




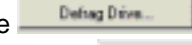
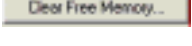
Technical Manual
VISUEX PCEX 410
VISUEX PCEX 412

Pepperl+Fuchs GmbH

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1 Important information

1.1 General information

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Publisher:

Pepperl-Fuchs GmbH
Königsberger Allee 87
68307 Mannheim Deutschland

www.pepperl-fuchs.com

Tel. 0621-776-0
Fax 0621-776-1000

E-Mail: info@de.pepperl-fuchs.com

How to contact Pepperl+Fuchs GmbH:

Should you encounter any problems with the device, please consult the technical manual first of all. If you are still unable to solve the problems after studying the above information carefully you can contact the following places:

If you need to contact the support hotline, please make sure you have the Technical manual handy!

| Region | Tel. / mail address |
|--|--|
| Western Europe France, Belgium, Netherlands, Luxemburg, South Africa | +33-1 60 92 13-13, commercial@fr.pepperl-fuchs.com |
| Northern Europe Great Britain, Sweden, Norway, Denmark, Ireland, Finland | +44-161-633 6431 sales@gb.pepperl-fuchs.com +353-21-4883798 info@insteco.iol.ie +358-9-477720-0 joel.patriikka@sononor.fi |
| Southern Europe Italy, Spain, Greece, Switzerland, Israel | +39-039 6292-1 info@it.pepperl-fuchs.com |
| Eastern Europe Russia, Austria, Czech Rep., Hungary, Poland, Croatia, Slovenia, Trukey, Romania | +39-039 6292-1, info@it.pepperl-fuchs.com |
| Germany | +49-711-315455-12 support_hmi@de.pepperl-fuchs.com |
| Northern America USA, Canada, Mexico | +1-330-486-0002 sales@us.pepperl-fuchs.com |
| Southern America Brasil, Chile, Middle-A., Argentina | +55-11-4339-9935 vendas@br.pepperl-fuchs.com +54-11-4730 1100 schillig@schillig.com.ar |
| Middle-East / India Dubai, UA, Kuwait, Pakistan, Iran, Irak, India | +971-4-88-38378 info@ae.pepperl-fuchs.com +91-80-28378030 pa-info@in.pepperl-fuchs.com |
| Asia-Pacific Australia, Singapore, China, Thailand, ... Japan | +65-6779-9091 sales@sg.pepperl-fuchs.com +81-45-939 7802 sales@jp.pepperl-fuchs.com |

1.2 Classification of the devices VISUEx Panel-PC

| PCEX 410 | PCEX 412 |
|---|---|
| In areas with combustible gases: Ⓜ II 2 G EEx qe [ib] IIC T4 optional: In areas with combustible types of dust: Ⓜ II 3 D IP54 T 80°C | In areas with combustible gases: Ⓜ II 2 G EEx qe [ib] IIC T4 In areas with combustible types of dust: Ⓜ II 2 D IP65 T 95°C * *see chap. 2.2 |
| The operation is only possible in each case in one of the areas mentioned. | |

1.3 Safety instructions

- ⇒ These devices are only allowed to be installed and operated by trained and qualified personnel who have received suitable instruction in their use.
- ⇒ These devices represent state-of-art technology. They are only allowed to be connected to systems that have been approved by Pepperl+Fuchs GmbH.
- ⇒ Never open the devices yourself. They are only allowed to be opened by authorized Pepperl+Fuchs GmbH personnel.
Pepperl+Fuchs GmbH is not liable for any resulting damages.
- ⇒ The devices are not allowed to be modified or otherwise altered in any way.
Pepperl+Fuchs GmbH is not liable for any resulting damages.
- ⇒ Please study the "**Technical Manual**" carefully prior to starting up the devices.
- ⇒ The most recent version of the "**Technical Manual**" is always valid. It is available for downloading on our web site: <http://www.pepperl-fuchs.com>.
- ⇒ The operating voltage of the devices **must not exceed the limits** indicated in the **technical data** section of the "**Technical Manual**".
 In the event of failure to comply, **Pepperl+Fuchs GmbH is not liable for any resulting damages.**
- ⇒ **The shielding concept** must be selected in such a way that greatest possible security is ensured. (see chap.6.5).
 During disregard the **Pepperl+Fuchs GmbH is not liable for any resulting damages.**
- ⇒ It may only devices attached which corresponds to **EN60950**. These are implemented in low protective voltage. (max. 60 V) Also power pack of the 24 V supply voltage is subject to that. The allowable stress of the connection amounts to $U_m=60V$
- ⇒ The **user guideline RL 1999/92 EG**, the specifications EN 60079-14 and the **accident prevention regulations (UVV)** must be observed.

The technical data specified for the hazardous area corresponds to the certified values for the European EEx approval. The user is responsible for ensuring that the devices are suitable for their intended application and for the prevailing ambient conditions.

No warranty can be given by Pepperl+Fuchs GmbH in this connection.

Data subject to change without notice

1.4 Symbols used in this manual



Warning:

The specified technical data must be complied with. Failure to do so may result in dangerous situations or damage.

Care:

Careful installation is necessary: Do not replace electrical fuses with fuses from other manufacturers. Failure to comply may result in dangerous situations or damage.

Attention:

The product may be impaired or damaged as a result of external influences.



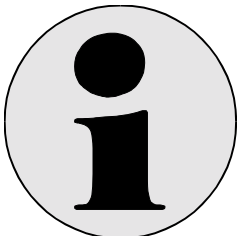
Safe area:

Assembly and installation are only permitted in the safe area. All power cables used in the hazardous area (Zone 1 and Zone 2) must be of the DATL-A type.



Attention:
Hazardous area

All safety requirements, the test certificates for hazardous areas and the Ex and VDE specifications relating to operation of the devices in the hazardous area must be complied with.



Additional information:

Information and instructions that should be observed additionally.



Pressure load:

Severe mechanical pressure or shock loads may damage the devices.

no mechanical Force

2 Startup PCEX 410/412

2.1 General information

Proceed as follows to start up the equipment:

- Deenergize the system or machine
- Make sure that the installation area is free of flammable gases for the duration of the startup procedure if any non-intrinsically safe voltages need to be wired and/or non-intrinsically safe devices opened
- Install the PCEX 410/412 at the location at which it is to be operated
- Connect the external equipotential bonding to the case of the PCEX 410/412



Warning

The case 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.

- Connect the other system components (refer also to section for PCEX 410 chap. 3.7 PCEX 412 chap. 4.6)
- Switch on the power supply
- Check all the functions of the PCEX 410/412, e.g. the display, the external keyboard and the pointing device (mouse)
- Switch on the system or machine
- Check the functions of the complete system or machine



Warning

The system or machine may malfunction if the PCEX 410/412 is not correctly connected and configured.



Warning

These devices are intended solely for installation in another machine. They are not allowed to be started up until the conformity of the final product with the 89/336/EEC and 89/392/EEC Directives has been established and this product inspected by an authorized expert in accordance with VDE 0165 and EN 50014 ff.



Warning
 The Visuex Panel-PC is only allowed to be operated when the EEx e terminal compartment is closed. If the EEx e terminal compartment is open, the explosion protection is no longer effective.



Warning
 Wait 5 minutes after switching off the supply voltage before opening the EEx e terminal compartment . Internal capacitors may otherwise still be charged and cause an explosion in the event of a short-circuit.



Warning
 If on the screen surface glass balls are visible the PCEX 410/412 is to be taken out immediately out of operation. This is because safety reasons.

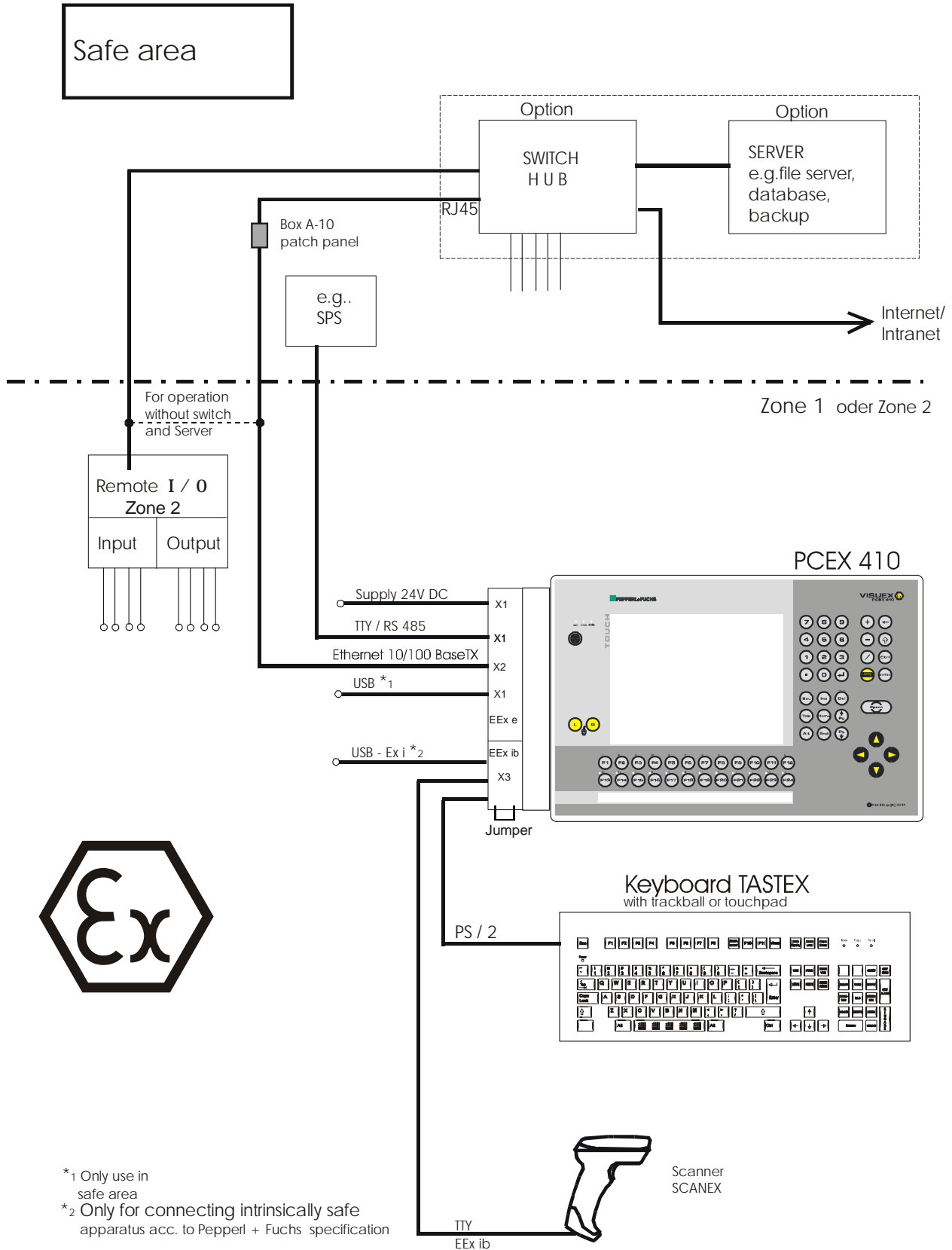
2.2 Special conditions in the area with inflammable types of dust

| | |
|--|---|
| | <p>In areas with inflammable types of dust you have to choose the place of assembly that in the proximity are no high energy-processes of inflammable types of dust.</p> <p>That concerns in detail electronic load mechanisms at the front plate of the device those are stronger than manual rubbing (e.g. cleaning by hand)</p> <p>These load mechanisms are to be excluded absolutely.</p> |
|--|---|

