

**VisuNet EX2 GMP
RM/PC 3700 series
Hardware Manual**

Manual



With regard to the supply of products, the current issue of the following document is applicable:
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1 Safety

1.1 Validity

The chapter “Safety” is valid as instruction manual.

Specific processes and instructions in this instruction manual require special provisions to guarantee the safety of the operating personnel.

1.2 Symbols Used

This document contains symbols for the identification of warning messages and of informative messages.

Warning Messages

You will find warning messages, whenever dangers may arise from your actions. It is mandatory that you observe these warning messages for your personal safety and in order to avoid property damage.

Depending on the risk level, the warning messages are displayed in descending order as follows:



Danger!

This symbol indicates an imminent danger.

Non-observance will result in personal injury or death.



Warning!

This symbol indicates a possible fault or danger.

Non-observance may cause personal injury or serious property damage.



Caution!

This symbol indicates a possible fault.

Non-observance could interrupt the device and any connected systems and plants, or result in their complete failure.

Informative Symbols



Note

This symbol brings important information to your attention.



Action

1. This symbol indicates a paragraph with instructions. You are prompted to perform an action or a sequence of actions.

1.3 Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismantling lies with the plant operator.

The personnel must be appropriately trained and qualified in order to carry out mounting, installation, commissioning, operation, maintenance, and dismantling of the device. The trained and qualified personnel must have read and understood the instruction manual.

Prior to using the product make yourself familiar with it. Read the instruction manual carefully.

1.4 Reference to Further Documentation

Observe directives, standards, and national laws applicable to the intended use and the operating location. Observe Directive 1999/92/EC in relation to hazardous areas.

The corresponding datasheets, manuals, declarations of conformity, EU-type examination certificates, certificates, and control drawings if applicable (see datasheet) are an integral part of this document. You can find this information under www.pepperl-fuchs.com.

Due to constant revisions, documentation is subject to permanent change. Please refer only to the most up-to-date version, which can be found under www.pepperl-fuchs.com.

1.5 Mounting and Installation

Prior to mounting, installation, and commissioning of the device you should make yourself familiar with the device and carefully read the instruction manual.

Do not mount the device at locations where an aggressive atmosphere may be present.

Do not mount a damaged or polluted device.

1.5.1 Device-Related Information

Tighten torque and wire diameter field wiring connection X1 ... X5

| Terminal | Torque / Nm | | Wire diameter mm ² | |
|--------------------|-------------|------|-------------------------------|------|
| | Min. | Max. | Min. | Max. |
| Terminal X1 | 0,5 | 0,6 | 0,2 | 2,5 |
| Terminal X2 ... X5 | 0,22 | 0,25 | 0,14 | 1,5 |

If cable glands are needed for installation, the following points must be considered:

- The cable glands used must be suitably certified for the application.
- The temperature range of the cable glands must be chosen according to the application.
- The cable glands fitted must not reduce the degree of protection.

The cables and connection lines must not be strained. Provide an adequate strain relief.

Unused cables and connection lines must be either connected to terminals or securely tied down and isolated.

1.5.2 Hazardous Area

If the device has already been operated in general electrical installations, the device may subsequently no longer be installed in electrical installations used in combination with hazardous areas.

Observe the installation instructions according to IEC/EN 60079-14.

The housing has a ground connection. Connect to this ground connection an equipotential bonding conductor with a minimum cross section of 4 mm².

1.5.2.1 Type of Protection

1.5.2.2 Type of Protection Ex i

If circuits with type of protection Ex i are operated with non-intrinsically safe circuits, they must no longer be used as circuits with type of protection Ex i.

1.6 Use

1.6.1 Intended Use

The device is only approved for appropriate and intended use. Ignoring these instructions will void any warranty and absolve the manufacturer from any liability.

The device must only be operated in the specified ambient temperature range and at the specified relative humidity without condensation.

When using stranded conductors, crimp wire end ferrules on the conductor ends.

1.6.2 Improper Use

Protection of the personnel and the plant is not ensured if the device is not used according to its intended use.

1.7 Technical data VisuNet EX2 GMP

Technical Data VisuNet EX2 GMP PC/RM 3719-*

| Version VisuNet EX2 GMP | Interface type existent |
|--|-------------------------|
| PC/RM3719-**-**_****_*****-S0 | X1 - X5 |
| PC/RM3719-**-**_****_*****-S3 PC/RM3719-**-**_****_*****-A3 | X1 - X6 |

VisuNet EX2 GMP PC/RM 3719-*

| Supply | |
|--|---|
| Input voltage range | 20 ... 30 V DC (SELV) |
| Power consumption | max. 70 W |
| Interface | |
| Interface type | 1 x Ethernet (Ex nA) , 3 x USB (Ex ic) , 1 x RS 232 (Ex nA) , 1 x USB (Ex nA), 1 x TTY optional |
| Directive conformity | |
| Electromagnetic compatibility | |
| 2014/30/EU | EN 61326-1:2013 |
| Explosion protection | |
| Directive 2014/34/EU | EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2009 |
| Ambient conditions | |
| Ambient temperature | 0 ... 50 °C (32 ... 122 °F) |
| Mechanical specifications | |
| Degree of protection | IP66 |
| Data for application in connection with Ex-areas | |
| Group, category, type of protection | ⊕ II 3G Ex nA nR [ic] IIC T4 Gc ⊕ II 3D Ex tc [ic] IIIB T85°C Dc IP54 |
| Certificate of conformity | PF 12 CERT 2301 X |
| Power supply | |
| Rated voltage | 20-30 VDC (SELV) |
| Connection | X1: 1 ... 4 |
| Rated current | < 2.5 A |
| Maximum safe voltage U_m | 60 V |
| Interface type 1 | |
| Ethernet (Ex nA) | |
| Connection | X2: 1 ... 8 |
| Rated voltage | 30 V |
| Rated current | 400 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 2 | |
| Serial interface RS 232 (Ex nA) | |
| Connection | X3: 1 ... 4 |

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| | |
|-------------------------------------|---|
| Rated voltage | ± 15 V |
| Rated current | 200 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 3 | USB (Ex nA) |
| Connection | X3: 5 ... 8 |
| Rated voltage | 5 V |
| Rated current | < 500 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 4 | USB (Ex ic) |
| Connection | X4: 1 ... 4 X4: 5 ... 8 |
| Voltage U_o | 4.95 V |
| Current I_o | 234 mA |
| Power P_o | 570 mW |
| Characteristic curve | trapezoid |
| Internal resistor | 41.6 Ω |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ |
| Interface type 5 | USB (Ex ic) |
| Connection | X5: 1 ... 4 |
| Voltage U_o | 4.95 V |
| Current I_o | 472 mA |
| Power P_o | 1582 mW |
| Characteristic curve | trapezoid |
| Internal resistor | 33.2 Ω |
| Lumped capacitances AND inductances | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ |
| Interface type 6 | TTY (Ex ib) |
| Connection | X5: 5 ... 8 |
| Voltage U_o | 9 V |
| Current I_o | 150 mA |
| Power P_o | 1.4 W |
| Characteristic curve | rectangular |
| Lumped capacitances OR inductances | $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ |

Technical Data VisuNet EX2 GMP PC/RM 3721-*

| Version VisuNet EX2 GMP | Interface type existent |
|--|-------------------------|
| PC/RM3721-*.**-****-*****-S0 | X1 - X5 |
| PC/RM3721-*.**-****-*****-S3 PC/RM3721-*.**-****-*****-A3 | X1 - X6 |

VisuNet EX2 GMP PC/RM 3721-*

| Supply | |
|--|---|
| Input voltage range | 20 ... 30 V DC (SELV) |
| Power consumption | max. 70 W |
| Interface | |
| Interface type | 1 x Ethernet (Ex nA) , 3 x USB (Ex ic) , 1 x RS 232 (Ex nA) , 1 x USB (Ex nA), 1 x TTY optional |
| Directive conformity | |
| Electromagnetic compatibility | |
| Directive 2004/108/EC | EN 61326-1:2013 |
| Explosion protection | |
| Directive 2014/34/EU | EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2009 |
| Ambient conditions | |
| Ambient temperature | 0 ... 50 °C (32 ... 122 °F) |
| Mechanical specifications | |
| Degree of protection | IP66 |
| Data for application in connection with Ex-areas | |
| Group, category, type of protection | ⊕ Ex II 3G Ex nA nR nC [ic] IIC T4 Gc ⊕ Ex II 3D Ex tc [ic] IIIB T85°C Dc |
| Certificate of conformity | PF 12 CERT 2301 X |
| Power supply | |
| Rated voltage | 20-30 VDC (SELV) |
| Connection | X1: 1 ... 4 |
| Rated current | < 2.5 A |
| Maximum safe voltage U_m | 60 V |
| Interface type 1 | |
| Ethernet (Ex nA) | |
| Connection | X2: 1 ... 8 |
| Rated voltage | 30 V |
| Rated current | 400 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 2 | |
| Serial interface RS 232 (Ex nA) | |
| Connection | X3: 1 ... 4 |
| Rated voltage | ±15 V |

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| | |
|-------------------------------------|---|
| Rated current | 200 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 3 | USB (Ex nA) |
| Connection | X3: 5 ... 8 |
| Rated voltage | 5 V |
| Rated current | < 500 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 4 | USB (Ex ic) |
| Connection | X4: 1 ... 4 X4: 5 ... 8 |
| Voltage U_o | 4.95 V |
| Current I_o | 234 mA |
| Power P_o | 570 mW |
| Characteristic curve | trapezoid |
| Internal resistor | 41.6 Ω |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ |
| Interface type 5 | USB (Ex ic) |
| Connection | X5: 1 ... 4 |
| Voltage U_o | 4.95 V |
| Current I_o | 472 mA |
| Power P_o | 1582 mW |
| Characteristic curve | trapezoid |
| Internal resistor | 33.2 Ω |
| Lumped capacitances AND inductances | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ |
| Interface type 6 | TTY (Ex ib) |
| Connection | X5: 5 ... 8 |
| Voltage U_o | 9 V |
| Current I_o | 150 mA |
| Power P_o | 1.4 W |
| Characteristic curve | rectangular |
| Lumped capacitances OR inductances | $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ |

Technical data VisuNet EX2 GMP PC/RM 3722-*

| Version VisuNet EX2 GMP | Interface type existent |
|--|-------------------------|
| PC/RM3722-*-A1-****-*****-S0 | X1 - X5 |
| PC/RM3722-*-A1-****-*****-S3 PC/RM3722-*-A1-****-*****-A3 | X1 - X6 |

VisuNet EX2 GMP PC/RM 3722-*

| Supply | |
|--|---|
| Input voltage range | 20 ... 30 V DC (SELV) |
| Power consumption | max. 100 W |
| Interface | |
| Interface type | 1 x Ethernet (Ex nA) , 3 x USB (Ex ic) , 1 x RS 232 (Ex nA) , 1 x USB (Ex nA), 1 x TTY optional |
| Directive conformity | |
| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 |
| Explosion protection | |
| Directive 2014/34/EU | EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2009 |
| Ambient conditions | |
| Ambient temperature | 0 to +45°C (0 - 113°F) |
| Mechanical specifications | |
| Degree of protection | IP66 |
| Data for application in connection with Ex-areas | |
| Group, category, type of protection | ⊕ II 3G Ex nA nR [ic] IIC T4 Gc ⊕ II 3D Ex tc [ic] IIC T85°C Dc IP64 |
| Certificate of conformity | PF 12 CERT 2301 X |
| Power supply | |
| Connection | X1: 1 ... 4 |
| Rated voltage | 20 to 30 VDC (SELV) |
| Rated current | < 3.8 A |
| Maximum safe voltage U_m | 60 V |
| Interface type 1 | |
| Connection | X2: 1 ... 8 |
| Rated voltage | 30 V |
| Rated current | 400 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 2 | |
| Connection | X3: 1 ... 4 |
| Rated voltage | ±15 V |

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| | |
|-------------------------------------|---|
| Rated current | 200 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 3 | USB (Ex nA) |
| Connection | X3: 5 ... 8 |
| Rated voltage | 5 V |
| Rated current | < 500 mA |
| Maximum safe voltage U_m | 60 V |
| Interface type 4 | USB (Ex ic) |
| Connection | X4: 1 ... 4 X4: 5 ... 8 |
| Voltage U_o | 4.95 V |
| Current I_o | 234 mA |
| Power P_o | 570 mW |
| Characteristic curve | trapezoid |
| Internal resistor | 41.6 Ω |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ |
| Interface type 5 | USB (Ex ic) |
| Connection | X5: 1 ... 4 |
| Voltage U_o | 4.95 V |
| Current I_o | 472 mA |
| Power P_o | 1582 mW |
| Characteristic curve | trapezoid |
| Internal resistor | 33.2 Ω |
| Lumped capacitances AND inductances | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ |
| Interface type 6 | TTY (Ex ib) |
| Connection | X5: 5 ... 8 |
| Voltage U_o | 9 V |
| Current I_o | 150 mA |
| Power P_o | 1.4 W |
| Characteristic curve | rectangular |
| Lumped capacitances OR inductances | $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ |



1.8 Technical data keyboard EXTA3

Technical data keyboard EXTA3



| Data for application in connection with Ex-areas | |
|--|--|
| Voltage U_i | 5.4 V |
| Current I_i | 240 mA |
| Power P_i | 600 mW |
| Internal capacitance C_i | 25 μ F |
| Internal inductance L_i | negligible |
| Ambient conditions | |
| Ambient temperature | -20 ... 50 °C (-4 ... 122 °F) EXTA3-K3: 0 ... 50 °C (32 ... 122 °F) |

1.9 Labelling VisuNet EX2 GMP PC/RM37**

VisuNet EX2 GMP PC/RM 3719-*-A1*



| VisuNet EX2 GMP PC/RM3719-*-A1* | |
|---|-------------------------------------|
| Pepperl+Fuchs GmbH | |
| 68307 Mannheim, Germany | |
| PF 12 CERT 2301 X | |
|  | II 3G Ex nAnR [ic] IIC T4 Gc |
|  | II 3D Ex tc [ic] IIIB T85°C Dc IP54 |
| Ambient temperature: 0 °C ... +50 °C | |

VisuNet EX2 GMP PC/RM 3721-*-A1*

| VisuNet EX2 GMP PC/RM3721-*-A1* | |
|---|----------------------------------|
| Pepperl+Fuchs GmbH | |
| 68307 Mannheim, Germany | |
| PF 12 CERT 2301 X | |
|  | II 3G Ex nA nR nC [ic] IIC T4 Gc |
|  | II 3D Ex tc [ic] IIIB T85°C Dc |
| Ambient temperature: 0 °C ... +50 °C | |



VisuNet EX2 GMP PC/RM 3722-*-A1*

| VisuNet EX2 GMP PC/RM 3722-*-A1* | |
|-------------------------------------|--|
| Pepperl+Fuchs GmbH | |
| 68307 Mannheim, Germany | |
| PF 12 CERT 2301 X | |

| | |
|---|--------------------------------|
| VisuNet EX2 GMP PC/RM 3722-*A1* | |
|  | II 3G Ex nAnR [ic] IIC T4 Gc |
|  | II 3D Ex tc [ic] IIIC T85°C Dc |
| Ambient temperature: 0 °C ... +45 °C | |

1.10 Labelling keyboard EXTA3-*

Keyboard EXTA3-*

| | |
|---|----------------------------|
| EXTA3-* | |
| Pepperl+Fuchs GmbH | |
| 68307 Mannheim, Germany | |
| PF 11 CERT 1918 X | |
|  | II 3G Ex ic IIC T4 Gc |
|  | II 3D Ex ic IIIB T135°C Dc |
| File E190294 | |
| cULus Class I/Div 2 ABCD T5 | |
| cURus Class II/Div 2 FG T5 (panel mount only) | |
| Ambient temperature: -20 °C ... +50 °C | |
| EXTA3-K3, EXTA3-K8: 0 ... 50 °C (32 ... 122 °F) | |

1.11 Applied standards and guidelines

Applied standards and guidelines VisuNet EX2 GMP PC/RM

VisuNet EX2 GMP RM/PC operator workstations

| Directive conformity | |
|-------------------------------|--|
| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 |
| Explosion Protection | |
| Directive 2014/34/EU | EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2009 |

Applied Standards and Guidelines EXTA3-*

| Directive conformity | |
|-------------------------------|--|
| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 |
| Explosion Protection | |
| Directive 2014/34/EU | EN 60079-0:2012+A11:2013, EN 60079-11:2012 |
| UL | ANSI/ISA-12.12.01-2010 CSA 22.2 No. 213-M1987 |

1.12 Housings and Surrounding Enclosures

1.12.1 Degree of Protection

To ensure the degree of protection:

- The housing must not be damaged, distorted or corroded.
- All seals must be undamaged and correctly fitted.
- All screws of the housing/housing cover must be tightened with the appropriate torque.
- All cable glands must be suitably sized for the incoming cable diameters.
- All cable glands must be tightened with the appropriate torque.
- All unused cable glands must be sealed and closed with appropriate sealing plugs or stopping plugs.

1.13 Operation, Maintenance, Repair

1.13.1



Caution!

Maintenance and repairs are only allowed to be performed at the manufacturer location.

There are no means provided to perform routine field maintenance on this device, therefore there is no requirement to perform periodic pressure tests as stated in IEC 60079-17. The standard only calls for routine pressure test measurements, if provisions are provided that allow the Ex nR compartment to be opened. As periodic pressure tests are not required in the field, there are no test ports provided to conduct these tests as stated in IEC 60079-15. The Ex nR compartment only consists of the inside of the main enclosure. This does not include rear I/O panel, as this compartment is intended for field wiring termination, and is protected as Ex nA and Ex ic.

Do not repair, modify, or manipulate the device.

If there is a defect, always send back the device to Pepperl+Fuchs.

1.13.2 Hazardous Area

Dust Zone 22, Class II/Div 2

The housing must not be opened when the device is connected to the supply voltage if there is a risk of dust explosion. All dust deposits must be removed before the housing is opened.

1.14 Delivery, Transport, Disposal

Check the packaging and contents for damage.

Check if you have received every item and if the items received are the ones you ordered.

Keep the original packaging. Always store and transport the device in the original packaging.

Always store and transport the device in the original packaging.

Store the device in such a way that it is protected from ultraviolet radiation.

Store the device in a way that the device is protected against mechanical hazard.

Store the device in a clean and dry environment. The permitted ambient conditions must be considered, see datasheet.

The device contains mercury.

The device, built-in components, packaging, and any batteries contained within must be disposed in compliance with the applicable laws and guidelines of the respective country.

2 Product Specifications

2.1 Overview

GMP (“Good Manufacturing Practice”) is a set of guidelines for assuring the quality of production processes in controlled industries and closely follow the guidelines issued by the European Commission or the FDA in the US. GMP applications are typically used in the pharmaceutical and food industries. However, products that conform with GMP guidelines are also required for the manufacture of cosmetics, flavour and nutrition.

