

MANUAL

# EXTA2-\* Keyboard



With regard to the supply of products, the current issue of the following document is applicable: The General Terms of Delivery for Products and Services of the Electrical Industry, published by the Central Association of the Electrical Industry (Zentralverband Elektrotechnik und Elektroindustrie (ZVEI) e.V.) in its most recent version as well as the supplementary clause: "Expanded reservation of proprietorship"

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# 1 Safety

## 1.1 General

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

Installation and commissioning of all devices may only be performed by trained and qualified personnel.

Protection of operating personnel and the system is not ensured if the product is not used in accordance with its intended purpose.

Laws and regulations applicable to the usage or planned purpose of usage must be observed. Devices are only approved for proper usage in accordance with intended purpose. Improper handling will result in voiding of any warranty or manufacturer's responsibility.

The Declaration of Conformity, Certificate of Compliance, Statement of Conformity, EC-type-examination certificate and data sheets are an integral part of this document.

The data sheet contains the electrical data of the Declaration of Conformity, the Certificate of Compliance and the EC-type-examination certificate.

The documents mentioned are available from <http://www.pepperl-fuchs.com> or contact your local Pepperl+Fuchs representative.

## 1.2 Delivery, Transport and Storage

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 the device in a clean and dry environment. The permitted storage temperature (see datasheet) must be considered.

## 1.3 Installation and Commissioning EXTA2

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

### **Installation in the presence of intrinsically safe circuits**

The intrinsically safe circuits of the devices are allowed to be introduced into hazardous areas. In this case, they must be safely isolated from all non-intrinsically safe circuits.

The intrinsically safe circuits must be installed in accordance with the applicable installation regulations.

If intrinsically safe field devices are interconnected with the intrinsically safe circuits in associated devices, the respective maximum values of these field devices and the associated devices must be complied with in the interests of explosion protection (verification of intrinsic safety). Account must be taken of EN 60079-14 / IEC 60079-14. Compliance with the "National Foreword" of DIN EN 60079-14 / VDE 06165 Part 1 must be additionally ensured if the devices are used in the Federal Republic of Germany.

The identification plate must not be removed.

The device must be free of voltage during installation and maintenance. The keyboard/mouse must only be connected to the supply voltage after complete mounting and connection.

Individually accessible non-grounded metal parts can become electrostatically charged. The determined capacitance exceeds the required value according to IEC/EN 60079-0. The determined capacitance is specified in the technical data.

Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.



## 1.4 Keyboard Marking

EXTA2-\*

Pepperl+Fuchs

D-68307 Mannheim

www.pepperl-fuchs.com

### Additional label acc. to ATEX



EXTA2-*
Zone 1 and zone 21
BVS 07 ATEX E 163 X





### Additional label acc. to IECEx

EXTA2-*
Zone 1 and zone 21
IECEx BVS 08.0022X
Ex ib IIC T4 Gb
Ex ib IIIB T135°C Db

### Additional UL listing—EXTA2-J-T and EXTA2-J-F for K1, K4, K6, K8, and K9 models

 68307 Mannheim, Germany    www.pepperl-fuchs.com    #F#	
	Class I, Division 2, Groups A, B, C, D; T5    Class I Zone 2, Group IIC; T5 Max. ambient temperature 50 °C    Max. ambient temperature 50 °C Non-incendive when installed per control drawing 116-0357B

### Additional UL recognition—EXTA2-J-N for K1, K4, K8, and K9 models

 68307 Mannheim, Germany    www.pepperl-fuchs.com    #F#	
	Class I, Division 2, Groups A, B, C, D; T5    Class I Zone 2, Group IIC; T5 Class II, Division 2, Groups F, G; T5    Class II Zone 22, Group IIIB; T85°C Class III    Class III Zone 22, Group IIIA; T85°C Max. ambient temperature 50 °C    Max. ambient temperature 50 °C

## 1.5 Repair and Maintenance

The device must not be repaired, changed, or manipulated. In case of failure, always replace the device with an original device.

### 1.5.1 Maintenance

Standards, directives, or statutory requirements stipulating regular system tests may exist in connection with keyboards and mouse devices used as part of a system. The keyboard functionality should be tested at least twice per year, or more often under heavy-duty conditions.

Do not use caustic fluids to clean the keyboard.  
A dirty keyboard could cause a malfunction or ultimately stop working.

## 1.6 Disposal

Disposal of devices and their packaging material must be performed in compliance with the applicable laws and guidelines of the corresponding country.

The devices do not contain any batteries that need to be disposed of separately from the products.

