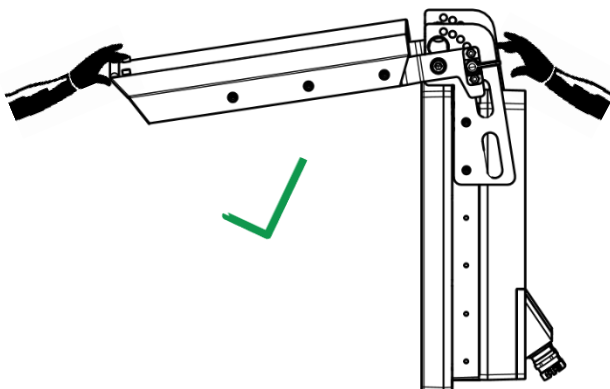
## 9.16.6 Adjusting angle of sun shade

|                                                                                                                                                                                                                                                        |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                       | <b>WARNING</b> |
| <p><b>Dropping sun shade !</b><br/>Non-compliance can result in serious injuries. Sun shade may crush fingers or knock on head.</p> <ul style="list-style-type: none"><li>• Always adjust sun shade angle with both hands (see illustration)</li></ul> |                |

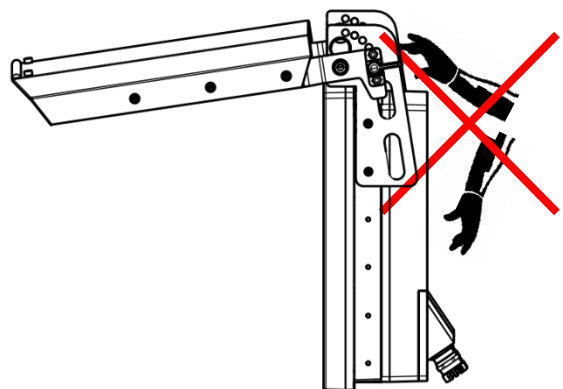


**Operate with both hands only !**

**Correct**

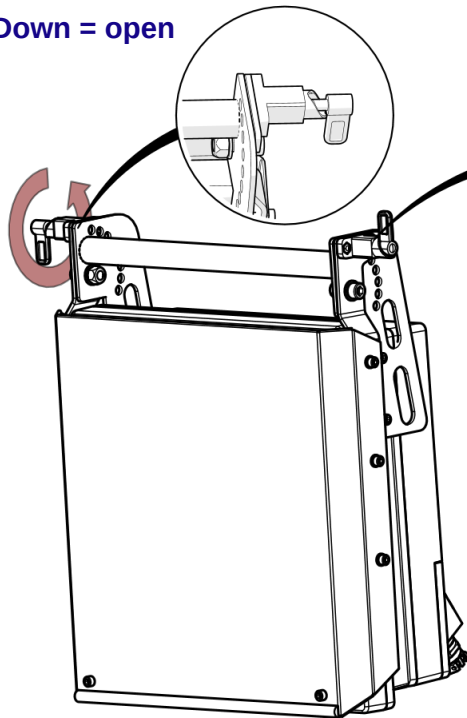


**Wrong**

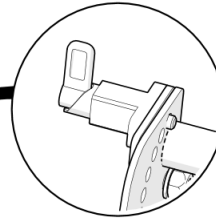


### 1 Open locks one after the other

Down = open

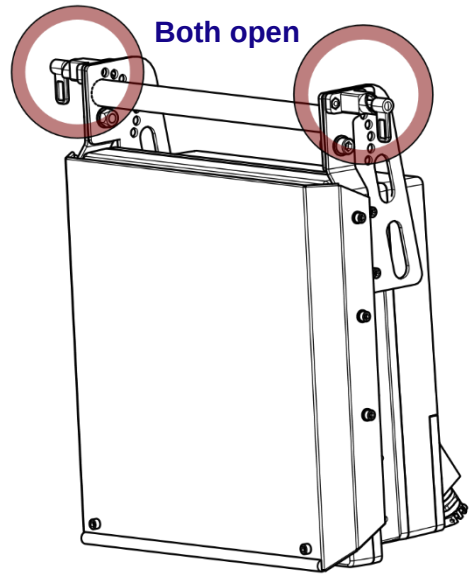


Up = closed

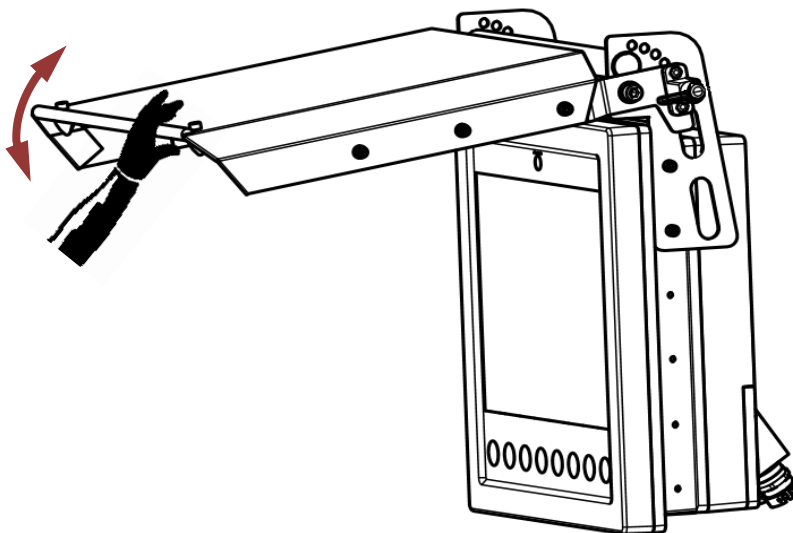


### 2

Both open



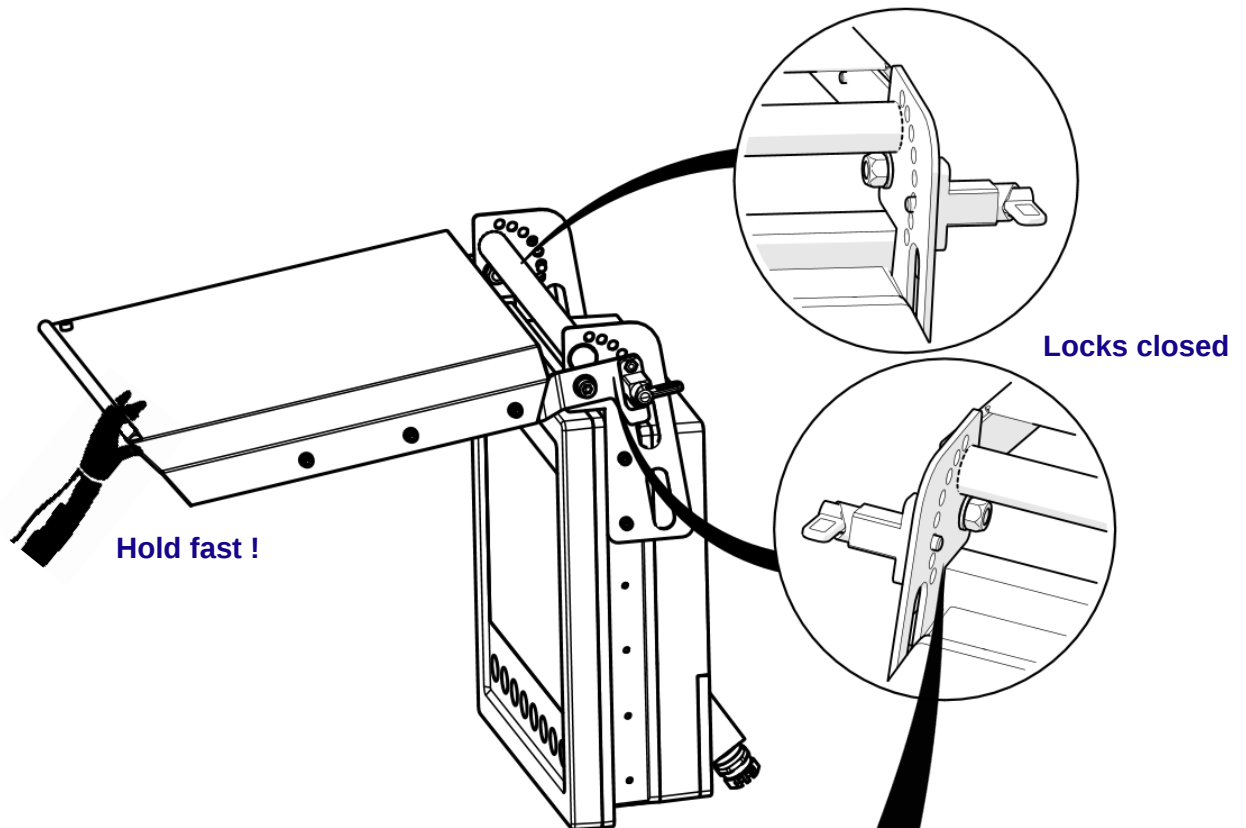
### 3 Adjust angle



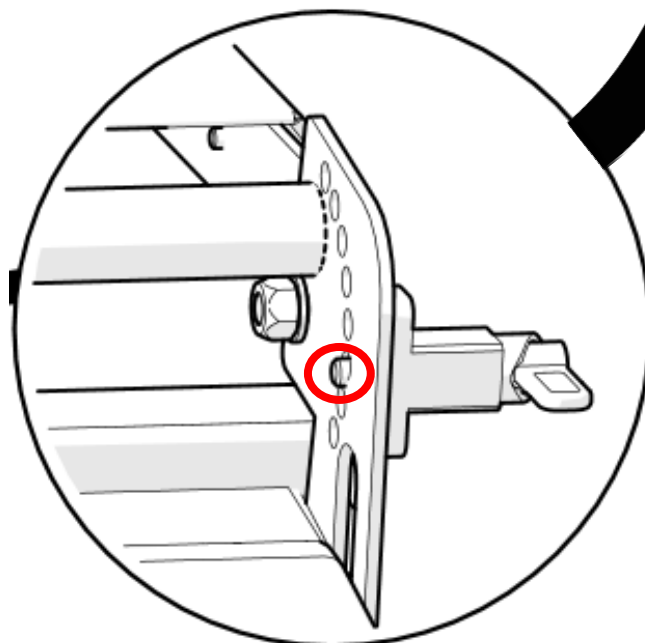
8 possible angles /  
positions

4

Close both locks



Make sure locks are arrested on both sides !



8 possible  
positions

**9.16.7 Mounting versions with sun shade**

xx8 with sun shade and on stand



xx8 wall-mounted with sun shade

xx8 with sun shade and keyboard  
on standxx8 with sun shade and keyboard  
wall-mounted

xx8 with sun shade and on elbow



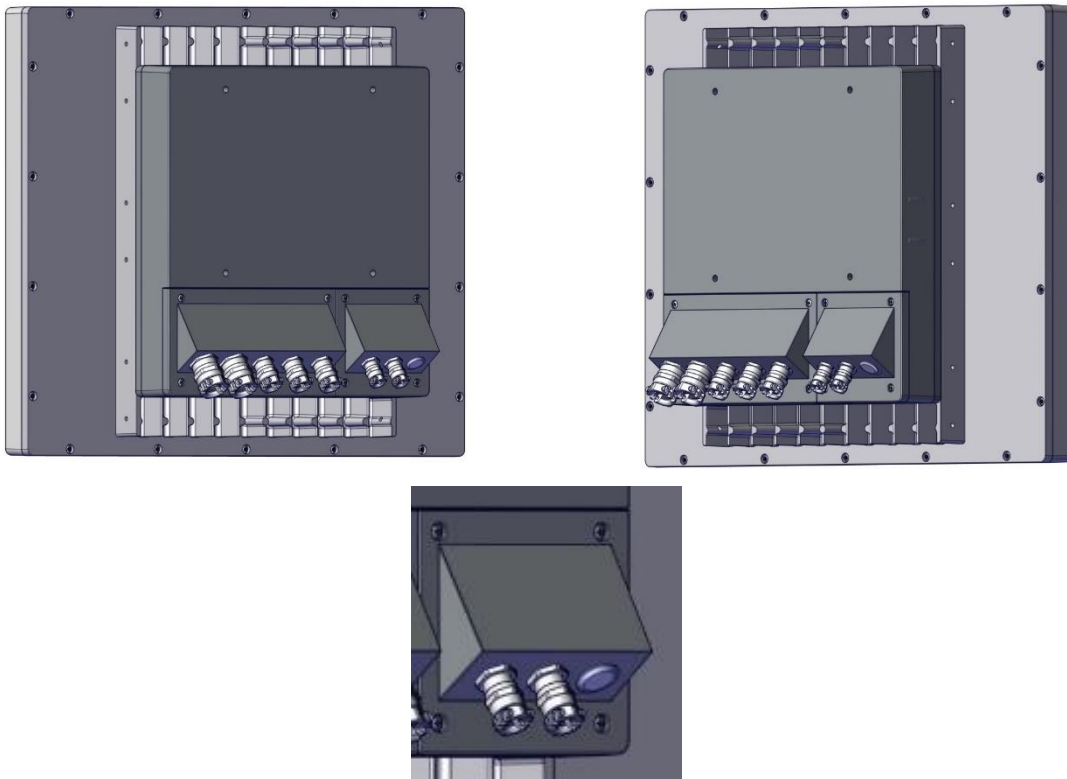
xx8 with sun shade and keyboard  
on elbow



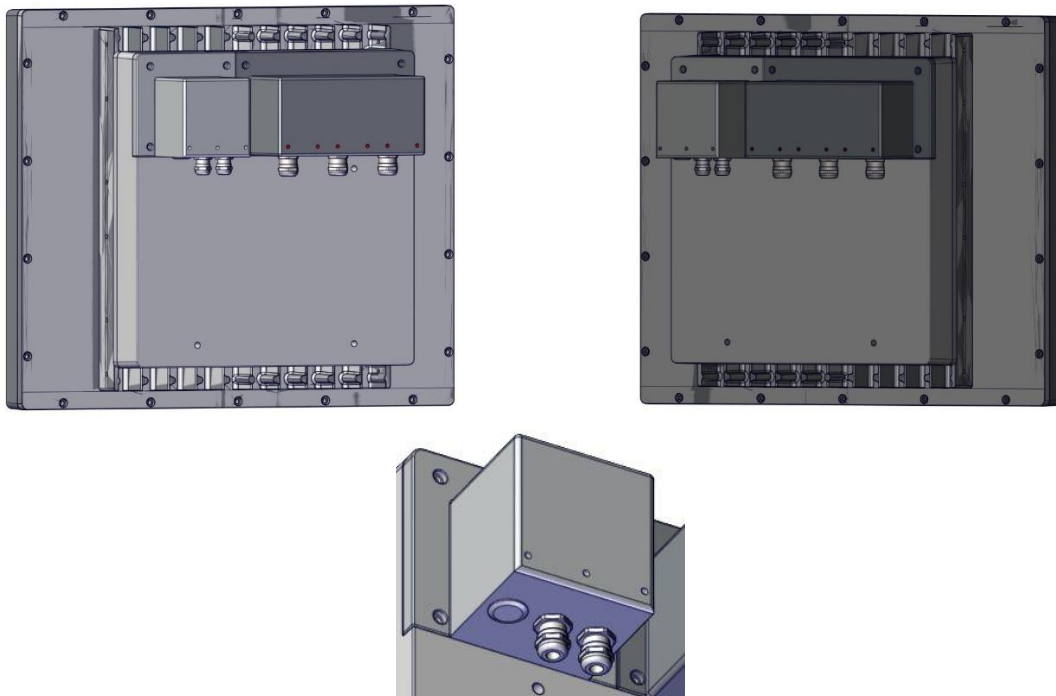
## 9.17 Mounting of button

### 9.17.1 View

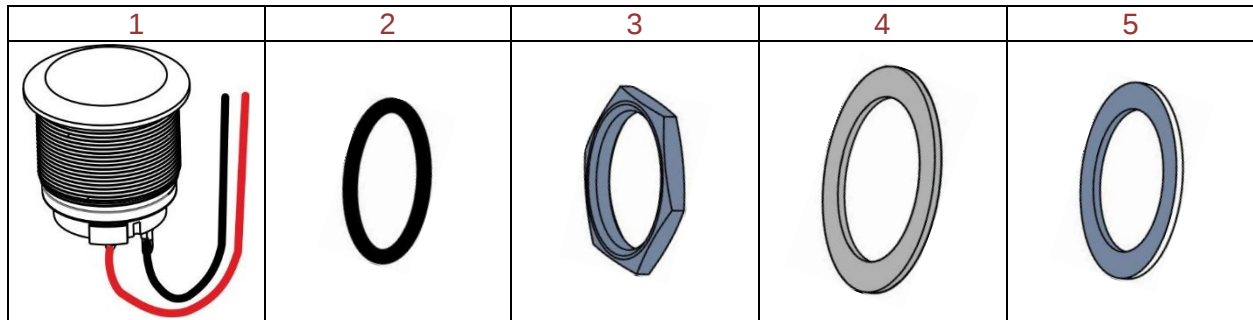
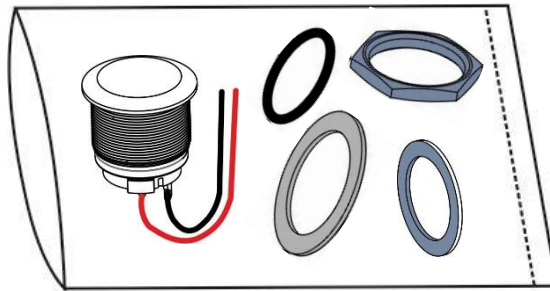
VESA 200 Standard