3 PCEX 410

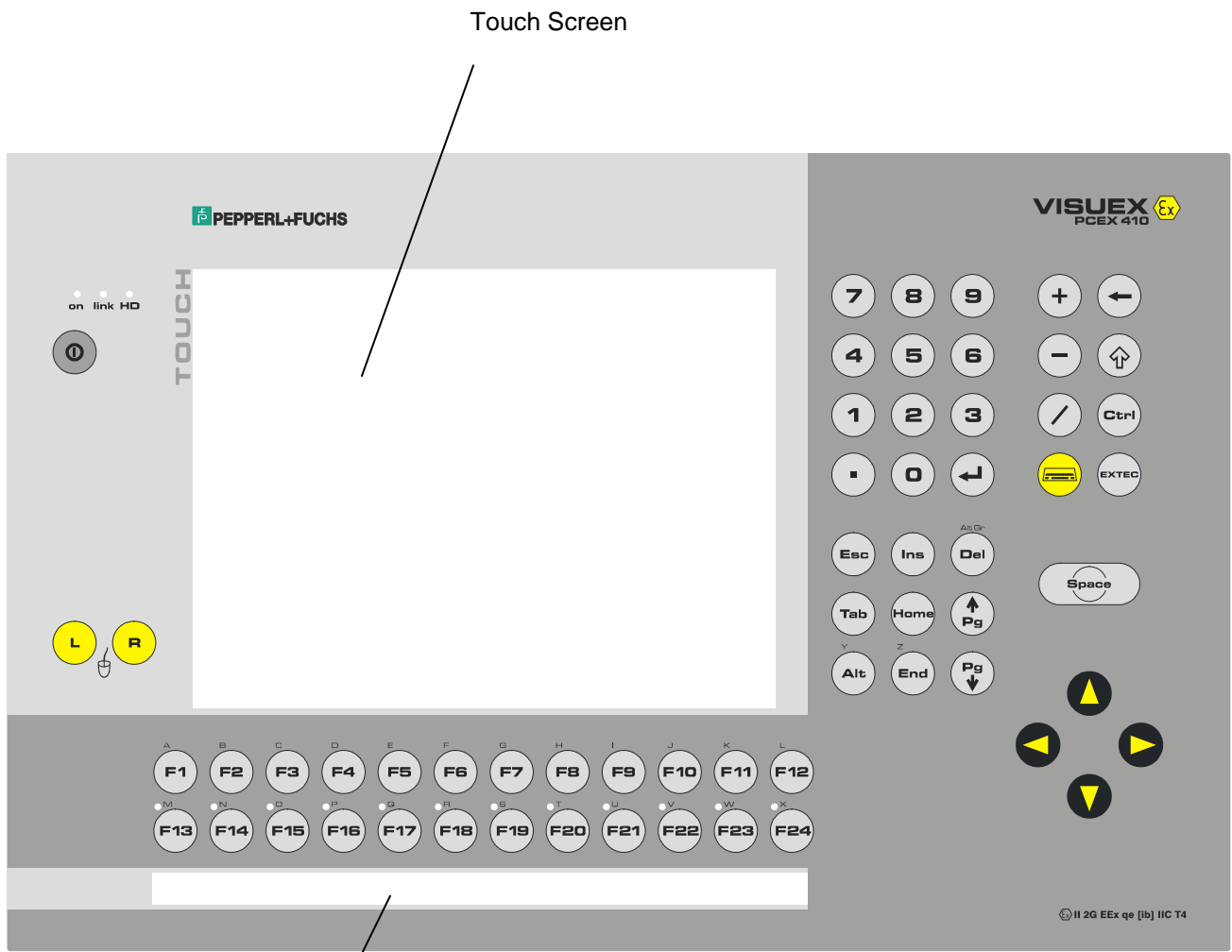
3.1 System overview of the PCEX 410

The PCEX 410 is used as explosion-protected apparatus for controlling, operating and visualizing production and manufacturing processes in hazardous areas (Zones 1 and 2, ignition group IIC).

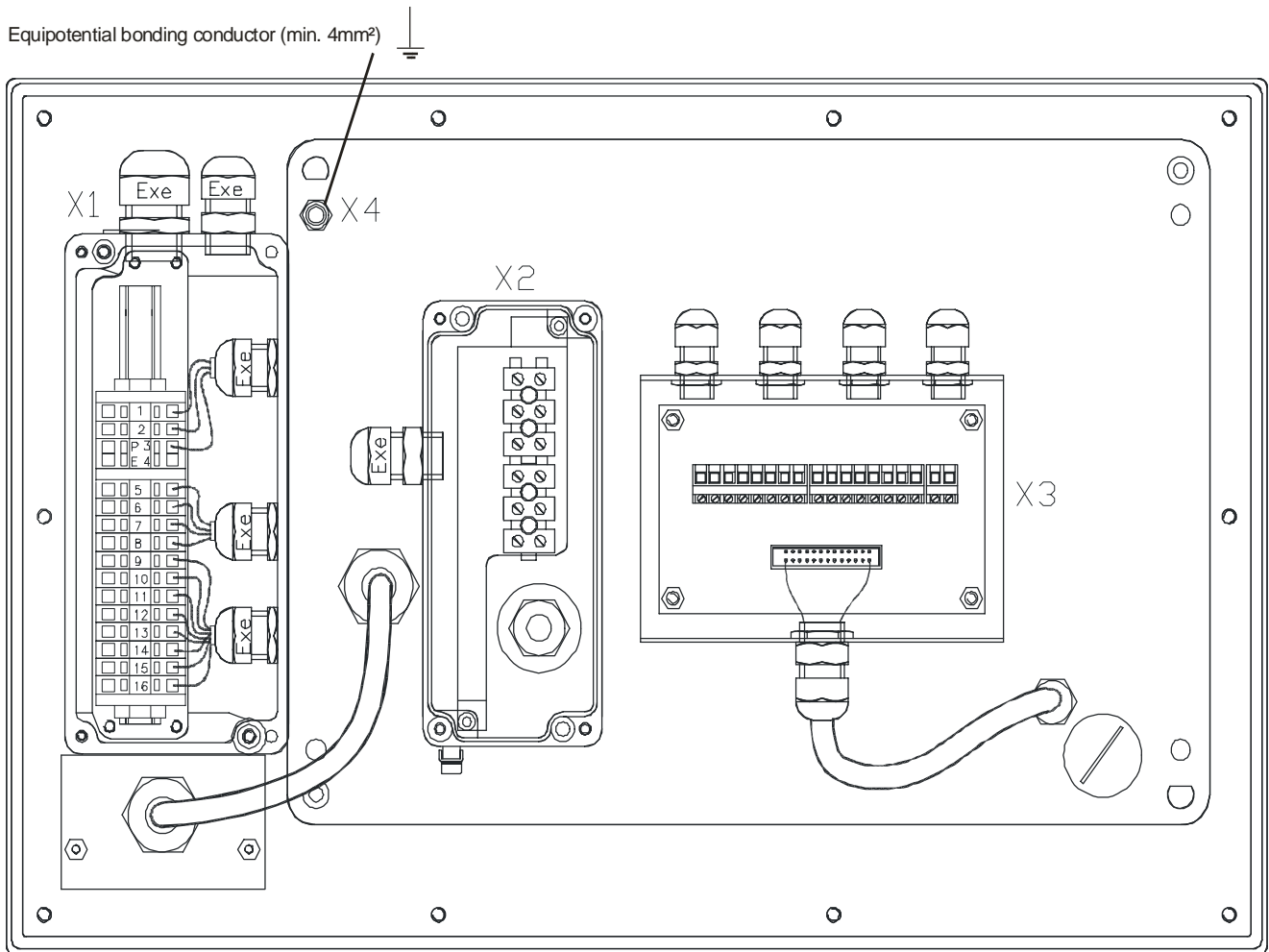


*1 Only use in safe area
 *2 Only for connecting intrinsically safe apparatus acc. to Pepperl + Fuchs specification

3.2 Front view



3.3 Rear view



| | |
|----|--|
| X1 | <p>Ex e connection</p> <ul style="list-style-type: none"> - 24V DC supply - TTY - RS 485 - USB |
| X2 | <p>Ex e connection</p> <ul style="list-style-type: none"> - Ethernet |
| X3 | <p>Ex ib connection</p> <ul style="list-style-type: none"> - PS/2 Keyboard - PS/2 mouse - Serial (Typ-20) - USB-Ex i |
| X4 | <p>Equipotential bonding conductor (PA)</p> |

3.4 The PCEX 410 PC system

3.4.1 General

The PCEX 410 PC system is a panel PC for use in hazardous areas (Zones 1 and 2). It contains all the functional groups necessary for operation and consequently requires no additional PC hardware in the safe area.

3.4.2 Screen

The screen takes the form of a backlit TFT display with a 10.4 inch diagonal and 800 X 600 pixels.

During direct sun exposure the view can be reduced to the display.

The front is touch-sensitive and is normally used as a pointing device to operate the software. An on-screen keyboard automatically appears on the display when you press the "Keyboard" key.

3.4.3 Front-plate keyboard

A service for defining keys and shortcuts is installed on the VISUEX PCEX 410 / 412. Among other things, this allows you to start applications with the function keys or change the assignment of key codes to keys. (refer to section 9.3)

3.4.4 PCEX 410 Front-plate keyboard

The front-plate keyboard consists of 24 function keys, a numeric pad and various control keys.

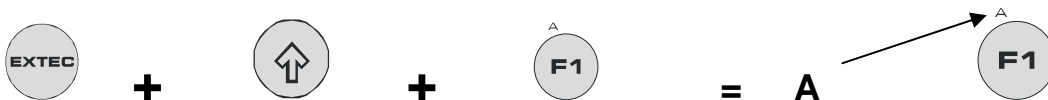
The numeric pad corresponds to the top row of keys on the PC keyboard and not to the number block.

The keyboard integrates the following functions:

3.4.4.1 Lower-case letters



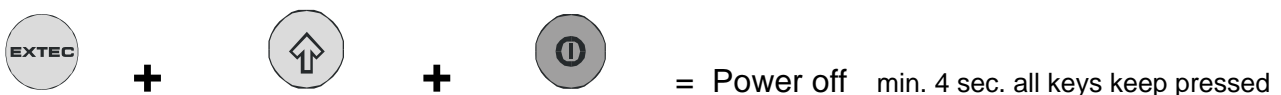
3.4.4.2 Upper-case letters



3.4.4.3 Power ON



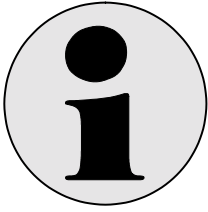
3.4.4.4 Power OFF



AMP and/or ACPI must be activated in the system attitudes.

3.4.4.5 RESET





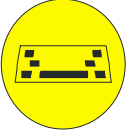
The "power OFF" and "RESET" functions can be deactivated by removing a jumper in the Ex ib terminal compartment (refer to section 7.2).



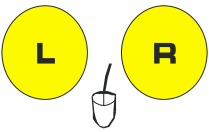
+

Key 1-0 on numeric pad

= special characters! “ \$ % & / ()



This key opens a popup on-screen keyboard that can be operated using the touchscreen



Left and right mouse button functions, equivalent to the corresponding functions on the touchscreen or external keyboard.




Tast Function keys F1...F12 correspond to the standard AT keyboard. A special driver for converting scancodes is available for the enhanced function keys F13...F24, which (like all keys) are freely programmable (refer to section 9.3).