## 1.7 Intended Use of the EXTA2 Keyboard

EXTA2 is a PC keyboard with an optional control element for mouse functions (touchpad, trackball, joystick). The keyboard has USB interfaces for intended use in Zone 1 and Zone 21 hazardous areas according to ATEX Directive 2014/34/EU and IECEx. The USB interfaces of the keyboard and the control element for mouse functions are separated, intrinsically safe circuits. Both intrinsically safe circuits are led out either in one or two separate connection cables. The connection cable corresponds to type "B" according IEC 60079-14 section 12.2.2.8. The cable has to be secured and effectively protected from damage. The EXTA2 keyboard cannot be installed in locations where corrosive media may be used.

To avoid discharge processes, the keyboard may only be installed in areas where high electrostatic buildup due to dust is unlikely. To avoid electrostatic charging, the keyboard cannot be covered or glued with foils.

The keyboard cannot be exposed to direct sunlight, unless it is equipped with the UV-resistant foil option.

When connecting the EXTA2 keyboard to a VisuNet RM/PC, keep in mind that the USB connection is not hot swappable. Connect the keyboard cable when there is no voltage applied.

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.



## 1.8 Used Symbols

### Safety-Relevant Symbols



***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**

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



## 2 Product Specifications



### 2.1 Function

The EXTA2 is a keyboard/mouse combination with USB interfaces, available in different versions. The intrinsically safe keyboards integrate different mouse systems. The outside dimensions are the same for all versions. The keyboards are designed for panel mounting or for installation in a housing. The EXTA2 comes with an 8-pin connection cable included.

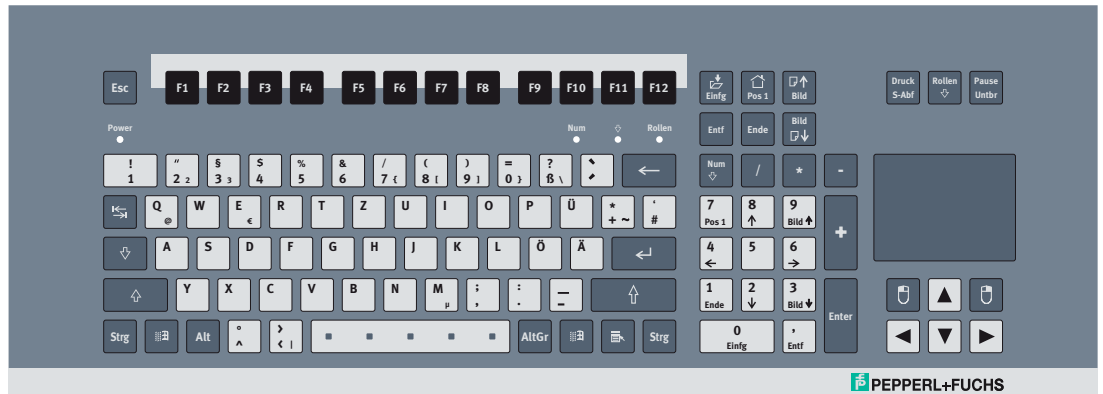
### 2.2 Technical Data EXTA2-K3 with Trackball, Intrinsically Safe



Technical Data EXTA2-K3	
<b>General specifications</b>	
Type	Keyboard with trackball
<b>Supply</b>	
Rated voltage	Ex i, via data line
<b>Indicators/operating means</b>	
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
<b>Interface</b>	
Interface type	USB or PS/2 (PS/2 via adapter)
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations) ; EN 61000-6-4:2007+A1:2011
RoHS	
Directive 2011/65/EU (RoHS)	EN 50581:2012-09
<b>Conformity</b>	
Electromagnetic compatibility	EN 61000-6-2:2005
Degree of protection	IP65 , if trackball is inactive. Undefined during motion.
<b>Ambient conditions</b>	
Ambient temperature	0 ... 50 °C (32 ... 122 °F)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)

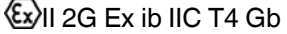

Technical Data EXTA2-K3	
Relative humidity	max. 85 % , non-condensing
<b>Mechanical specifications</b>	
Material	anodized aluminum , Polyester foil
Mass	1.2 kg
Dimensions	482.6 mm x 177.8 mm x 45 mm
Cut out dimensions	450 mm x 152 mm
Cable length	5 m / 1.8 m, USB
<b>Data for application in connection with hazardous areas</b>	
EC-Type Examination Certificate	BVS 07 ATEX E 163 X
Group, category, type of protection	 II 2G Ex ib IIC T4 Gb  II 2D Ex ib IIIB T135°C Db
Input	
Voltage	5.4 V
Current	240 mA
Power	600 mW
Internal capacitance	24 µF
Internal inductance	negligible
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012+A11:2013, EN 60079-11:2012
<b>International approvals</b>	
UL approval	UL listing/recognition: E190294
IECEX approval	IECEX BVS 08.0022X
Group, category, type of protection	Ex ib IIC T4 Gb, Ex ib IIIB T135°C Db