The materials selected, design of the surfaces and architecture of the overall system should prevent the accumulation of fluids and dirt. Cleaning, maintenance, inspection and servicing must be as safe and easy as the processes employed for the disinfection of mechanical components.

The VisuNet GMP product portfolio extends from simple direct monitors and remote monitor systems with Ethernet connection to a host, to complete PCs available with single or dual monitor systems and various mounting options. Models with 19", 21,5" (FHD) or 22" display (with optional touch screen) are available. The stainless steel housings have an IP66 degree of protection. Remote monitors and PCs are equipped with Ethernet, USB and RS232 interfaces, optional with TTY interface.



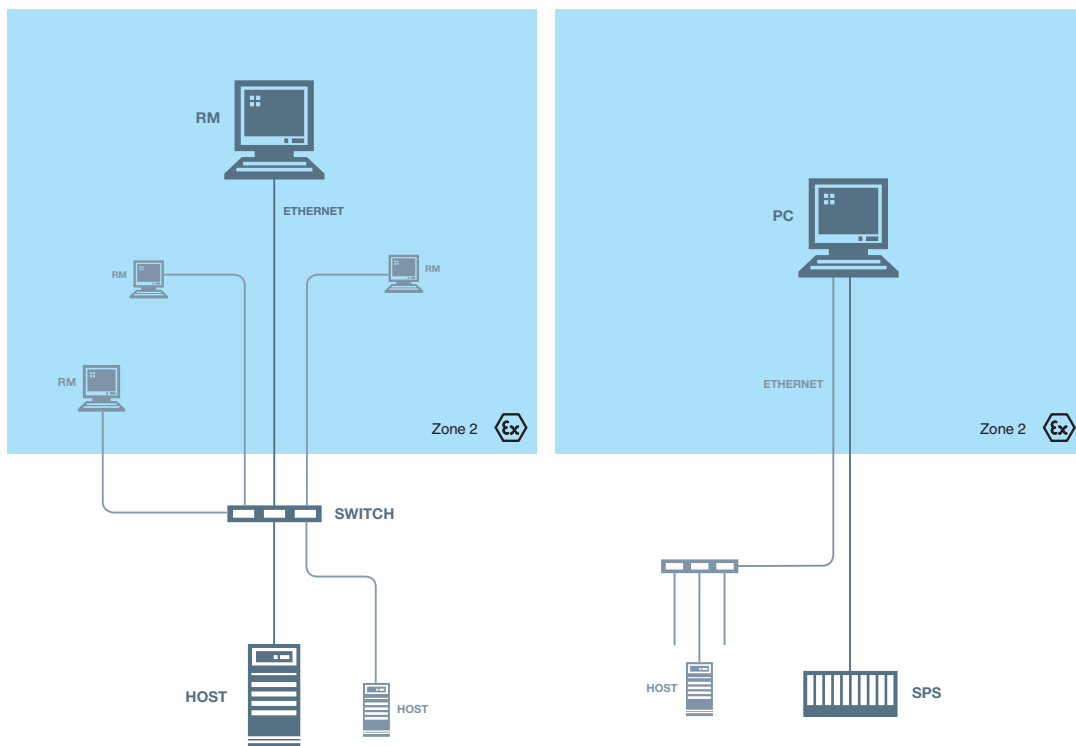
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Figure 2.1 VisuNet EX2 GMP

The VisuNet GMP product family guarantees a perfect fit for every system infrastructure. Four models are available depending on the functions required, the display and input unit and the distance over which the data is transferred. This manual describes the following two models:

The remote monitor automatically connects to the host using RDP, or VNC, enabling via the network. The following drawing shows a typical system topology:

The complete panel PC system has many standard interfaces (network, USB, serial). The operating system used is Windows 7 Ultimate FES or Windows 10 IoT Enterprise LTSC (x 64). Customers can, therefore, install software packages for control, visualization and production. The system operates independently of any external computing power. The following drawing shows a typical system topology:



Overview of features





- The brilliant display provides high meter-reading comfort
- Easy, user-friendly handling due to optionally available touch screen
- Image position, pixel frequency and phase will be detected and synchronized automatically
- Access to all server based applications
- Numerous external interfaces
- Rugged stainless steel housing (stainless steel 1.4301 / AISI 304 - others on demand)
- Degree of protection IP66
- High-end finish of all surfaces

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2.2 Technical Data VisuNet EX2 GMP PC/RM3719

| | VisuNet EX2 GMP PC3719 | VisuNet EX2 GMP RM3719 |
|--------------------------------------|--|--|
| General specifications | | |
| Type | Panel PC | Remote Monitor |
| Hardware | | |
| Processor | 1.46 GHz Intel® Atom™ E3826 | Thin Client - 1.46 GHz Intel® Atom™ E3826 |
| RAM | Up to 8 GB RAM | 4 GB RAM |
| Mass storage | 120 GByte Solid State Drive | compact flash: 32 GB CFAST |
| Supply | | |
| Rated voltage | 24 V DC | 24 V DC |
| Input voltage range | 20 ... 30 V DC (SELV) | 20 ... 30 V DC (SELV) |
| Power consumption | max. 60 W | max. 60 W |
| Indicators/operating means | | |
| Display | | |
| Type | TFT, LCD | TFT, LCD |
| Screen diagonal | 48.3 cm (19 inch) | 48.3 cm (19 inch) |
| Resolution | 1280 x 1024 Pixel | 1280 x 1024 Pixel |
| Color depth | 16.7 Mio. (24 bit, true color) | 16.7 Mio. (24 bit, true color) |
| Brightness | 300 cd/m ² | 300 cd/m ² |
| Life span | 50.000 h @ 25 °C | 50.000 h @ 25 °C |
| Input devices | Analog resistive touchscreen (optional), Keyboard with integrated mouse functionality: touch-pad/joystick versions available | Analog resistive touchscreen (optional), Keyboard with integrated mouse functionality: touch-pad/joystick versions available |
| Interface | | |
| Interface type | 1 x Ethernet (Ex ec), 3 x USB (Ex ic), 1 x RS 232 (Ex ec), 1 x USB (Ex ec), 1 x TTY optional | 1 x Ethernet (Ex ec), 3 x USB (Ex ic), 1 x RS 232 (Ex ec), 1 x USB (Ex ec), 1 x TTY optional |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2014/34/EU | EN 61326-1:2013 | EN 61326-1:2013 |
| Software | | |
| Operating system | Windows 7® Ultimate (32-bit or 64-bit) or Windows® 10 IoT Enterprise 2016 LTSC (x 64) | Windows® 7 Embedded Standard (VisuNet RM Shell 4) or Windows® 10 IoT (VisuNet RM Shell 5) |
| Ambient conditions | | |
| Ambient temperature | 0 ... 50 °C (32 ... 122 °F) | 0 ... 50 °C (32 ... 122 °F) |
| Relative humidity | max. 85 % non-condensing | max. 85 % non-condensing |
| Mechanical specifications | | |
| Degree of protection | IP66 | IP66 |
| Material | | |

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| | VisuNet EX2 GMP PC3719 | VisuNet EX2 GMP RM3719 |
|--|---|---|
| Surface | stainless steel 1.4301 / AISI 304 | stainless steel 1.4301 / AISI 304 |
| Surface quality | $R_a \leq 0.8 \mu\text{m}$ | $R_a \leq 0.8 \mu\text{m}$ |
| Mounting type | slim line housing several mounting options (pedestal turnable) | slim line housing several mounting options (pedestal turnable) |
| Mass | approx. 13 kg | approx. 13 kg |
| Dimensions | 568 mm x 450 mm x 73 mm | 568 mm x 450 mm x 73 mm |
| Data for application in connection with hazardous areas | | |
| Marking |  II 3G Ex ic ec [ic] IIC T4 Gc  II 3D Ex ic tc [ic] IIC T85°C Dc |  II 3G Ex ic ec [ic] IIC T4 Gc  II 3D Ex ic tc [ic] IIC T85°C Dc |
| Konformitätserklärung | PF 16 CERT B0F0X | PF 16 CERT B0F0X |
| Power supply | | |
| Connection | X1: 1 ... 4 | X1: 1 ... 4 |
| Rated voltage | 24 V DC | 24 V DC |
| Rated current | < 2.5 A | < 2.5 A |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 1 | Ethernet (Ex ec) | Ethernet (Ex ec) |
| Connection | X2: 1 ... 8 | X2: 1 ... 8 |
| Rated voltage | 30 V | 30 V |
| Rated current | 400 mA | 400 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 2 | Serial interface RS-232 (Ex ec) | Serial interface RS 232 (Ex ec) |
| Connection | X3: 1 ... 4 | X3: 1 ... 4 |
| Rated voltage | ± 15 V | ± 15 V |
| Rated current | 200 mA | 200 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 3 | USB (Ex ec) | USB (Ex ec) |
| Connection | X3: 5 ... 8 | X3: 5 ... 8 |
| Rated voltage | 5 V | 5 V |
| Rated current | < 500 mA | < 500 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 4 | USB (Ex ic) | USB (Ex ic) |
| Connection | X4: 1 ... 4 X4: 5 ... 8 | X4: 1 ... 4 X4: 5 ... 8 |
| Voltage U_o | 4.95 V | 4.95 V |
| Current I_o | 234 mA | 234 mA |
| Power P_o | 570 mW | 570 mW |
| Characteristic curve | trapezoid | trapezoid |
| Internal resistor | 41.6 Ω | 41.6 Ω |

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| | VisuNet EX2 GMP PC3719 | VisuNet EX2 GMP RM3719 |
|-------------------------------------|--|--|
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ |
| Interface type 5 | USB (Ex ic) | USB (Ex ic) |
| Connection | X5: 1 ... 4 | X5: 1 ... 4 |
| Voltage U_o | 4.95 V | 4.95 V |
| Current I_o | 472 mA | 472 mA |
| Power P_o | 1582 mW | 1582 mW |
| Characteristic curve | trapezoid | trapezoid |
| Internal resistor | 33.2 Ω | 33.2 Ω |
| Lumped capacitances AND inductances | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ |
| Interface type 6 | TTY (Ex ic) | TTY (Ex ic) |
| Connection | X5: 5 ... 8 | X5: 5 ... 8 |
| Voltage U_o | 9 V | 9 V |
| Current I_o | 150 mA | 150 mA |
| Power P_o | 1.4 W | 1.4 W |
| Characteristic curve | rectangular | rectangular |
| Lumped capacitances OR inductances | For gas group IIC: $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ For gas group IIB: $C_o = 42 \mu\text{F}$ $L_o = 10 \text{ mH}$ | For gas group IIC: $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ For gas group IIB: $C_o = 42 \mu\text{F}$ $L_o = 10 \text{ mH}$ |

2.3 Technical Data VisuNet EX2 GMP PC/RM3721

| | VisuNet EX2 GMP PC3721 | VisuNet EX2 GMP RM3721 |
|--------------------------------------|--|--|
| General specifications | | |
| Type | Panel PC | Remote Monitor |
| Hardware | | |
| Processor | 1.46 GHz Intel® Atom™ E3826 | Thin Client - 1.46 GHz Intel® Atom™ E3826 |
| RAM | Up to 8 GB RAM | 4 GB RAM |
| Mass storage | 120 GByte Solid State Drive | compact flash: 32 GB CFAST |
| Supply | | |
| Rated voltage | 24 V DC | 24 V DC |
| Input voltage range | 20 ... 30 V DC (SELV) | 20 ... 30 V DC (SELV) |
| Power consumption | max. 60 W | max. 60 W |
| Indicators/operating means | | |
| Display | | |
| Type | TFT, LCD | TFT, LCD |
| Screen diagonal | 48.3 cm (19 inch) | 48.3 cm (19 inch) |
| Resolution | 1280 x 1024 Pixel | 1280 x 1024 Pixel |
| Color depth | 16.7 Mio. (24 bit, true color) | 16.7 Mio. (24 bit, true color) |
| Brightness | 300 cd/m ² | 300 cd/m ² |
| Life span | 50.000 h @ 25 °C | 50.000 h @ 25 °C |
| Input devices | Analog resistive touchscreen (optional), Keyboard with integrated mouse functionality: touch-pad/joystick versions available | Analog resistive touchscreen (optional), Keyboard with integrated mouse functionality: touch-pad/joystick versions available |
| Interface | | |
| Interface type | 1 x Ethernet (Ex ec), 3 x USB (Ex ic), 1 x RS 232 (Ex ec), 1 x USB (Ex ec), 1 x TTY optional | 1 x Ethernet (Ex ec), 3 x USB (Ex ic), 1 x RS 232 (Ex ec), 1 x USB (Ex ec), 1 x TTY optional |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2014/34/EU | EN 61326-1:2013 | EN 61326-1:2013 |
| Software | | |
| Operating system | Windows 7® Ultimate (32-bit or 64-bit) or Windows® 10 IoT Enterprise 2016 LTSC (x 64) | Windows® 7 Embedded Standard (VisuNet RM Shell 4) or Windows® 10 IoT (VisuNet RM Shell 5) |
| Ambient conditions | | |
| Ambient temperature | 0 ... 50 °C (32 ... 122 °F) | 0 ... 50 °C (32 ... 122 °F) |
| Relative humidity | max. 85 % non-condensing | max. 85 % non-condensing |
| Mechanical specifications | | |
| Degree of protection | IP66 | IP66 |
| Material | | |

| | VisuNet EX2 GMP PC3721 | VisuNet EX2 GMP RM3721 |
|--|---|---|
| Surface | stainless steel 1.4301 / AISI 304 | stainless steel 1.4301 / AISI 304 |
| Surface quality | $R_a \leq 0.8 \mu\text{m}$ | $R_a \leq 0.8 \mu\text{m}$ |
| Mounting type | slim line housing several mounting options (pedestal turnable) | slim line housing several mounting options (pedestal turnable) |
| Mass | approx. 13 kg | approx. 13 kg |
| Dimensions | 625 mm x 450 mm x 73 mm | 625 mm x 450 mm x 73 mm |
| Data for application in connection with hazardous areas | | |
| Marking | ⓧ II 3G Ex ic ec [ic] IIC T4 Gc ⓧ II 3D Ex ic tc [ic] IIC T85°C Dc | ⓧ II 3G Ex ic ec [ic] IIC T4 Gc ⓧ II 3D Ex ic tc [ic] IIC T85°C Dc |
| Certificate of conformity | PF 16 CERT B0F0X | PF 16 CERT B0F0X |
| Power supply | | |
| Connection | X1: 1 ... 4 | X1: 1 ... 4 |
| Rated voltage | 24 V DC | 24 V DC |
| Rated current | < 2.5 A | < 2.5 A |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 1 | Ethernet (Ex ec) | Ethernet (Ex ec) |
| Connection | X2: 1 ... 8 | X2: 1 ... 8 |
| Rated voltage | 30 V | 30 V |
| Rated current | 400 mA | 400 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 2 | Serial interface RS-232 (Ex ec) | Serial interface RS 232 (Ex ec) |
| Connection | X3: 1 ... 4 | X3: 1 ... 4 |
| Rated voltage | ± 15 V | ± 15 V |
| Rated current | 200 mA | 200 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 3 | USB (Ex ec) | USB (Ex ec) |
| Connection | X3: 5 ... 8 | X3: 5 ... 8 |
| Rated voltage | 5 V | 5 V |
| Rated current | < 500 mA | < 500 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 4 | USB (Ex ic) | USB (Ex ic) |
| Connection | X4: 1 ... 4 X4: 5 ... 8 | X4: 1 ... 4 X4: 5 ... 8 |
| Voltage U_o | 4.95 V | 4.95 V |
| Current I_o | 234 mA | 234 mA |
| Power P_o | 570 mW | 570 mW |
| Characteristic curve | trapezoid | trapezoid |
| Internal resistor | 41.6 Ω | 41.6 Ω |





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| | VisuNet EX2 GMP PC3721 | VisuNet EX2 GMP RM3721 |
|-------------------------------------|--|--|
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ |
| Interface type 5 | USB (Ex ic) | USB (Ex ic) |
| Connection | X5: 1 ... 4 | X5: 1 ... 4 |
| Voltage U_o | 4.95 V | 4.95 V |
| Current I_o | 472 mA | 472 mA |
| Power P_o | 1582 mW | 1582 mW |
| Characteristic curve | trapezoid | trapezoid |
| Internal resistor | 33.2 Ω | 33.2 Ω |
| Lumped capacitances AND inductances | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ |
| Interface type 6 | TTY (Ex ic) | TTY (Ex ic) |
| Connection | X5: 5 ... 8 | X5: 5 ... 8 |
| Voltage U_o | 9 V | 9 V |
| Current I_o | 150 mA | 150 mA |
| Power P_o | 1.4 W | 1.4 W |
| Characteristic curve | rectangular | rectangular |
| Lumped capacitances OR inductances | For gas group IIC: $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ For gas group IIB: $C_o = 42 \mu\text{F}$ $L_o = 10 \text{ mH}$ | For gas group IIC: $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ For gas group IIB: $C_o = 42 \mu\text{F}$ $L_o = 10 \text{ mH}$ |

2.4 Technical Data VisuNet EX2 GMP PC/RM3722

| | VisuNet EX2 GMP PC3722 | VisuNet EX2 GMP RM3722 |
|-----------------------------------|--|--|
| General specifications | | |
| Type | Panel PC | Remote Monitor |
| Hardware | | |
| Processor | 1.46 GHz Intel® Atom™ E3826 | Thin Client - 1.46 GHz Intel® Atom™ E3826 |
| RAM | Up to 8 GB RAM | 4 GB RAM |
| Mass storage | 120 GByte Solid State Drive | compact flash: 32 GB CFAST |
| Supply | | |
| Rated voltage | 24 V DC | 24 V DC |
| Input voltage range | 20 ... 30 V DC (SELV) | 20 ... 30 V DC (SELV) |
| Power consumption | max. 60 W | max. 60 W |
| Indicators/operating means | | |
| Display | | |
| Type | TFT, LCD | TFT, LCD |
| Screen diagonal | 55.9 cm (22 inch) | 55.9 cm (22 inch) |
| Resolution | 1680 x 1050 pixel | 1680 x 1050 pixel |
| Color depth | 16.7 Mio. (24 bit, true color) | 16.7 Mio. (24 bit, true color) |
| Contrast | 1000:1 | 1000:1 |
| Brightness | 300 cd/m ² | 300 cd/m ² |
| Life span | 50.000 h @ 25 °C | 50.000 h @ 25 °C |
| Input devices | Analog resistive touchscreen (optional), Keyboard with integrated mouse functionality: touch-pad/joystick versions available | Analog resistive touchscreen (optional), Keyboard with integrated mouse functionality: touch-pad/joystick versions available |
| Interface | | |
| Interface type | 1 x Ethernet (Ex ec), 3 x USB (Ex ic), 1 x RS 232 (Ex ec), 1 x USB (Ex ec), 1 x TTY optional | 1 x Ethernet (Ex ec), 3 x USB (Ex ic), 1 x RS 232 (Ex ec), 1 x USB (Ex ec), 1 x TTY optional |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2014/30/EU | EN 61326-1:2013 | EN 61326-1:2013 |
| Software | | |
| Operating system | Windows 7® Ultimate (32-bit or 64-bit) or Windows® 10 IoT Enterprise 2016 LTSC (x 64) | Windows® 7 Embedded Standard (VisuNet RM Shell 4) or Windows® 10 IoT (VisuNet RM Shell 5) |
| Ambient conditions | | |
| Ambient temperature | 0 ... 45 °C (32 ... 113 °F) | 0 ... 45 °C (32 ... 113 °F) |
| Relative humidity | max. 85 % non-condensing | max. 85 % non-condensing |
| Mechanical specifications | | |
| Degree of protection | IP66 | IP66 |