3.4.4.6 Keyboard assignment






















General: QWERTY assignment

Standard assignment of the function keyboard (F13 ... F24)








F13...F24 corresponds to SHIFT+CTRL+ALT+F1 ... SHIFT+CTRL+ALT+F12

| Pressing this key | Corresponds to this shortcut on the TASTEX keyboard | |
|---|---|--------------------|
|  | → | SHIFT+CTRL+ALT+F1 |
|  | → | SHIFT+CTRL+ALT+F2 |
| | ⋮ | |
|  | → | SHIFT+CTRL+ALT+F12 |













EXTEC and x on numeric pad

| Pressing this shortcut | Corresponds to | This shortcut on the TASTEX keyboard | And outputs This character |
|---|----------------|--------------------------------------|----------------------------|
|   | → | Shift and . | > |
|   | → | Strg and Alt and 8 | [|
|    | → | Strg and Alt and 7 | { |
|   | → | Shift and 1 | ! |
|   | → | Shift and 2 | @ |
|   | → | Shift and 3 | # |
|   | → | Shift and 4 | \$ |
|   | → | Shift and 5 | % |
|   | → | Shift and 6 | ^ |
|   | → | Shift and 7 | & |




















EXTEC and x on numeric pad

| Pressing this shortcut | Corresponds to | This shortcut on the TASTEX keyboard | And outputs This character |
|---|----------------|--------------------------------------|----------------------------|
|   | → | Shift and 8 | * |
|   | → | Strg and Alt and 8 |] |
|    | → | Strg and Alt and 0 | } |








Other keys in combination with EXTEC

| Pressing this shortcut | Corresponds to | And outputs this character |
|---|----------------|---|
|   | → | = |
|   | → | _ (Underscore) |
|   | → | ? |
|   ... | → | Windows key and U (= open Utility Manager) |
|   ... | → | Windows key |
|   | → | Shift |












Other keys in combination with EXTEC

| | | |
|---|---|------------------------|
|   | → | Ctrl |
|   | → | y (small written) |
|    | → | Y (largely written) |
|   | → | z (small written) |
|    | → | Z (largely written) |
|   | → | ; |
|    | → | : |
|   | → | , |







Other keys in combination with EXTEC

| Pressing this shortcut | Corresponds to | And outputs this character |
|---|----------------|----------------------------|
|  | → | “ |
|  | → | \ |
|  | → | |
|  | → | Alt Gr |
|  | → | Pop up menu |
|  | → | Alt |
|  | → | , |

Other keys in combination with EXTEC

| Pressing this shortcut | Corresponds to | And outputs this character |
|---|----------------|----------------------------|
|    | → | ~ |
|   | → | 8 (digit item) |
|   | → | 2 (digit item) |
|   | → | 4 (digit item) |
|   | → | 6 (digit item) |

Shift and x on numeric pad

| Pressing this shortcut | Corresponds to | And outputs this character |
|---|----------------|------------------------------|
|   | → |) |
|   | → | (|
|   | → | Input cursor backwards shift |


3.4.4.7 LED panel

A green LED is provided above each of function keys F13...F24. These LEDs can be activated from the customer's applications (refere to section 9.3) using the driver software supplied with the PCEX 410/412.

3.5 Case design PCEX 410

3.5.1 General installation instructions PCEX 410

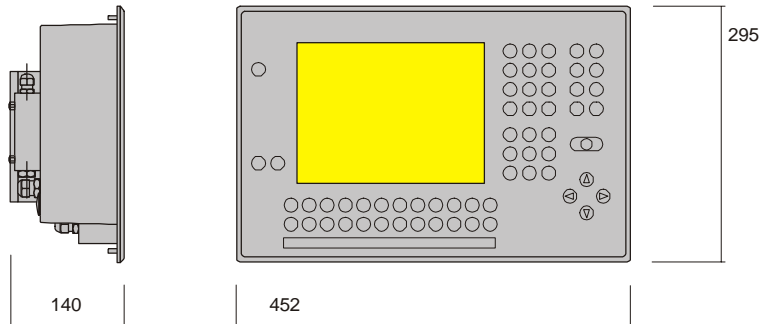
The device must be installed extremely carefully in accordance with general explosion protection regulations.

| | |
|---|---|
|  | <p>Important!</p> <p>The non-detachable cable on the rear of the device (refer to section 3.3) may be damaged when the device is installed. Utmost care is essential at all times!</p> |
|---|---|

3.5.2 Dimension drawing PCEX-410-AG0



Bolt nut on with max. 3Nm torque when assembling of the front plate!



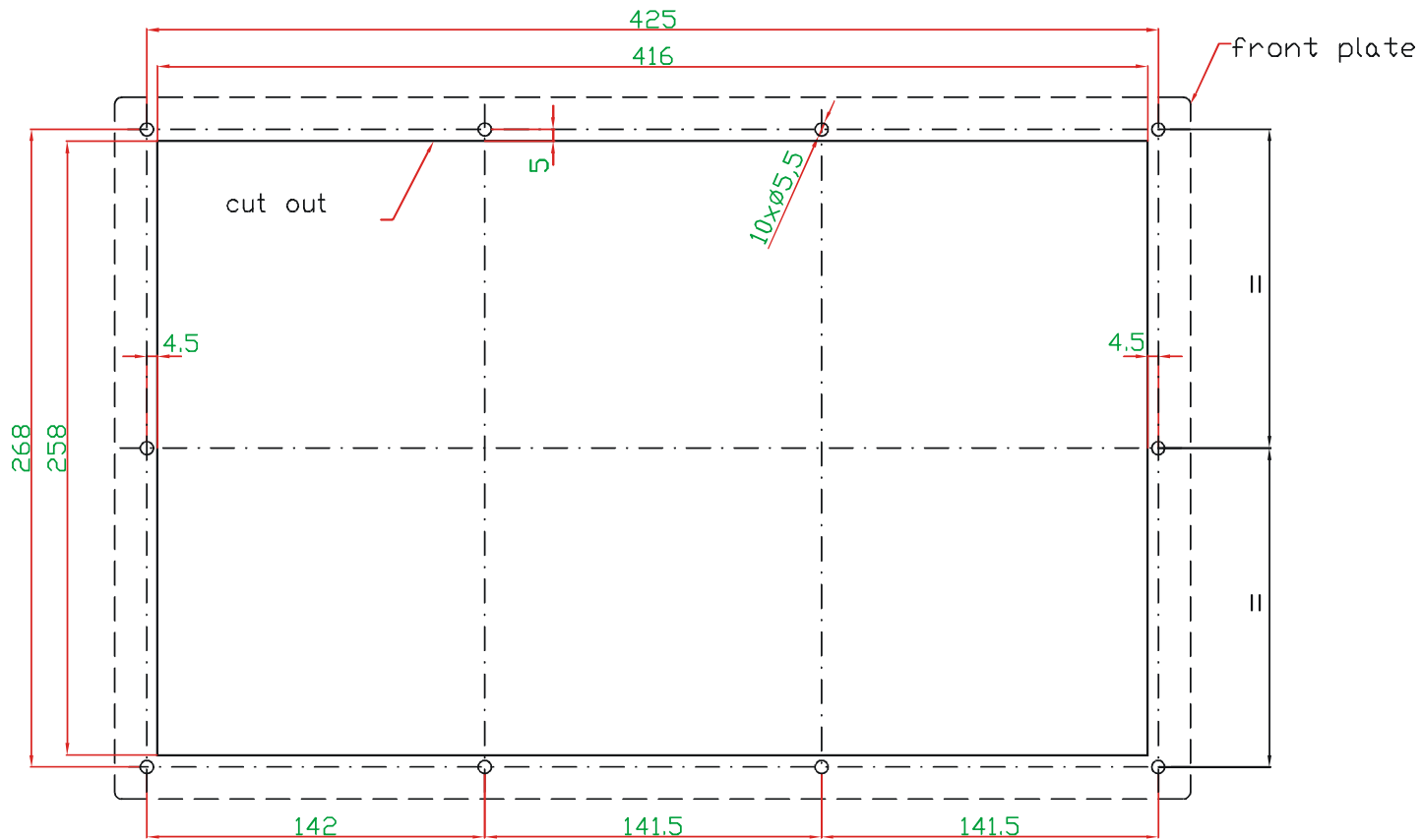
All dimensions in mm

Front plate thickness 10 mm

Pin length 10 mm

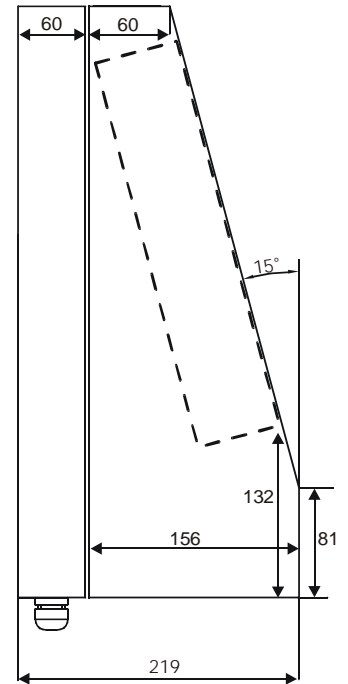
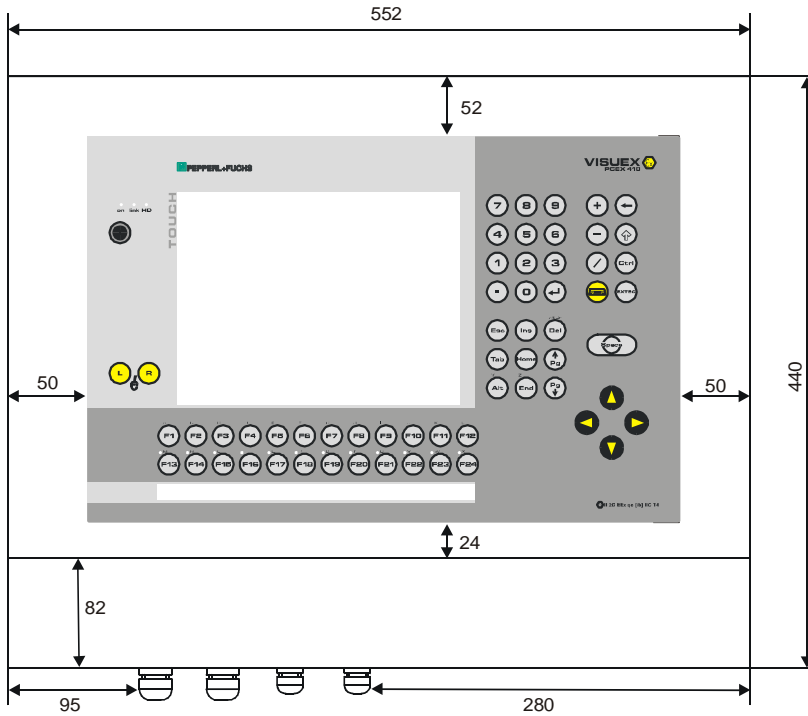
3.5.3 Cutout for panel mounting for PCEX 410

View of front plate (in front)



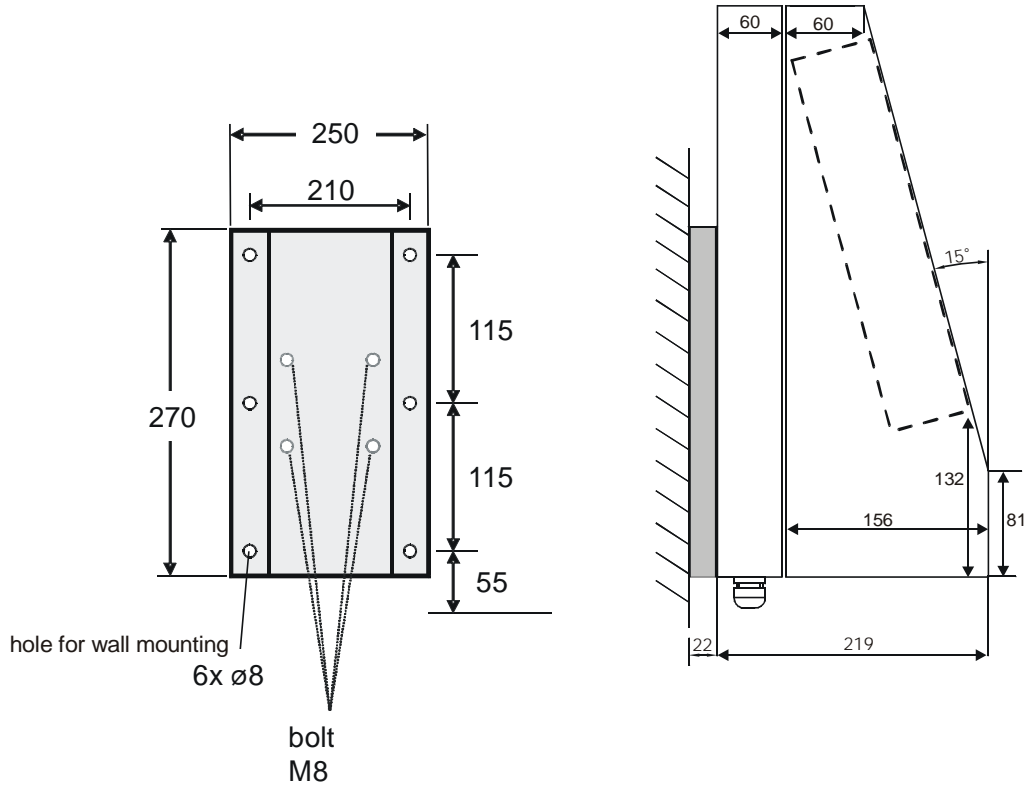
3.6 Wall-mounting case PCEX 410-AG1

PCEX 410, stainless steel wall-mounting case
 Material: Stainless steel (1.4301)