## 2.3 Technical Data EXTA2-K4 with Touchpad, Intrinsically Safe



Technical Data EXTA2-K4	
<b>General specifications</b>	
Type	Keyboard with touchpad
<b>Supply</b>	
Rated voltage	Ex i, via data line
<b>Indicators/operating means</b>	
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
Driver	Microsoft Mouse ® , USB
<b>Interface</b>	
Interface type	USB or PS/2 (PS/2 via adapter)
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations) ; EN 61000-6-4:2007+A1:2011
RoHS	
Directive 2011/65/EU (RoHS)	EN 50581:2012-09
<b>Conformity</b>	
Electromagnetic compatibility	EN 61000-6-2:2005
Degree of protection	IP66
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 50 °C (-4 ... 122 °F)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)
Relative humidity	max. 85 % , non-condensing
<b>Mechanical specifications</b>	
Material	anodized aluminum , Polyester foil
Mass	1.2 kg
Dimensions	482.6 mm x 177.8 mm x 45 mm

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Technical Data EXTA2-K4	
Cut out dimensions	450 mm x 152 mm
Cable length	5 m / 1.8 m, USB
<b>Data for application in connection with hazardous areas</b>	
EC-Type Examination Certificate	BVS 07 ATEX E 163 X
Group, category, type of protection	 
Input	
Voltage	5.4 V
Current	240 mA
Power	600 mW
Internal capacitance	24 µF
Internal inductance	negligible
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012+A11:2013, EN 60079-11:2012
<b>International approvals</b>	
UL approval	UL listing/recognition: E190294
IECEX approval	IECEX BVS 08.0022X
Group, category, type of protection	Ex ib IIC T4 Gb, Ex ib IIIB T135°C Db

## 2.4 Technical Data EXTA2-K6 with Joystick, Intrinsically Safe



Technical Data EXTA2-K6

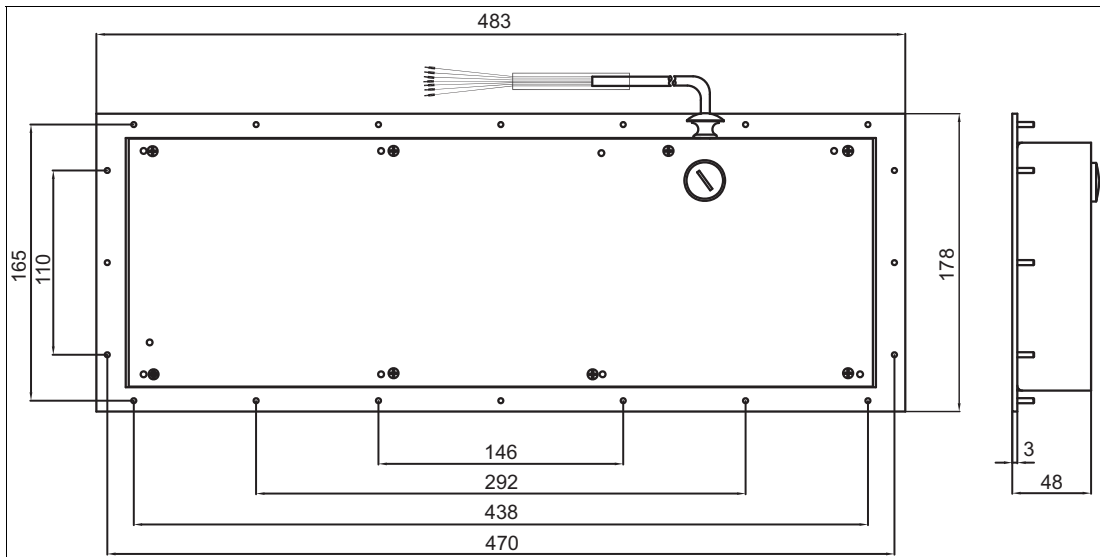
<b>General specifications</b>	
Type	Keyboard with joystick
<b>Supply</b>	
Rated voltage	Ex i, via data line
<b>Indicators/operating means</b>	
Keyboard	105 short stroke keys Keyboard layout: US international, German, French, (further keyboard layouts on demand)
Joystick	
Driver	Microsoft Mouse ® , USB
<b>Interface</b>	
Interface type	USB or PS/2 (PS/2 via adapter)
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations) ; EN 61000-6-4:2007+A1:2011
RoHS	
Directive 2011/65/EU (RoHS)	EN 50581:2012-09
<b>Conformity</b>	
Electromagnetic compatibility	EN 61000-6-2:2005
Degree of protection	IP65
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 50 °C (-4 ... 122 °F)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)
Relative humidity	max. 85 % , non-condensing
<b>Mechanical specifications</b>	
Material	anodized aluminum , Polyester foil
Mass	1.2 kg
Dimensions	482.6 mm x 177.8 mm x 45 mm
Cut out dimensions	450 mm x 152 mm
Cable length	5 m / 1.8 m, USB