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| | VisuNet EX2 GMP PC3722 | VisuNet EX2 GMP RM3722 |
|--|---|---|
| Material | | |
| Surface | stainless steel 1.4301 / AISI 304 | stainless steel 1.4301 / AISI 304 |
| Surface quality | $R_a \leq 0.8 \mu\text{m}$ | $R_a \leq 0.8 \mu\text{m}$ |
| Mounting type | slim line housing several mounting options (pedestal turnable) | slim line housing several mounting options (pedestal turnable) |
| Mass | approx. 13 kg | approx. 13 kg |
| Dimensions | 625 mm x 450 mm x 73 mm | 625 mm x 450 mm x 73 mm |
| Data for application in connection with hazardous areas | | |
| Marking |  II 3G Ex ic ec [ic] IIC T4 Gc  II 3D Ex ic tc [ic] IIC T85°C Dc |  II 3G Ex ic ec [ic] IIC T4 Gc  II 3D Ex ic tc [ic] IIC T85°C Dc |
| Certificate | PF 16 CERT B0F0X | PF 16 CERT B0F0X |
| Power supply | | |
| Rated voltage | 24 V DC | 24 V DC |
| Rated current | < 3.8 A | < 3.8 A |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 1 | | |
| Connection | Ethernet (Ex ec) | Ethernet (Ex ec) |
| Connection | X2: 1 ... 8 | X2: 1 ... 8 |
| Rated voltage | 30 V | 30 V |
| Rated current | 400 mA | 400 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 2 | | |
| Connection | Serial interface RS-232 (Ex ec) | Serial interface RS 232 (Ex ec) |
| Connection | X3: 1 ... 4 | X3: 1 ... 4 |
| Rated voltage | $\pm 15 \text{ V}$ | $\pm 15 \text{ V}$ |
| Rated current | 200 mA | 200 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 3 | | |
| Connection | USB (Ex ec) | USB (Ex ec) |
| Connection | X3: 5 ... 8 | X3: 5 ... 8 |
| Rated voltage | 5 V | 5 V |
| Rated current | < 500 mA | < 500 mA |
| Maximum safe voltage U_m | 60 V | 60 V |
| Interface type 4 | | |
| Connection | USB (Ex ic) | USB (Ex ic) |
| Connection | X4: 1 ... 4 X4: 5 ... 8 | X4: 1 ... 4 X4: 5 ... 8 |
| Voltage U_o | 4.95 V | 4.95 V |
| Current I_o | 234 mA | 234 mA |
| Power P_o | 570 mW | 570 mW |
| Characteristic curve | trapezoid | trapezoid |
| Internal resistor | 41.6 Ω | 41.6 Ω |

| | VisuNet EX2 GMP PC3722 | VisuNet EX2 GMP RM3722 |
|-------------------------------------|--|--|
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ | $C_o = 100 \mu\text{F}$ $L_o = 1 \text{ mH}$ |
| Interface type 5 | USB (Ex ic) | USB (Ex ic) |
| Connection | X5: 1 ... 4 | X5: 1 ... 4 |
| Voltage U_o | 4.95 V | 4.95 V |
| Current I_o | 472 mA | 472 mA |
| Power P_o | 1582 mW | 1582 mW |
| Characteristic curve | trapezoid | trapezoid |
| Internal resistor | 33.2 Ω | 33.2 Ω |
| Lumped capacitances AND inductances | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ | $C_o = 14 \mu\text{F}$ $L_o = 5 \mu\text{H}$ |
| Lumped capacitances OR inductances | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ | $C_o = 100 \mu\text{F}$ $L_o = 0.3 \text{ mH}$ |
| Interface type 6 | TTY (Ex ic) | TTY (Ex ic) |
| Connection | X5: 5 ... 8 | X5: 5 ... 8 |
| Voltage U_o | 9 V | 9 V |
| Current I_o | 150 mA | 150 mA |
| Power P_o | 1.4 W | 1.4 W |
| Characteristic curve | rectangular | rectangular |
| Lumped capacitances OR inductances | For gas group IIC: $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ For gas group IIB: $C_o = 42 \mu\text{F}$ $L_o = 10 \text{ mH}$ | For gas group IIC: $C_o = 2.4 \mu\text{F}$ $L_o = 3 \text{ mH}$ For gas group IIB: $C_o = 42 \mu\text{F}$ $L_o = 10 \text{ mH}$ |

2.5

Note to technical data



Note

The rear panel must be free-mounted to give off heat otherwise the allowed temperature range and the life cycle of the device will be reduced

Make sure that the rear panel is not covered. Mount the housing with a minimum distance of 10 cm from the wall.

2.6 Dimensions VisuNet EX2 GMP PC/RM3719 (in mm)

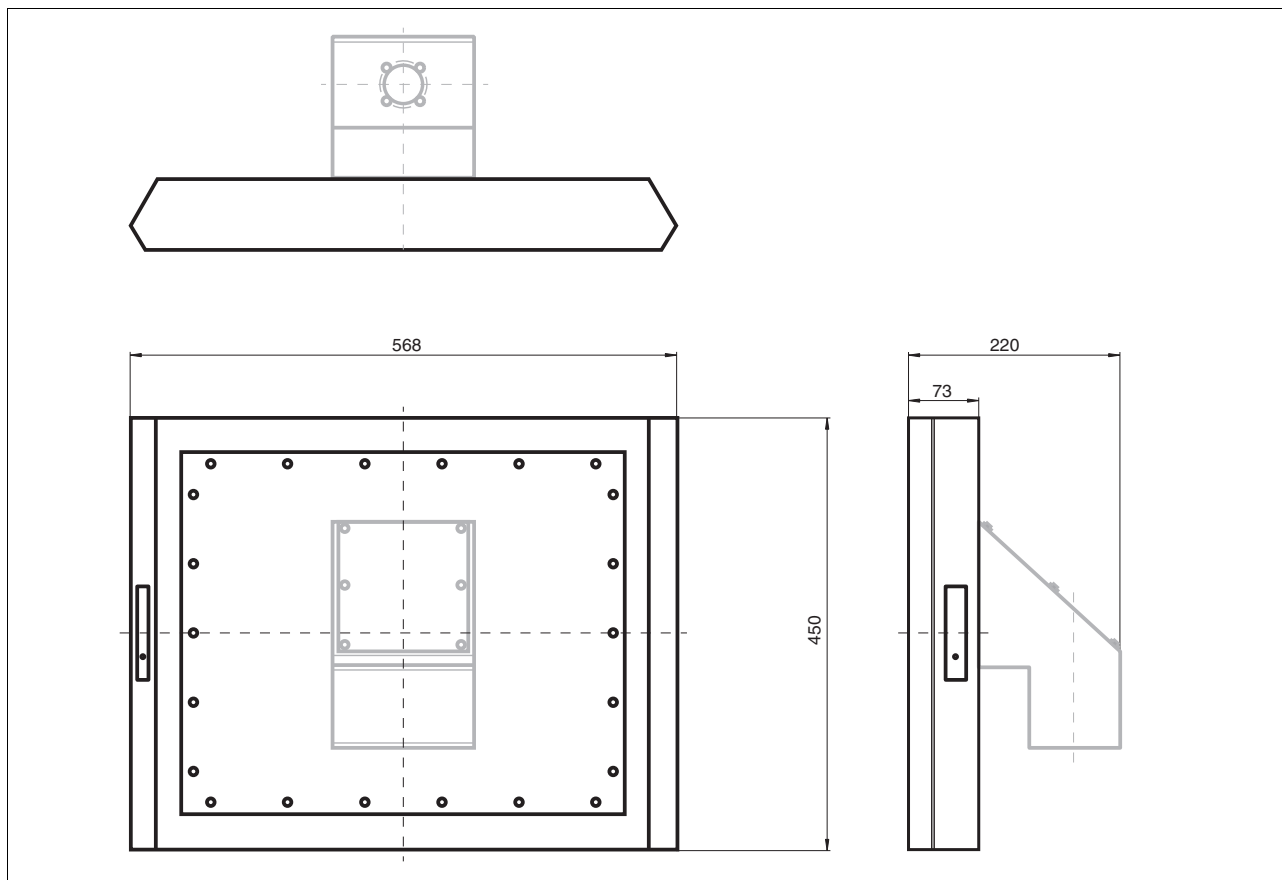


Figure 2.2 Dimensions VisuNet EX2 GMP PC/RM3719, EX2 mounting bracket is not enclosed in scope of supply (thus pictured grey)

2.7 Dimensions VisuNet EX2 GMP PC/RM3722 and PC/RM3721 (in mm)

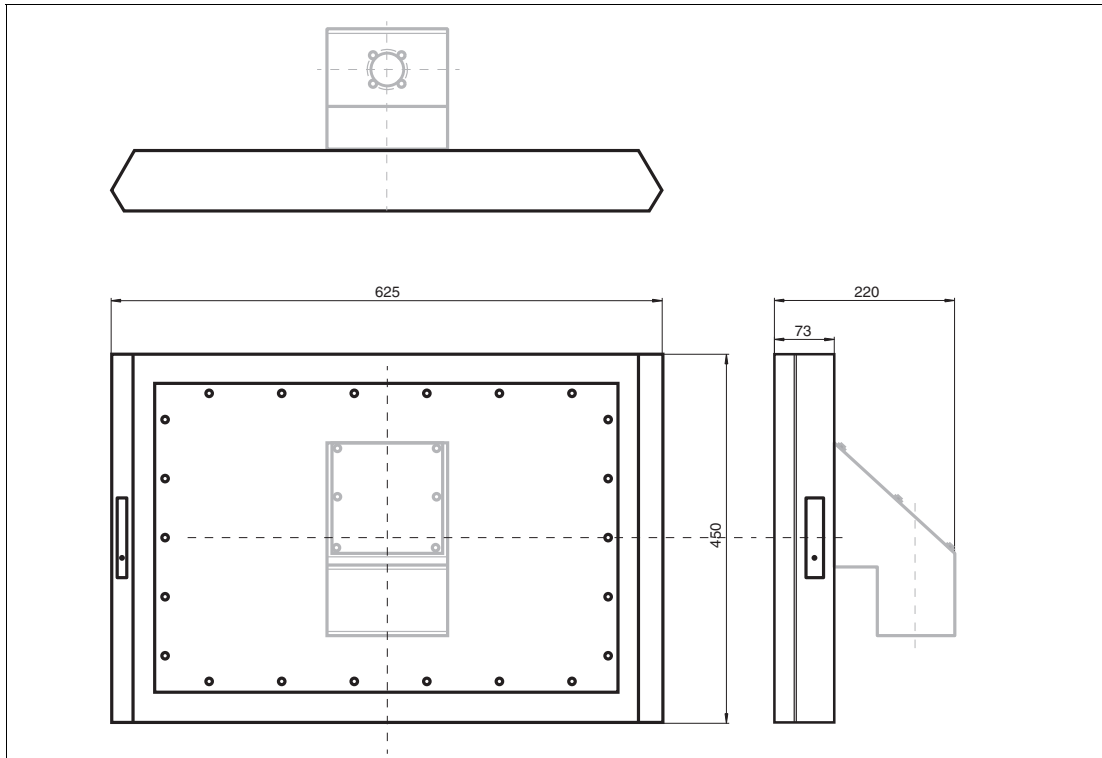


Figure 2.3 Dimensions VisuNet EX2 GMP PC/RM3722 and PC/RM3721, EX2 mounting bracket is not enclosed in scope of supply (thus pictured grey)

2.8 EX2 mounting bracket

Devices of type VisuNet Ex2 GMP always consist of 2 units:

1. VisuNet Ex2 GMP basic unit (display)
2. EX2 mounting bracket



Warning!

Danger of explosion

Substantial material damage, personal injury even up to death

Only VisuNet EX2 GMP basic units (displays) with proper mounted EX2 mounting brackets are allowed to be used in hazardous areas (zone 2/22).

Versions of EX2 mounting bracket

| Order designation | Description |
|---|--|
| MOUNTING-BRACKET-VisuNet Z2-10 #230675 | EX2 mounting bracket |
| MOUNTING-BRACKET-VISUNET-Z2-S3 #246989 | EX2 mounting bracket with receptacle for bar-code reader |

The interfaces of the VisuNet EX2 GMP are located at the back inside the EX2 mounting bracket.

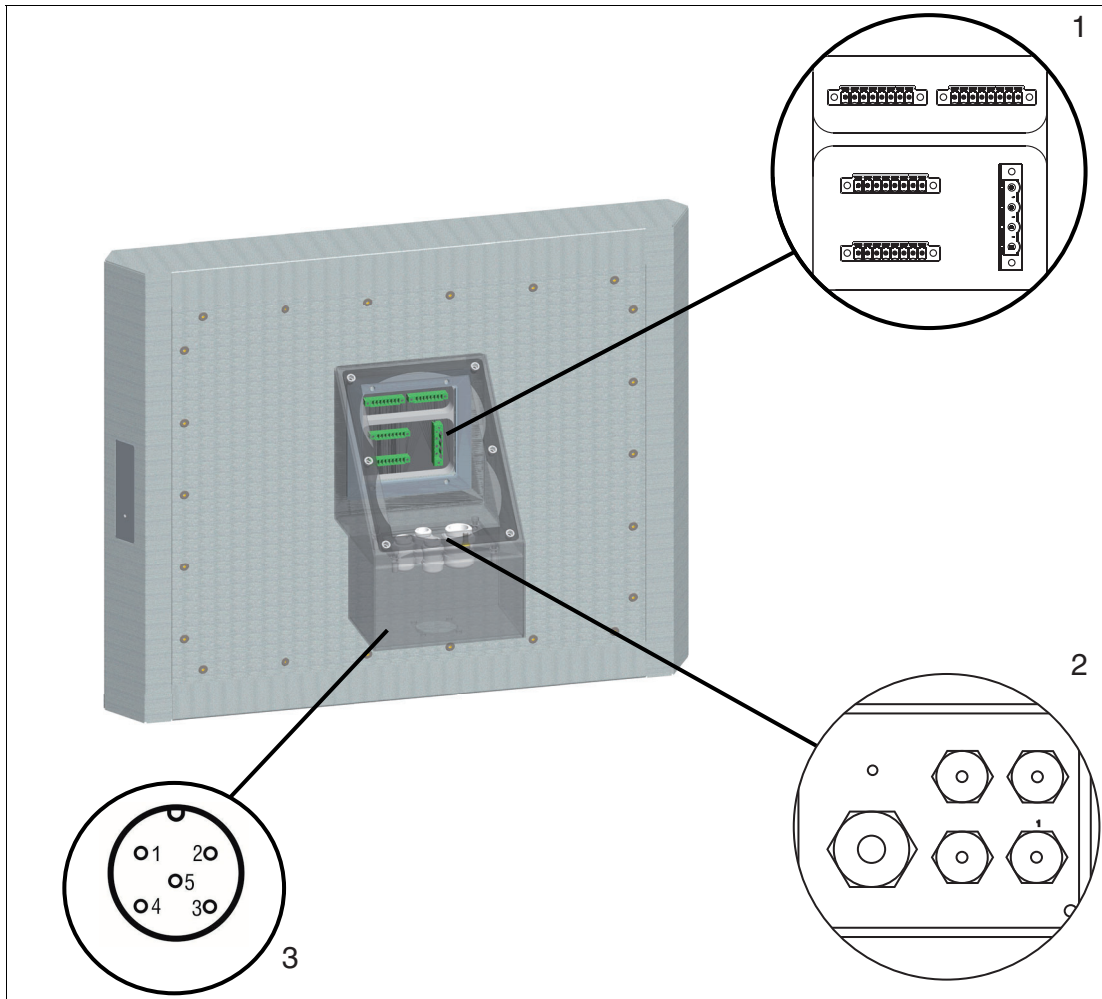
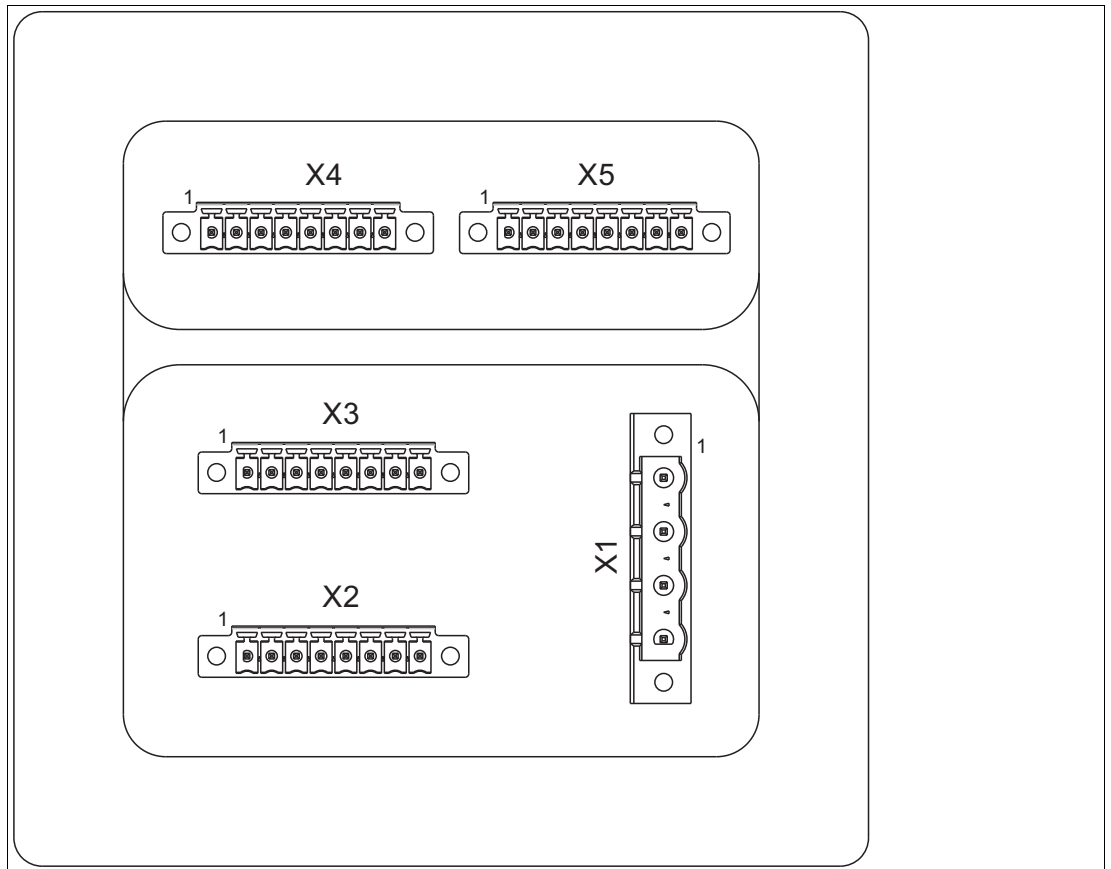


Figure 2.4 Overview EX2 mounting bracket

| | | |
|---|--|-------------------|
| 1 | terminal compartment for interfaces | See chapter 2.8.1 |
| 2 | cable gland plate | See chapter 2.8.2 |
| 3 | Receptacle for barcode reader (optional) | See chapter 2.8.3 |

2.8.1 Interfaces and pin assignment

The interfaces of the VisuNet EX2 GMP PC/RM are located within the EX2 mounting bracket at the back of the housing.