VESA 200 Top Connect



## 9.17.2 Button components

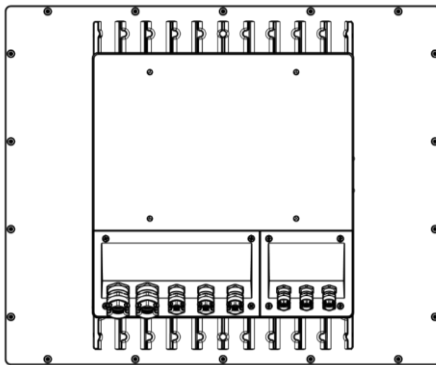


| No. | Name / scope of delivery             | Number |
|-----|--------------------------------------|--------|
| 1   | VB-PB-22mm (button inc. 0.2 m cable) | 1      |
| 2   | O-ring                               | 1      |
| 3   | VB-PB-22mm nut                       | 1      |
| 4   | Washer 30 x 22 x 1 mm                | 1      |
| 5   | Washer 26 x 19 x 0.5 mm              | 1      |

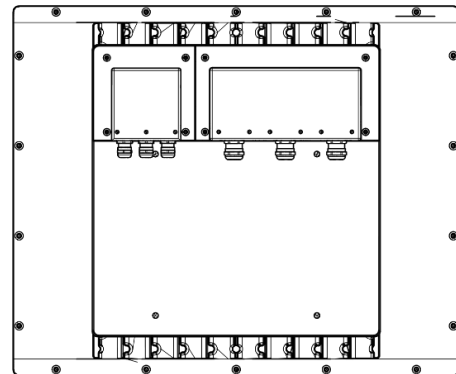
## 9.17.3 Step-by-step mounting instructions

1

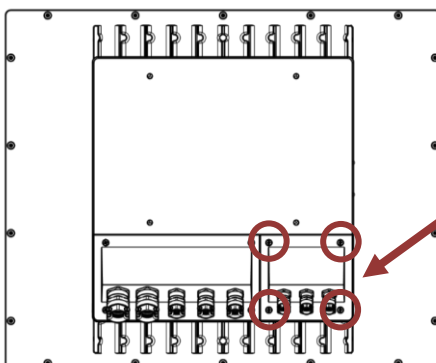
VESA 200 Standard



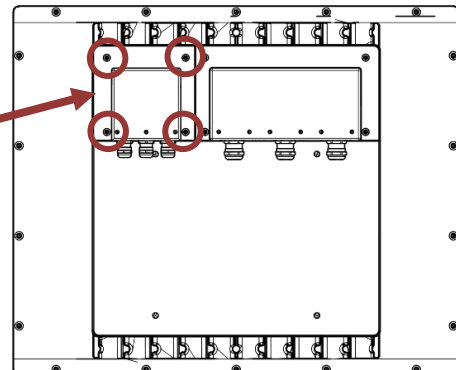
VESA 200 Top Connect

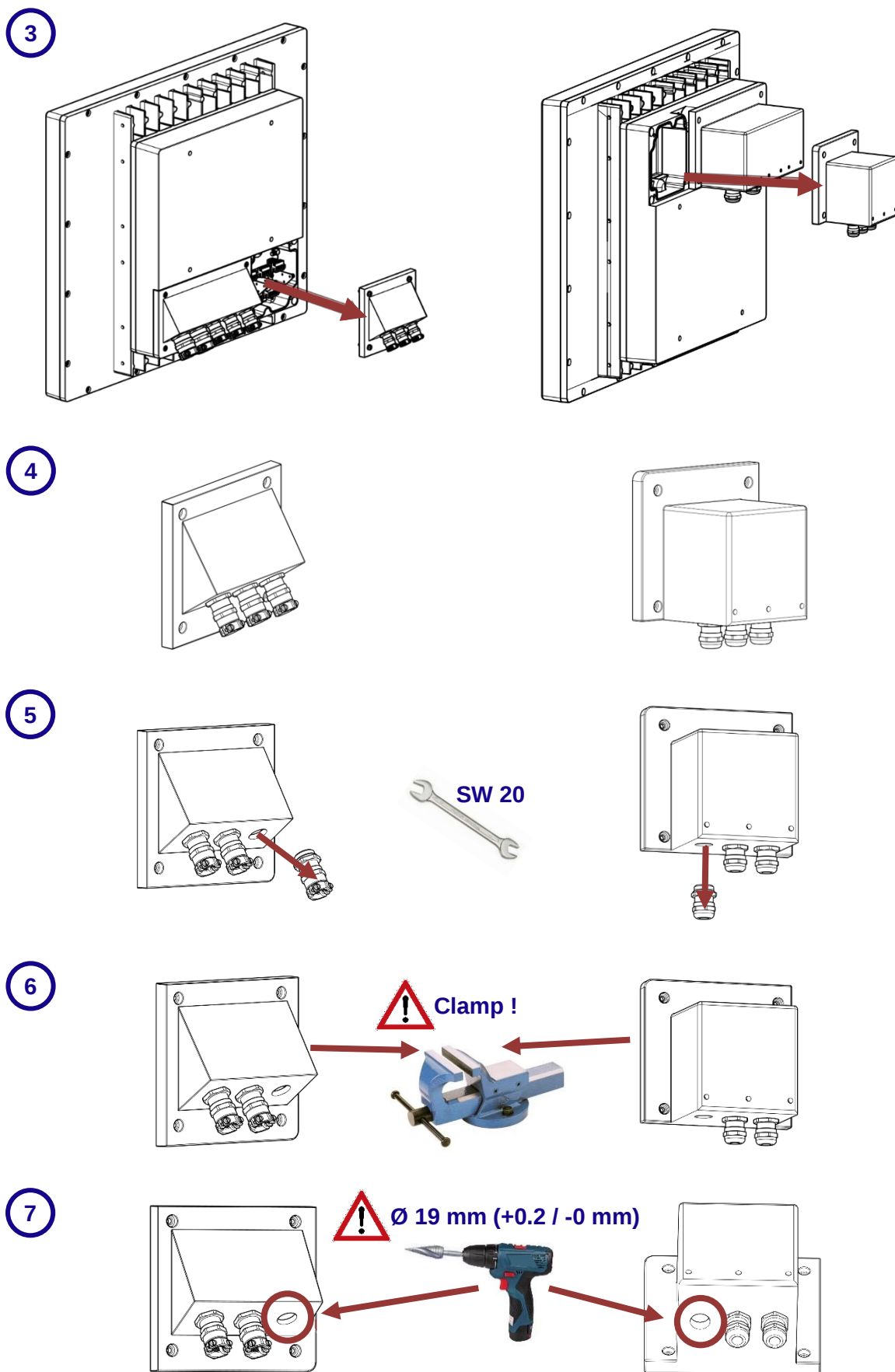


2

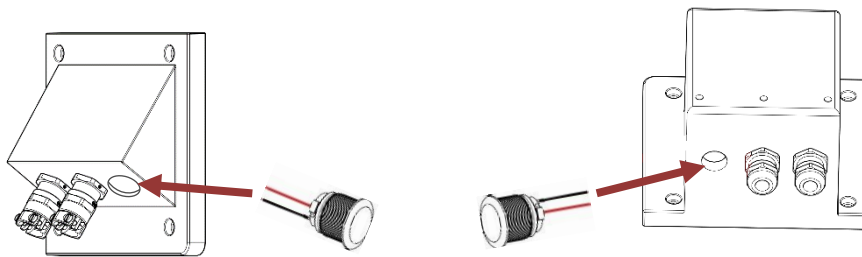


Gr. 2

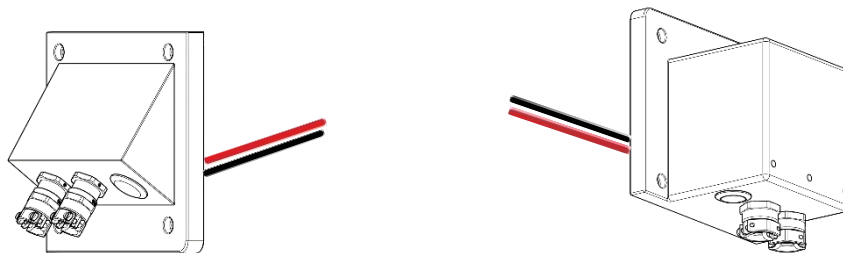




8



9

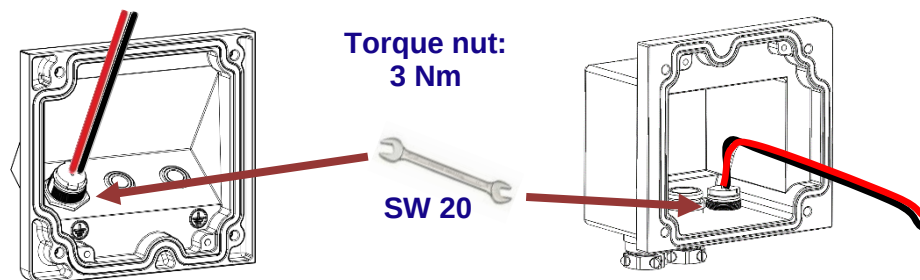


10

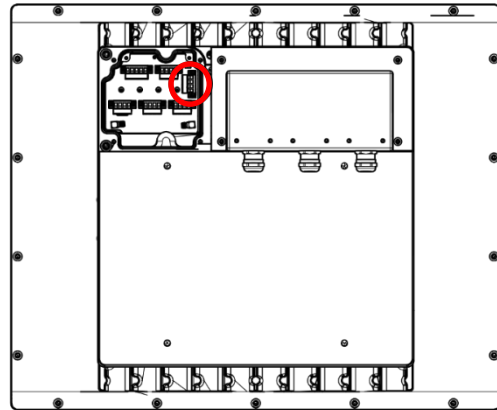
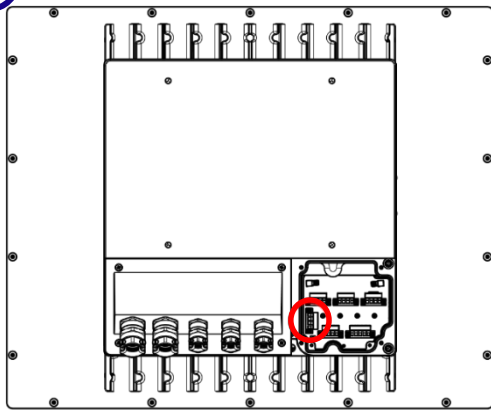


| No. | Designation             | Number |
|-----|-------------------------|--------|
| 1   | O-ring                  | 1      |
| 2   | Washer 30 x 22 x 1 mm   | 1      |
| 3   | Washer 26 x 19 x 0.5 mm | 1      |
| 4   | VB-PB-22mm nut          | 1      |

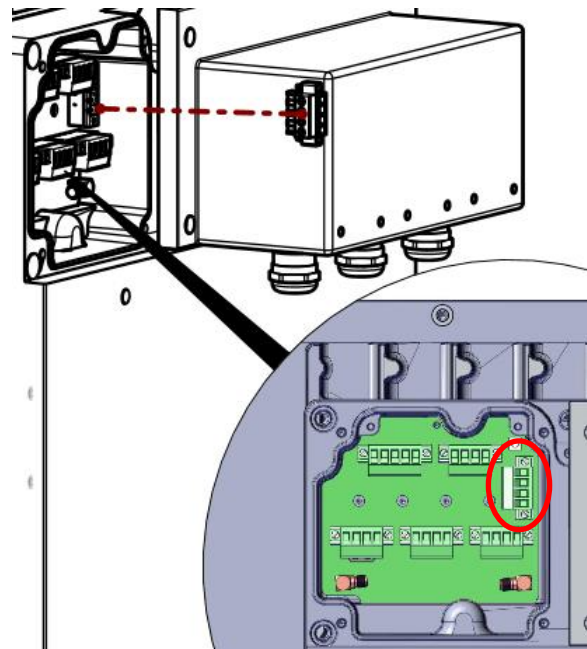
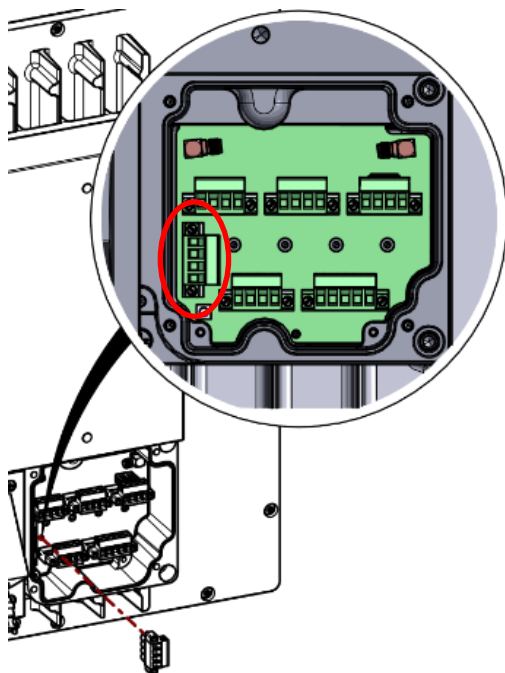
11



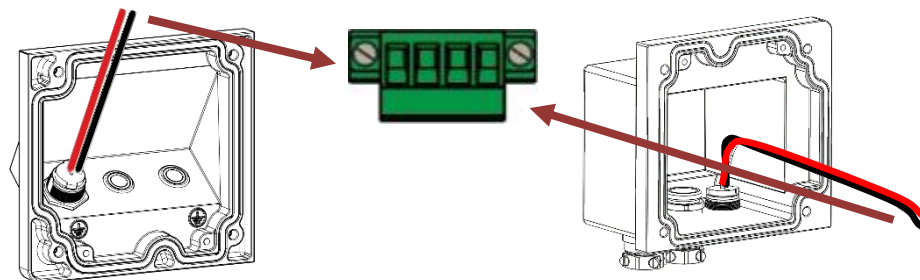
12



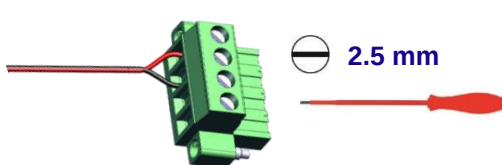
13



14



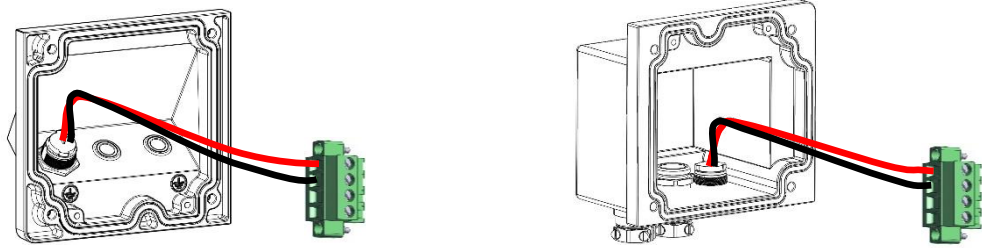
15



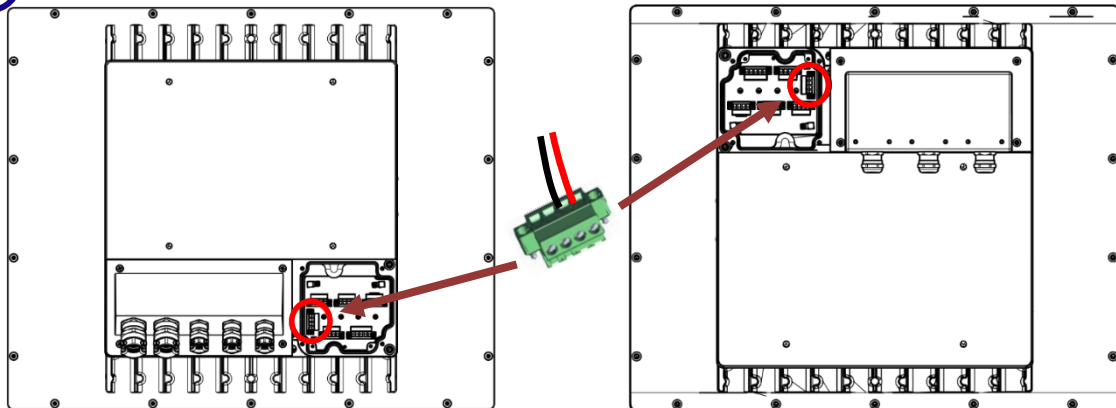
|     | PIN | Designation | Colour |
|-----|-----|-------------|--------|
| X30 | 1   | PB          | red    |
| PB  | 2   | GND         | black  |