3.6.1 Mounting options of the PCEX-410-AG1

3.6.1.1 Optional wall-mounting PCEX-410-AG1



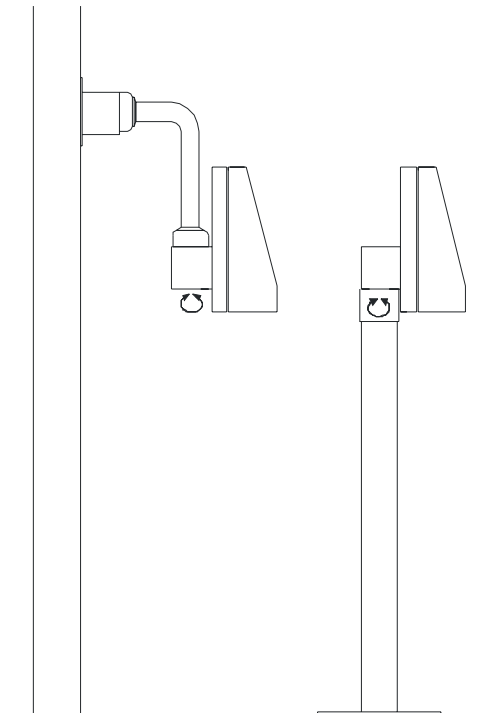
ABG-wall-bracket

Weight: ABG-wall-bracket: approx: 2 kg

3.6.1.2 *Optional bracket or floor mounting PCEX 410-AG1*

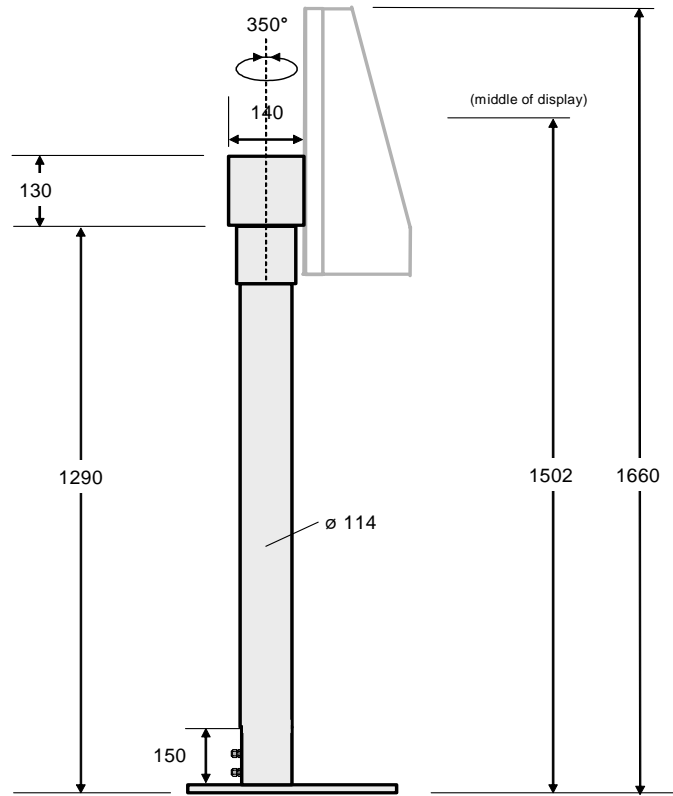
Optional: Bracket

Optional: Floor mounting



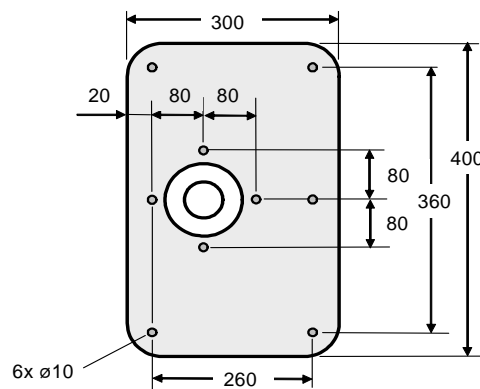
ABG-STANDFUSS-1

Optional stand for PCEX-410-AG1 turnable.



Weight of case with base approx: 17 kg

Base



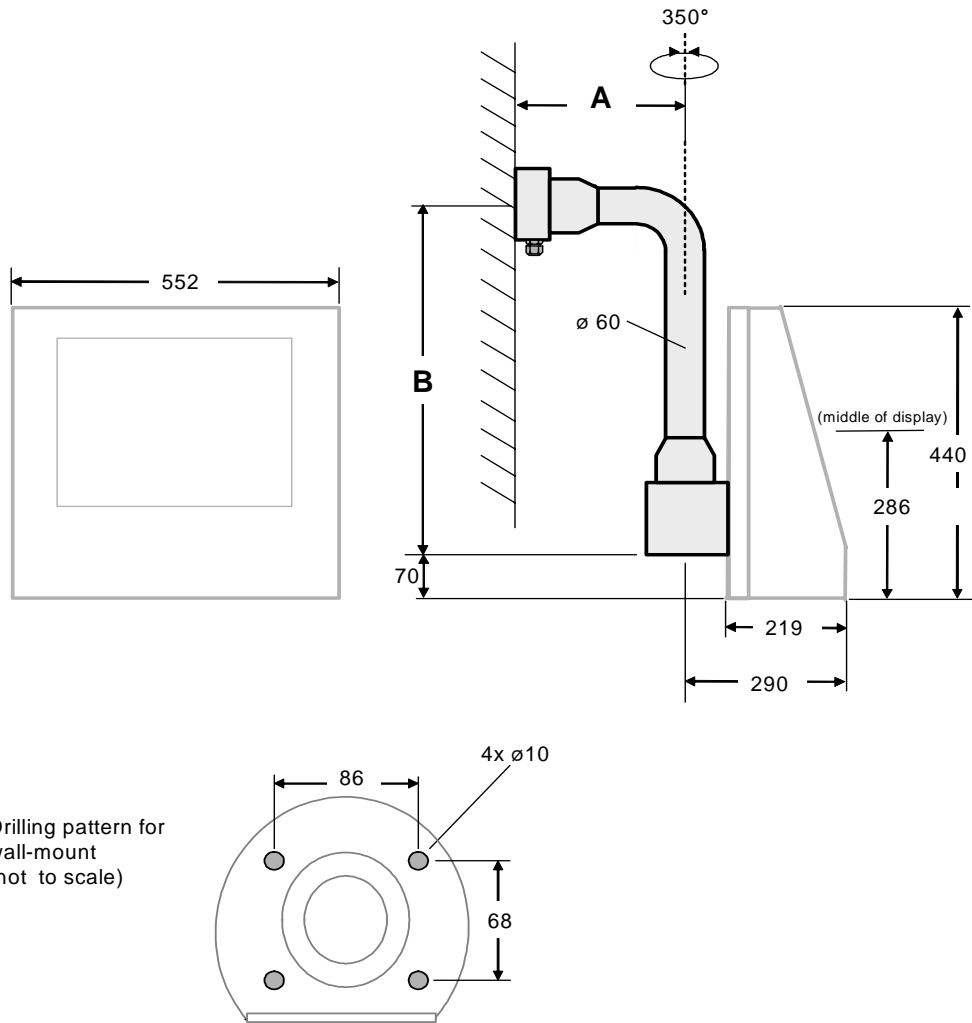
all dimensions in mm

ABG-STANDFUSS-2

Optional stand for PCEX-410-AG1, not turnable.
Same structural shape as ABG-STANDFUSS-1

ABG-TRAGARM-1-1

For connection cable gland 2xM20
Optional bracket for PCEX-410-AG1

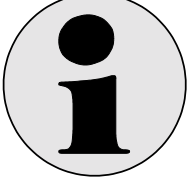


ABG-TRAGARM-1-1

Weight of case: Tragarm-1-1 approx. 11 kg

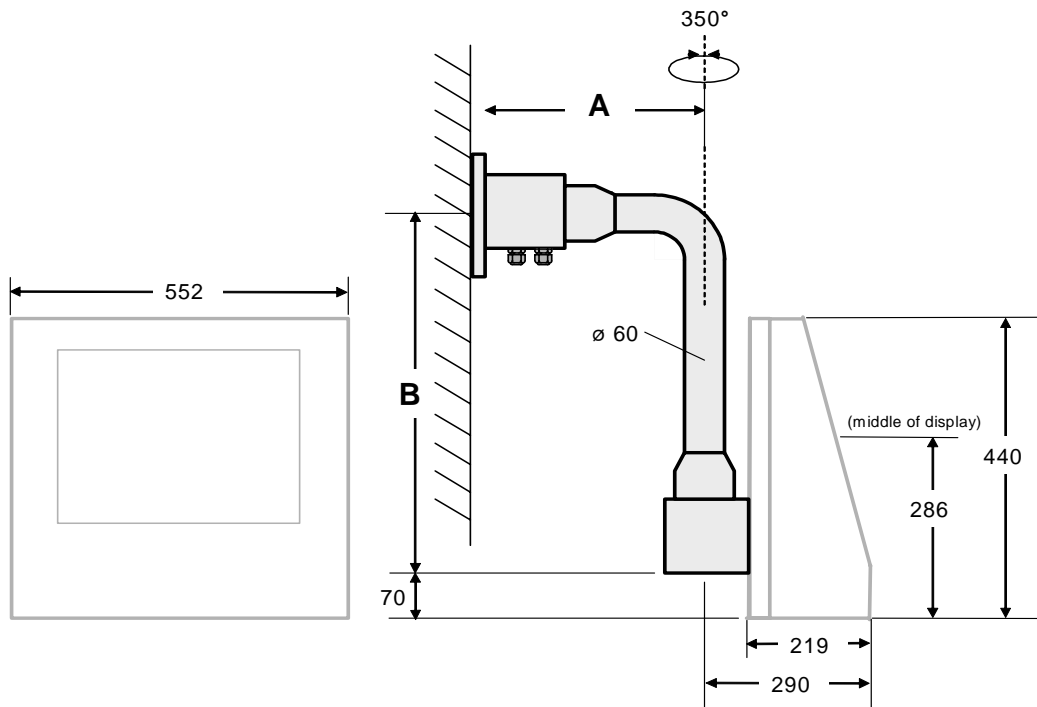
all dimensions in mm

Amin = 355 mm
Bmin = 645 mm

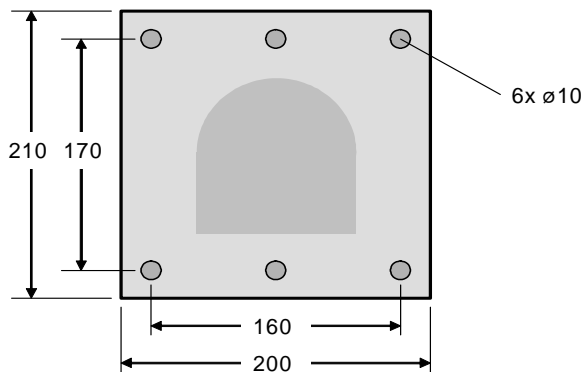
| | |
|---|---|
|  | <p>Note:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-1-1 is supplied with the minimum dimensions: Non-standard dimensions must be explicitly specified.</p> |
|---|---|

ABG-TRAGARM-1-2

For connection cable gland 1xM25 and 3xM20
Optional bracket for PCEX-410-AG1



Mounting plate for wall mount
(not to scale)