- X1** Power Supply Ex nA
- X2** Ethernet
- X3** RS232/RS485 (Com 3) Ex nA
USB Ex nA
- X4** USB Ex ic (mouse/keyboard)
USB Ex ic (mouse/keyboard)
- X5** USB Ex ic
TTY (Powerscan PSCAN) optional

X1 - Power supply Ex nA

| Pin | Connection Layout |
|-----|-------------------|
| 1 | +24 V DC |
| 2 | +24 V DC |
| 3 | GND |
| 4 | GND |

X2 - Ethernet

| Pin | Connection Layout | Cable Color |
|-----|-------------------|-------------|
| 1 | D1+/Tx+ | orangewhite |
| 2 | D1-/Tx- | orange |
| 3 | D2+/Rx+ | green/wite |
| 4 | D3+ | blue |
| 5 | D3- | blue/white |
| 6 | D2-/RX- | green |
| 7 | D4+ | brown/white |
| 8 | D4- | brown |

X3 - RS232/RS485 (Com 3) Ex nA* / USB Ex nA

| Pin | RM (RS232) | PC (RS485) |
|-----|----------------------|------------|
| 1 | Com 1 nA: Rx | D+ |
| 2 | Com 1 nA: Tx | D- |
| 3 | Com 1 nA: GND | GND |
| 4 | n.c. | n.c. |
| 5 | USB nA: +5 V | |
| 6 | USB nA: D+ | |
| 7 | USB nA: D- | |
| 8 | USB nA: GND | |

* Max. cable length: 30 m

X4 - USB Ex ic (Mouse/Keyboard)

| Pin | Connection Layout |
|-----|-----------------------|
| 1 | USB ic 1: +5 V |
| 2 | USB ic 1: D+ |
| 3 | USB ic 1: D- |
| 4 | USB ic 1: GND |
| 5 | USB ic 2: +5 V |
| 6 | USB ic 2: D+ |
| 7 | USB ic 2: D- |
| 8 | USB ic 2: GND |

Table 2.1 Keyboard and mouse are supplied with marked cable wires.

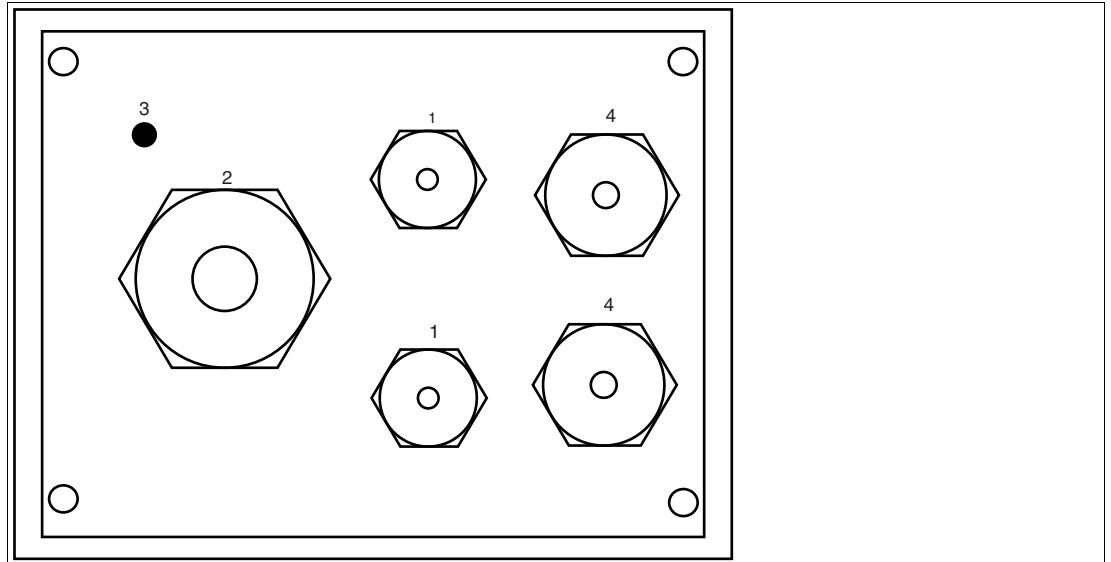
X5 - USB Ex ic / TTY (Powerscan PSCAN)

| Pin | Connection Layout |
|-----|-----------------------|
| 1 | USB ic 3: +5 V |
| 2 | USB ic 3: D+ |
| 3 | USB ic 3: D- |
| 4 | USB ic 3: GND |
| 5 | Rx |

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| Pin | Connection Layout |
|-----|-------------------|
| 6 | Tx |
| 7 | US |
| 8 | GND |

2.8.2 Cable gland plate



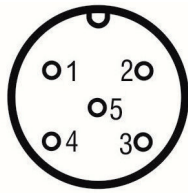
- 1. M12 cable gland
- 2. M25 cable gland
- 3. Ground bolt
- 4. M16 cable gland

The following cable glands are mounted per default and qualified for safe running:

| Size | Type | Suited cable diameter |
|------|--------------------------|-----------------------|
| M12 | Fa Hummel 1.616.1600.50 | 3-6,5 mm |
| M16 | Fa. Hummel 1.616.1600.50 | 6-10 mm |
| M25 | Fa. Jacob 50.625 M/EX | 11-16 mm |

2.8.3 Pin assignment receptacle for wired handheld barcode reader PSCAN-D (at the EX2 mounting bracket) (COM6)

Bottom view



| Pins receptacle | Connection layout | Colours of the enclosed cable | VisuNet EX2 Connection X5 pin | VisuNet EX2 Connection X5 signal |
|-----------------|-------------------|-------------------------------|-------------------------------|----------------------------------|
| 1 | GND | brown | 8 | GND |
| 2 | Rx | white | 5 | Rx |
| 3 | Tx | green | 6 | Tx |
| 4 | US | yellow | 7 | US |
| 5 | GND | grey | 8 | GND |

2.8.4 Connecting base station PSCAN-B via connecting cable to VisuNet EX2 mounting bracket X5 (COM6)

Pull the connecting cable DATL-A4-0,50-3 through the suited cable gland of the cable gland plate at the VisuNet EX2 mounting bracket.

Connecting DATL-A4-0,50-3 to VisuNet EX2 mounting bracket

| DATL-A4-0,50-3 colour | VisuNet EX2 Connecting pin X5 | VisuNet EX2 Connecting X5 signal |
|-----------------------|-------------------------------|----------------------------------|
| grey | 5 | Rx |
| yellow | 6 | Tx |
| red | 7 | US |
| blue | 8 | GND |

2.9 Accessories

The following accessories are available.

2.9.1 Keyboards

There are several keyboard models available. All keyboard foils have an antibacterial coating. For this reason the keyboards are perfectly suitable for environments with high hygienic standards.

Tastatur EXTA3-K3

Keyboard with mechanical trackball for controlling the mouse pointer.

2 separate buttons below the trackball assume the function of left and right mouse button.



| EXTA3-K3 | |
|-----------------------------------|--|
| General specifications | |
| Type | Keyboard with mechanical trackball |
| Supply | |
| Rated voltage | Ex i, via data line |
| Indicators/operating means | |
| Keyboard | 105 short stroke keys Keyboard layout: US international, German, French, (further keyboard layouts on demand) |
| Trackball | |
| Diameter | 50 mm |
| Material | Phenolic resin (black) |
| Driver | Microsoft Mouse ® , USB |
| Interface | |
| Interface type | USB |
| Directive conformity | |
| Electromagnetic compatibility | |
| 2014/30/EU | EN 61326-1:2013 |
| Conformity | |
| Degree of protection | IP65 , if trackball is inactive. Undefined during motion. |
| Ambient conditions | |
| Ambient temperature | 0 ... 50 °C (32 ... 122 °F) |
| Storage temperature | -20 ... 70 °C (-4 ... 158 °F) |
| Relative humidity | max. 85 % , non-condensing |
| Mechanical specifications | |
| Material | anodized aluminum , Polyester foil |

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| | EXTA3-K3 |
|---|--|
| Mass | 1.2 kg |
| Dimensions | 491.4 mm x 186.8 mm x 45 mm |
| Cut out dimensions | 483.2 mm x 178.6 mm |
| Cable length | 1.8 m , wire end ferrule |
| Data for application in connection with Ex-areas | |
| EC-Type Examination Certificate | |
| Group, category, type of protection | Ⓔ II 3G Ex ic IIC T4 Gc , Ⓔ II 3D Ex ic IIIB T135°C Dc |
| Certificate of conformity | PF 11 CERT 1918 X |
| Input | |
| Voltage | 5.4 V |
| Current | 240 mA |
| Power | 600 mW |
| Internal capacitance | 25 µF |
| Internal inductance | negligible |
| Directive conformity | |
| Directive 2014/34/EU | EN 60079-0:2012/A11:2013; EN 60079-11:2012 |

Keyboard EXTA3-K4

Keyboard with touchpad for controlling the mouse pointer.

2 separate buttons below the touchpad assume the function of left and right mouse button.



| EXTA3-K4 | |
|-----------------------------------|--|
| General specifications | |
| Type | Keyboard with touchpad |
| Supply | |
| Rated voltage | Ex i, via data line |
| Indicators/operating means | |
| Keyboard | 105 short stroke keys Keyboard layout: US international, German, French, (further keyboard layouts on demand) |
| Touchpad | |
| Active Principle | capacitive |
| Resolution | 40 Pts./mm |
| Dimensions | 66 x 50 mm |
| Driver | Microsoft Mouse ® , USB |
| Interface | |
| Interface type | USB |
| Directive conformity | |
| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 |
| Ambient conditions | |
| Ambient temperature | -20 ... 50 °C (-4 ... 122 °F) |
| Storage temperature | -20 ... 70 °C (-4 ... 158 °F) |
| Relative humidity | max. 85 % , non-condensing |
| Mechanical specifications | |
| Material | anodized aluminum , Polyester foil |
| Mass | 1.2 kg |
| Dimensions | 491.4 mm x 186.8 mm x 30 mm |
| Cut out dimensions | 483.2 mm x 178.6 mm |

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| EXTA3-K4 | |
|---|--|
| Cable length | 1.8 m , wire end ferrule |
| Data for application in connection with Ex-areas | |
| EC-Type Examination Certificate | |
| Group, category, type of protection | ⊕ Ex II 3G Ex ic IIC T4 Gc , ⊕ Ex II 3D Ex ic IIIB T135°C Dc |
| Certificate of conformity | PF 11 CERT 1918 X |
| Input | |
| Voltage Ui | 5.4 V |
| Current Ii | 240 mA |
| Power Pi | 600 mW |
| Internal capacitance Ci | 25 µF |
| Internal inductance Li | negligible |
| Directive conformity | |
| Directive 2014/34/EU | EN 60079-0:2012/A11:2013; EN 60079-11:2012 |

Keyboard EXTA3-K6

Keyboard with joystick for controlling the mouse pointer.

2 separate buttons below the joystick assume the function of left and right mouse button.



| EXTA3-K6 | |
|---|--|
| General specifications | |
| Type | Keyboard with joystick |
| Supply | |
| Rated voltage | Ex i, via data line |
| Indicators/operating means | |
| Keyboard | 105 short stroke keys Keyboard layout: US international, German, French, (further keyboard layouts on demand) |
| Joystick | |
| Driver | Microsoft Mouse ® , USB |
| Interface | |
| Interface type | USB |
| Directive conformity | |
| Electromagnetic compatibility | |
| 2014/30/EU | EN 61326-1:2013 |
| Conformity | |
| Degree of protection | IP65 |
| Ambient conditions | |
| Ambient temperature | -20 ... 50 °C (-4 ... 122 °F) |
| Storage temperature | -20 ... 70 °C (-4 ... 158 °F) |
| Relative humidity | max. 85 % , non-condensing |
| Mechanical specifications | |
| Material | anodized aluminum , Polyester foil |
| Mass | 1.2 kg |
| Dimensions | 491.4 mm x 186.8 mm x 45 mm |
| Cut out dimensions | 483.2 mm x 178.6 mm |
| Cable length | 1.8 m , wire end ferrule |
| Data for application in connection with Ex-areas | |

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| EXTA3-K6 | |
|--|--|
| EC-Type Examination Certificate | |
| Group, category, type of protection | Ⓔ II 3G Ex ic IIC T4 Gc , Ⓔ II 3D Ex ic IIIB T135°C Dc |
| Certificate of conformity | PF 11 CERT 1918 X |
| Input | |
| Voltage U_i | 5.4 V |
| Current I_i | 240 mA |
| Power P_i | 600 mW |
| Internal capacitance C_i | 25 μ F |
| Internal inductance L_i | negligible |
| Directive conformity | |
| Directive 2014/34/EU | EN 60079-0:2012/A11:2013; EN 60079-11:2012 |

2.9.2 Pedestals

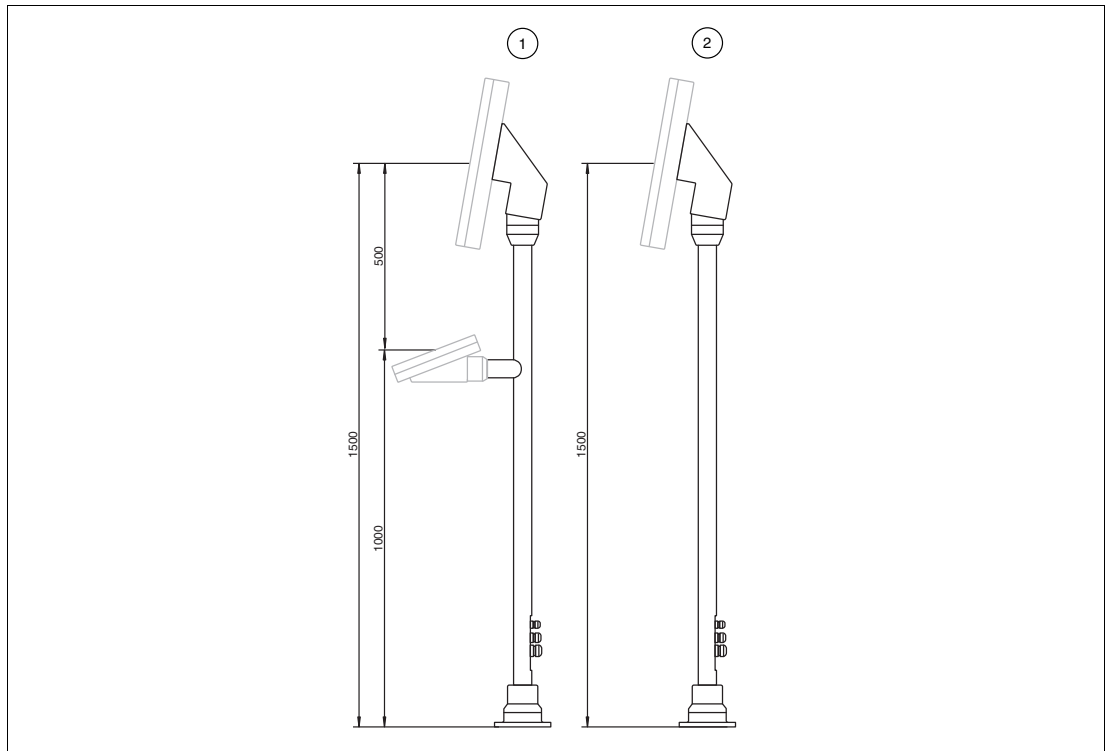


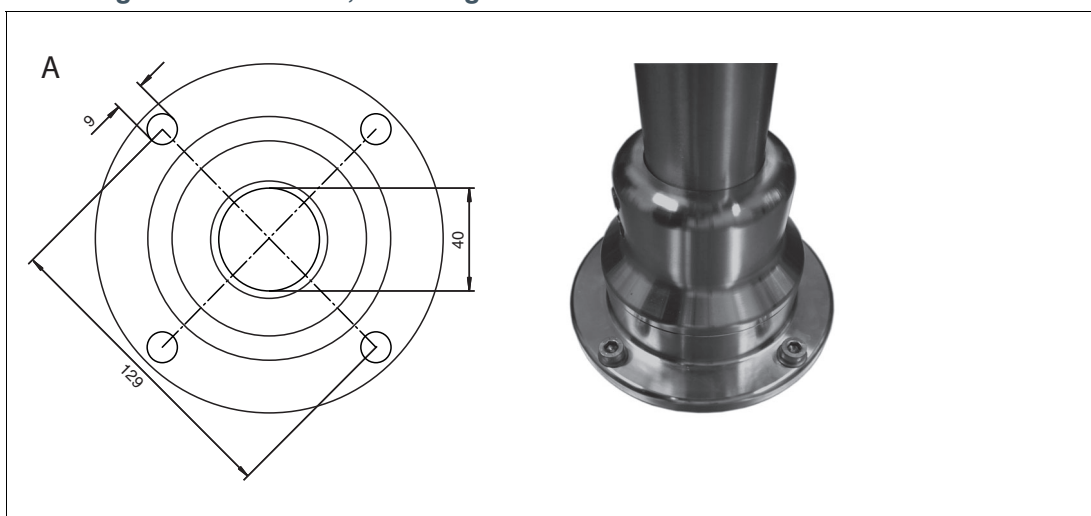
Figure 2.5 Pedestals VisuNet EX2 GMP

| | Model number | Description |
|----|--------------------------------|--|
| 1 | PEDESTAL1-150-1P-KP-G-T-304 | Pedestal incl. EX2 mounting bracket, turnable approx. 350°, monitor 10° tilted, with pipe for keyboard |
| 1A | PEDESTAL1-150-1P-KP-G-T-S3-304 | as (1) with receptacle for wired handheld barcode reader mounted |
| 2 | PEDESTAL1-150-1P-NP-G-T-304 | Pedestal incl. EX2 mounting bracket, turnable approx. 350°, monitor 10° tilted |
| 2A | PEDESTAL1-150-1P-NP-G-T-S3-304 | as (2) with receptacle for wired handheld barcode reader mounted |

Table 2.2 Pedestals

2.9.3 Hole pattern of the turnable pedestal

Mounting version turnable, fastening at front:



Angle of turn for turnable mounting version

The first stop plate is premounted for a max. angle of turn of 350°.