Torque clamps: 0.55 Nm

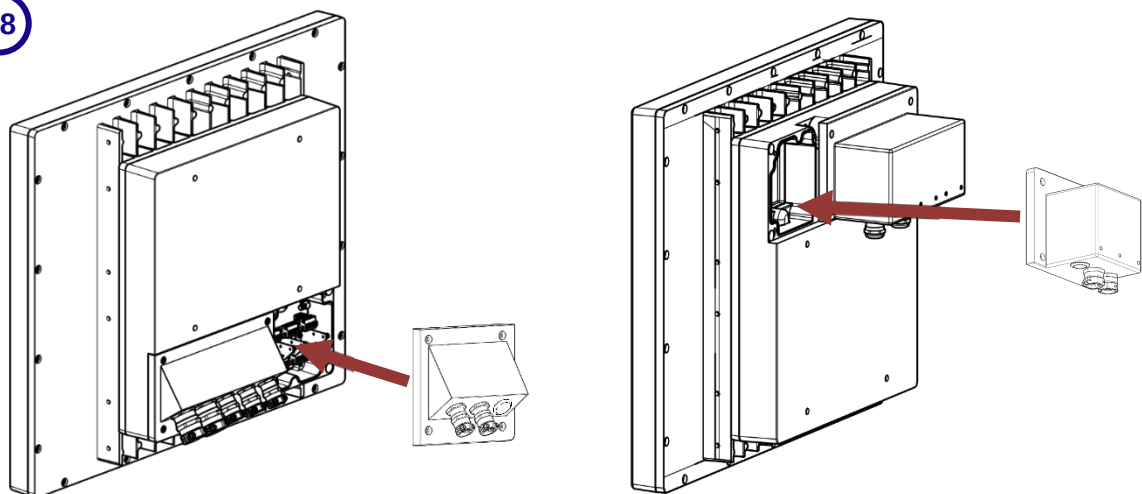
16



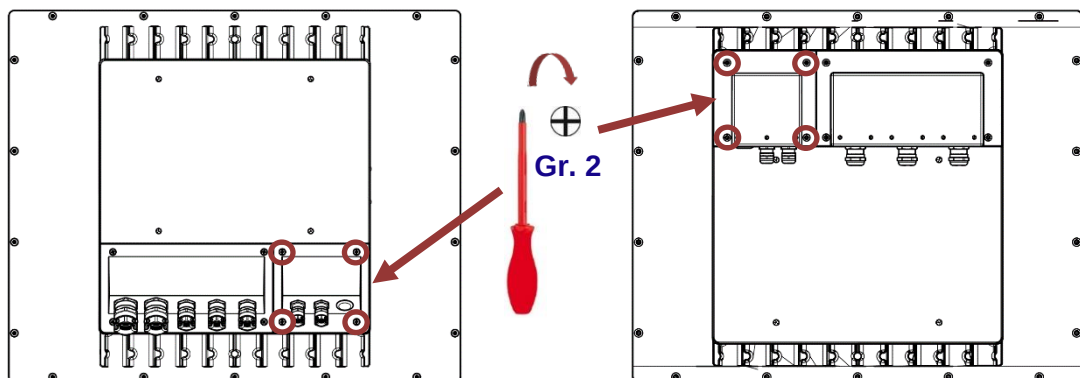
17



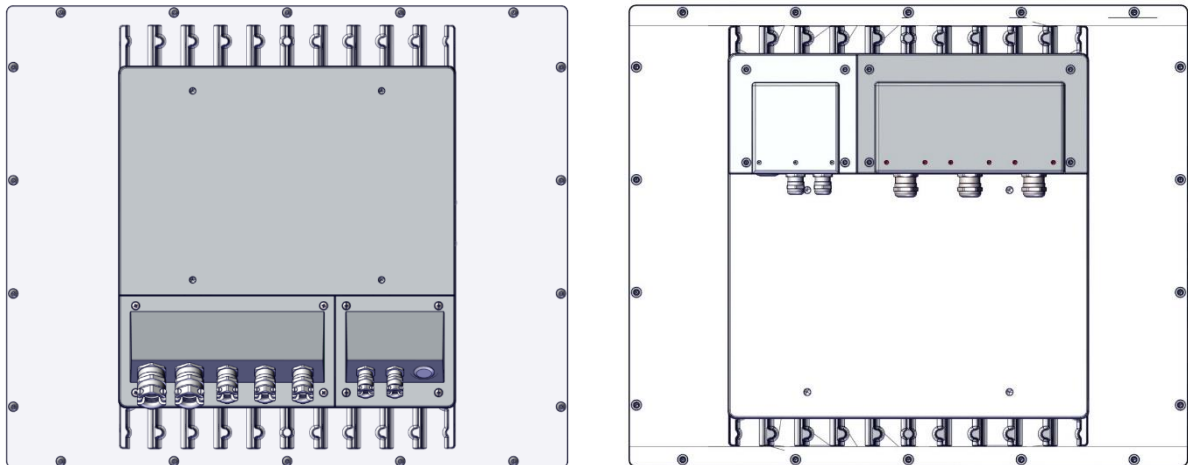
18



19



20



## 10 Electrical Installation

### 10.1 Status LED

Position: on the front plate, centre top

| Pictogram                                                                         | LED colour                                                                               | Meaning                                                                        |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|  |  blue   | The internal heater is switched on, the device is warming up.                  |
|  |  orange | Supply voltage present and power supply ok.                                    |
|  |  green  | The required operating temperature has been reached and the device is ready. * |



\* The xx8 devices can be fitted with an optional heating system which switches on and off independently.

At temperatures below -10 °C the display may stay dark until the required operating temperature has been reached.

### 10.2 Connection overview terminal assignment

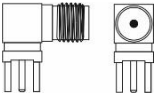
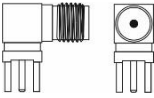
| Terminal                      | Pin | Designation (PCB) / view |            | Typical colour coding / plug type | Connection / function                                                                |
|-------------------------------|-----|--------------------------|------------|-----------------------------------|--------------------------------------------------------------------------------------|
| Ex e terminal box / terminals |     |                          |            |                                   |                                                                                      |
| X1<br>POWER                   | 1   | +24 V / L                |            | Black                             | Power supply of the HMI device<br>(either AC or DC)                                  |
|                               | 2   | +24 V / L                |            | Black                             |                                                                                      |
|                               | 3   | GND / N                  |            | Blue                              |                                                                                      |
|                               | 4   | GND / N                  |            | Blue                              |                                                                                      |
|                               | 5   | PE / earth               |            | Green / yellow                    |                                                                                      |
|                               | 6   | PE / earth               |            | Green / yellow                    |                                                                                      |
| X2 *<br>CAT1                  |     | 1000Base-TX              | 100Base-TX |                                   | Data cable<br>Copper connection 1                                                    |
|                               | 1   | D1+                      | TX+        | Orange / white                    |                                                                                      |
|                               | 2   | D1-                      | TX-        | Orange                            |                                                                                      |
|                               | 3   | D2+                      | RX+        | Green / white                     |                                                                                      |
|                               | 4   | D2-                      | RX-        | Green                             |                                                                                      |
|                               | 5   | D3+                      |            | White / blue                      |                                                                                      |
|                               | 6   | D3-                      |            | Blue                              |                                                                                      |
|                               | 7   | D4+                      |            | White / brown                     |                                                                                      |
|                               | 8   | D4-                      |            | Brown                             |                                                                                      |
| X3 *<br>CAT2                  |     | 1000Base-TX              | 100Base-TX |                                   | Data cable<br>Copper connection 2<br><br>(2. Connection not possible for SERIES 600) |
|                               | 1   | D1+                      | TX+        | Orange / white                    |                                                                                      |
|                               | 2   | D1-                      | TX-        | Orange                            |                                                                                      |
|                               | 3   | D2+                      | RX+        | Green / white                     |                                                                                      |
|                               | 4   | D2-                      | RX-        | Green                             |                                                                                      |
|                               | 5   | D3+                      |            | White / blue                      |                                                                                      |
|                               | 6   | D3-                      |            | Blue                              |                                                                                      |
|                               | 7   | D4+                      |            | White / brown                     |                                                                                      |
|                               | 8   | D4-                      |            | Brown                             |                                                                                      |

| Terminal                      | Pin | Designation (PCB) / view                                                          |        |        | Typical colour coding / plug type | Connection / function                                                                                                                                            |
|-------------------------------|-----|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ex e terminal box / terminals |     |                                                                                   |        |        |                                   |                                                                                                                                                                  |
| X20 *<br>FO 1                 |     |  |        |        | SC Duplex Socket                  | Data cable<br>FO connection 1<br><br>for SERIES 400 / 500<br>Type FX (100Base-FX)<br>for SERIES 600:<br><br>Type SX (1000Base-SX)<br>or<br>Type LX (1000Base-LX) |
| X21 *<br>FO 2                 |     |  |        |        | SC Duplex Socket                  | Data cable<br>FO connection 2<br><br>(2. Connection not possible for SERIES 600)<br><br>for SERIES 400 / 500<br>Type FX (100Base-FX)                             |
| X4<br>DC out                  | 1   | +12 V                                                                             |        |        |                                   | 12 and / or 24 V DC<br>Output<br>Max. load 500 mA<br>per output                                                                                                  |
|                               | 2   | GND                                                                               |        |        |                                   |                                                                                                                                                                  |
|                               | 3   | GND                                                                               |        |        |                                   |                                                                                                                                                                  |
|                               | 4   | + 24 V                                                                            |        |        |                                   |                                                                                                                                                                  |
| X5<br>CAN                     | 1   | CAN1 L                                                                            |        |        |                                   | CAN bus connection<br>(no longer available)                                                                                                                      |
|                               | 2   | CAN1 H                                                                            |        |        |                                   |                                                                                                                                                                  |
|                               | 3   | CAN2 L                                                                            |        |        |                                   |                                                                                                                                                                  |
|                               | 4   | CAN2 H                                                                            |        |        |                                   |                                                                                                                                                                  |
| X6<br>USB                     | 1   | +5 V                                                                              |        |        | Red                               | USB connection<br>USB 2.0<br>max. load 500 mA                                                                                                                    |
|                               | 2   | D -                                                                               |        |        | White                             |                                                                                                                                                                  |
|                               | 3   | D +                                                                               |        |        | Green                             |                                                                                                                                                                  |
|                               | 4   | GND                                                                               |        |        | Black                             |                                                                                                                                                                  |
| X7<br>RSxxx                   |     | RS-232                                                                            | RS-422 | RS-485 |                                   | Serial interface<br>(COM)<br>RS-232 / RS-422 / RS-485                                                                                                            |
|                               | 1   | TxD                                                                               | TxD-A  | A      |                                   |                                                                                                                                                                  |
|                               | 2   | RxD                                                                               | RxD-B  |        |                                   |                                                                                                                                                                  |
|                               | 3   | RTS                                                                               | TxD-B  | B      |                                   |                                                                                                                                                                  |
|                               | 4   | CTS                                                                               | RxD-A  |        |                                   |                                                                                                                                                                  |
|                               | 5   | GND                                                                               |        |        |                                   |                                                                                                                                                                  |
| X8                            |     |                                                                                   |        |        |                                   | Not in use                                                                                                                                                       |
| X9<br>Audio /<br>Video        |     |                                                                                   |        |        |                                   | Audio / video connection<br>Line out left<br>Line out right<br>(audio for AMD and<br>SERIES 600 only)<br>Video input<br>(not possible for<br>SERIES 600)         |
|                               | 1   | L out                                                                             |        |        |                                   |                                                                                                                                                                  |
|                               | 2   | R out                                                                             |        |        |                                   |                                                                                                                                                                  |
|                               | 3   | GND                                                                               |        |        |                                   |                                                                                                                                                                  |
|                               | 4   | Video                                                                             |        |        |                                   |                                                                                                                                                                  |
|                               | 5   | GND                                                                               |        |        |                                   |                                                                                                                                                                  |



\* Ethernet connection is available in two versions: copper or fibre optic (see order versions).

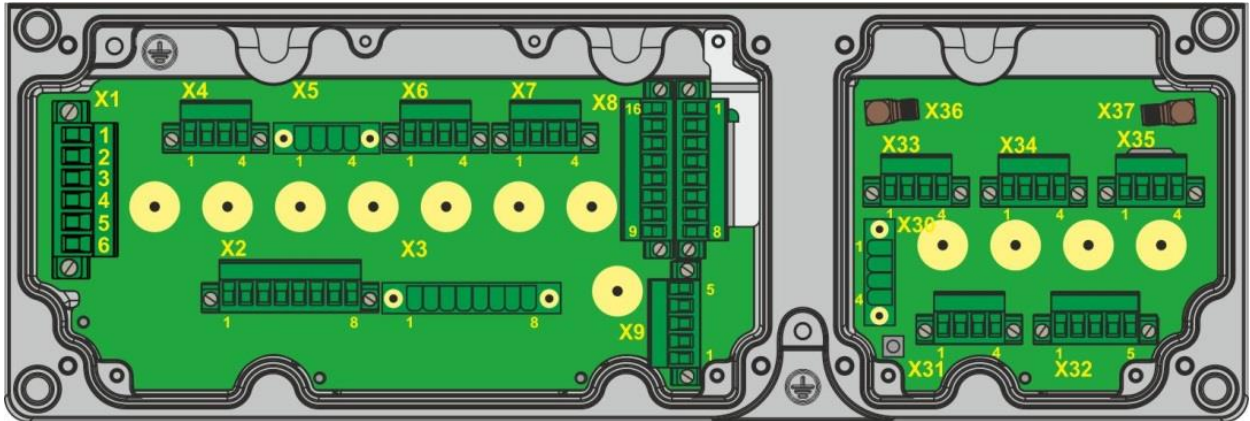
SERIES 600 devices only have one Ethernet connection. Although SERIES 600 devices have the X3 terminal block (CAT2), this is not assigned / connected.