Technical Data EXTA2-K6	
<b>Data for application in connection with hazardous areas</b>	
EC-Type Examination Certificate	BVS 07 ATEX E 163 X
Group, category, type of protection	⚠ II 2G Ex ib IIC T4 Gb ⚠ II 2D Ex ib IIIB T135°C Db
Input	
Voltage	5.4 V
Current	240 mA
Power	600 mW
Internal capacitance	24 µF
Internal inductance	negligible
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012+A11:2013, EN 60079-11:2012
<b>International approvals</b>	
UL approval	UL listing/recognition: E190294
IECEX approval	IECEX BVS 08.0022X
Group, category, type of protection	Ex ib IIC T4 Gb, Ex ib IIIB T135°C Db

2.5

EXTA2 back view

Keyboard dimensions back view



The EXTA2 comes with an 8-pin connection cable included.



## 2.6 Accessories

If you use the EXTA2 as a stand-alone keyboard, an additional barrier is required.

Order Code	Description	Part Number
KI153	<ul style="list-style-type: none"><li>■ Barrier</li><li>■ 2 USB cables to connect the barrier with the PC</li><li>■ 2 USB PS/2 adapters</li></ul>	256034

### 3 Installation and Commissioning

#### 3.1 Mounting the Keyboard Connecting Cable to a PC



**Note!**

For installation and connection in North America, refer to Control Drawing 116-0357B.



#### Connecting the Keyboard to a PC via the Keyboard Connecting Cable

Connect the wires of the keyboard connecting cable as shown in the following table.

**Keyboard and Mouse (EXTA2-K\*) Core Assignment**

	Assignment	Color coding
<b>Keyboard</b>	Ui	green
	D+	brown
	D-	grey
	GND	yellow
<b>Mouse</b>	Ui	red
	D+	white
	D-	pink
	GND	blue



**Note!**

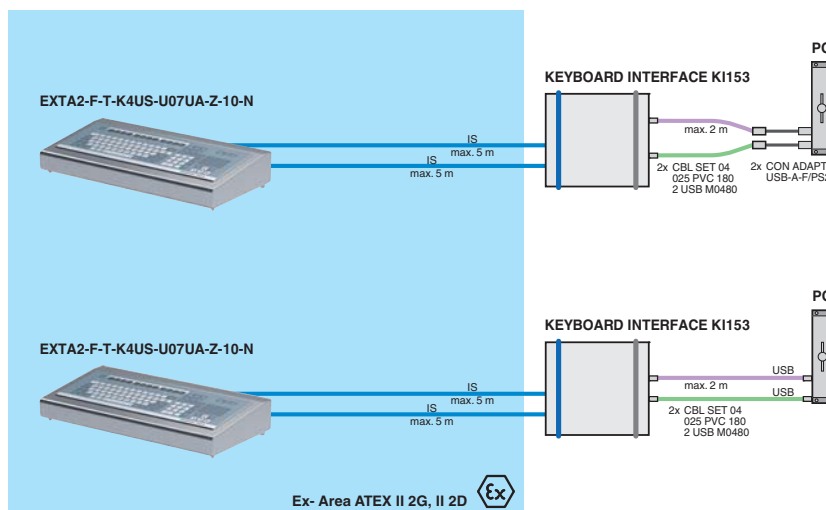
**Torque Specifications for Keyboard Lid**

After connecting the keyboard, tighten the screws on the EXTA2 lid to a torque of 0.5 Nm (4.4 in lb).



#### Connecting the Keyboard to a PC via Barrier KI153

1. Plug the USB plugs of the keyboard cables into the USB ports of the barrier. Use the USB ports on the face labeled with "intrinsically safe."
2. Plug the USB plugs of the **enclosed** USB cables into the USB ports of the barrier. Use the USB ports on the face labeled with "not intrinsically safe."
3. Plug the USB plugs of the enclosed USB cables into 2 unused PC USB ports. By using the enclosed USB PS/2 adapters, you have the possibility to use the PC's PS/2 interface instead of the USB ports.



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## Equipotential Bonding



### **Danger!**

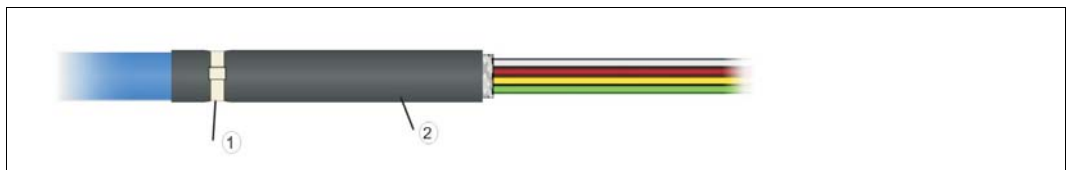
Explosion Hazard

Risk of fatal injury and severe property damage.