With the second enclosed stop plate you can define an individual angle.

The angle of turn can be divided with 6 screws in 60° steps.



Note

Use suitable cable

If the VisuNet EX2 GMP should be turnable during operation, you must use suitable cable and cable glands according to EN 60079-19.

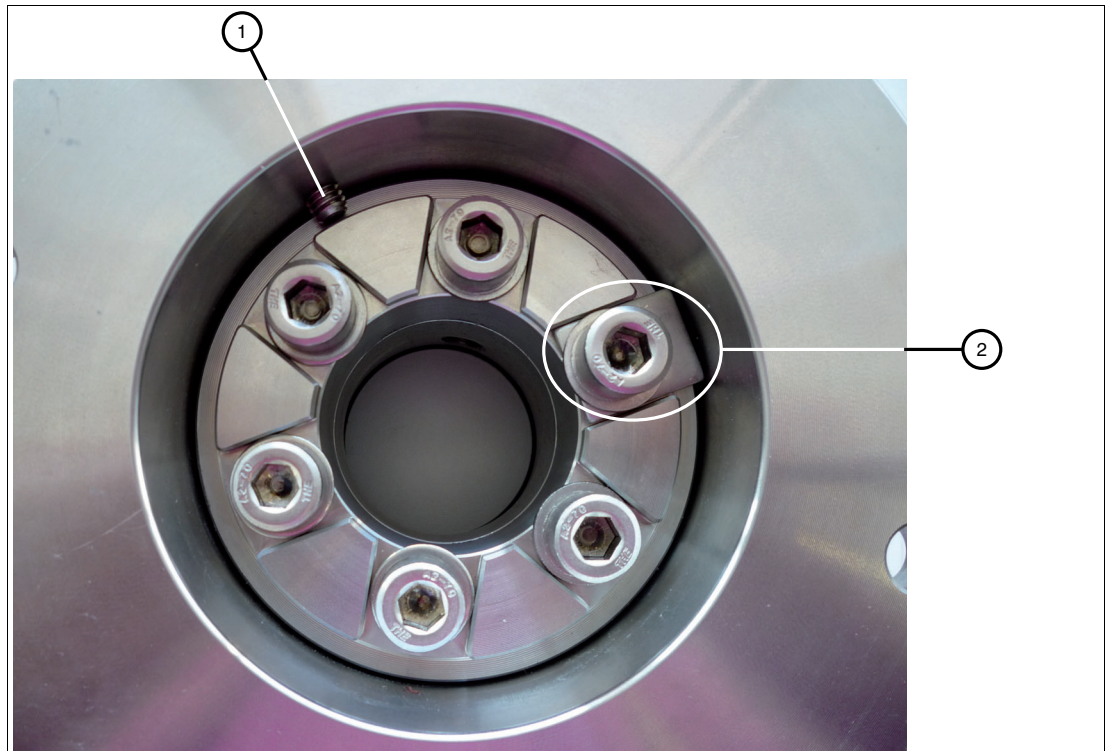


Figure 2.6 Turnable mounting version

- 1. Locking screw
- 2. premounted stop plate

2.9.4 Wall arm versions

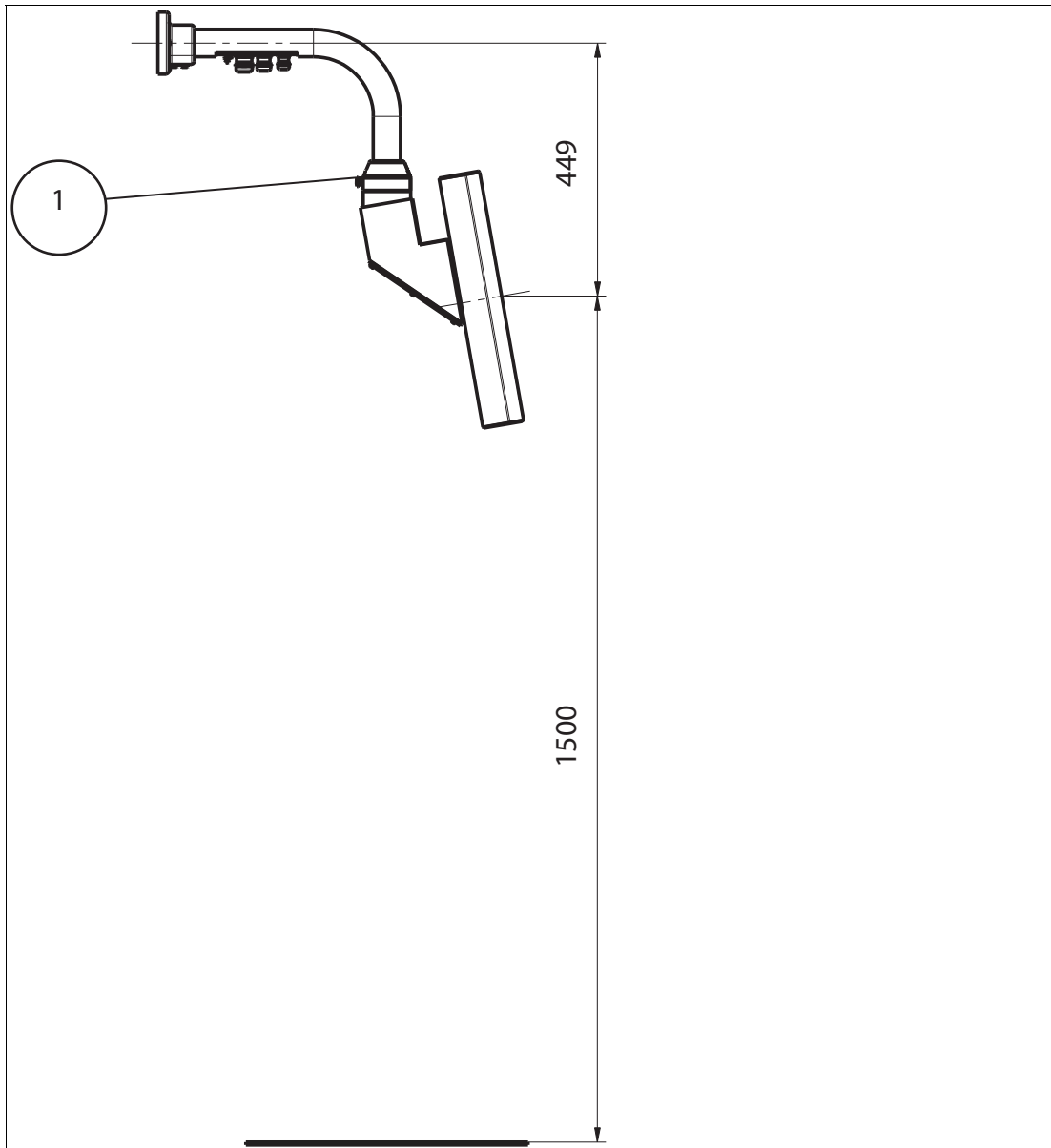


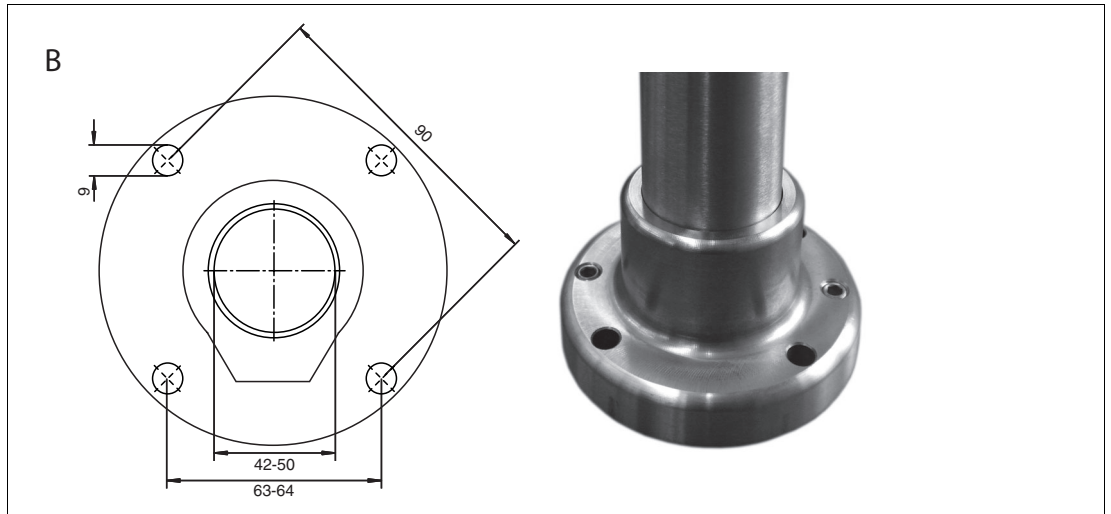
Figure 2.7 Wall arm VisuNet EX2 GMP

| | Model number | Description |
|---|---------------------------|---|
| 1 | WALL-ARM1-60-1P-NT-G-F-30 | Wall arm incl. EX2 mounting bracket Monitor 10° tilt fix |
| 1 | WALL-ARM1-60-1P-NT-G-T-30 | Wall arm incl. EX2 mounting bracket Monitor 10° tilt turnable |

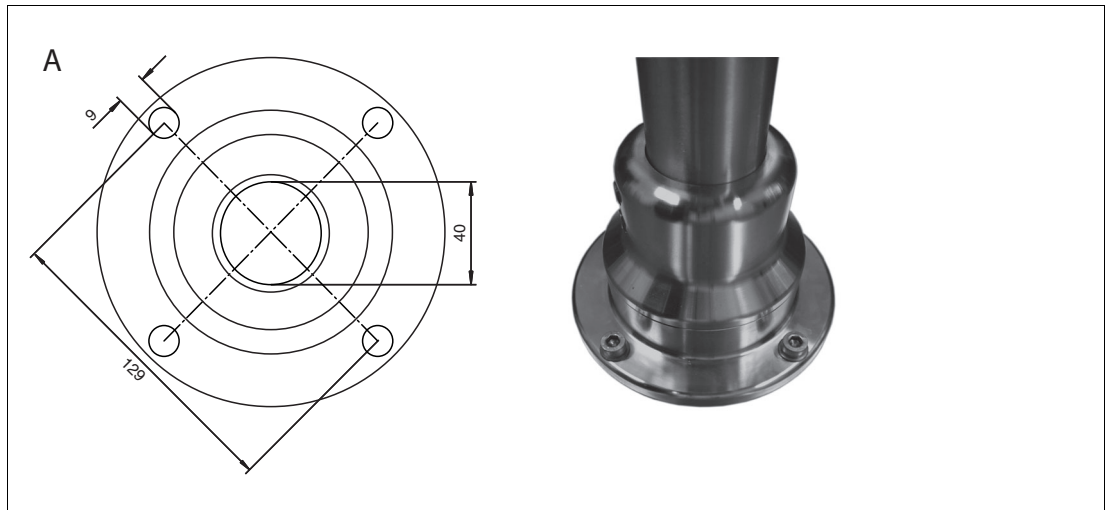
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2.9.5 Wall arm versions

Mounting version fix:



Mounting version turnable, fastening at front:



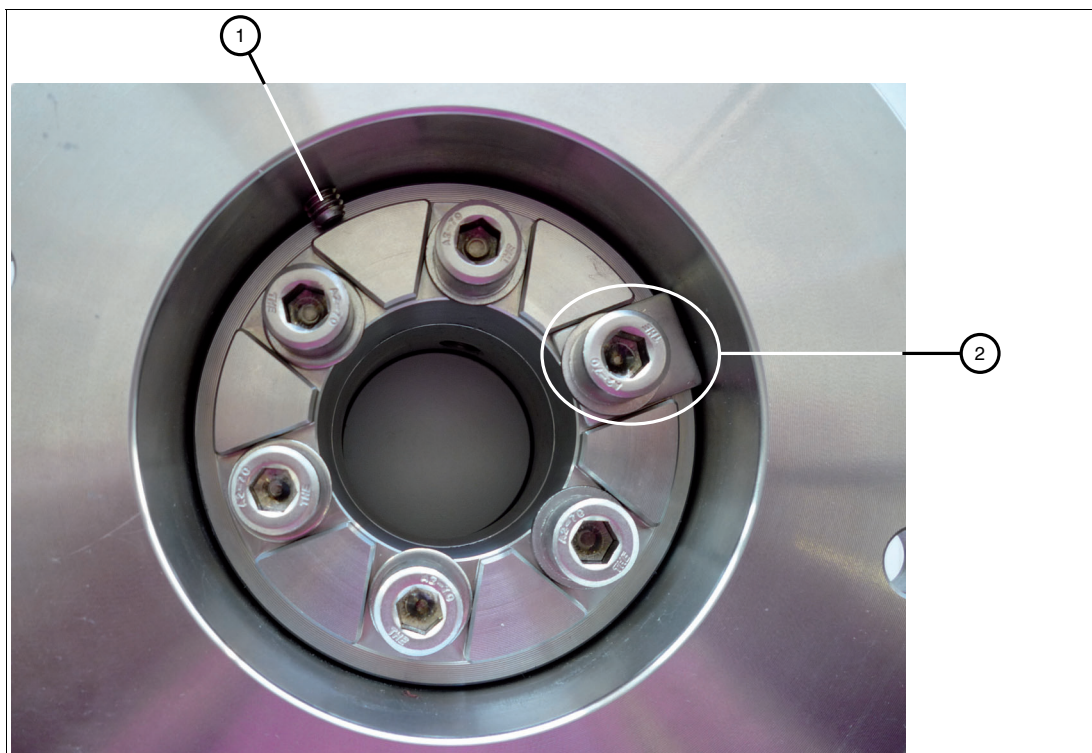


Figure 2.8 Turnable mounting version

1. Locking screw
2. premounted stop plate

Angle of turn for turnable mounting version

The first stop plate is premounted for a max. angle of turn of 350°.

With the second enclosed stop plate you can define an individual angle.

The angle of turn can be divided with 6 screws in 60° steps.

2.9.6 Power supply and network accessories

Power Supply

| Model Number | Description |
|-------------------------|--|
| BN-24/5000-HS-10 | Power supply for safe area, DIN rail mounting |
| BN-24/5000-TEX120-Z2-10 | Power supply for use in zone 2 |
| DATL-A2-4.0N/2.5F-2 | Power cable 2x 4.0mm ² +2.5m 2.5mm ² , wire end ferrule, length: 110 m |
| DATL-A2-2.5-1 | Power cable 2x 2.5mm ² , wire end ferrule, max. length 80 m |

Network

| Model Number | Description |
|---------------------|---|
| SK-FX-100-1-8 | Switch for safe area DIN rail mounting, power supply 9-24 V DC, terminal connection, 1x fibre optics (SC-D), 8x Ethernet |
| DATL-C7TP-2-1RJ45 | Cat.7 cable |
| RJZ2-SWITCH-5-10-AB | RJ Switch, Power Supply 10-30V DC, IP67, 5x Ethernet |
| DATL-C7TP-1-1RJZ2 | Cat.7 cable consistent with RJ Switch (2 pieces needed) |

2.9.7 Ethernet Patch Box-A10

| Model number | Description |
|-------------------------------|---|
| BOX-A10-KAT.7-RJ45-MINI-PATCH | Ethernet interface box in safe area for transition from installed cable to Patch cable (DIN rail mounting). |

2.9.8 Accessories handheld barcode reader

The VisuNet EX2 GMP can operate an intrinsically safe handheld barcode reader at its intrinsically safe TTY interface. The following products can be used at present:

Wireless barcode system

The wireless barcode system consists of:

- PSCAN-M, Wireless handheld barcode reader
- PSCAN-B, Base station
- PSCAN-C, Charger

Wireless barcode system

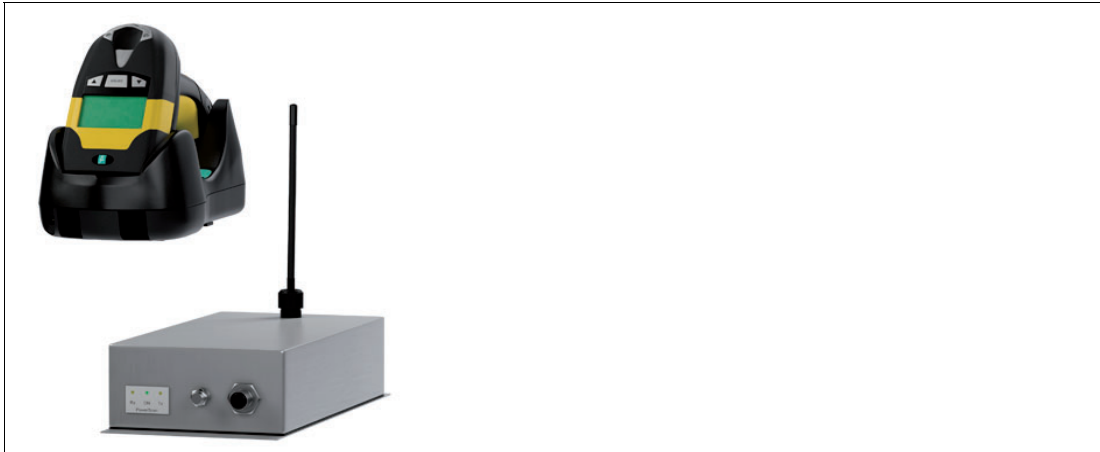


Figure 2.9 PSCAN-M, PSCAN-B, PSCAN-C

Order designation wireless barcode system

| Device | Order designation | Description |
|------------------|-------------------------|---|
| PSCAN-M | PSCAN-M-1V-C2-EU-10-N | Wireless handheld barcode reader with display ATEX II 2G, Ex ib [op is] IIB T4 Gb 433 MHz |
| PSCAN-B | PSCAN-B-C2-EU-20-A-10-N | Base station ATEX II 2G Ex ib IIB T4 Gb 433 MHz Interface 20 mA |
| PSCAN-C | PSCAN-C-10-N | Charger Only use in non-Ex area |
| PG12-10855 | PG12-10855 | Power supply for charger Only use in non-Ex area 100 - 240 V AC, 50 -60 Hz, 0,4 A |
| Connecting cable | DATL-A4-0,50-3 | Connecting cable Base station PSCAN-B --- VisuNet EX2 GMP |

Wired handheld barcode reader Powerscan PSCAN-D-1*

The PSCAN-D-1* consists of an handheld barcode reader with connecting cable. The connecting cable is a 5 m long helix cable and a 5-pin M12 connector is mounted.