ABG-TRAGARM-1-2

Weight: Tragarm-1-2 approx. 11 kg

all dimensions in mm

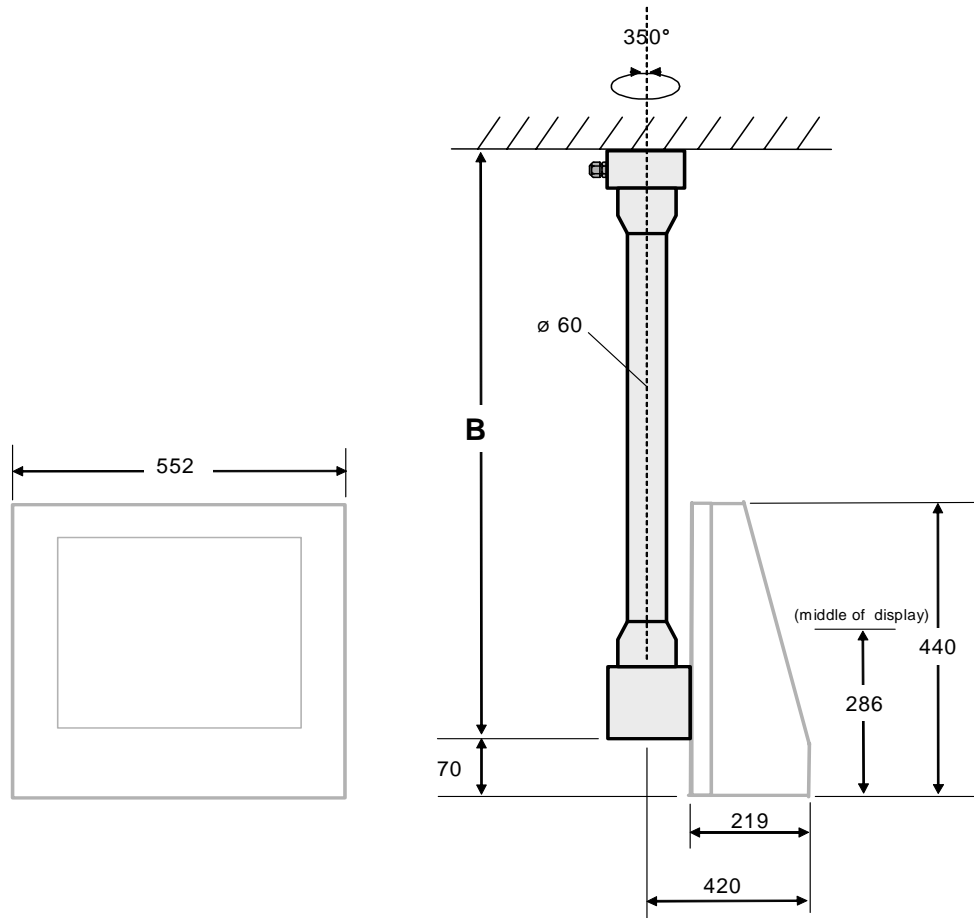
Amin = 455 mm

Bmin = 645 mm

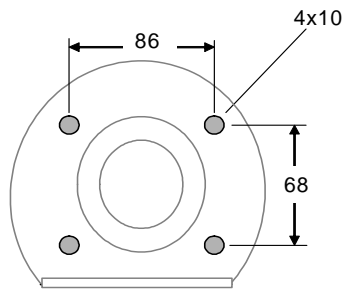
| | |
|--|--|
| | <p>Note:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-1-2 is supplied with the minimum dimensions: Non-standard dimensions must be explicitly specified</p> |
|--|--|

ABG-TRAGARM-2-1

For connection cable gland 2xM20
Optional bracket for PCEX-410-AG1

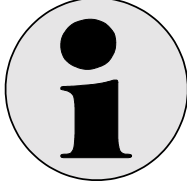


Drilling pattern for ceiling mount (not to scale)



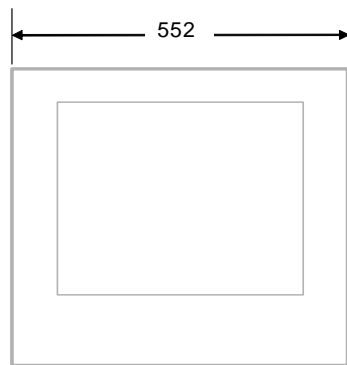
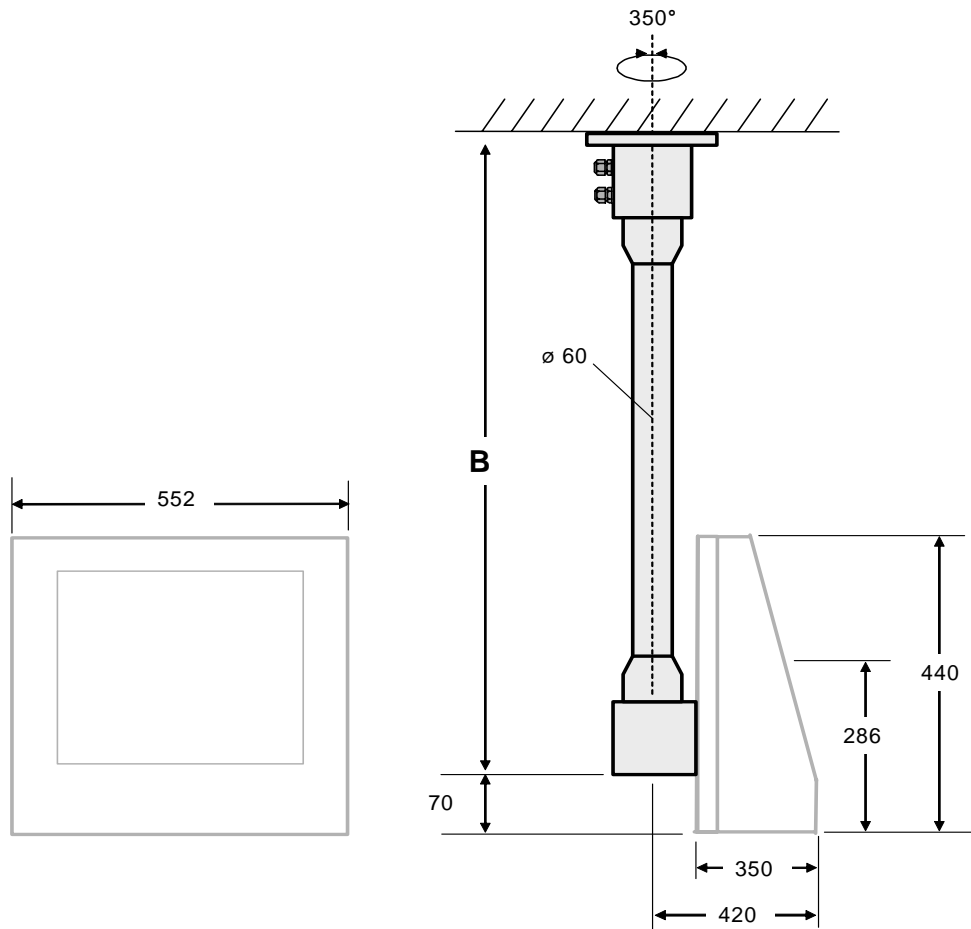
ABG-TRAGARM-2-1

Weight: Tragarm-2-1 approx. 11 kg
Bmin = 700 mm

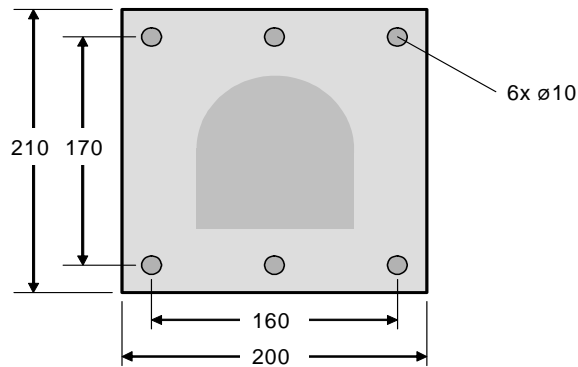
| | |
|---|--|
|  | <p>Note:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-2-1 is supplied with the minimum dimensions: Non standard dimensions must be explicitly specified</p> |
|---|--|

ABG-TRAGARM-2-2

For connection gland 1xM25 und 3xM20
Optional bracket for PCEX-410-AG1



Mounting plate for ceiling mount (not to scale)



AGB-TRAGARM-2-2

alle Maße in mm

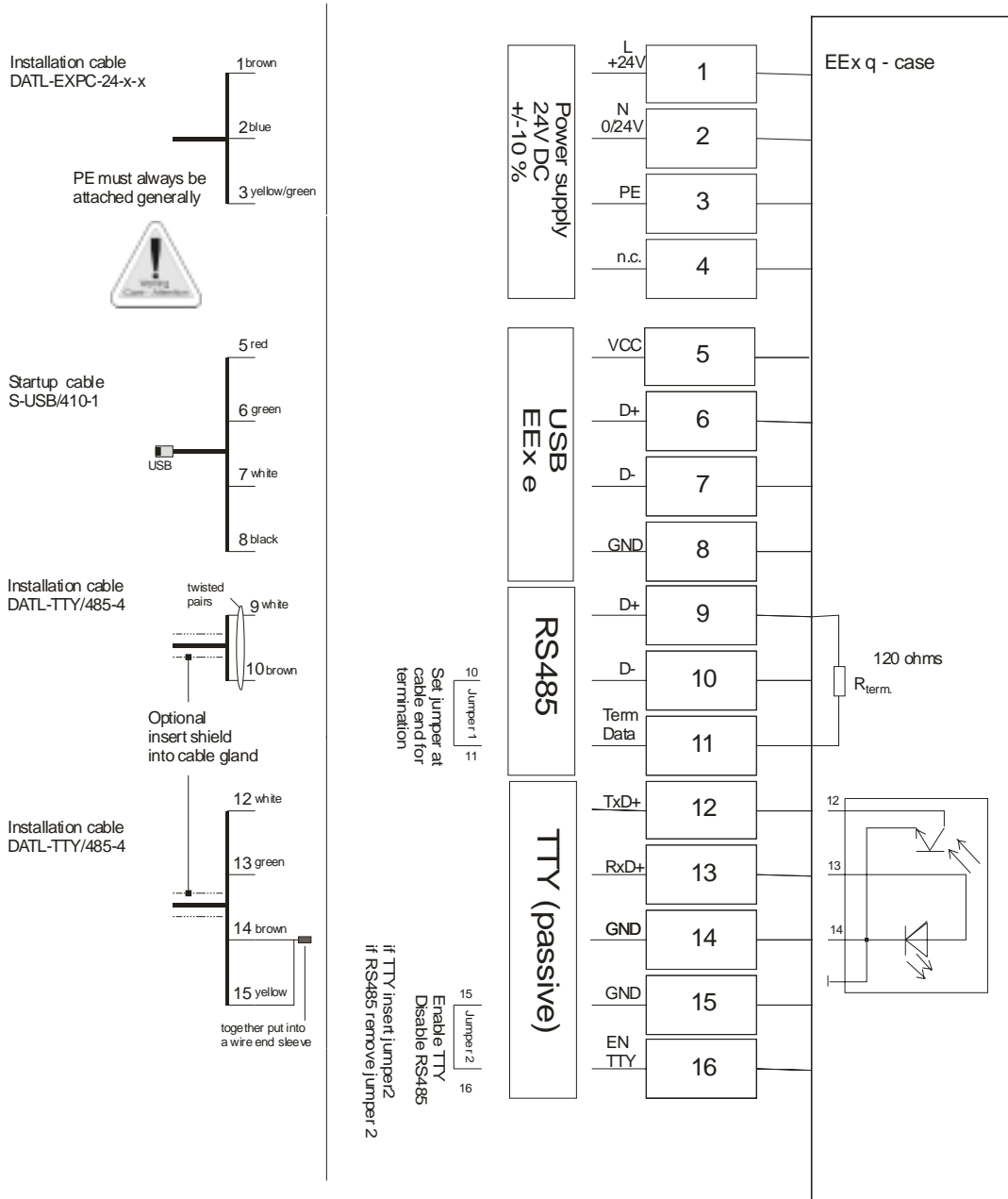
Weight: Tragarm-2-2 approx. 11 kg
Bmin = 800 mm

| | |
|--|--|
| | <p>Note:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-2-2 is supplied with the minimum dimensions: Non standard dimensions must be explicitly specified</p> |
|--|--|

3.7 Connection and wiring diagrams PCEX 410

3.7.1 Terminal compartment X1 (EEx e)

EEx e terminal compartment



3.7.2 Label for USB adapter

Important!
The USB set up cable must not be used in the hazardous area!