**The housing must always be connected to the PE. There are 2 possibilities:  
Connection via cable shielding of the connecting cable.  
Built into a metal housing that is connected to the PE.**

1. The shielding of the keyboard cable must be connected in the cable gland of the PC/display (VisuNet) (refer to VisuNet manual). Before doing this, open the cable clip (1) and remove the cable protective tube (2).

### **End of the Keyboard Cable (Attached to the Keyboard)**







- (1) cable clip
- (2) cable protective tube

2. Install the keyboard in a metal housing that is connected to PE.

### 3.2 Installation Instructions for Hazardous-Location EMC Cable Glands

Power supply cables for the Ex e Ethernet and the RS-485 or TTY Ex e data interface, the Ex i keyboard, and the Ex i scanner must be shielded to ensure sufficient immunity to interference (EMC). Connect the cable shielding to the VisuNet RM/PC according to the following installation instructions:

	<p><b>Step 1</b></p> <ul style="list-style-type: none"> <li>■ Isolate the cable.</li> <li>■ Expose the braid.</li> <li>■ Remove the braid and insulation little by little.</li> <li>■ With thin cables, the braid can be folded back over the insulation sheath.</li> <li>■ Insert the cable into the gland until the braid reaches the contact point.</li> <li>■ Tighten the cable gland.</li> </ul>
	<p><b>Step 2</b></p> <ul style="list-style-type: none"> <li>■ Guide the cable through the lock nut.</li> <li>■ Guide the cable into the terminal insert.</li> <li>■ Fold the braid over the insert.</li> <li>■ The braid must overlap the O-ring by about 2 mm</li> </ul>
	<p><b>Step 3</b></p> <ul style="list-style-type: none"> <li>■ Fit the terminal insert into the intermediate gland.</li> <li>■ Assemble the cable gland.</li> </ul>
	<p>Internal view of the assembled cable gland.</p>

### 3.3 Housing design keyboard

There are different possibilities to mount the keyboards.

1. Panel mounting (Housing version -N)
2. The keyboard is mounted in a desktop housing. (Housing version -T)
3. Wall mounting (Housing version -F)

#### 3.3.1 Keyboard for Panel mounting (Housing Version -N)

##### Safety Information for Installation in North America

When installed in North America, EXTA2-J-N models are only suitable for use in the following locations:

- Class I, Division 2, Groups A, B, C, and D
- Class II, Division 2, Groups F and G
- Class III
- Nonhazardous locations

The following safety information applies for installation in North America:



**Danger!**

Explosion Hazard

Risk of fatal injury and severe property damage.

Do not substitute components. Substitution of any component may impair suitability for Class I, Division 2 and Class II, Division 2.

Devices must also be installed in a suitable enclosure.



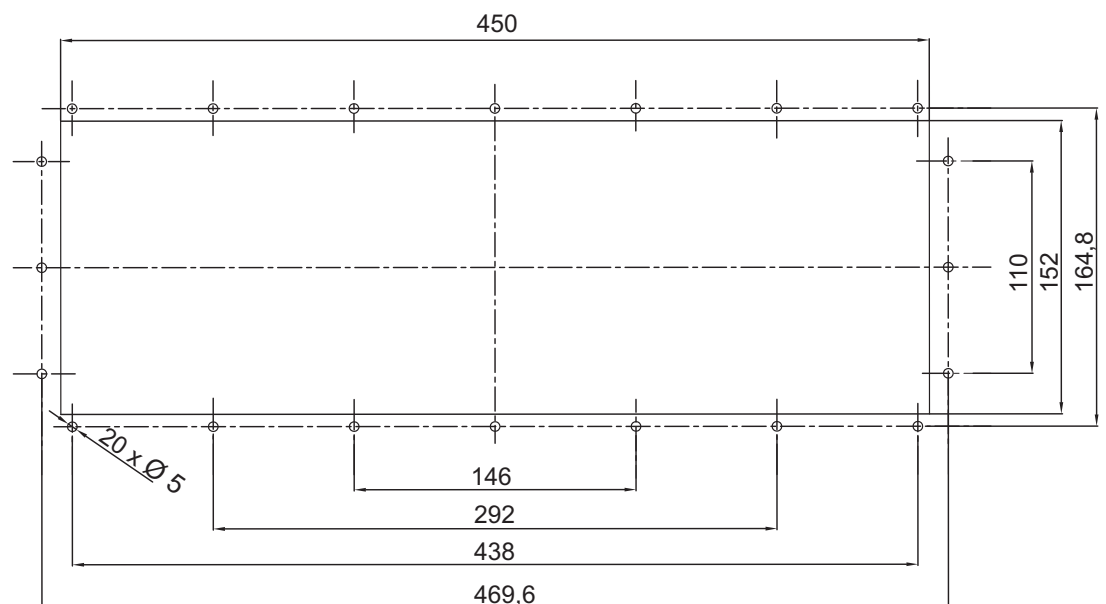
**Warning!**

Maximum Air Temperature

Risk of device damage.