PSCAN-D-1*



Figure 2.10 PSCAN-D-1*

Order designation PSCAN-D-1*

| Device | Order designation | Description |
|------------|-----------------------|---|
| PSCAN-D-1* | PSCAN-D-1D-F2-20-10-N | Wired handheld barcode reader ATEX II 2G Ex ib [op is] IIB T4 Gb ATEX II 2D Ex ib [op is] IIB T135°C Db |

Please also refer to the handheld barcode reader operating instructions of one of these intrinsically safe handheld barcode readers is connected. The terminal assignment of the VisuNet EX2 GMP is shown in section see chapter 2.8.1.

2.9.8.1

Dimensions VisuNet EX2 GMP with holder for handheld barcode reader

Dimensions VisuNet EX2 GMP RM/PC 3719 (in mm)

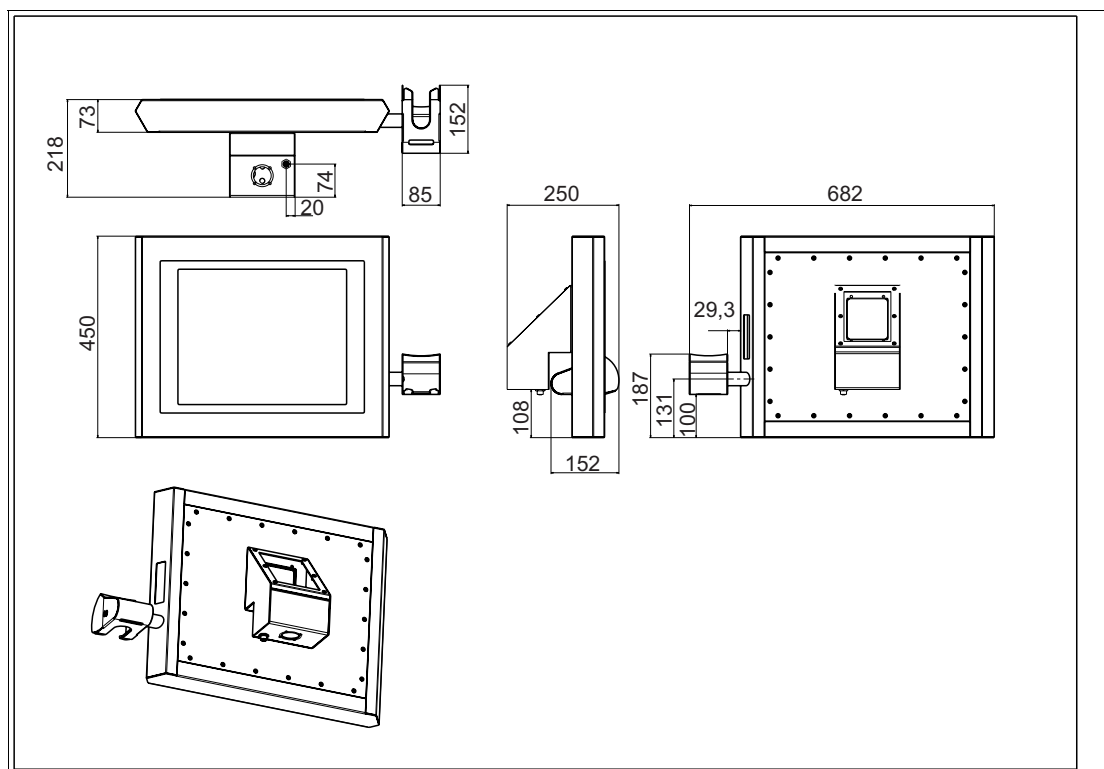


Figure 2.11 Dimensions VisuNet EX2 GMP RM/PC 3719

Dimensions VisuNet EX2 GMP RM/PC 3721/3722 (in mm)

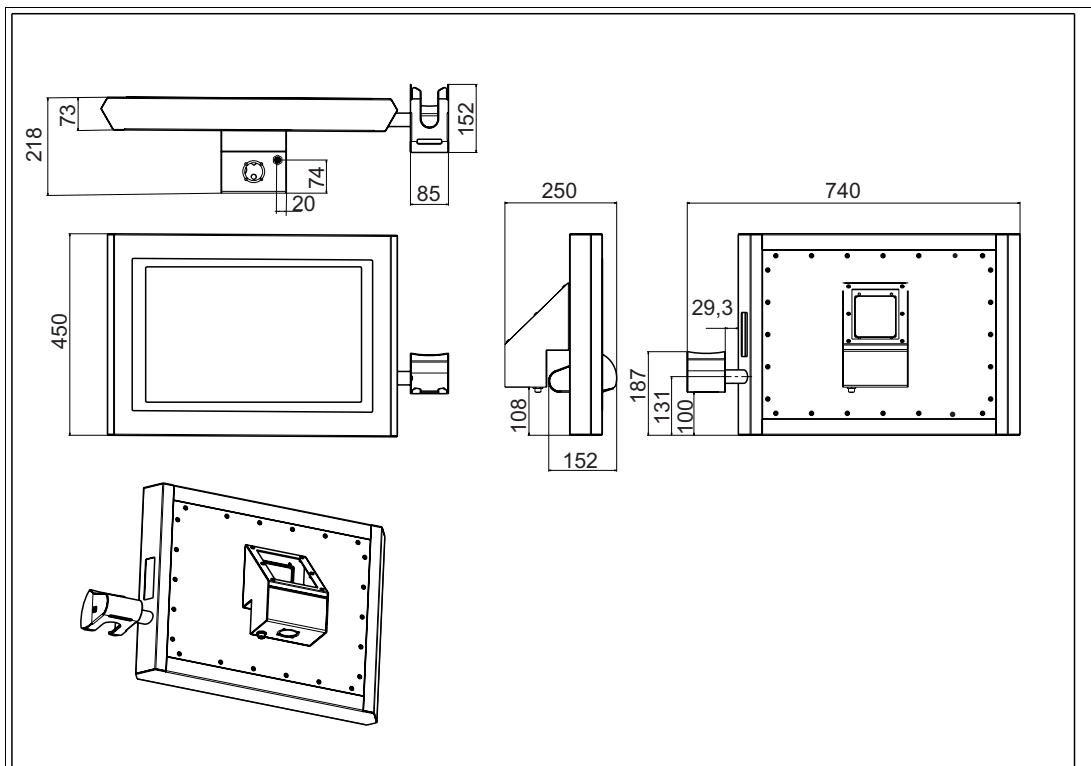


Figure 2.12 Dimensions VisuNet EX2 GMP RM/PC3721 and RM/PC3722

2.9.9 Holder for handheld barcode reader

Dimensions

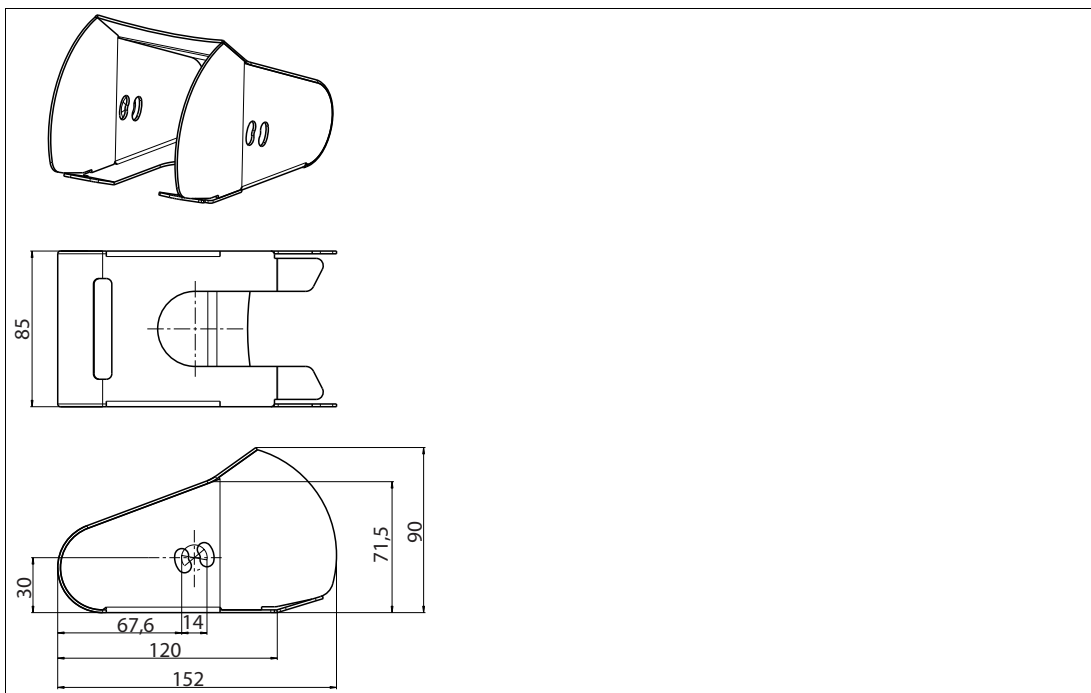


Figure 2.13 Abmessungen Halter für Barcode-Handheld

3 Installation and Commissioning

3.1 Preparation



Unpacking the Device

1. Check the packaging and contents for damage.
↳ In the event of damage, inform the shipping company and notify the supplier.
2. Check the package contents against your order and the shipping documents to ensure that all items are present and correct.
↳ Should you have any questions, direct them to Pepperl+Fuchs.
3. Retain the original packaging in case the device is to be stored or shipped again at a later date.

3.2 Shielding of data cables

Shielding concept

Shielded cables improve signal quality and reduce interference and radiation of electromagnetic fields.

Thus Pepperl+Fuchs recommends to use shielded data cables (RS232, USB, Ethernet). To ensure optimum signal quality the shield must be connected and grounded permanently.

The following 3 shielding concepts exist:

1. The shield is connected and grounded to both ends. Therefore electromagnetic interferences are reduced optimal. However, there is a risk that current loops with high compensating currents occur. If the values of the compensating currents are too high, safety-related problems will appear.
2. The shield is connected to the VisuNet on one side and is capacitively grounded in the safe area. Electromagnetic interferences are clearly reduced. Current loops with high compensating currents are prevented.
For this concept use a capacitor (approx. 10 nF) with fixed dielectric (ceramic) and a test voltage > 1500 V in the safe area.
3. The shield is connected and grounded to one end. Electromagnetic interferences are reduced. Current loops with high compensating currents are prevented.



Note

Consider the equipotential bonding system, before you choose a shielding concept!



Warning!

To prevent spark formation, insulate the shield carefully, if you don't connect the shield to VisuNet.

Example 1

If a low-impedance equipotential bonding system (building grounding system) is effective under all operating conditions, connect and ground the shield at both ends (shielding concept 1). Consider, that transients caused by switching on/off machines cannot be statically measured.

Example 2

If there is no equipotential bonding system, choose shielding concept 2 or 3.

This applies also to poor equipotential bonding systems that haven't got a good low-impedance and to equipotential bonding systems that have a high noise voltage.

Which of these three concepts is used must be determined by the user on a case-to-case basis (best interference suppression and safety).

Pepperl+Fuchs does not accept any responsibility for choosing the right shielding concept.

The "Box-A10" accessory provides a contact spring so that you can easily connect the cable shield via a DIN mounting rail to earth.



Assembly instructions for EMC cable glands

1. Strip the cable and uncover the braiding.
2. Strip the braiding and insulation staircase style. With thin cables, the braiding can be folded back over the insulation jacket.
3. Insert the cable into the gland until the braiding reaches the contact position.
4. Tighten the gland

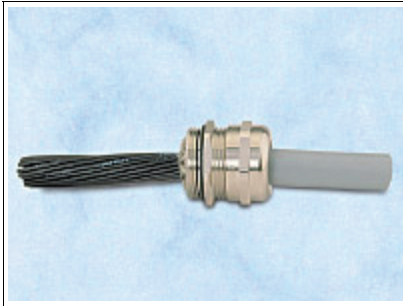


5. Insert the cable through the union nut.
6. Insert the cable into the clamping insert and fold the braiding over the insert. The braiding must overlap the O-ring by approx. 2 mm.

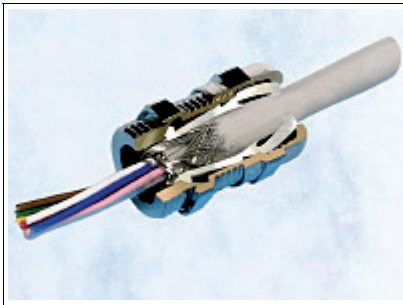


7. Fit the clamping insert into the intermediate gland.

8. Assemble the cable gland.



9. Cross section



3.3 General Mounting Information



Note

Mounting with 2 persons

The following mounting requires 2 persons.



Note

For fastening the pedestal, use 4 screws (M8) which suit the soil conditions.

Tools required for assembly

Use the following tools for assembly (not included in the scope of supply):

- Allen key, 3,5 mm, 3 mm, 4 mm
- 4 stainless steel screws (M8) for wall/floor mount
- Fork wrench for cable glands

Choose the appropriated wrench size to tighten the cable glands:

Clamping Range in the Pedestal - Wrench Size

| | Wrench Size | Cable Diameter | Torque |
|-----|-------------|----------------|--------|
| M16 | 20 | 4,5-10 mm | 10 Nm |
| M20 | 24 | 7-13 mm | 12 Nm |
| M25 | 29 | 9-17 mm | 12 Nm |

3.4 Mounting in the field



Note

The rear panel must be free-mounted to give off heat otherwise the allowed temperature range and the life cycle of the device will be reduced

Make sure that the rear panel is not covered. Mount the housing with a minimum distance of 10 cm from the wall.

The device is licensed for operation in confined spaces.

The cooling of the device does not require active components like CPU fan or water cooling systems. For that reason there are no ventilation slots in the housing.

To avoid overheating during operation, follow the advices below for field installation:

- Do not expose the device to direct solar radiation or other heat sources.
- Since the heat will dissipate via the housing, provide sufficient air circulation.
- Keep the ambient temperature below the specified maximal value.



Note

The device is not delivered in sterile condition.

3.4.1 Grounding at Housing



Caution!

Danger of explosion

Substantial material damage, personal injury or even up to death

Use a cable with a core-cross section of min. 4 mm² for grounding.

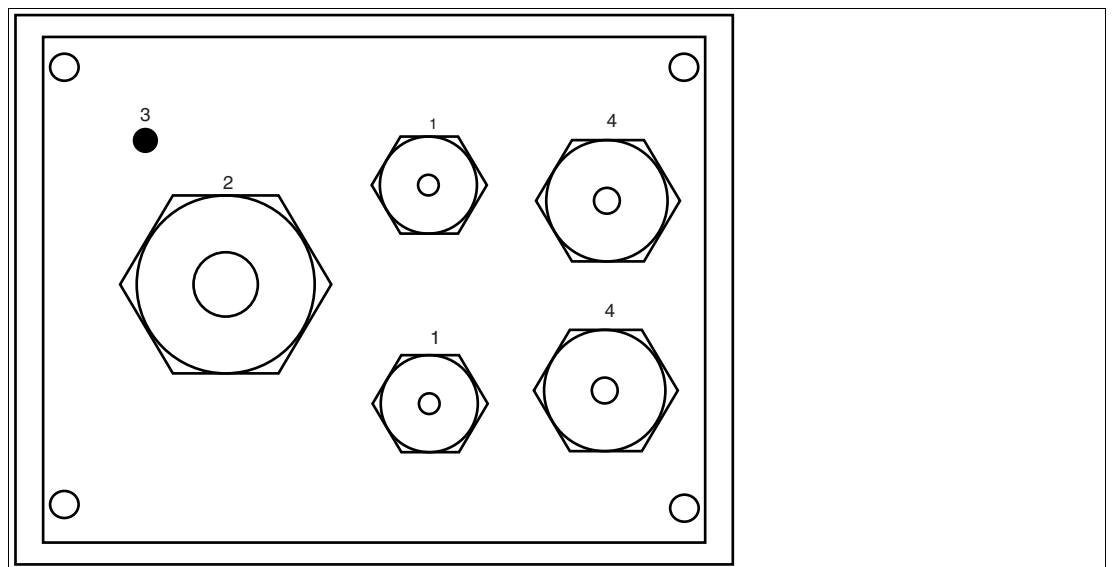


Figure 3.1 Ground connection (3) on cable gland plate

- 1 Cable gland M12
- 2 Cable gland M25
- 3 Ground connection
- 4 Cable gland M16

Factory-mounted it's a 4 mm² cable between ground connection at pedestal and the ground connection on the cable gland plate.

3.4.2 Grounding at pedestal



Danger!

Danger of explosion

Explosion with serious personal injury or even up to death. Substantial material damage.

The housing and the pedestal must be provided with external equipotential bonding. The wire must have a cross-section of at least 4 mm² and be as short as possible.



Figure 3.2 Ground connection at pedestal



Grounding VisuNet GMP at pedestal



Note

Depending on the grounding cable you need the adequate cable lug (not included in delivery).

1. Insert the grounding cable into the cable lug (7).
2. Unscrew the M5 screw nut (5) on ground connection.
3. Insert the cable lug between screw nut (2) and washer (3).
4. Tighten the screw nut (torque 6 Nm).

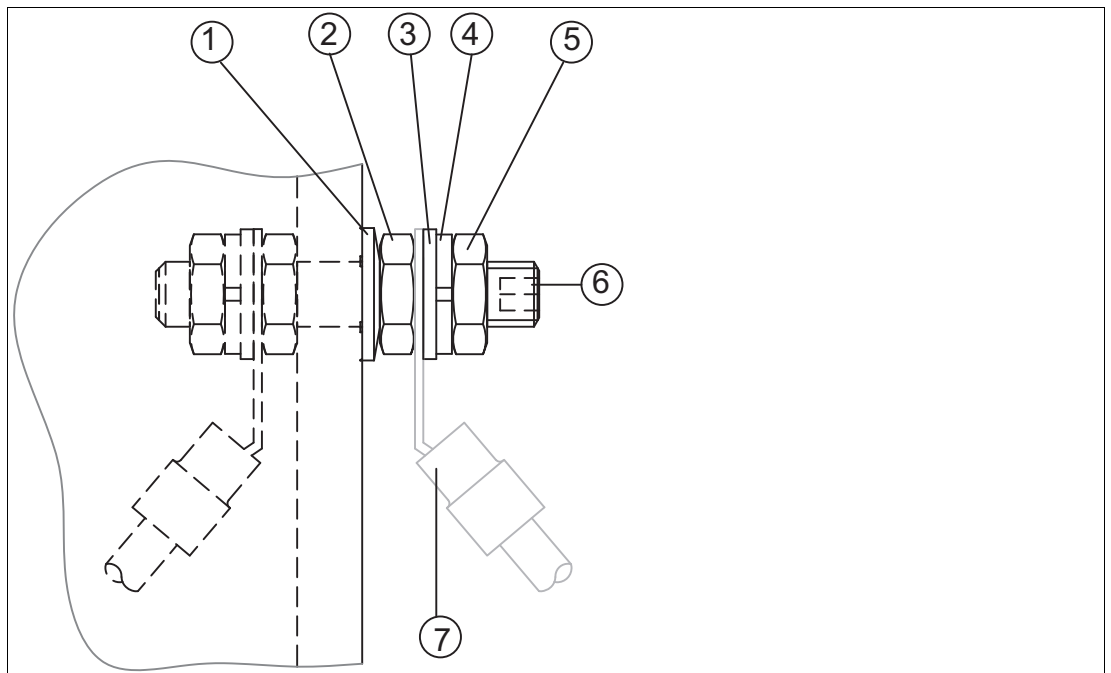


Figure 3.3 Grounding at pedestal

- | | |
|---|--------------------------|
| 1 | contact disk |
| 2 | screw nut |
| 3 | washer |
| 4 | lock washer |
| 5 | screw nut |
| 6 | hexagon socket set screw |
| 7 | cable lug |

3.5 Mounting the pedestal



Mounting pedestal on the ground



Note

For fastening the pedestal, use 4 screws (M8) which suit the soil conditions.