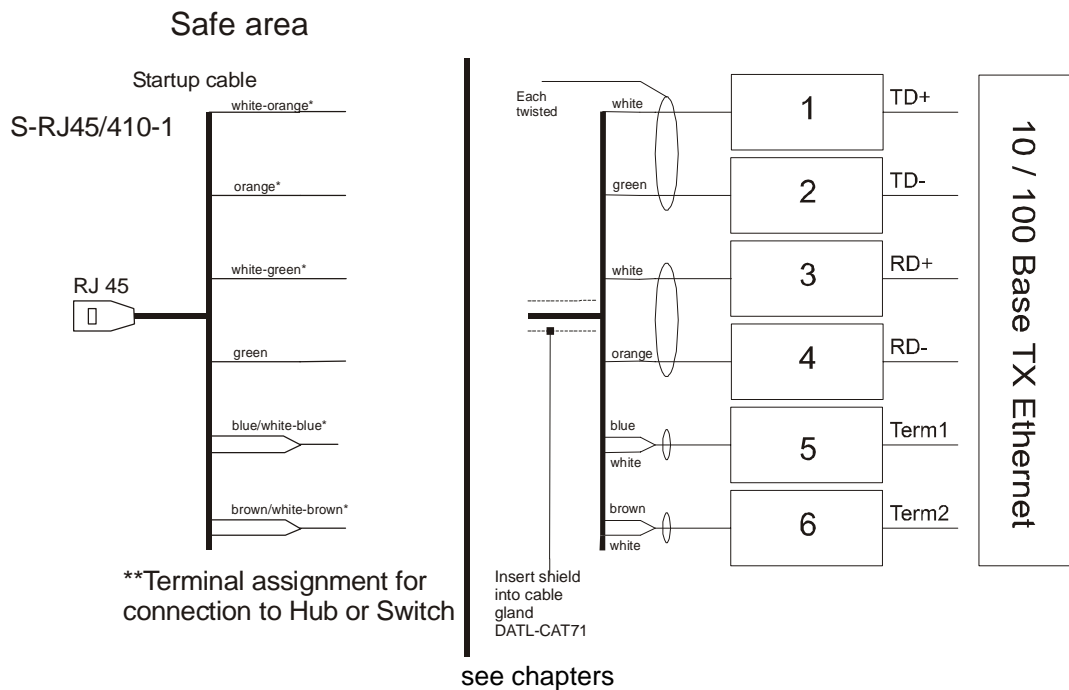
This label is also affixed inside the terminal compartment.

3.7.3 Terminal compartment X2 (EEx e)

The braiding must be inserted into cable gland. (See chap.6.5)

The screw terminals must be tightened even if the Ethernet is not used, in order to maintain the minimum clearances in air and creepage distances!

PCEX 410 EEx e terminal compartment X2



*instead of "white" is also black in the line coding possible.

** For direct connection to Host or PC, the pairs of insulated conductors must be changed from (white-orange / orange) to (white-green / green)



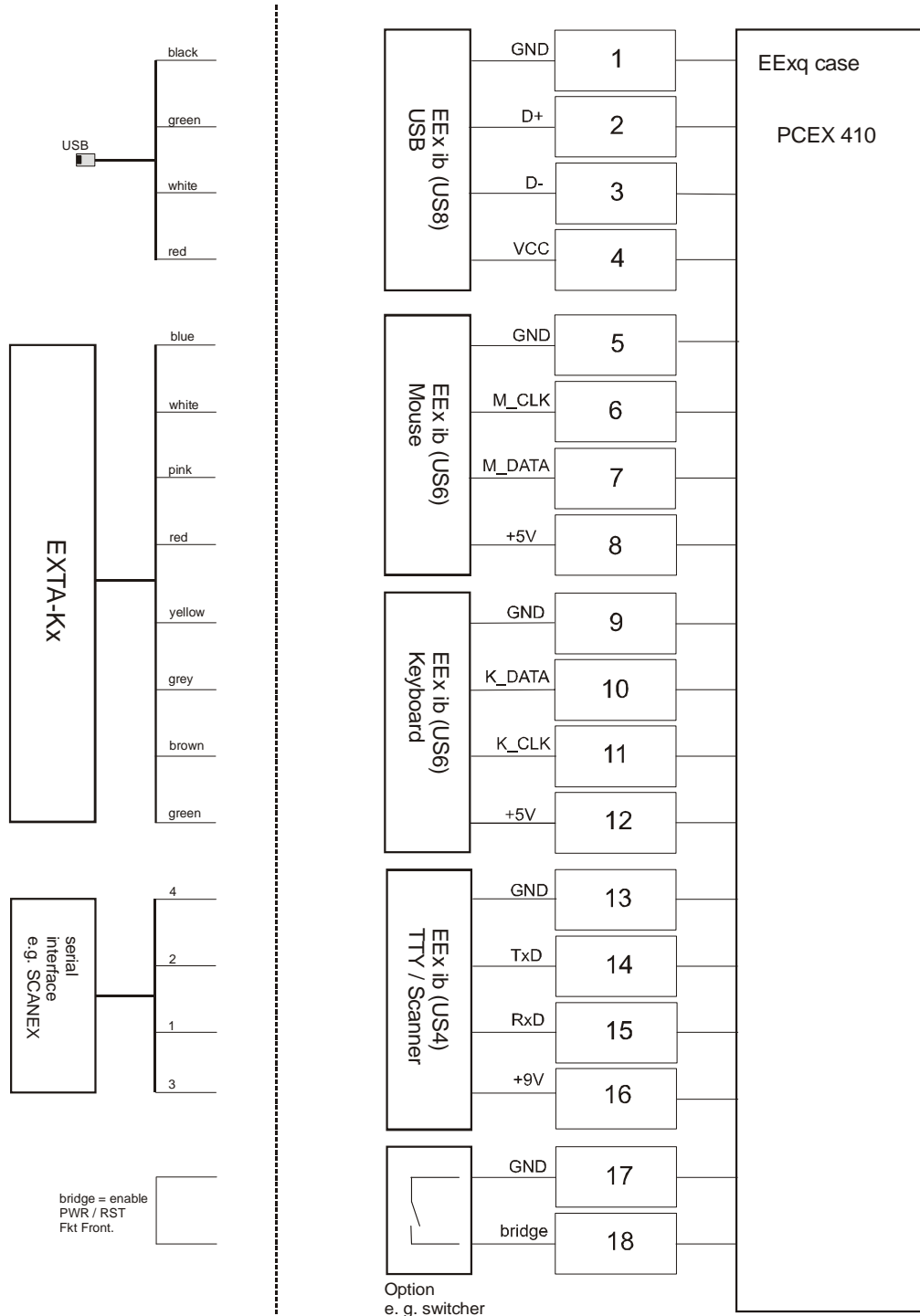
**Start-up cable
Don't use in the hazardous area!**

3.7.4 Terminal compartment X3 (EEx ib) intrinsically safe circuits

- External keyboard with mouse (optional)
- TTY-interface
- USB-interface 2
- Konfiguration Power-Schaltfunktionen der Frontplatte

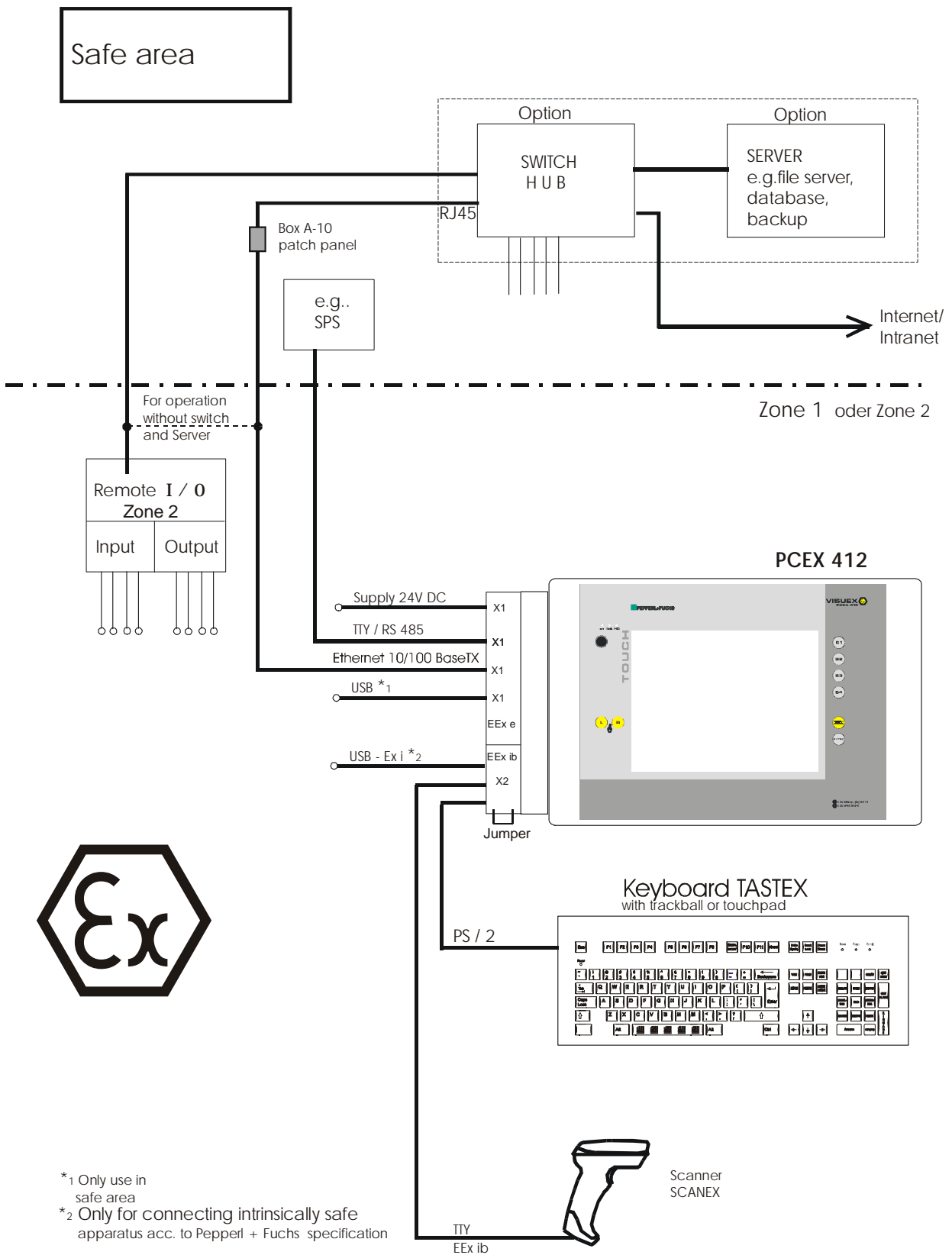
Terminals 17 and 18 must be jumpered. The power OFF and RESET functions on the front-plate keyboard are activated. A key-operated switch, for instance, can also be connected externally instead of a jumper.