| Terminal                             | Pin | Designation (PCB) / view                                                            | Typical colour coding / plug type | Connection / function                                                                     |
|--------------------------------------|-----|-------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------|
| <b>Ex i terminal box / terminals</b> |     |                                                                                     |                                   |                                                                                           |
| X30<br>PB                            | 1   | PB                                                                                  |                                   | On / off switch<br>Connection<br>(not possible for<br>SERIES 600)                         |
|                                      | 2   | GND                                                                                 |                                   |                                                                                           |
|                                      | 3   | GND                                                                                 |                                   |                                                                                           |
|                                      | 4   | GND                                                                                 |                                   |                                                                                           |
| X31<br>FAN                           | 1   | +FAN                                                                                |                                   | Fan connection                                                                            |
|                                      | 2   | GND                                                                                 |                                   |                                                                                           |
|                                      | 3   | +FAN                                                                                |                                   |                                                                                           |
|                                      | 4   | GND                                                                                 |                                   |                                                                                           |
| X32<br>RS232 /<br>Power              | 1   | +10.4V                                                                              |                                   | Barcode / card reader<br>Connection                                                       |
|                                      | 2   | +5.4V                                                                               |                                   |                                                                                           |
|                                      | 3   | GND                                                                                 |                                   |                                                                                           |
|                                      | 4   | RxD                                                                                 |                                   |                                                                                           |
|                                      | 5   | TxD                                                                                 |                                   |                                                                                           |
| X33<br>USB                           | 1   | +5 V                                                                                | Red                               | USB connection                                                                            |
|                                      | 2   | D -                                                                                 | White                             |                                                                                           |
|                                      | 3   | D +                                                                                 | Green                             |                                                                                           |
|                                      | 4   | GND                                                                                 | Black                             |                                                                                           |
| X34<br>USB                           | 1   | +5 V                                                                                | Red                               | USB connection                                                                            |
|                                      | 2   | D -                                                                                 | White                             |                                                                                           |
|                                      | 3   | D +                                                                                 | Green                             |                                                                                           |
|                                      | 4   | GND                                                                                 | Black                             |                                                                                           |
| X35<br>USB                           | 1   | +5 V                                                                                | Red                               | USB connection<br>(Terminals or sockets)                                                  |
|                                      | 2   | D -                                                                                 | White                             |                                                                                           |
|                                      | 3   | D +                                                                                 | Green                             |                                                                                           |
|                                      | 4   | GND                                                                                 | Black                             |                                                                                           |
|                                      |     |  | USB socket<br>Type A              |                                                                                           |
| X36                                  |     |  | SMA reverse<br>socket             | WiFi<br>Antenna connection 1<br>(not possible for<br>SERIES 600)<br>(for 2.4 GHz antenna) |
| X37                                  |     |  | SMA reverse<br>socket             | WiFi<br>Antenna connection 2<br>(not possible for<br>SERIES 600)<br>(for 5 GHz antenna)   |

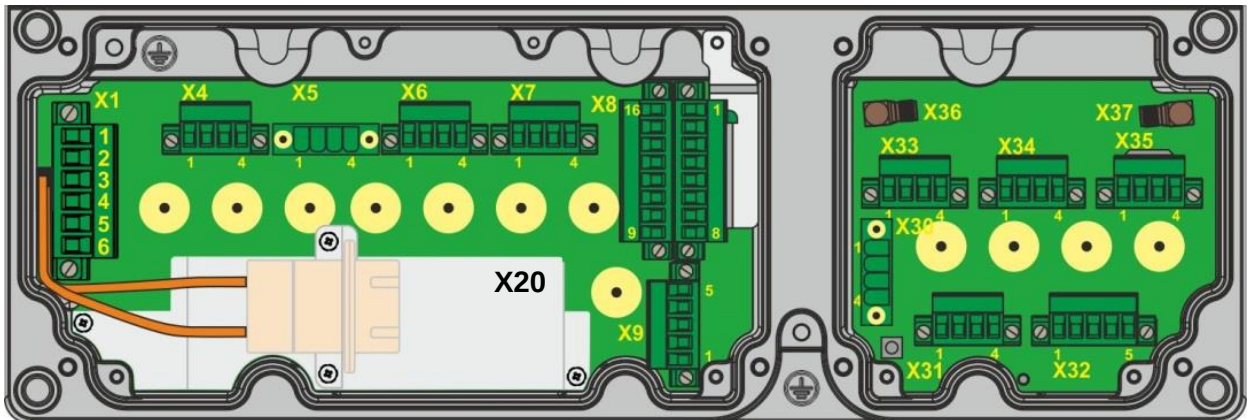
## 10.3 Terminal view VESA 200 Standard

### 10.3.1 SERIES 600

#### 10.3.1.1 TX version (copper)

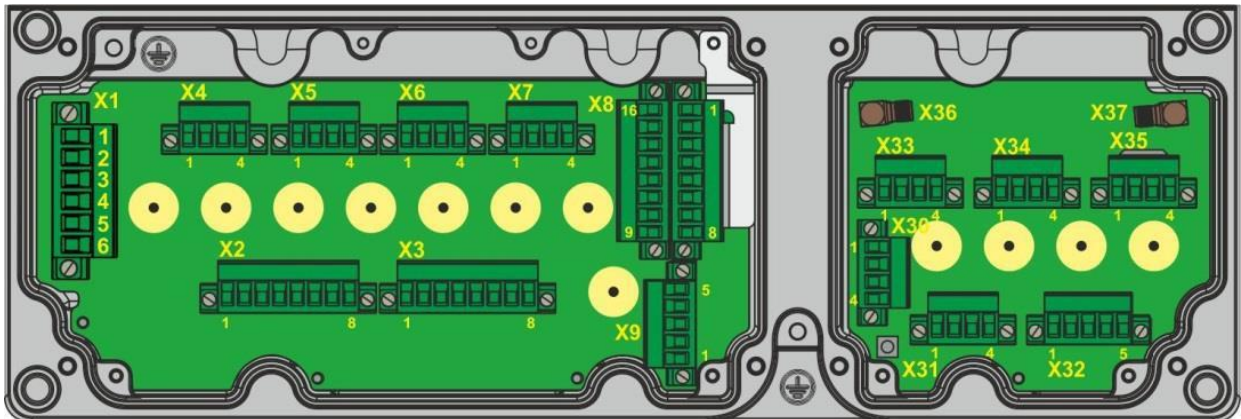


#### 10.3.1.2 SX or LX version (FO)

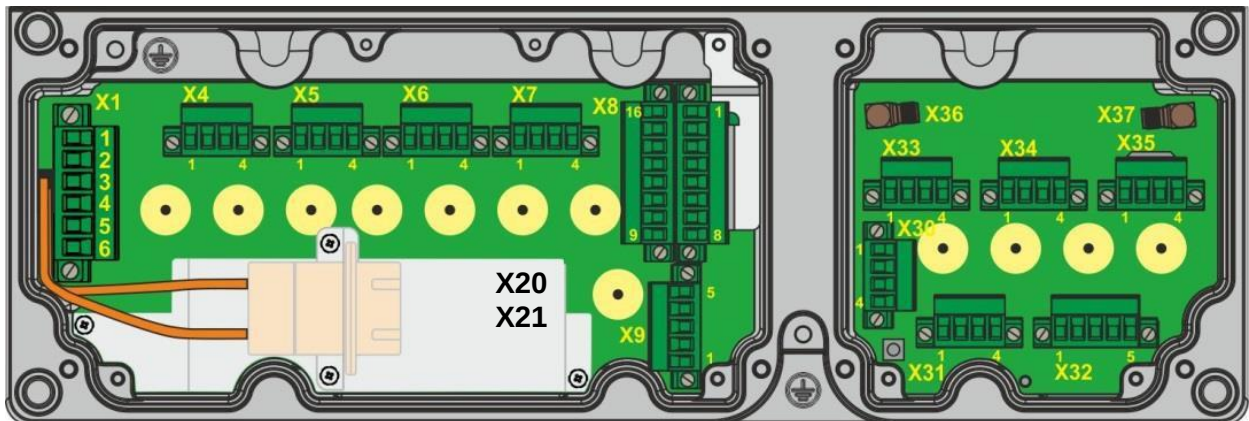


### 10.3.2 SERIES 400 / 500

#### 10.3.2.1 TX version (copper)



#### 10.3.2.2 FX version (FO)

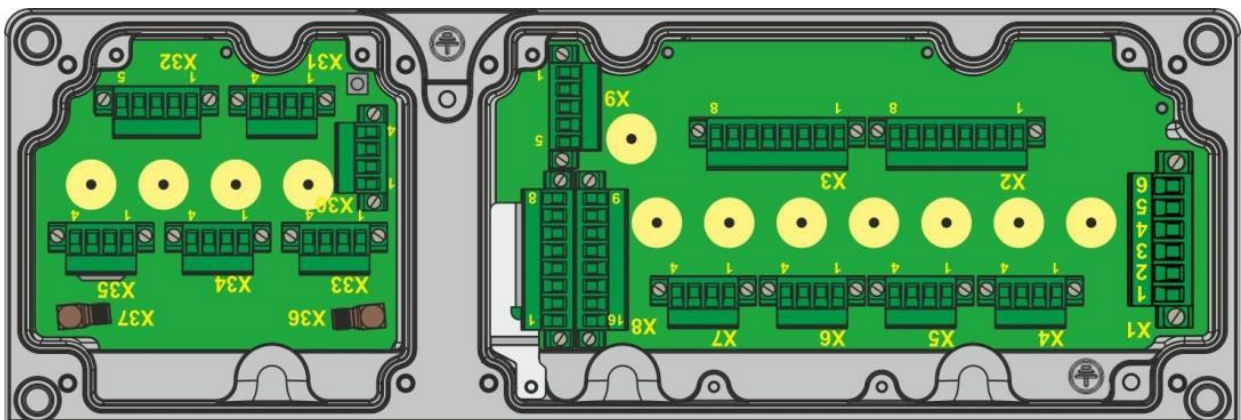


## 10.4 Terminal view VESA 200 Top Connect



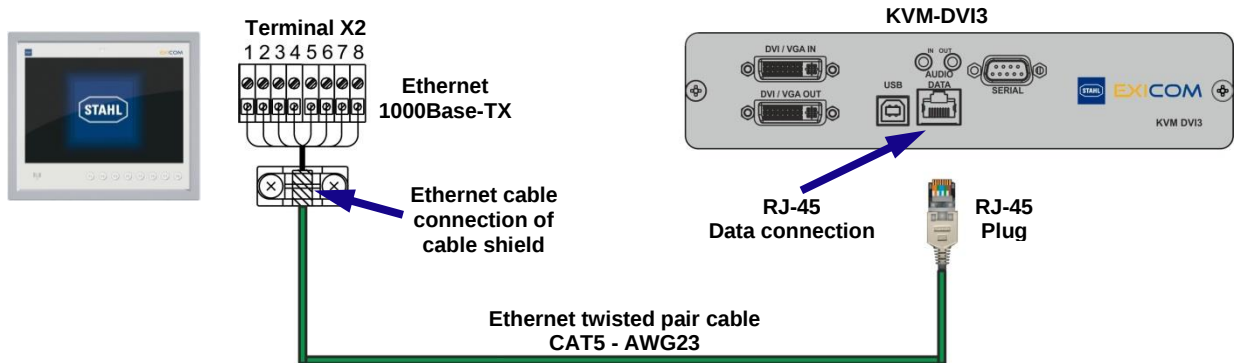
The terminal view and assignment of the VESA 200 Top Connect devices is identical to that of the Standard devices, but rotated by 180°.

Example:

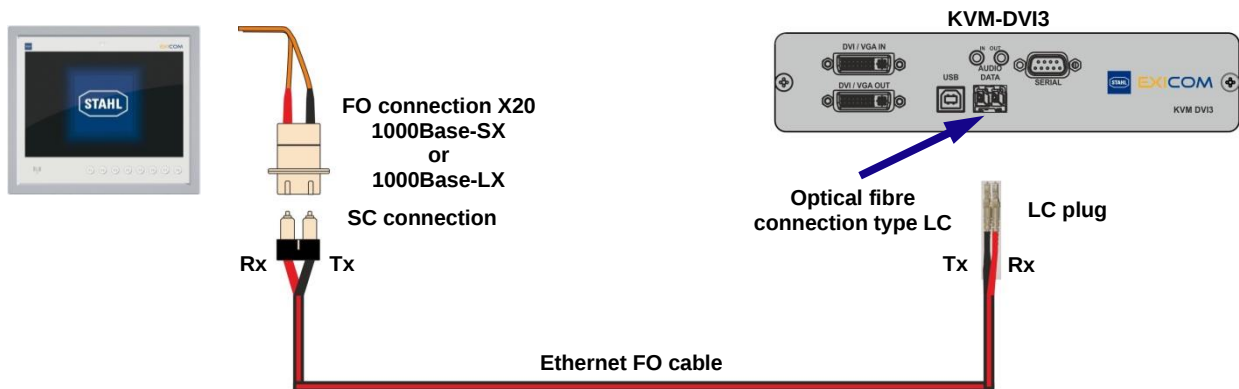


## 10.5 Connection overview for KVM box

### 10.5.1 TX version (copper)

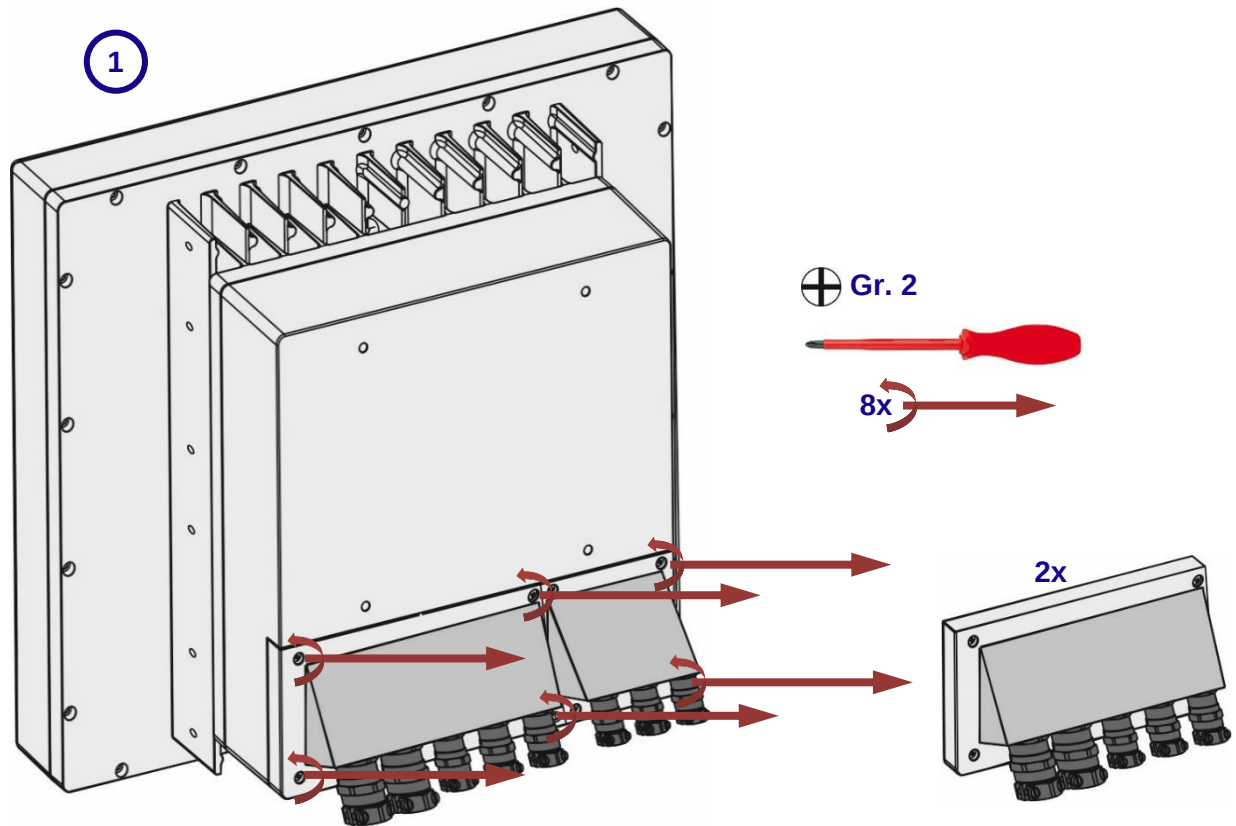


### 10.5.2 SX or LX version (FO)

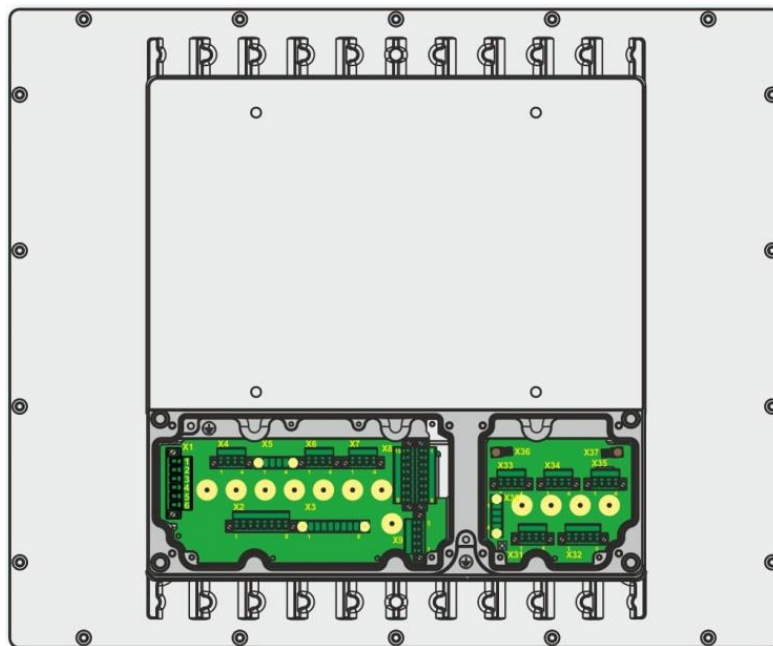


## 10.6 Electrical connection of VESA 200 Standard – step by step instructions

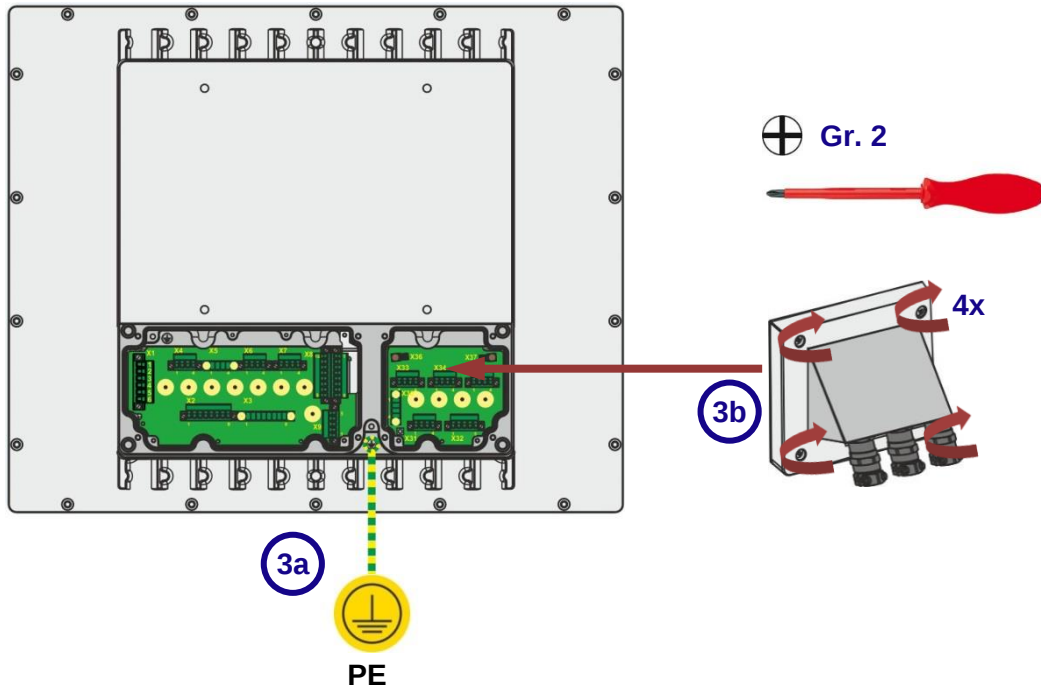
### 10.6.1 Earthing



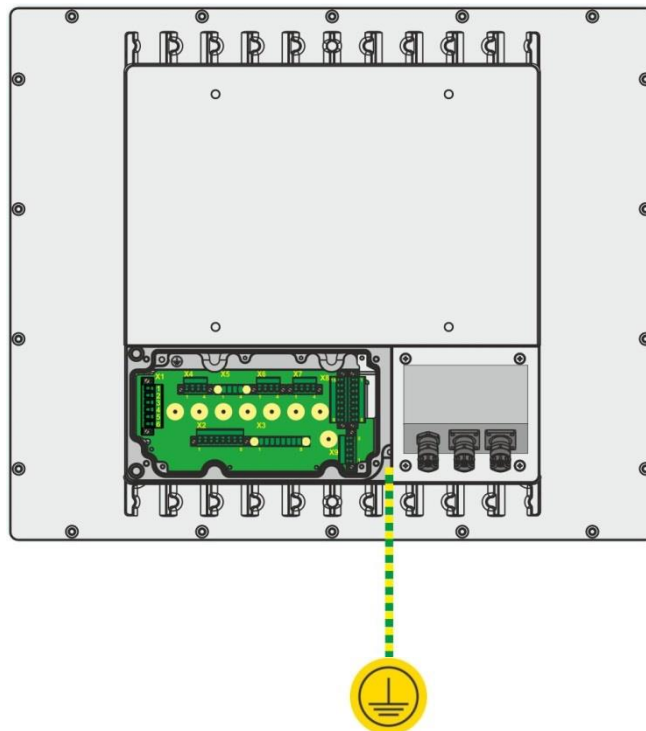
2



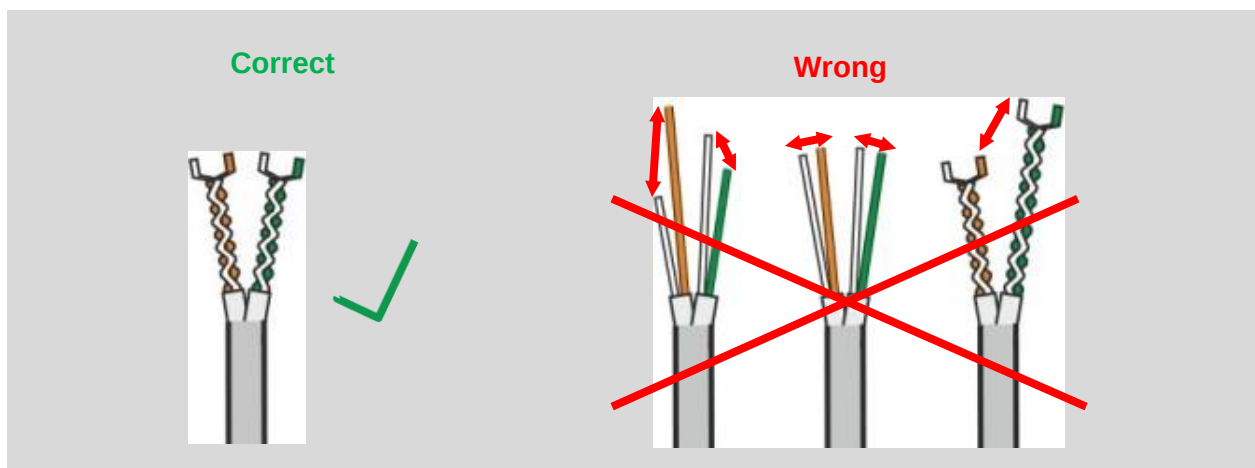
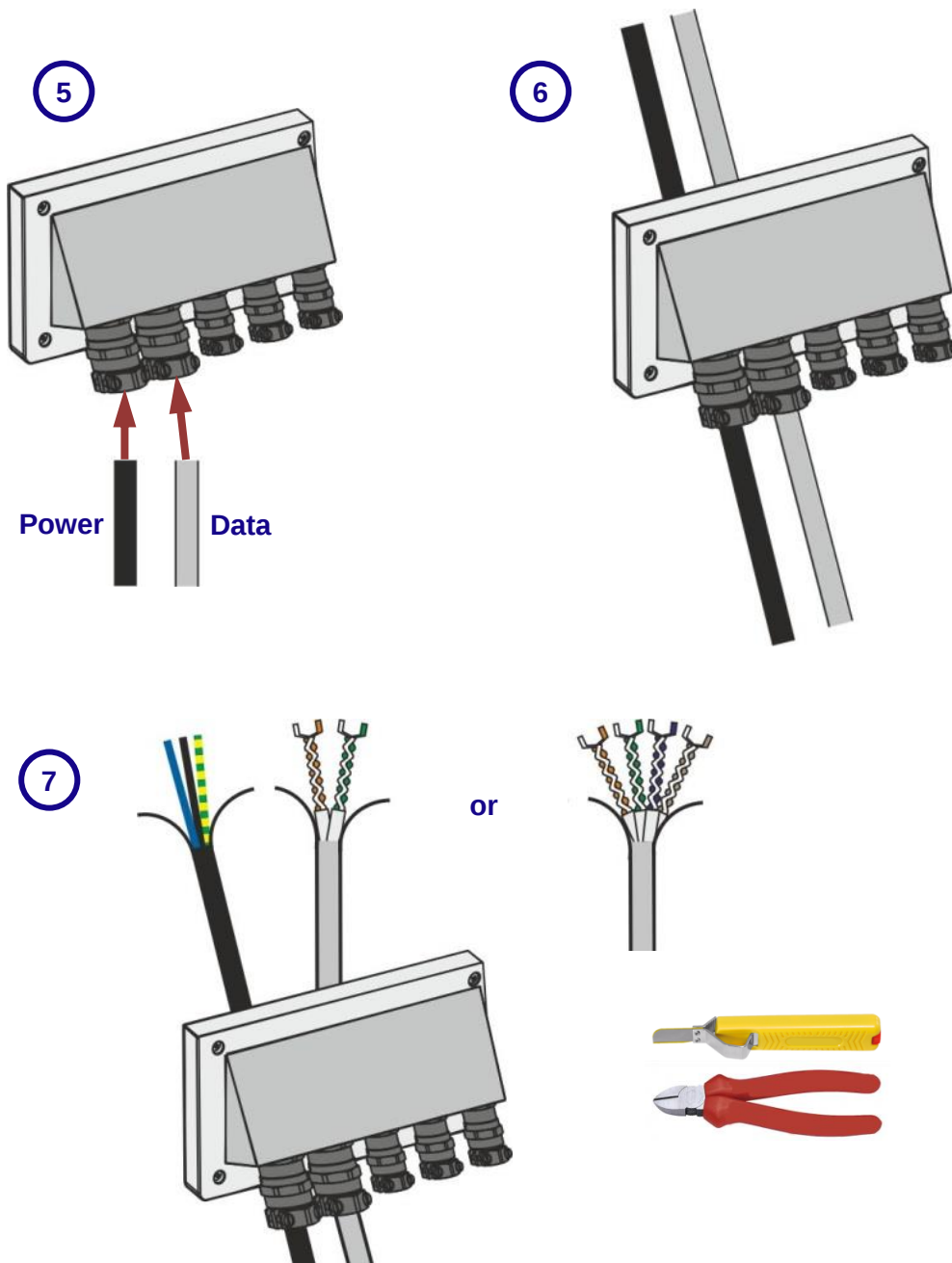
3