1. To seal the pedestal against the floor, use the enclosed gasket.
2. Mount the pedestal by using the 4 screws (M8).

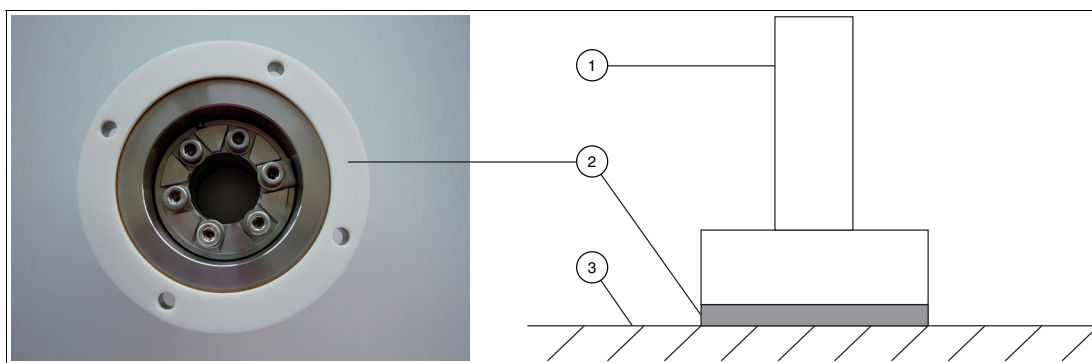


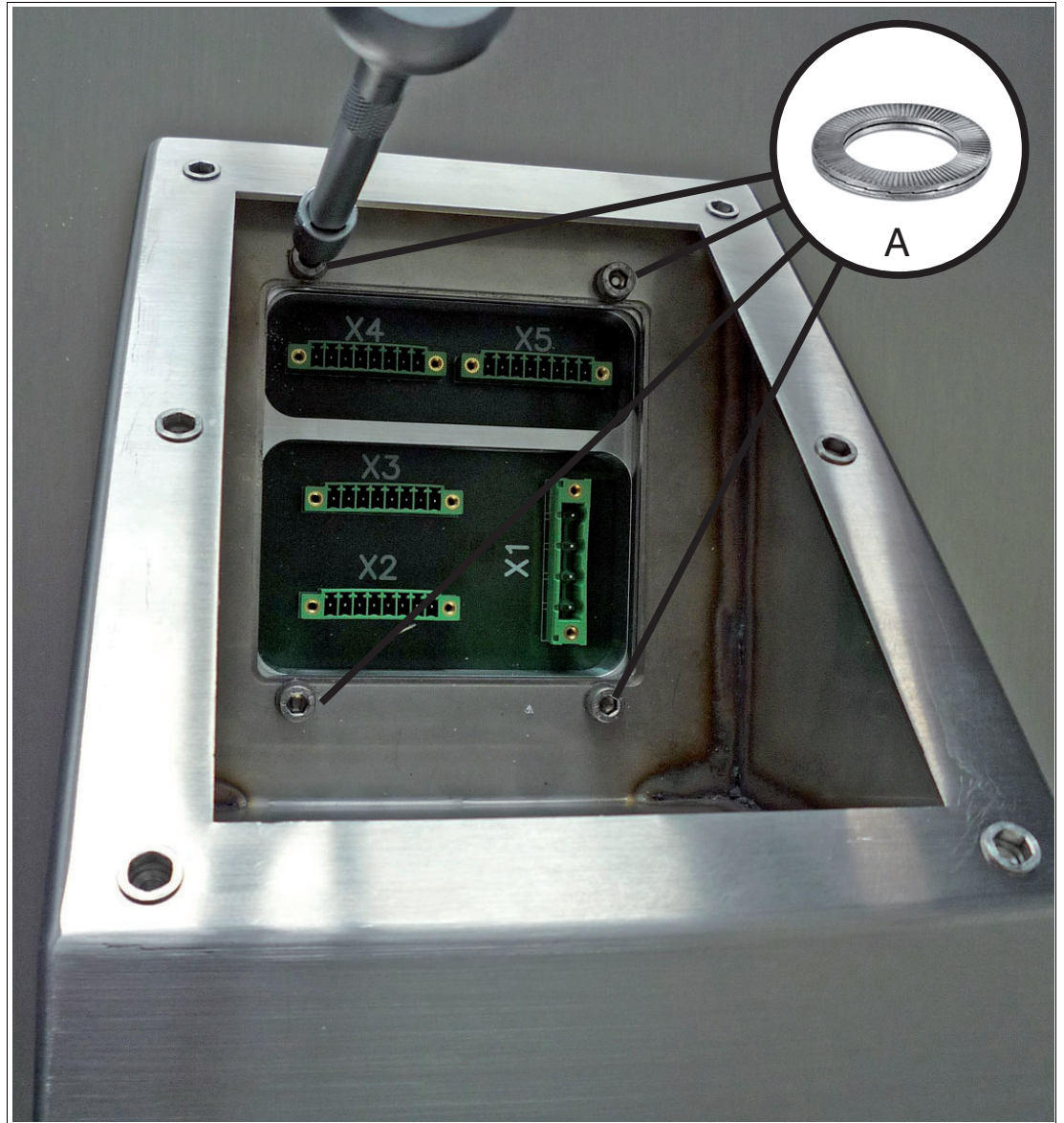
Figure 3.4 Pedestal from bottom (photo) and from side (drawing)

1. Pedestal
2. Gasket
3. Ground



Mounting and Connecting VisuNet EX2 GMP to Pedestal

1. Screw the VisuNet Ex2 GMP to the EX2 wall bracket with 4 screws (M5x20) and the Nord-Lock® washers (A) (Torque 4 Nm). The Nord-Lock® wedge lock washers (A) positively secure the fastener in a joint which is subjected to any kind of vibration or dynamic loads



2. Remove the cable gland plate inside the EX2 wall bracket by unscrewing the 4 screws.





Running the keyboard cable through the pedestal

If you use a pedestal with keyboard pipe (**PEDESTAL1-150-1P-KP-***), a wire pull is already installed for running the keyboard cable through the pedestal. Run the keyboard cable first. Run all other connection cables after that.

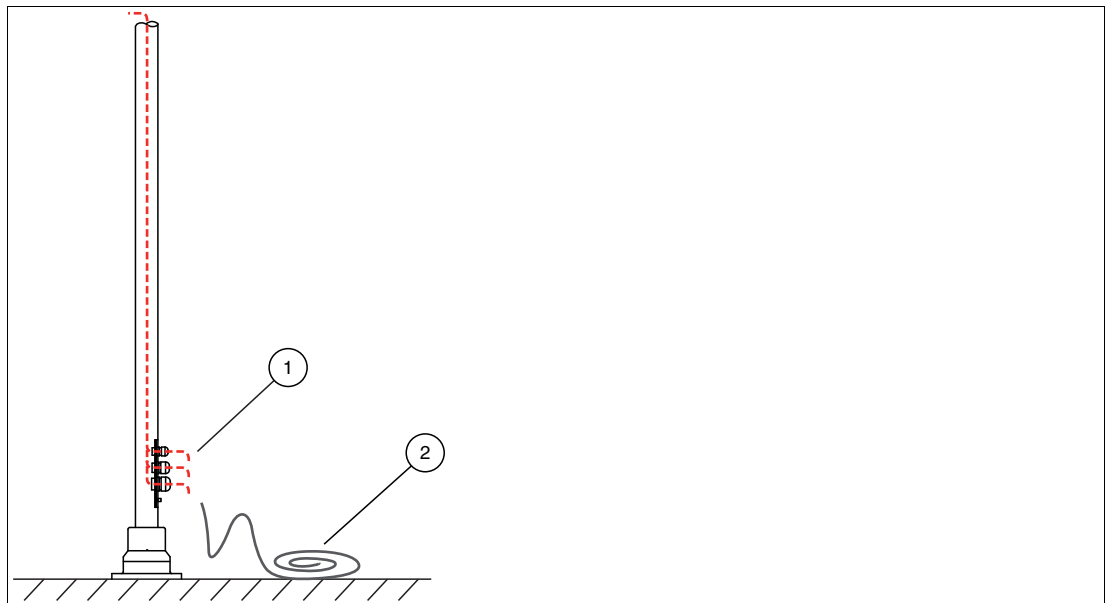
1. Tighten the keyboard cable (2) to the wire pull (1).
2. Carefully pull the keyboard cable up through the pedestal.
3. Remove the wire pull from the keyboard cable.
4. Attach the keyboard with 2 grub screws on the pedestal.



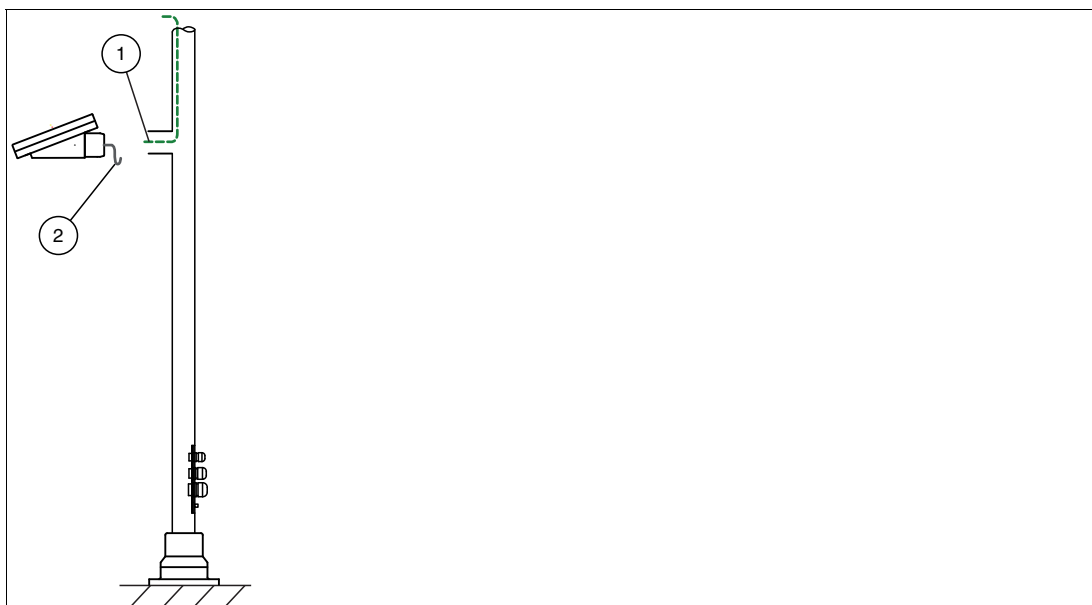
Running cables through pedestal

For easier installation of the connection cables through the pedestal, wires are already installed through the pedestal and the cable glands (1).

1. Depending on cable diameter, choose the adequate cable gland (e.g. 1 cable gland for supply cable, 1 cable gland for network cable).
2. Attach the connection cable to the current string and pull the cable carefully up.
3. Remove the strings from the connection cables.



- 1 Wire pull for connection cables
- 2 Connection cable



- 1 Wire pull for keyboard cable
- 2 Keyboard cable



Attach the keyboard at the pedestal

1. Attach the keyboard with 3 x M6 grub screws with a 3 mm allen screw at the pedestal. Torque: 4 Nm



Connecting Cable to VisuNet Ex2 GMP



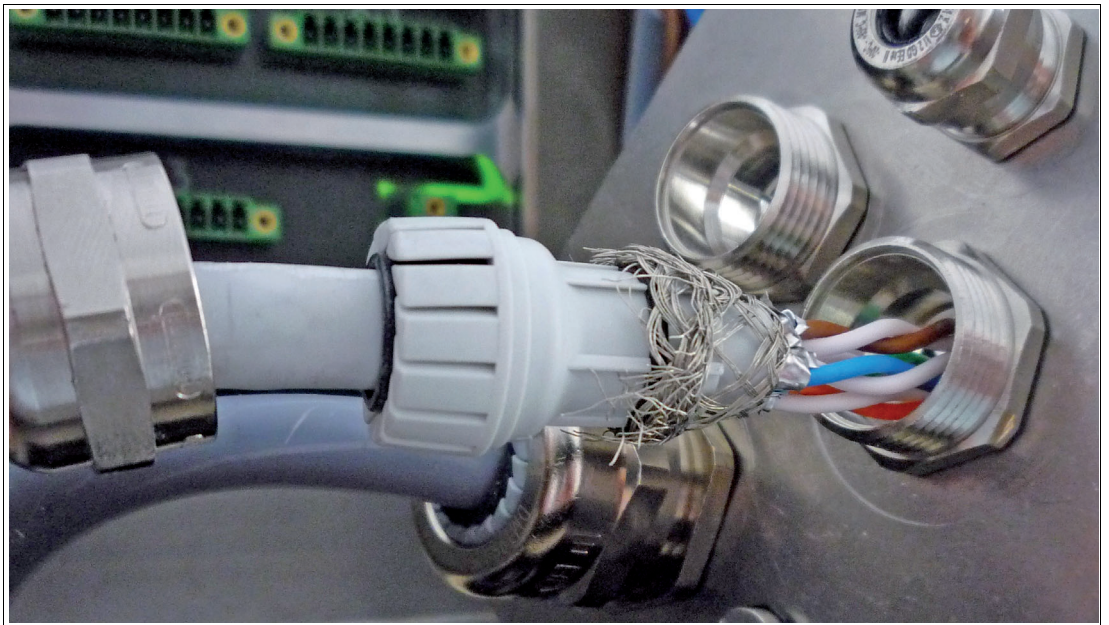
Danger!

Danger of explosion

Substantial material damage, personal injury or even up to death

Before connecting or disconnecting the device must be disconnected from power supply. The bigger, upper area of the EX2 mounting bracket is defined as Ex nA. Observe the applicable national laws and regulations in regards to installation of electrical equipment in potentially explosive atmospheres, for example IEC/EN 60079-14.

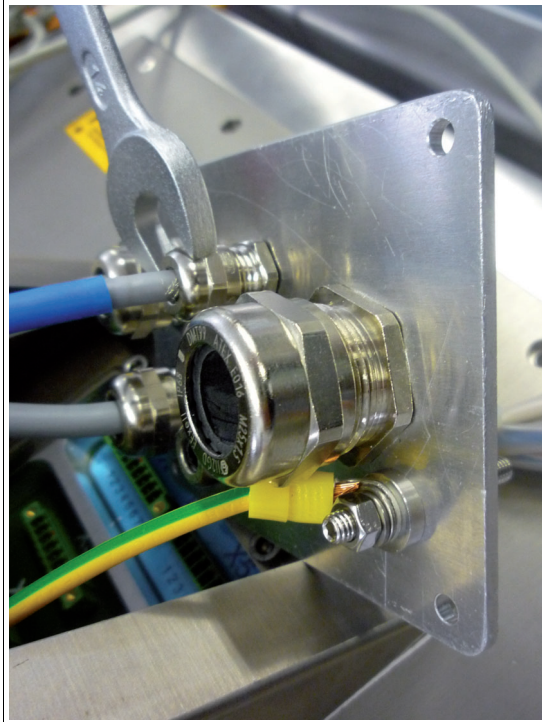
1. If you use shielded cable, remove the cable sheat, trim the shielding braid back to 2 cm and bring the cable shield into contact with the cable gland.



2. Pull the connection cables through the pedestal and thread them through the cable glands (see table "Clamping Range in the Pedestal - Wrench Size" on page 56).



3. Tighten the cable glands.



4. Attach the cable gland plate to the EX2 wall bracket (Torque 3 Nm). Make sure you pull back the cables into the pedestal resp. into the space below the EX2 wall bracket.



Content of the cable mounting set (included in delivery)

- 5 x plug (X1 to X5)
- 2 x cable tie
- 6 x silicon tube



Connecting Cable to VisuNet EX2 GMP



Danger!

Danger of explosion

Substantial material damage, personal injury or even up to death

All cables containing intrinsically safe and non intrinsically safe circuits must be isolated between themselves sufficiently. Use the supplied silicon tubs for this. Fix the cables that they cannot touch the walls. Use the supplied cable ties for this.

1. For additional insulation of the cables silicon tubs are provided. Adjust the silicon tubs (electrical strength > 2 kV) according to the required length. Insert every connecting cable if necessary with the marking flags through the silicon tubs. Connect the connection cables to the according plugs (included in delivery). Make sure the network cable is twisted up to the plug.



Figure 3.5 Example of cable mounting

2. Connect the plugs to the sockets and screw the plugs to the device.
3. Secure all cables with cable ties so that a fixed installation is guaranteed. Avoid the contact between the cables and the walls.
4. Close the cover (torque 1,6 Nm). Use screws with seals.



Tightening/Sealing the cable glands



Danger!

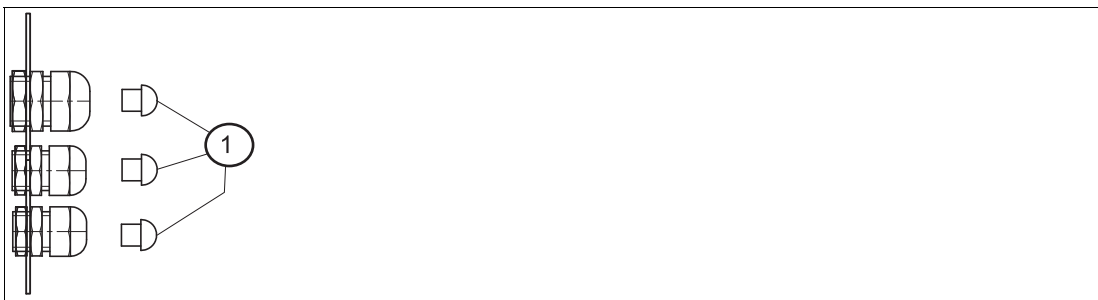
Danger of explosion

Substantial material damage, personal injury or even up to death

Tighten the cable glands correct. Sealing the cable glands with a caps..