PCEX 410 Terminal compartment X3 EEx ib



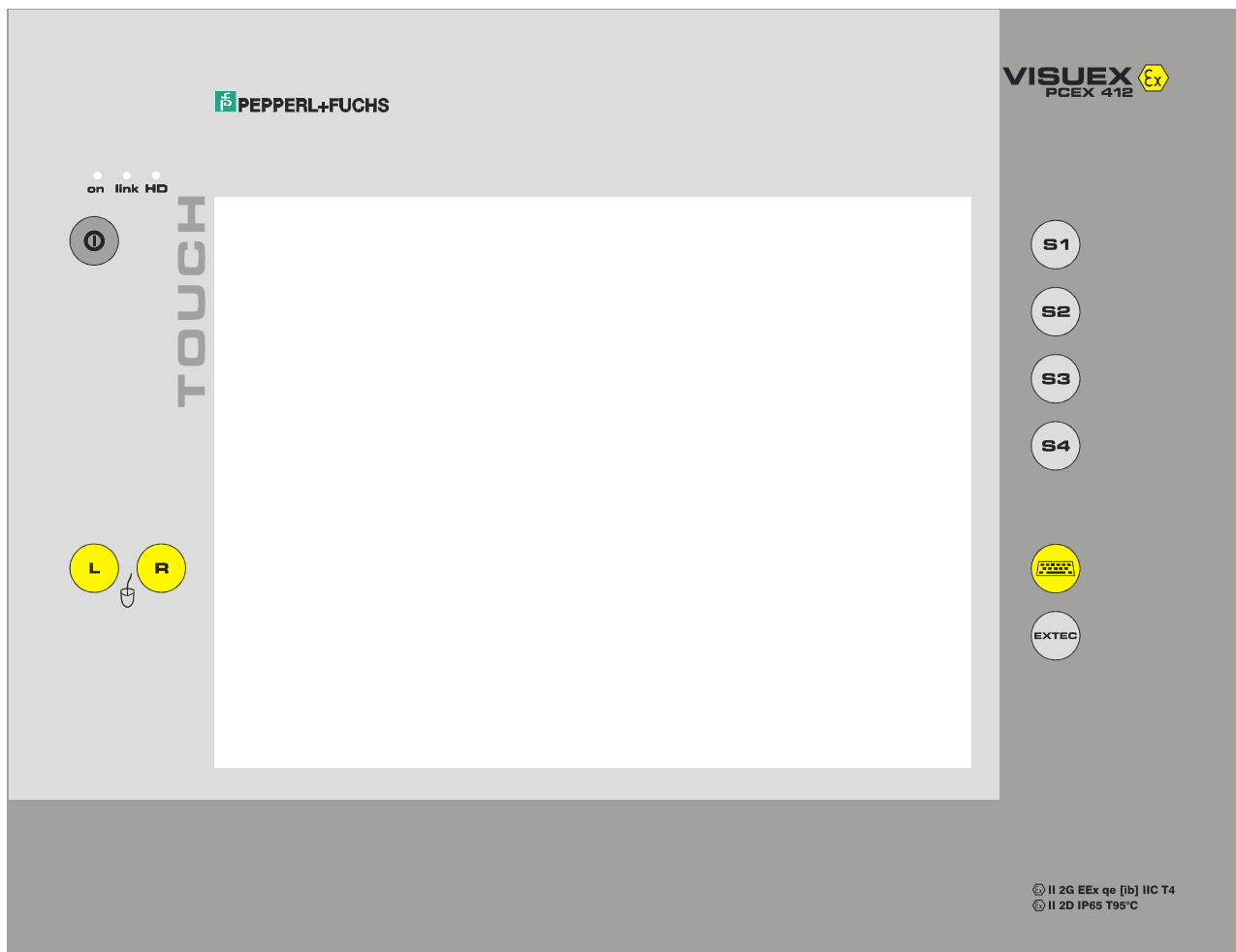
4 PCEX 412

4.1 System Overview of the PCEX 412

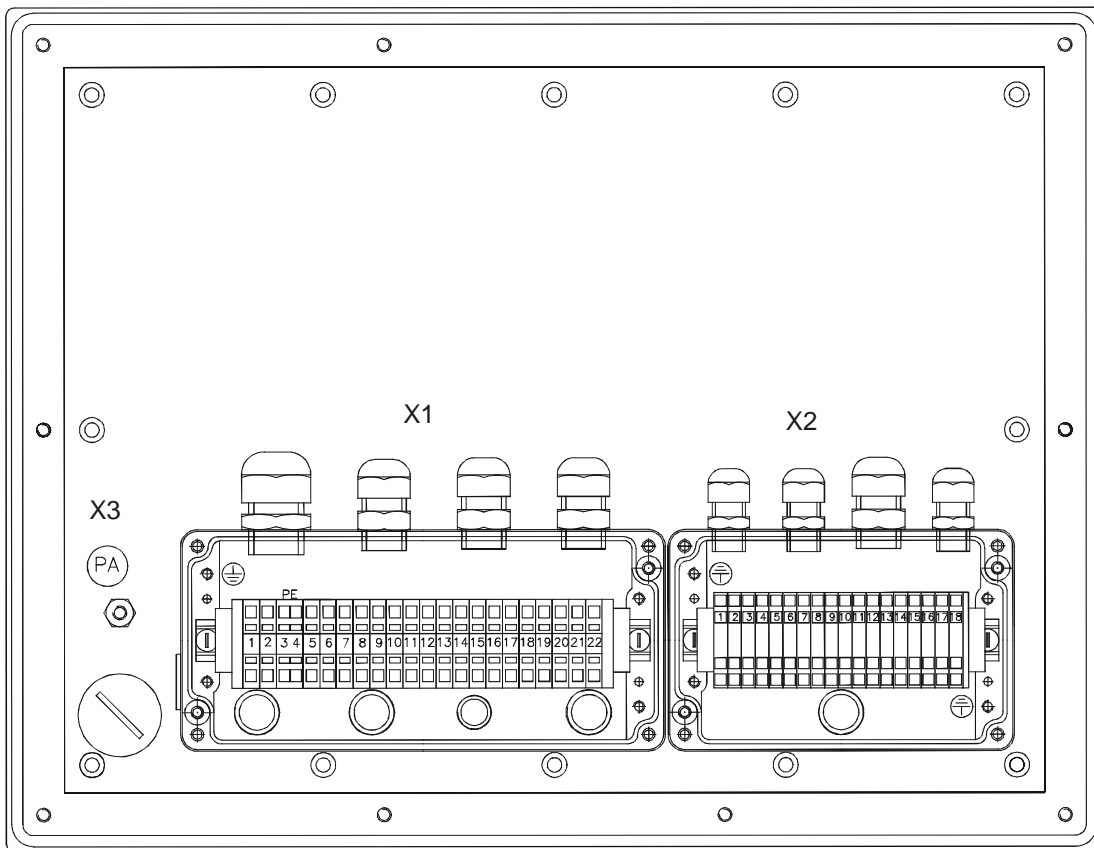


*1 Only use in safe area
 *2 Only for connecting intrinsically safe apparatus acc. to Pepperl + Fuchs specification

4.2 Front view PCEX 412



4.3 Rear view PCEX 412



| | |
|----|---|
| X1 | <p>Ex e connection</p> <ul style="list-style-type: none"> - 24V DC supply - TTY - RS 485 - USB - Ethernet |
| X2 | <p>Ex ib connection</p> <ul style="list-style-type: none"> - PS/2 Tastatur - PS/2 Maus - Seriell (Typ-20) - USB-Ex ib |
| X3 | <p>Equipotential bonding conductor (PA)</p> |

4.4 The PCEX 412 PC system

4.4.1 General

The PCEX 412 PC system is a panel PC for use in hazardous areas (Zones 1 and 2). It contains all the functional groups necessary for operation and consequently requires no additional PC hardware in the safe area.

4.4.2 Screen

The screen takes the form of a backlit TFT display with a 12 inch diagonal and 1024 X 768 pixels. During direct sun exposure the view can be reduced to the display.

The front is touch-sensitive and is normally used as a pointing device to operate the software. An on-screen keyboard automatically appears on the display when you press the "Keyboard" key.

4.4.3 Front-plate keyboard

A service for defining keys and shortcuts is installed on the VISUEX PCEX 412. Among other things, this tool allows you to start applications with the function keys or change the assignment of key codes to keys. (see chapters 9.3)

4.4.4 Front-plate keyboard PCEX 412

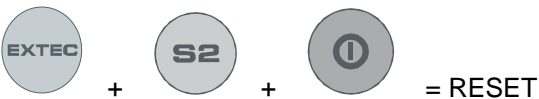
The front-plate keyboard consists of 4 function keys.

The keyboard integrates the following functions:

4.4.4.1 Power ON



4.4.4.2 RESET



4.4.4.3 POWER OFF



AMP and/or ACPI must be activated in the system attitudes












this key opens a popup on-screen keyboard that can be operated using the touchscreen.



Left and right mouse button functions, equivalent to the corresponding functions on the touchscreen or external keyboard.

Other functions

| Pressing the shortcut | Corresponds to | And outputs this character | |
|---|----------------|---|---|
|  | → | SHIFT+CTRL+ALT+F 1 | Hotkey Tools Change the assignments See chapter 9.3 |
|  | → | SHIFT+CTRL+ALT+F 2 | |
|  | → | SHIFT+CTRL+ALT+F 3 | |
|  | → | SHIFT+CTRL+ALT+F 4 | |
|  | → | SHIFT+CTRL+ALT+F 5 | |
|  | → | SHIFT+CTRL+ALT+F 6 | |
|  | → | SHIFT+CTRL+ALT+F 7 | |
|  | → | SHIFT+CTRL+ALT+F 8 | |
|  | → | Windows key and U (=open Utility Manager) | |

4.5 Case design PCEX 412

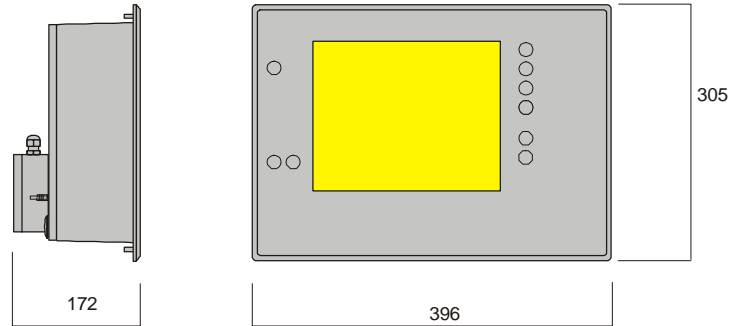
4.5.1 General installation instructions PCEX 412

The device must be installed extremely carefully in accordance with general explosion protection regulations.

4.5.2 Dimension drawing PCEX 412-AG0



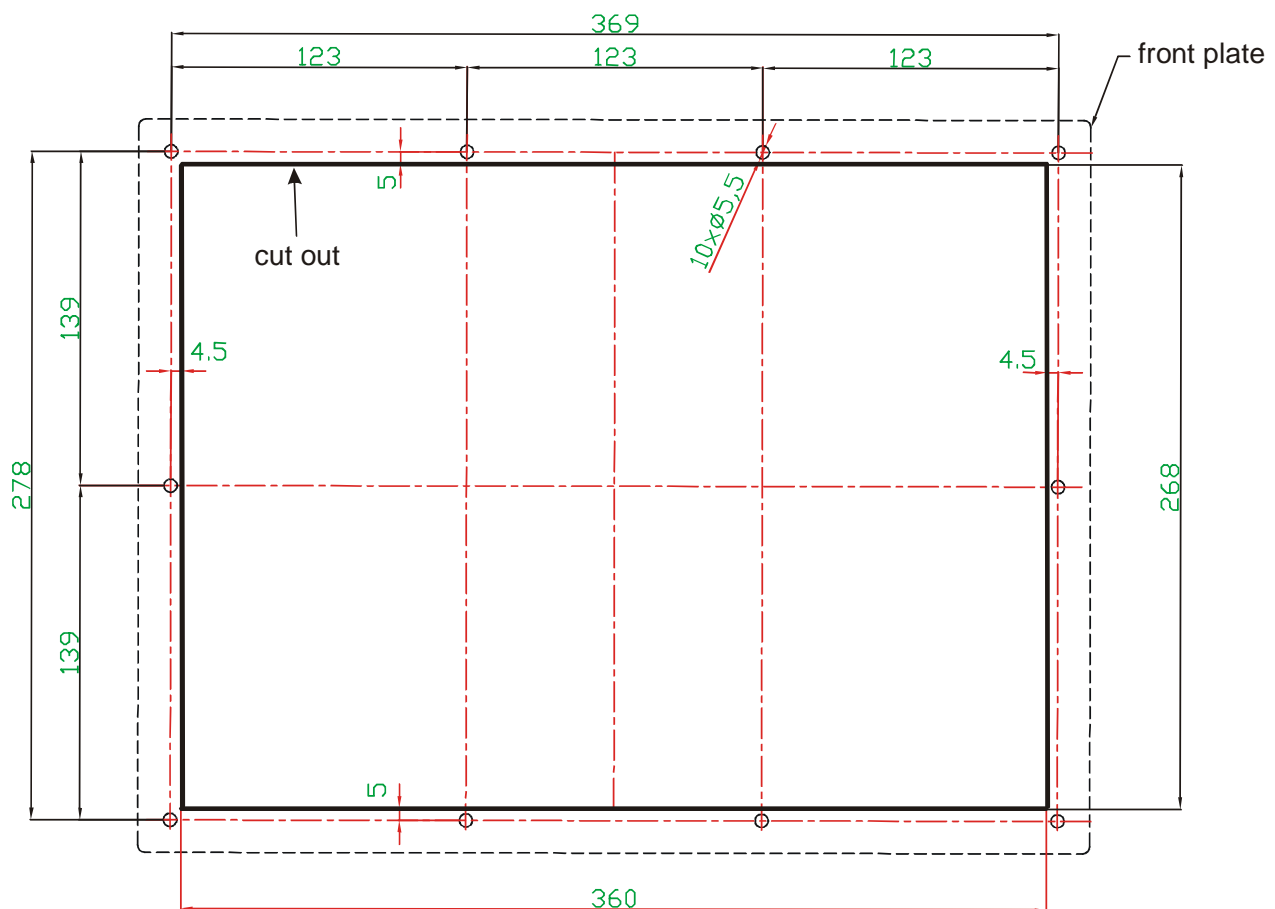
Bolt nut on with max. 3Nm torque when assembling of the front plate!