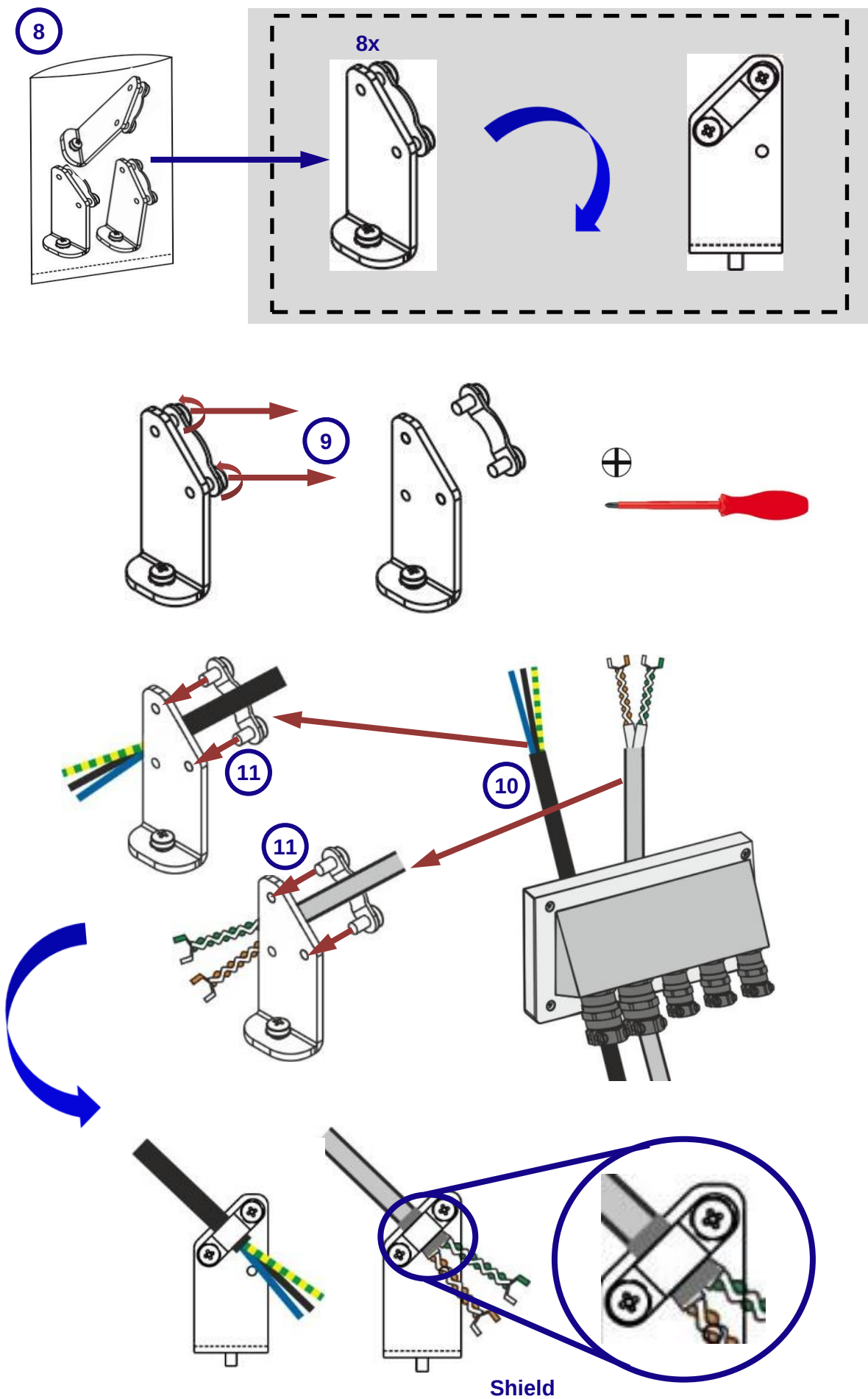


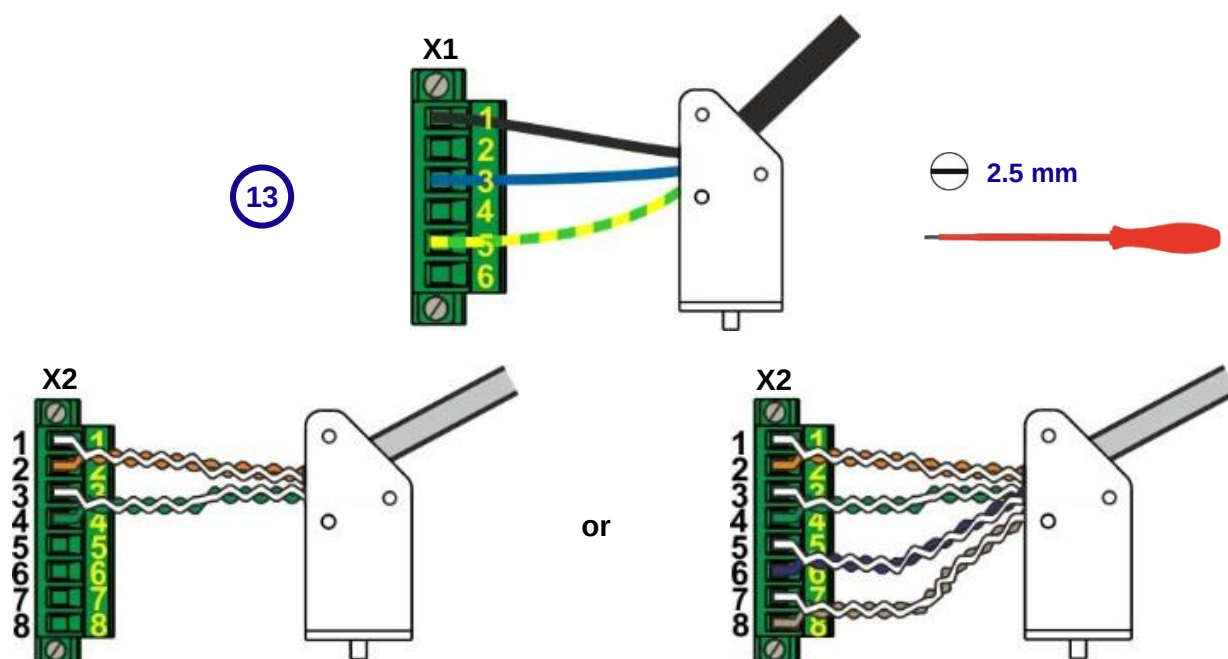
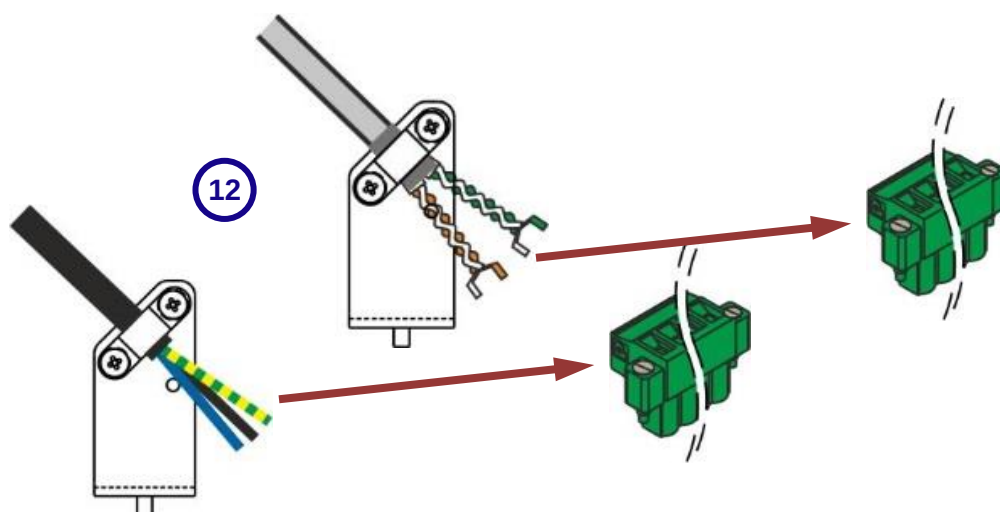
4



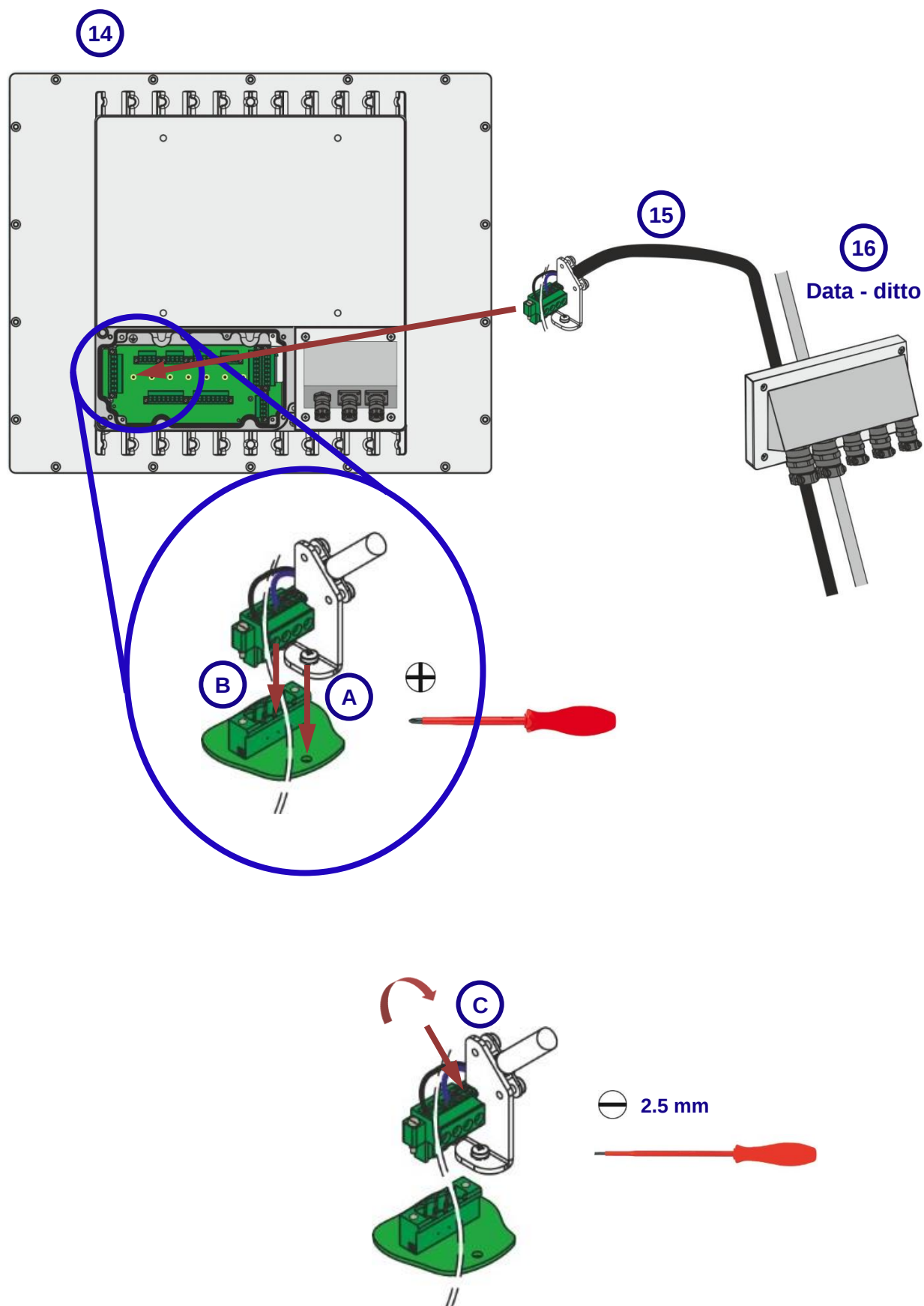
## 10.6.2 Power supply and data cable

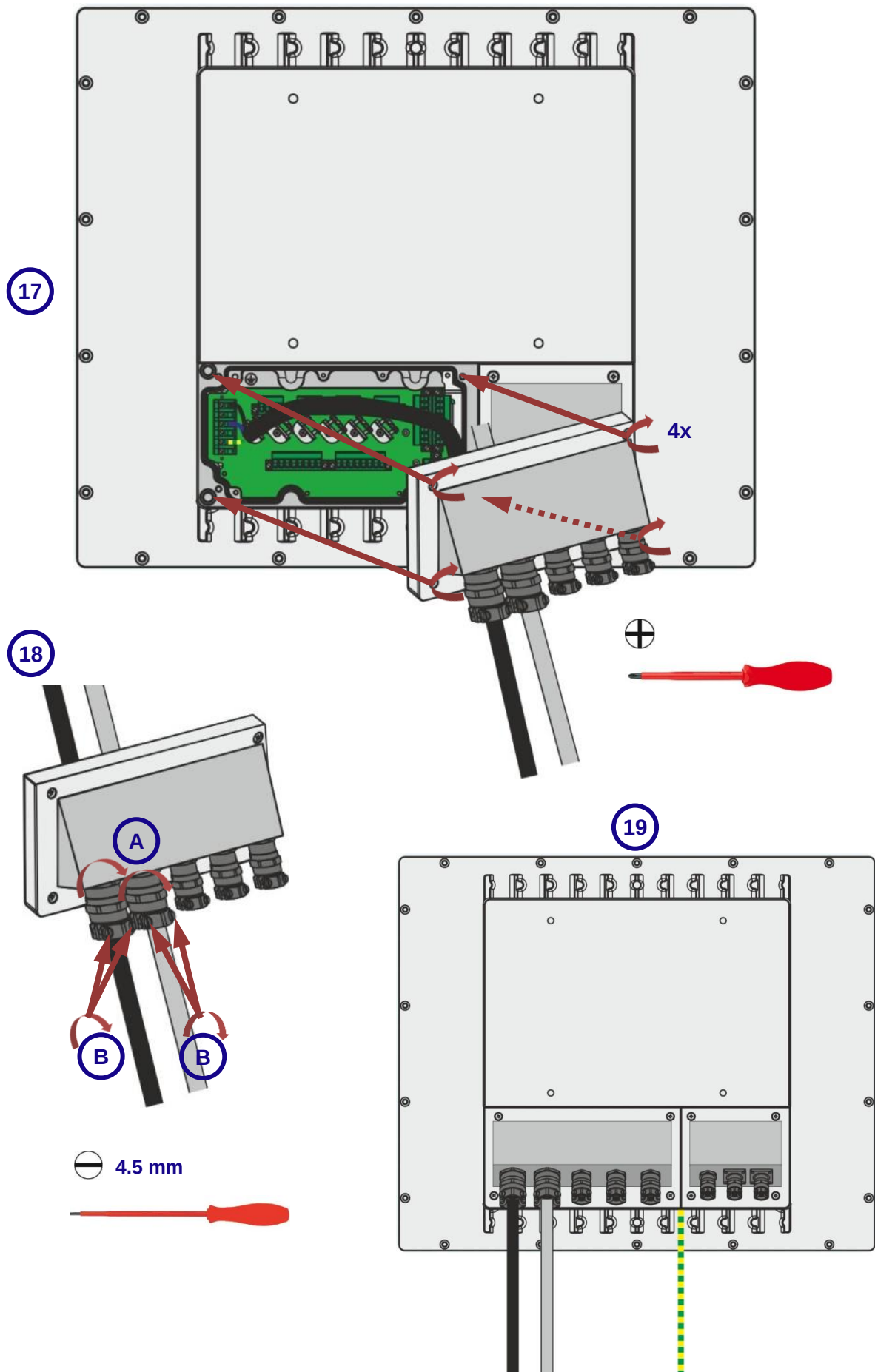






Associated pairs must be twisted up to the terminal !

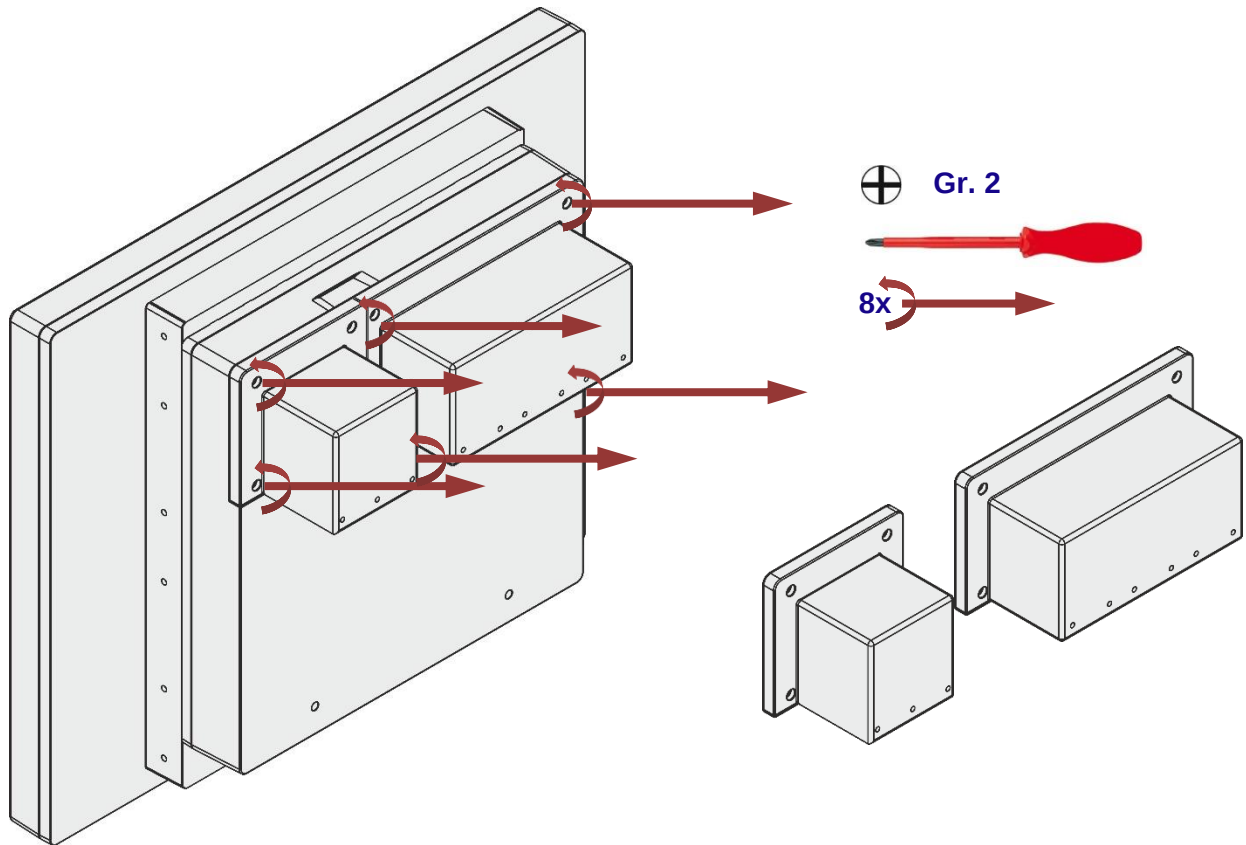




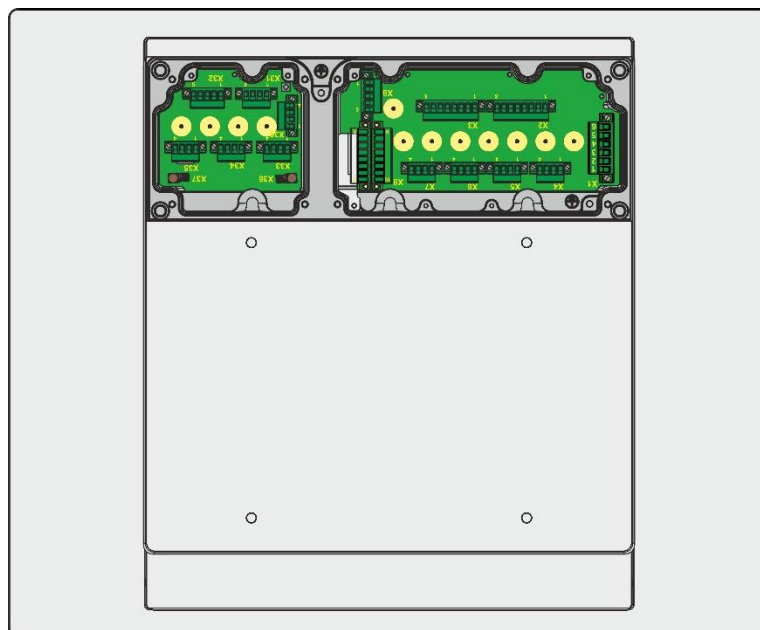
## 10.7 Electrical connection VESA 200 Top Connect – step by step instructions