Devices are suitable for a maximum surrounding air temperature of 50 °C.

##### Assembly of the keyboard with cover at the back: Cutout



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**Note!**

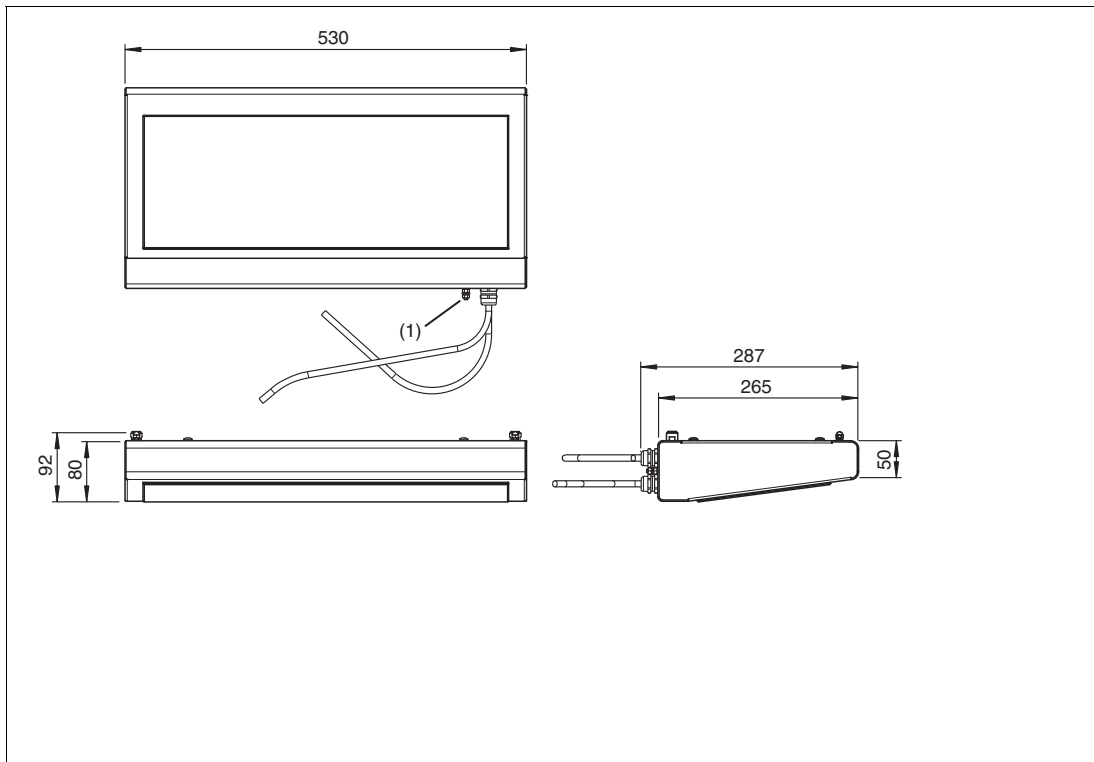
**Torque Specifications**

Torque the screws for the EXTA2 keyboard and housing interface to 0.4 Nm (3.5 in lb).