1. Screw the cable glands with a fork wrench
2. To plug up cable glands that are not in use lightly tighten the cable gland.
3. Plug the caps in.

Sealing the cable gland with a cap



1 Cap

4. Firmly tighten the cable gland.



Mounting grounding cable to cable gland plate



Caution!

Danger of explosion

Substantial material damage, personal injury or even up to death

Use a cable with a core-cross section of min. 4 mm² for grounding.

1. Pull the grounding cable inside the pedestal to the cable gland plate.
2. Tighten the grounding cable. (see chapter 3.4.1)

4 Maintenance



Note

As a part of regular maintenance and depending on the operating conditions (vibration, shocks, additional load...) it is recommended to check the torques (20 Nm / 30 Nm) of the set screws (see below).

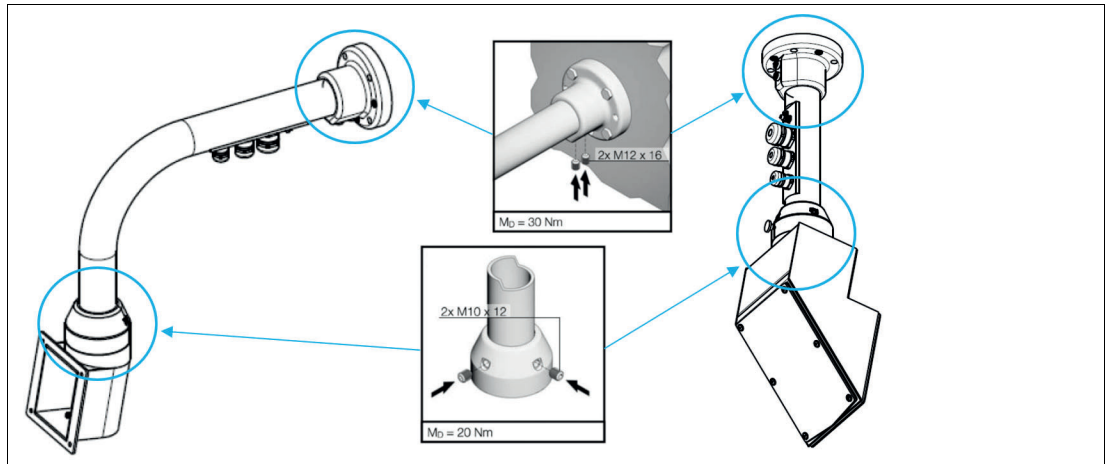


Figure 4.1 Possible wall arm constructions / applications

5 Appendix

5.1 Chemical resistance of keyboard foil

The keyboard foil is manufactured from a biaxially aligned polyester-based material and therefore has a greater resistance to solvents. The foil is stronger and more durable than other standard foils used on keyboards and front panels, such as polycarbonate and PVC.

The keyboard foil is resistant against the following substances: (Test method: DIN42115):

- Alcohols
- Dilute acids
- Dilute alkalis
- Esters
- Hydrocarbons
- Household cleaning

5.2 Anti microbial resistance of keyboard foil

The foil passed the anti microbial effectiveness tested with (Test method: AATCC Test Method 100):

- Staphylococcus aureus (MRSA)
- Escherichia coli 0157
- Listeria monocytogenes
- Pseudomonas aeruginosa
- Salmonella enteritidis
- Bacillus cereus
- Streptococcus faecalis
- Klebsiella pneumoniae
- Aspergillus niger
- Penicillium purpurogenum
- Phoma violacea
- Saccharmyces cerevisiae

5.3 Chemical resistances of the touch screen

The foil is manufactured from a biaxially aligned polyester-based material and therefore has a greater resistance to solvents. It is physically resistant to pencil lead with a maximum hardness of 3HB.

The foil is resistant against the following substances (concentration 100 % - unless otherwise specified):

| | |
|------------------------------------|-----------------------------------|
| Aldehyde: | |
| Acetaldehyde | Formaldehyde 37 - 42 % |
| Alcohols: | |
| Ethanol | Hexahydrophenol |
| Triacetin | Dowandol DRM/PM |
| Glycol | Glycerin |
| Isopropanol | Methanol |
| | Diacetone alcohol |
| Hydrocarbons: | |
| Aliphatic hydrocarbons | generally gasoline |
| Kerosene | Toluol |
| Xylene | Benzene |
| Chlorinated hydrocarbons: | |
| Chlorofluorocarbons | Perchloroethylene |
| III-Trichloroethylene | Diethyl ether |
| Methyl ethyl ketone | Trichloroethylene |
| Acids: | |
| Formic acid <10 % | acetic acid <10 % |
| Phosphoric acid <10 % | Hydrochloric acid <10 % |
| Nitric acid <10 % | Trichloroacetic acid <10 % |
| | sulfuric acid <10 % |
| Other organic solvents: | |
| Ether | Acetone |
| Dimethylformamide | Dioxane |
| Ethylidioctyl | Dibutyl phthalate |
| Phthalate | Butyl cellosolve |
| Iron chlorid (FeCl ₂) | Iron chlorid (FeCl ₃) |
| Lyes: | |
| Ammonia <10 % | Sodium hydroxide <10 % |
| | Alkali carbonate |
| Ester: | |
| Ethylacetate | N-butyl acetate |
| | Amyl acetate |
| Technical oils and greases: | |
| Drilling emulsion | Diesel oil |
| Varnish | Heating oil |

| Aldehyde: | |
|--|--|
| Liquid paraffin | Castor oil |
| Silicone oil | Turpentine oil substitute |
| Brake fluid | Decon |
| Saline solutions: | |
| Alkali carbonate | Bichromate |
| Potassium hydroxide <30 % | Acetonitrile |
| sodium bisulfate | potassium ferrocyanide |
| | Sodium hypochlorite <20 % |
| Various other substances: | |
| Molecular chlorine | Cresol phenol soaps in hydrogen solution |
| Oxygen | Tricresyl phosphate |
| Water <100 °C | Hydrogen peroxid <25% |
| Saline water | Solvent (white spirit) |
| Grape juice | Milk |
| | Coffee |
| Detergent, rising agent, cleaning agent: | |
| Potash soap | Detergent solutions (surfactants) |
| Fabric softener | Sodium carbonate |
| Household chemicals (24 hours of exposure at 50 °C) | |
| Top Job | Jet Dry |
| Gumption | Fantastic |
| Formula 409 | Ariel |
| Persil | Wisk |
| Lenor | Downey |
| Ajax | Vim |
| Domestos | Vortex |
| | Windex0 |

Resistance to surface disinfectant can be determined on request.

Slight discoloration

Intense examinations established that the following products caused slight discoloration:

- Mustard
- Tomato juice
- Tomato ketchup
- Lemon juice

No resistance

Not resistant to:

- concentrated mineral acids
- concentrated alkaline solutions
- High-pressure steam over 100 °C

**Note**

Various other substances may cause the surface structure to alter. Testing and subsequent assessment still require clarification.

5.4**Chemical Resistance of the Display Foil Frame used in versions with touch screen**

The foil is manufactured from a biaxially aligned polyester-based material and therefore has a greater resistance to solvents.

The foil is resistant against the following substances (concentration 100 % - unless otherwise specified):

| | | |
|-------------------------------------|--|-----------------------------------|
| Ethanol | Acetaldehyde | 1.1.1. Trichloroethane (Genklene) |
| Cyclohexanol | Aliphatic hydrocarbons | Amylacetate |
| Dowanol DRM/PM Diacetone | Formaldehyde (37-42%) | Butylcellosolve |
| Glycerine | Toluene | Diethyl ether |
| Isopropanol | Xylene | Ether |
| Methanol | White spirit | Ethylacetate |
| Triacetin | | N-Butyl acetate |
| | | |
| Acteone | Acetic acid (<50%) | Dibutyl Phthalate |
| Isophorone | Formic acid (<50%) | Diocetyl Phthalate |
| Cyclohexanone | Hydrochloric acid (<36%) | Fabric conditioner |
| Methylethylketone | Nitric acid (<10%) | Ferric Chloride (saturated) |
| Methylisobutyleketone | Sulphuric acid (<30%) | Ferrous Chloride (saturated) |
| Lixtop | Phosphoric acid (<30%) | Hydrogen peroxide (<25%) |
| | Trichloroacetic acid (<50%) | Potassium carbonate |
| | Glutaraldehyde in water 50% | Sodium carbonate (saturated) |
| | Oleic Acid | Sodium hypochlorite (<20%) |
| | | Tego51 |
| | | Washing powders |
| | | |
| Acetonitrile | Blown castor oil | Saturated Salt Solution |
| Ammonia (<32%) | Cutting oil (hysol X) | Water |
| Ammonium chloride (<10%) | Decon | |
| Sodium hydroxide (50%) | Diesel oil | |
| Dichromate | Hydraulic oil (Castrol Anvol) | |
| Potassium hydroxide (<40%) | Linseed oil | |
| Sodium bisulphate (<50%) | Paraffin oil | |
| Potassium ferrocyanide/ferricyanide | Universal brake fluid (Castor Girling) | |
| Silver Nitrate | Silicone oil | |
| | Teepol | |
| | Turpentine substitute | |
| | Petrol | |

| | | |
|--|------------------|--|
| | Diabasic Ester 5 | |
| | Skydrol 500B4 | |

Resistance to surface disinfectant can be determined on request.

No resistance

Not resistant to:

- Benzyl alcohol
- Concentrated caustic solution
- Concentrated mineral acids
- Dichloromethane
- Dimethylformamide
- High pressure steam at over 100°C
- Methylene chloride
- Tetrahydrofuran

Slight discoloration

Intense examinations established that the following products caused slight discoloration:

- Mustard
- Tomato juice
- Tomato ketchup
- Lemon juice
- Tea
- Coffee



Note

Various other substances may cause the surface structure to alter. Testing and subsequent assessment still require clarification.

5.5

Replacing an EXTA3-K* keyboard

Assembly, commissioning, operation, maintenance, and dismantling of any device may only be carried out by trained, qualified personnel.



Caution!

Fault / Complete Failure

Devices or any connected facilities or systems may develop a fault or fail completely.

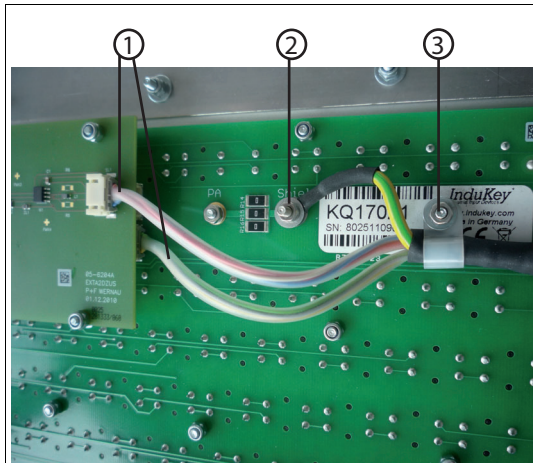
Consider the ESD safety measures.

5.5.1 Dismounting an EXTA3-K* keyboard

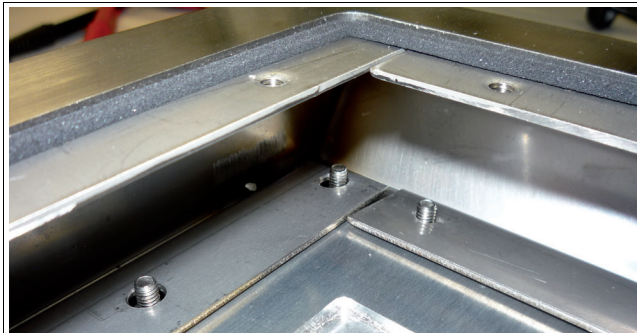


Dismounting a keyboard

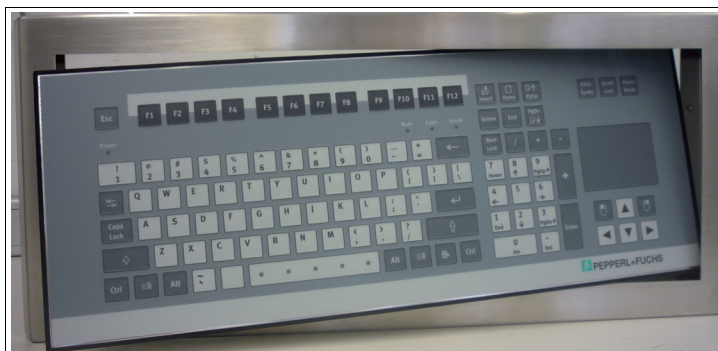
1. Separate the silicon joint between housing and keyboard. Use a sharp-edged tool, for example, a knife or a scalpel.
2. Open the bottom plate.
3. Remove the cables from the board: Remove the cables (1). Detach the PE connector (2). Detach the cable clamp (3). When reconnecting the PE connector, tighten the lock nut to a torque of 0.3 Nm.



4. Remove the mounting rail of the keyboard. Remove the lock nuts. Remove the rails.



5. Remove the keyboard through the front of the housing.

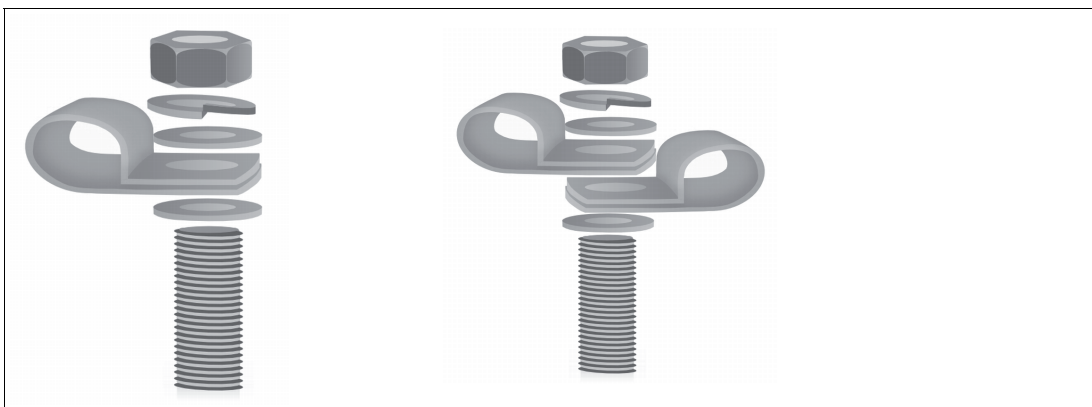


5.5.2 Attaching EXTA3-K*Keyboard

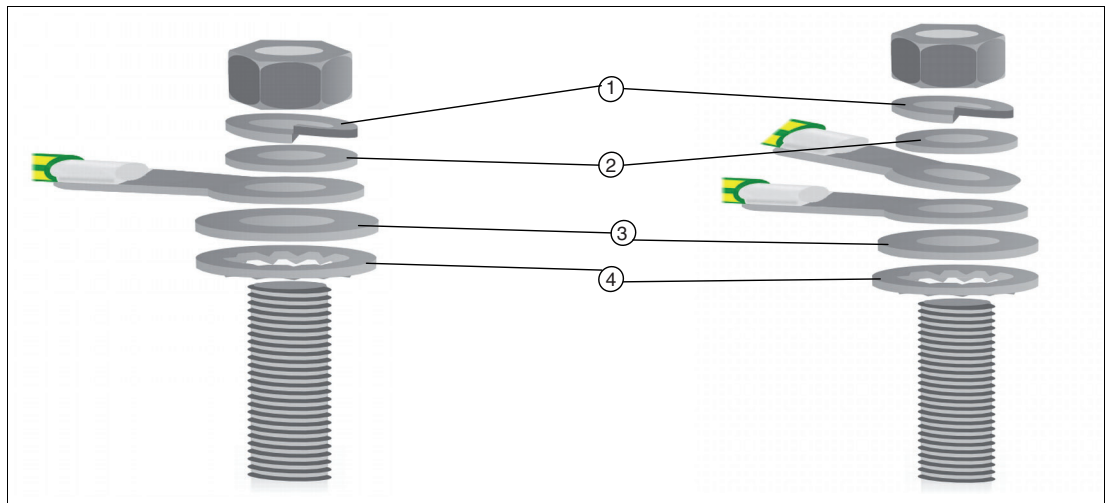


Attaching the Keyboard

1. Remove the cover plate of the keyboard.
2. Replace the eight distance bolts with eight lock nuts. Tighten the lock nuts to a torque of 0.3 Nm.
3. Remove the connection cable of the keyboard. See chapter 5.5.
4. From the front, place the keyboard correctly in the housing. See chapter 5.5 (In reverse order).
5. From the rear, place the mounting rails on the keyboard and secure them with the new lock nuts provided. Tighten one lock nut on each rail but ensure that the keyboard can still be moved. Center the keyboard. Tighten all the lock nuts to a torque of 0.4 Nm using a suitable tool.
6. Attach the cable clamp. Depending on the keyboard variant, one or two cables are available.

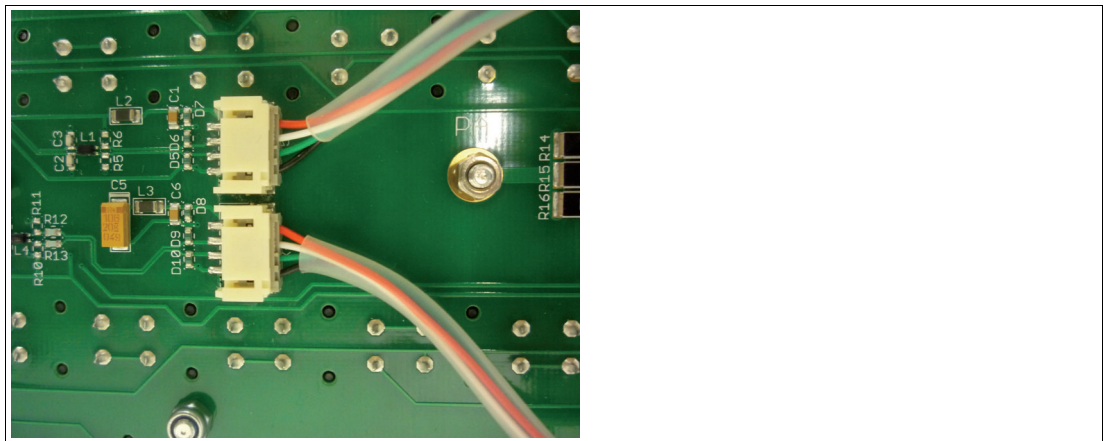


7. Attach the PA cable. Depending on the keyboard variant, one or two cables are available.



- 1 Spring washer M3
- 2 Washer M3
- 3 Washer M4
- 4 Toothed lock washer M4

8. Connect the cables to the circuit board.



9. Close the base plate.
10. To ensure GMP compatibility, properly apply silicone to the gap on the keyboard.

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