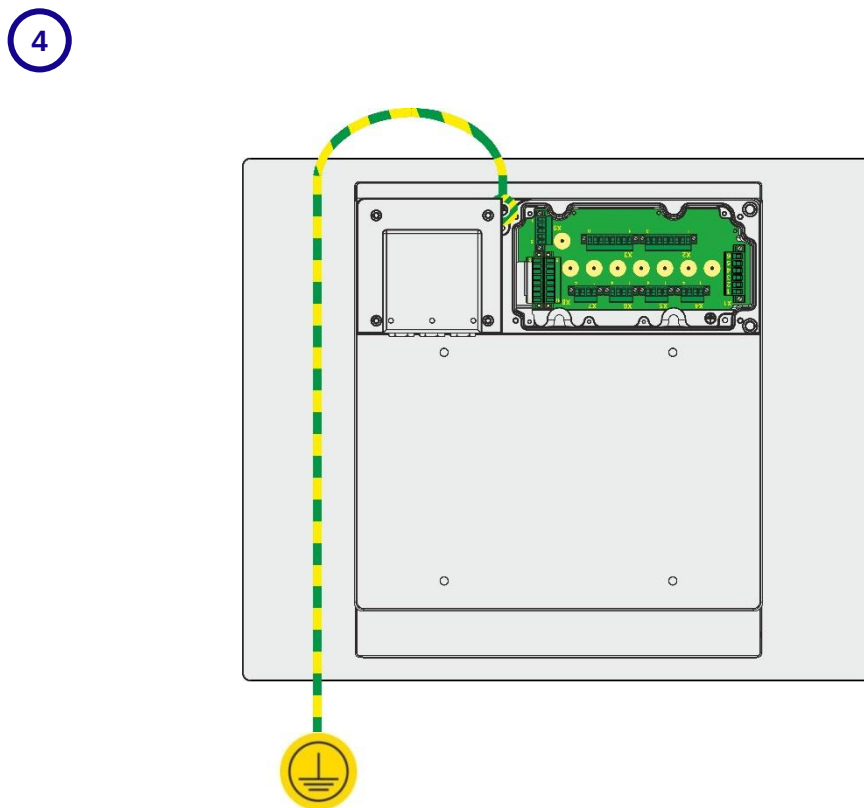
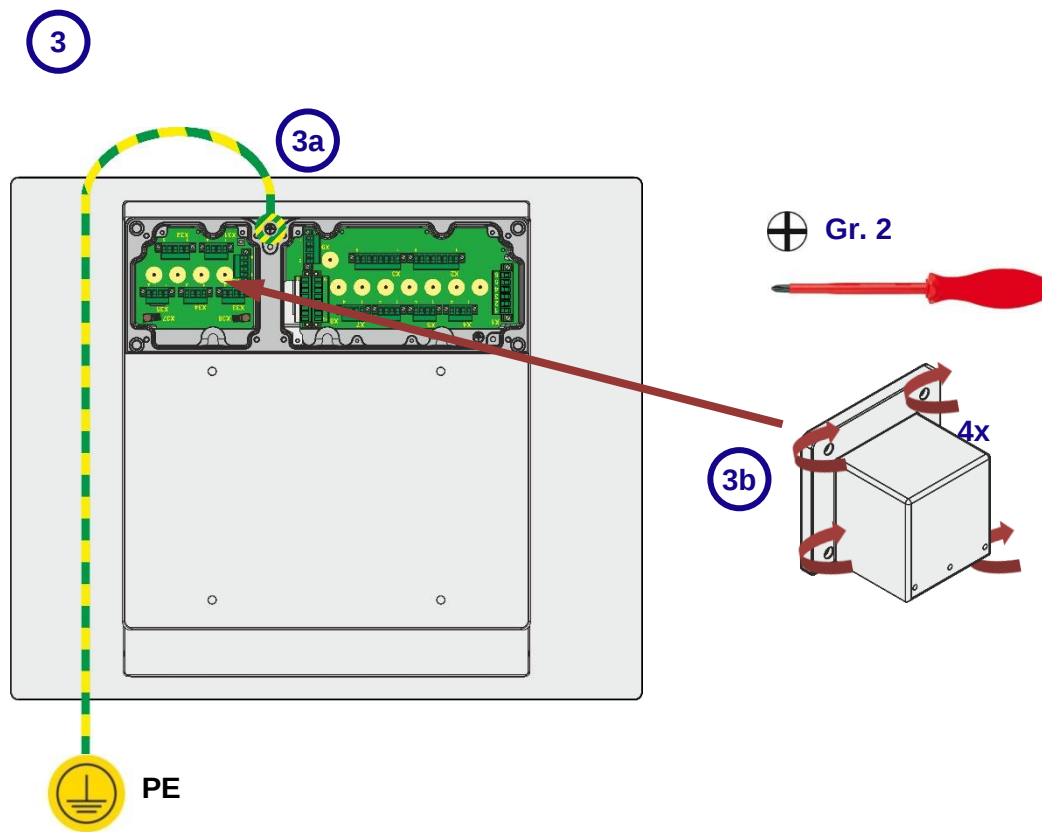
### 10.7.1 Earthing

1

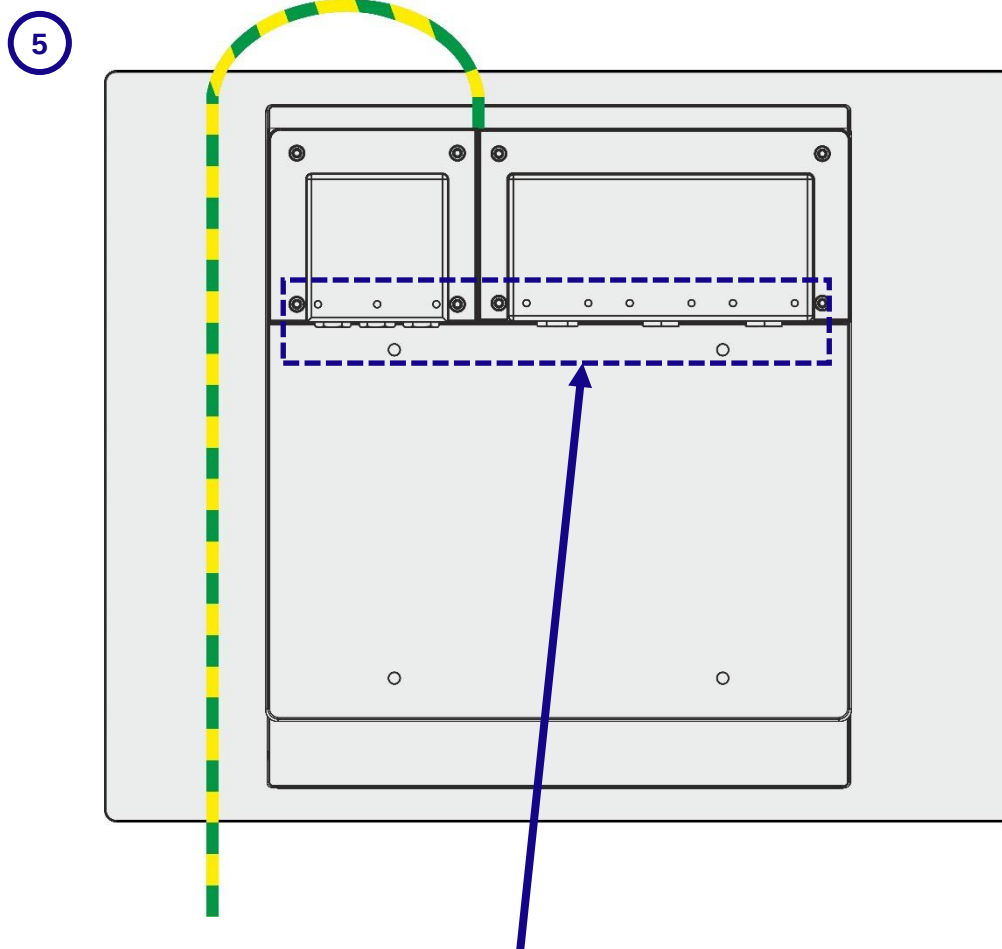


2





## 10.7.2 Power supply and data cable

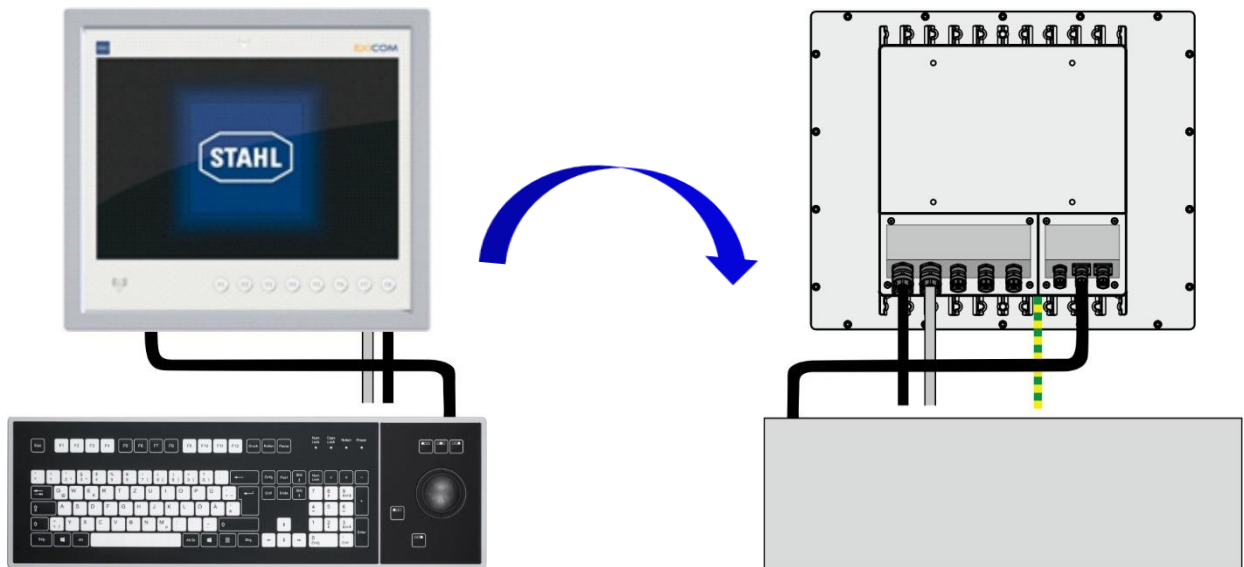


Possible designs and connection kits and their description / mounting for the Top Connect devices are listed in "IM\_Top-Connect\_xx8".

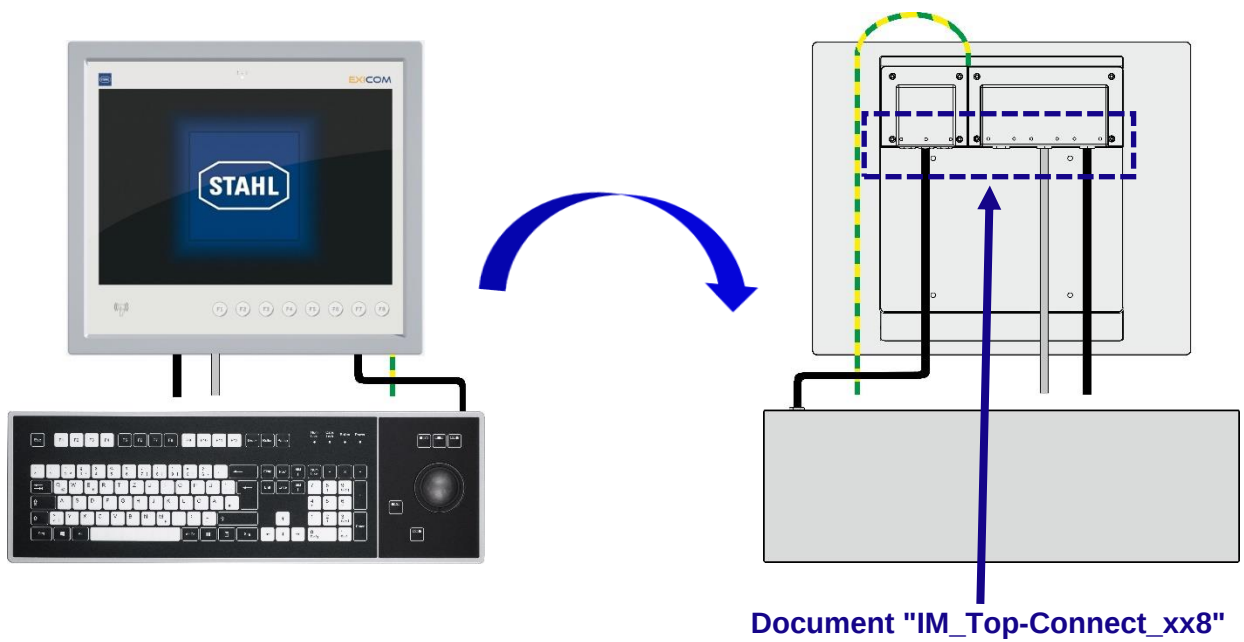
## 10.8 Accessories

### 10.8.1 KB2 keyboard

#### 10.8.1.1 VESA 200 Standard view



#### 10.8.1.2 VESA 200 Top Connect view

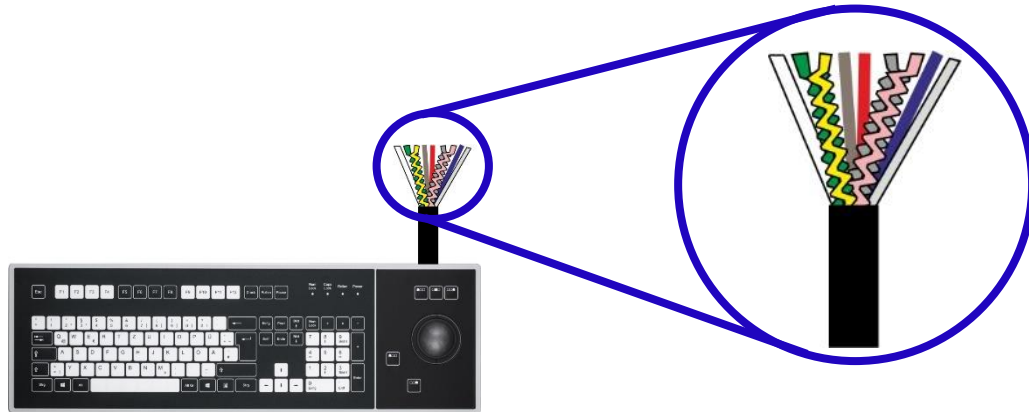


### 10.8.1.3 Keyboard connection and wiring

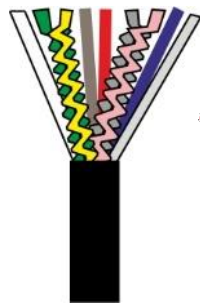


Connect and mount the cables and the cable holders as described in chapter [10.6.2 Power supply and data cable](#).

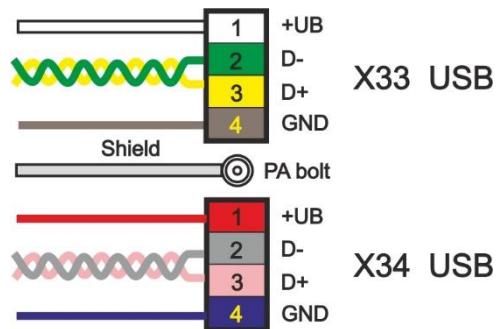
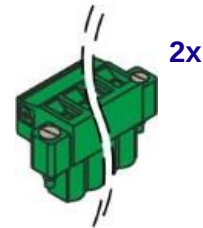
Keep the USB data cables short and always twist the associated D cables together !