3.3.2

**Desktop Keyboard (Housing Version -T, e. g., for VisuNet)**

**Desktop Keyboard Dimensions**

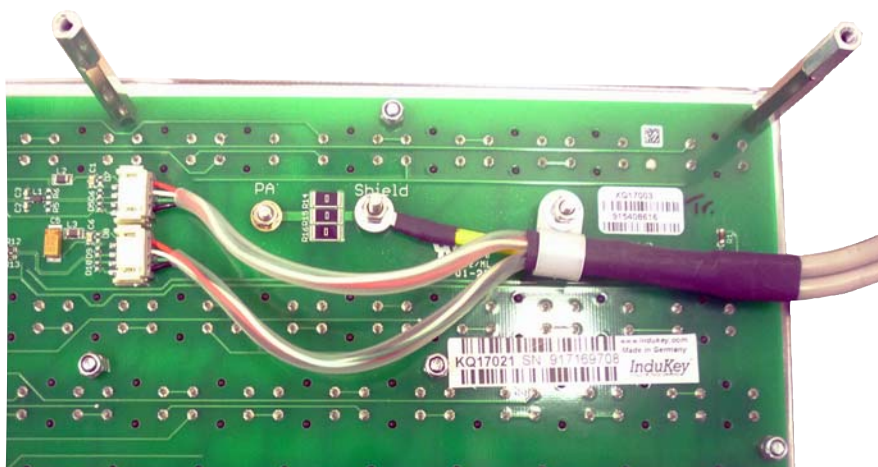


■ (1) protective earth bolt

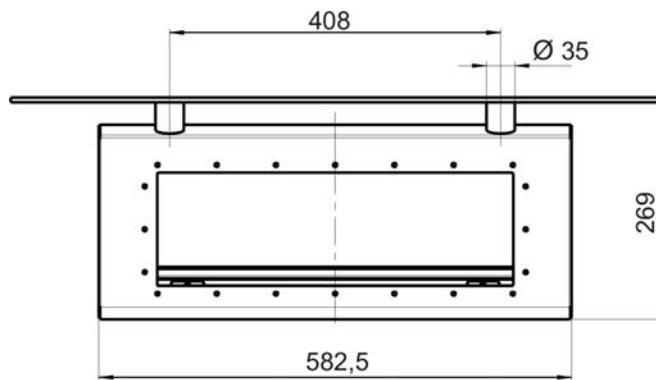


**Note!**

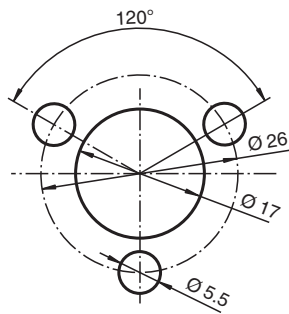
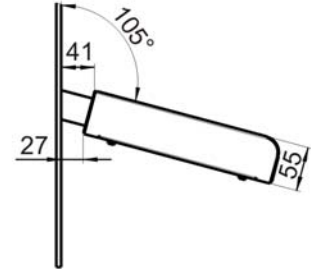
To simplify keyboard mounting, you can remove the cables from the keyboard PCB. After you have mounted the keyboard, reattach all cables properly—including the PA cable. Tighten protective earth to a torque of 0.15 Nm (1.3 in lb). Tighten the cable clip to a torque of 0.3 Nm (2.6 in lb).