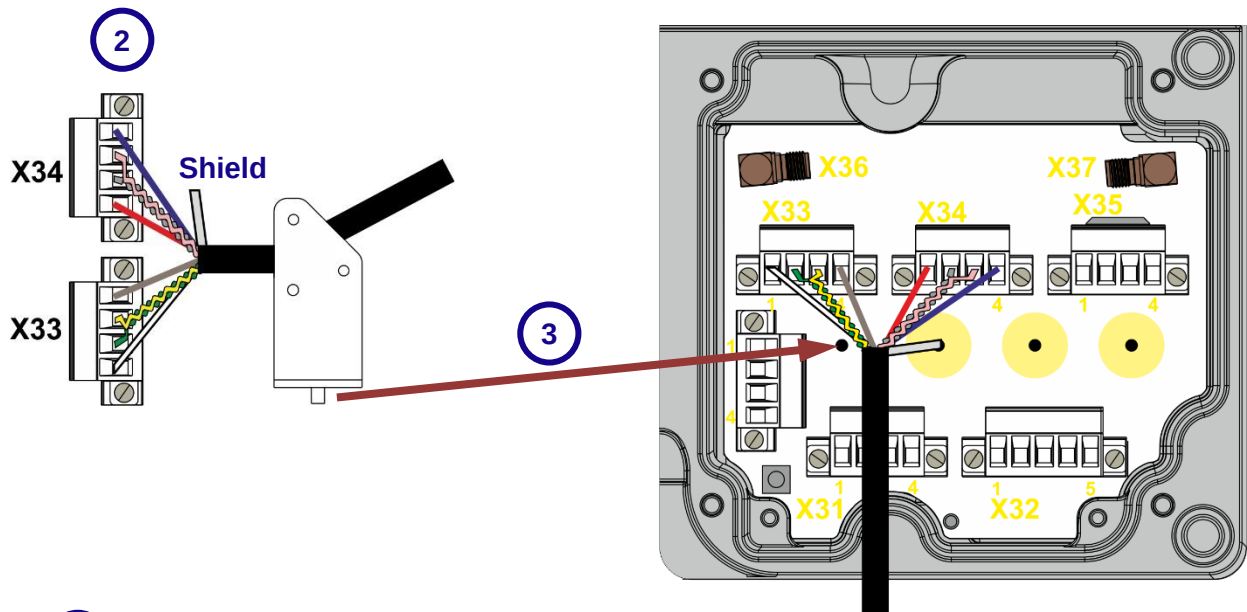


1



**Keep wires short !  
Twist associated D wires !**

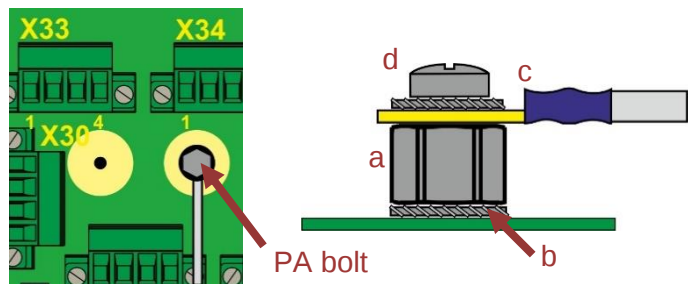




4

### Earthing (shielding) connection

- Screw on distance bolt I/A (a) with tooth lock washer (b) (tightening torque 1 Nm)
- Attach ring cable lug (c) with combined screw and tooth lock (d)



Earthing material see Operating Instruction OI\_Keyboard\_KB2 chapter "Scope of delivery".

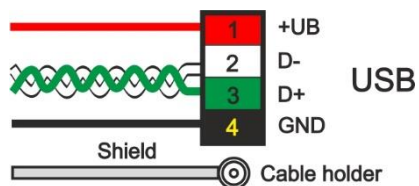
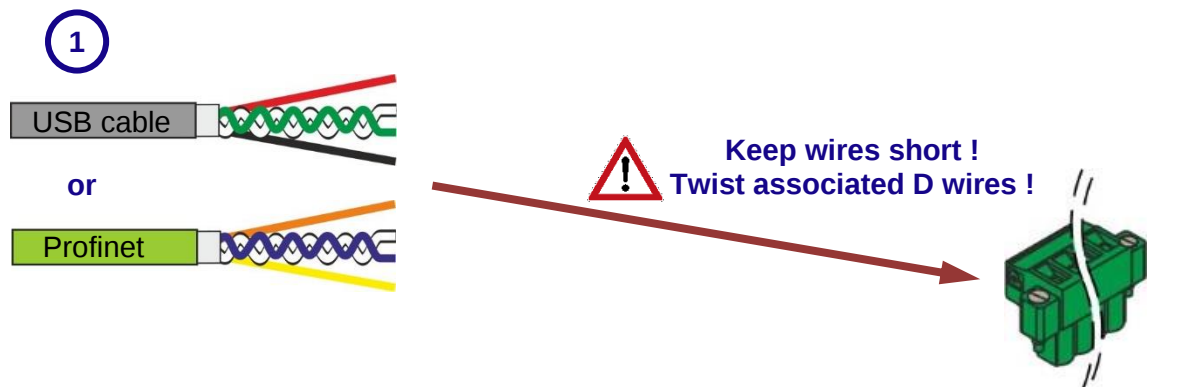
## 10.8.2 USB devices – wiring



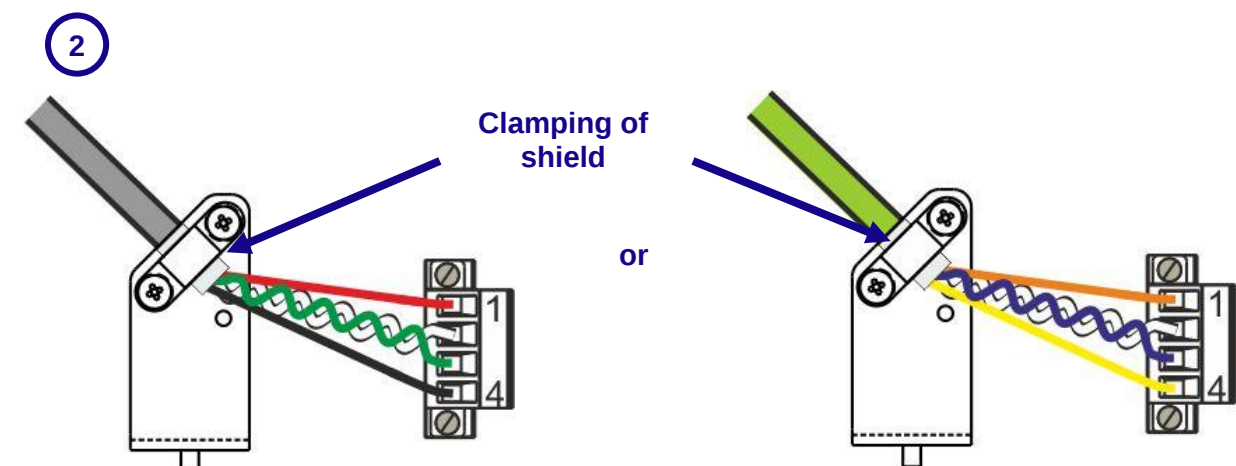
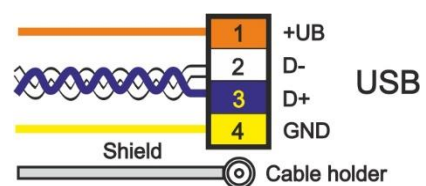
Connect and mount the cables and the cable holders as described in chapter [10.6.2 Power supply and data cable](#).

Keep the USB data cables short and always twist the associated D cables together !

| USB cable             |                |                                             |                       |
|-----------------------|----------------|---------------------------------------------|-----------------------|
| Typical colour coding |                | Signal                                      | Connection / function |
| USB 2.0 cable         | Profinet cable |                                             |                       |
| Red                   | Orange         | VBUS                                        | +5 VDC power supply   |
| White                 | White          | USB D-                                      | Data cable -          |
| Green                 | Blue           | USB D+                                      | Data cable +          |
| Black                 | Yellow         | GND                                         | 0 VDC power supply    |
| USB interfaces        |                | Using (preferably)                          |                       |
| X33 (Ex i)            |                | Keyboard cable – connection keyboard        |                       |
| X34 (Ex i)            |                | Keyboard cable – connection pointing device |                       |
| X35 (Ex i)            |                | USBi-Drive                                  |                       |
| X6 (Ex e)             |                | any USB device, explosion-protected         |                       |



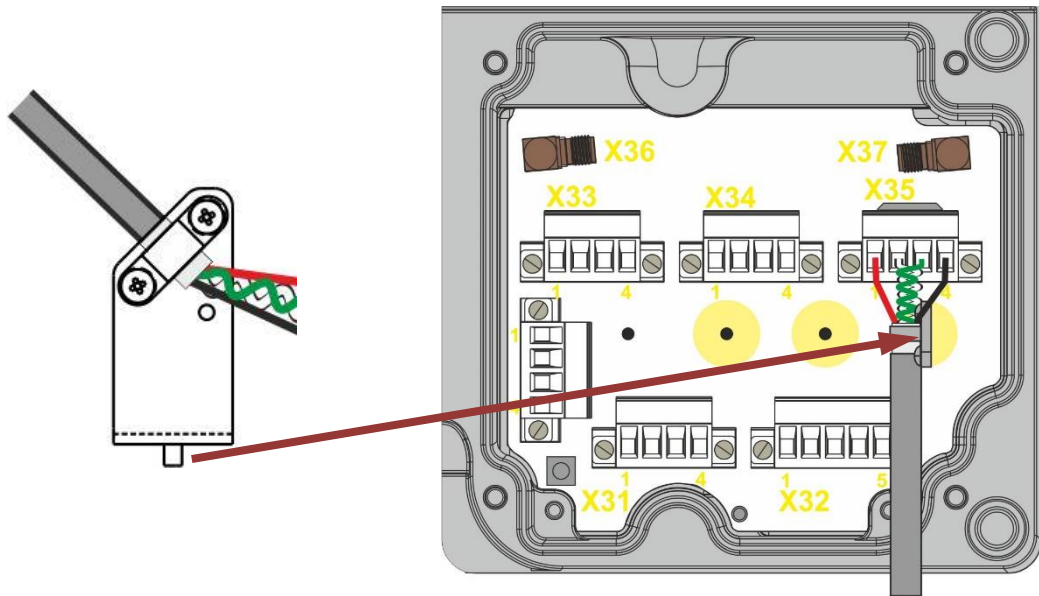
or



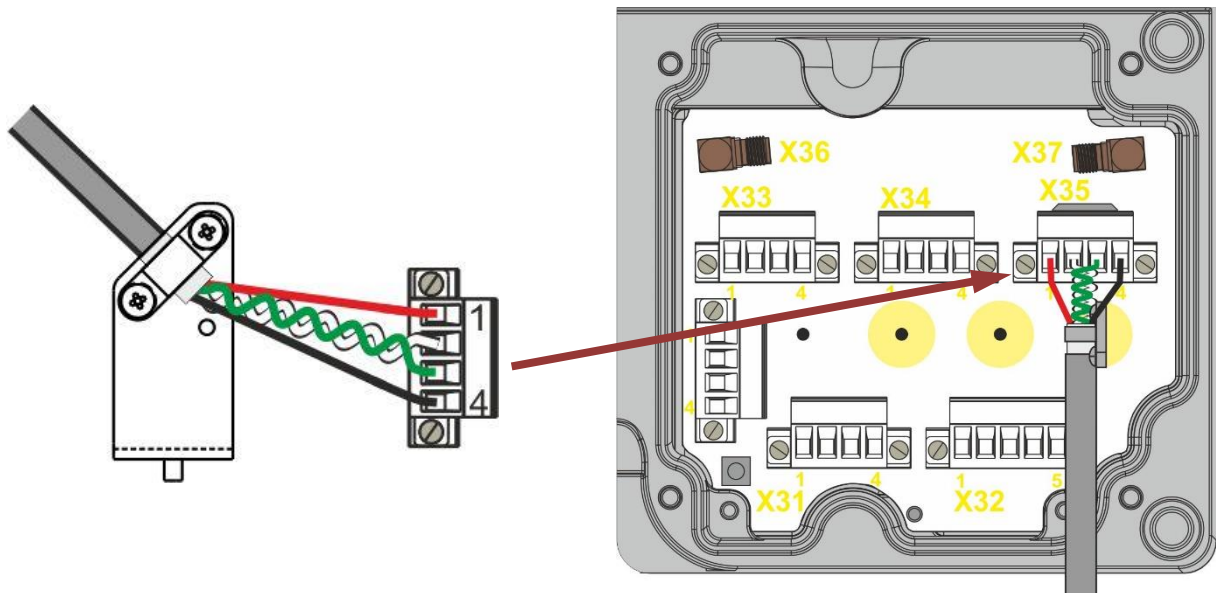
3



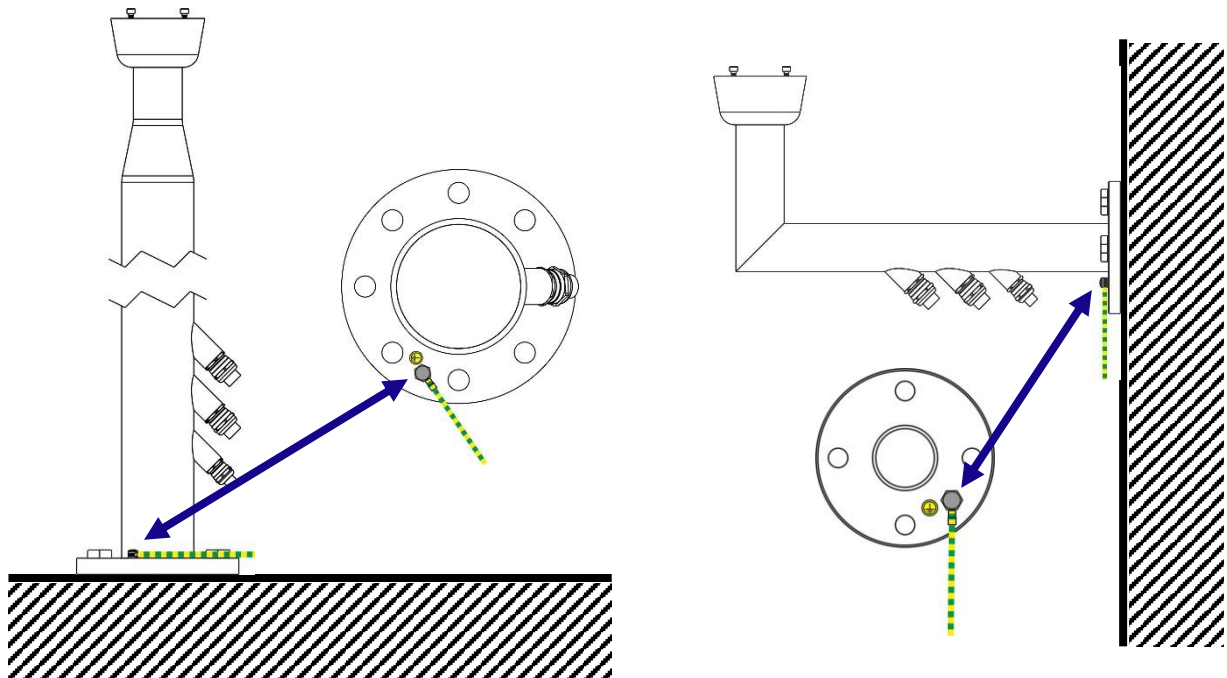
From here on, only the connection with a standard USB cable and for X35 is shown as an example; the same procedure should be followed for Profinet cables and other terminals (see table "[USB cable](#)").



4

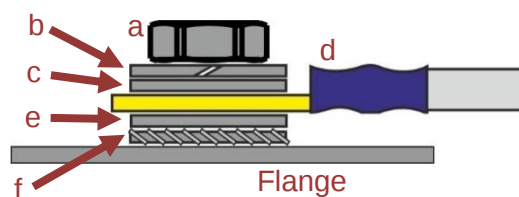


### 10.8.3 Stand and elbow earthing



#### Earthing connection

- Remove earthing material from the stand / elbow
- Earth the stand or elbow with a core cross section of at least 4 mm<sup>2</sup> or in line with applicable standards, or connect to the equipotential bonding conductor of the hazardous area
- Attach ring cable lug (d) with hexagon head screw (a), spring washer (b), washer (c), 2nd washer (e) and serrated lock washer (f)
- Note the sequence of the earthing material when fastening
- Tightening torque for hexagon head screw 3.5 to 3.7 Nm



## 11 Release notes

This chapter lists the changes made in the most recent versions of these Installation Manual.

### Version 01.01.04

- Deletion of older release notes
- Correction of Hummel number for cable glands in section "VESA 200 Standard"
- Addition of information on "cable glands" and "earthing material" for stand in section "MPFL stand"
- Addition of information on "cable glands" and "earthing material" for stand in section "MPW elbow"
- Correction of dimensions A+B max for "Mounting on stand with barcode scanner"
- Correction of dimension A max for "Mounting on elbow with barcode scanner"
- Correction of dimensions A+B max for "Wall mounting with barcode scanner"
- Correction of dimension drawings x38 and x98 "Mounting on stand - wired barcode scanner"
- Addition of explanation for "a" in the section "Symbols used in the Installation Manual"
- Addition of section "Stand and elbow earthing"
- Addition of section "USB devices – wiring"
- Formal changes





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