### 3.3.3 Keyboard for Wall Mounting (Housing Version -F) Dimensions Mounting Option -H

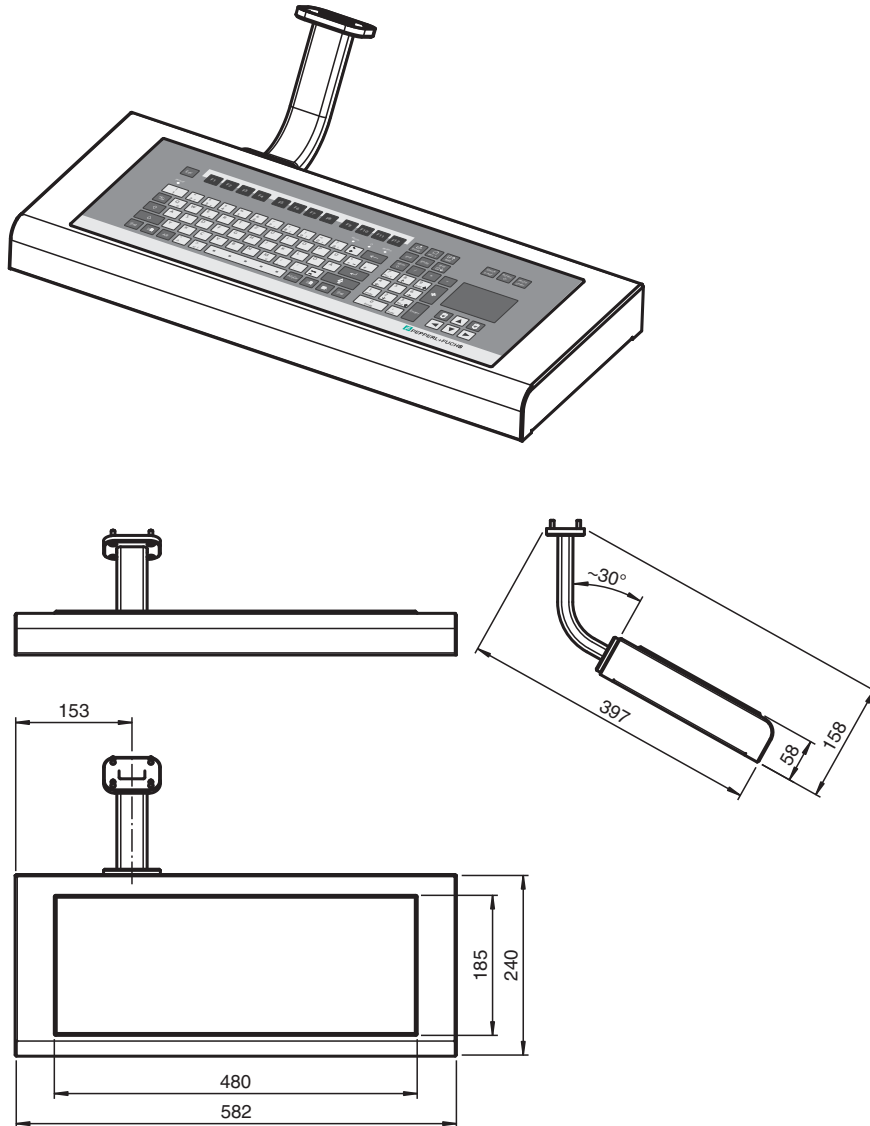


Drilling pattern for the wall





### 3.3.4 Mounting Option -G for Housing AG-XX00



4 Appendix  
4.1 Chemical Resistances  
4.1.1 Chemical Resistance of Keyboard Foil



**Warning!**

Not all models are resistant to UV light!

Destruction of keyboard foil.

Unless the keyboard is equipped with the UV-resistant foil option, do not expose the keyboard foil to direct sunlight. EXTA2-\*U models have a UV-resistant foil and are suitable for outdoor use. See chapter 4.2.

**Antimicrobial 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	Hydrocarbons
Dilute acids	Ketones
Dilute alkalis	Household cleaners
Esters	

**The keyboard foil is resistant against the following substances (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



#### 4.1.2 Chemical resistance of the trackball, keyboard variant EXTA2-K3

Chemical resistance of the trackball:
Mineral lubricants
Aliphatic hydrocarbons
Aromatic hydrocarbons
Benzine
Weak mineral acids
Strong mineral acids
Weak organic acids
Strong organic acids
Oxidise acids
Weak bases
Strong bases
Trichlorethylen
Perchlorethylen
Acetone
Alchole
Hot water (hydrolyses resistant)
UV-light and atmospheric conditions

#### Instructions for cleaning the trackball

- Only use damp cloth to avoid ingress of cleaning fluid.
- Clean carefully, beware of applying pressure.
- Wipe the cleaning fluid off.



## 4.2 Typecode

Type	Explosion Protection	Housing	Keyboard Type	Keyboard Layout	Interfaces	Cable Length	Connector Type	Mounting Option	Revision	Options	
<b>EXTA2-</b>	Keyboard for hazardous areas										
<b>TA2-</b>	Keyboard for safe area										
	<b>Ex Protection</b>										
	<b>-F</b>	ATEX II 2 GD; Zone 1/21									
	<b>-J</b>	ATEX/IECEx II 2 GD; Zone 1/21 NEC Class I, Division 2, Zone 2; Class II, Division 2, Zone 22; and Class III, Zone 22 (only in combination with "N" housing option).									
	<b>-N</b>	Version for safe area									
	<b>-K</b>	ATEX/IECEx, Class I, Division 2, in combination with housing options T or F									
		<b>Housing</b>									
	<b>-N</b>	Panel mount version									
	<b>-T</b>	Desktop version									
	<b>-F</b>	Enclosure Version									
		<b>Keyboard Type</b>									
	<b>-K3</b>	Foil keyboard with trackball. ATEX/IECEx only.									
	<b>-K4</b>	Foil keyboard with touchpad									
	<b>-K6</b>	Foil keyboard with joystick. Not to be used with option "N" when marked as Class I, Division 2, Zone 2; Class II, Division 2, Zone 22; Class III, Zone 22.									
		<b>Keyboard Layout</b>									
	<b>-US</b>	US international keyboard layout									
	<b>-DE</b>	German keyboard layout									
	<b>-FR</b>	French keyboard layout									
	<b>-XXX</b>	Other keyboard layouts on demand									
		<b>Interface</b>									
	<b>-U</b>	2x USB interface									
		<b>Cable Length</b>									
		02	1.8 m keyboard cable								
		05	5 m keyboard cable								
		<b>Connector Type</b>									
	<b>-CF</b>	Cable ends with wire end ferrule									
	<b>-UA</b>	2 x USB plugs type A (not available for Ex protection option "-J")									
		<b>Mounting Option</b>									
	<b>-Z</b>	No mounting option necessary									
	<b>-F</b>	15° mounting adapters, vertical									
	<b>-L</b>	75° mounting adapters, vertical									
	<b>-H</b>	15° mounting adapters, horizontal									
	<b>-G</b>	1-Arm for mounting to housing AG-XX00									
		<b>Revision</b>									
	<b>-10</b>	Release 1.0									
		<b>Options</b>									
	<b>-N</b>	No options									
	<b>-U</b>	UV-resistant foil									

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# PROCESS AUTOMATION – PROTECTING YOUR PROCESS



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