front plate thickness 10 mm, pin length 10 mm

4.5.3 Cutout for panel mounting for PCEX 412

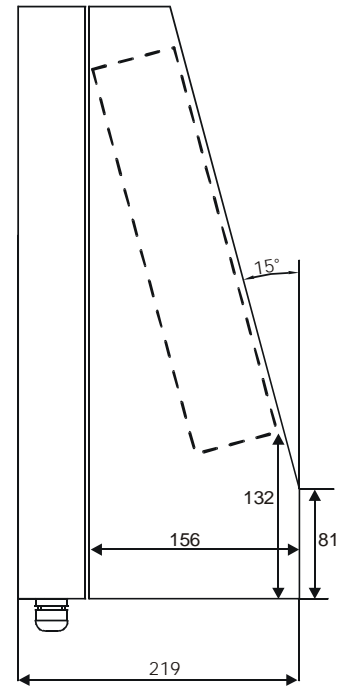
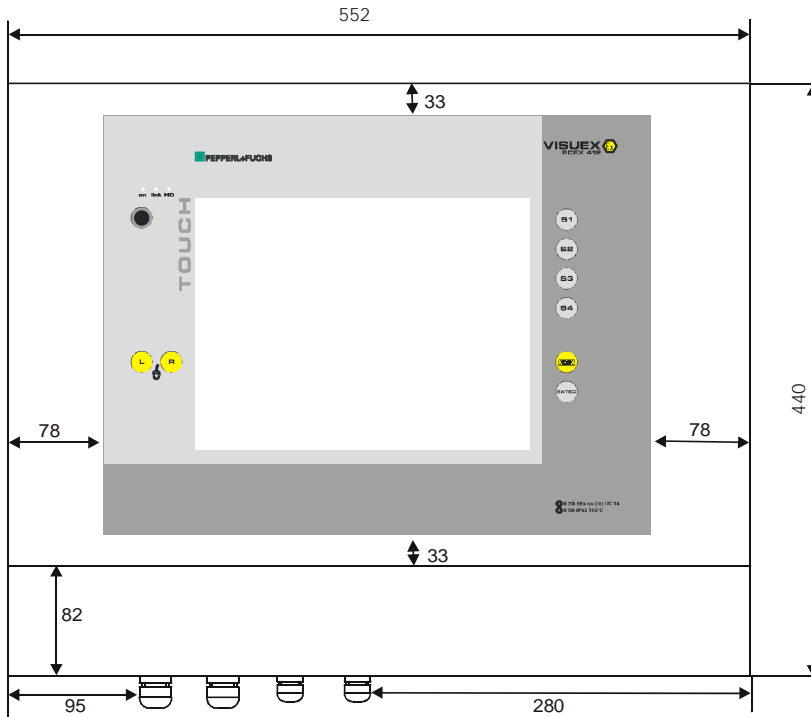
View of front plate (in front)



all dimensions in mm

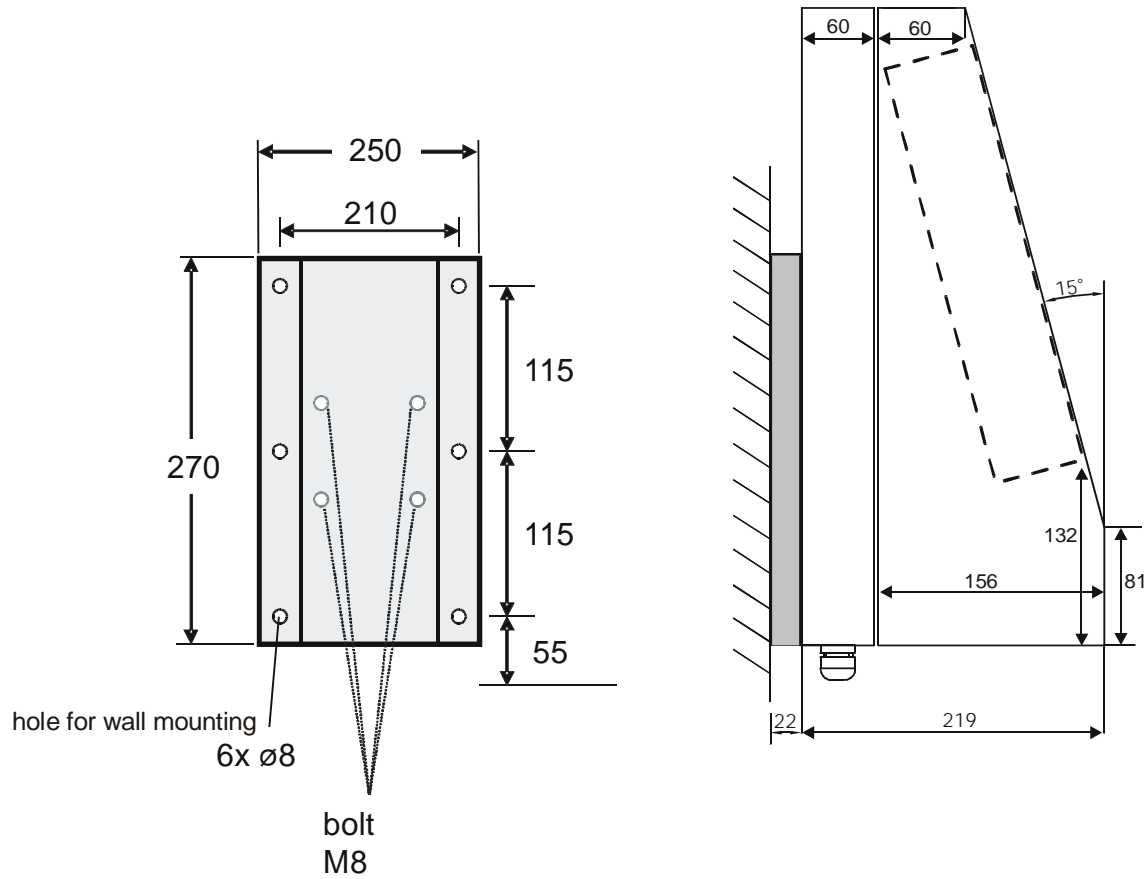
4.5.4 Wall-mounting case PCEX 412

PCEX 412, stainless steel wall-mounting case
 Material: Stainless steel (1.4301)



4.5.5 Mounting options of the PCEX-410-AG1

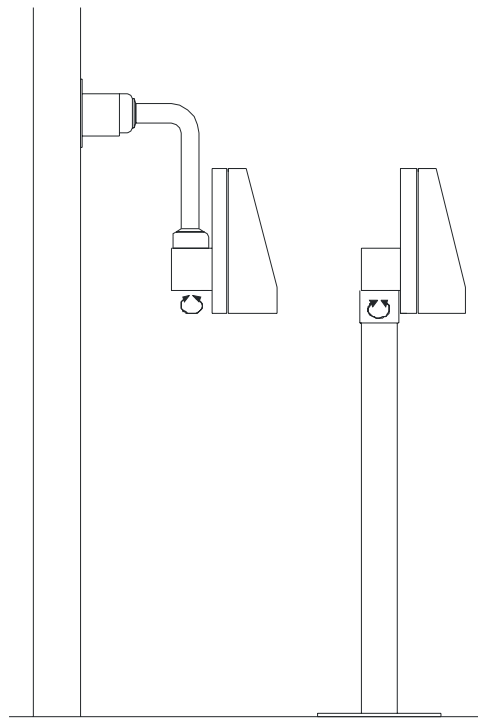
4.5.5.1 Optional wall mounting of the PCEX-412-AG1



4.5.6 Optional bracket or floor mounting PCEX 412-AG1

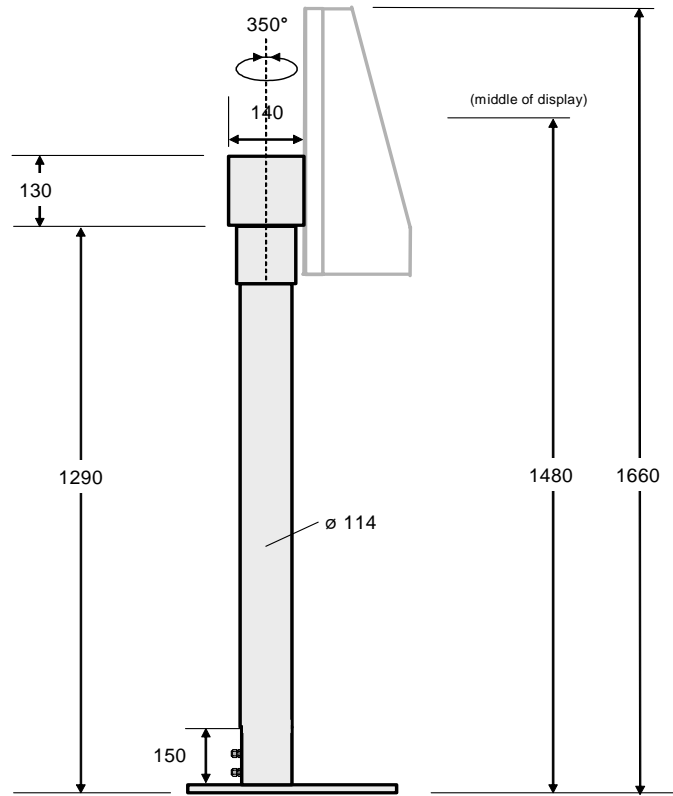
Optional: Bracket

Optional: Floor mounting



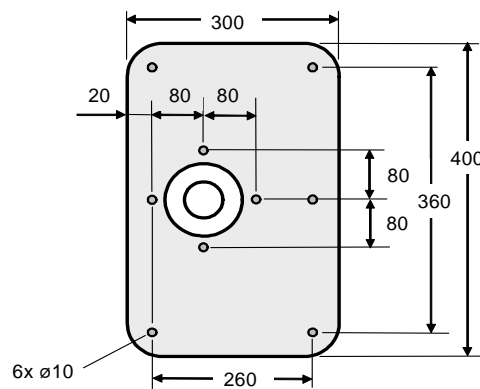
ABG-STANDFUSS-1-1280

Optional stand for PCEX-412-AG1, turnable.



Weight of case with base approx: 17 kg

Base



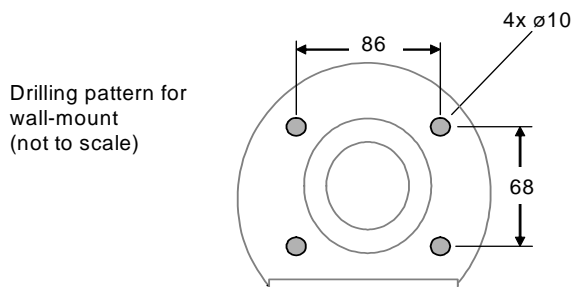
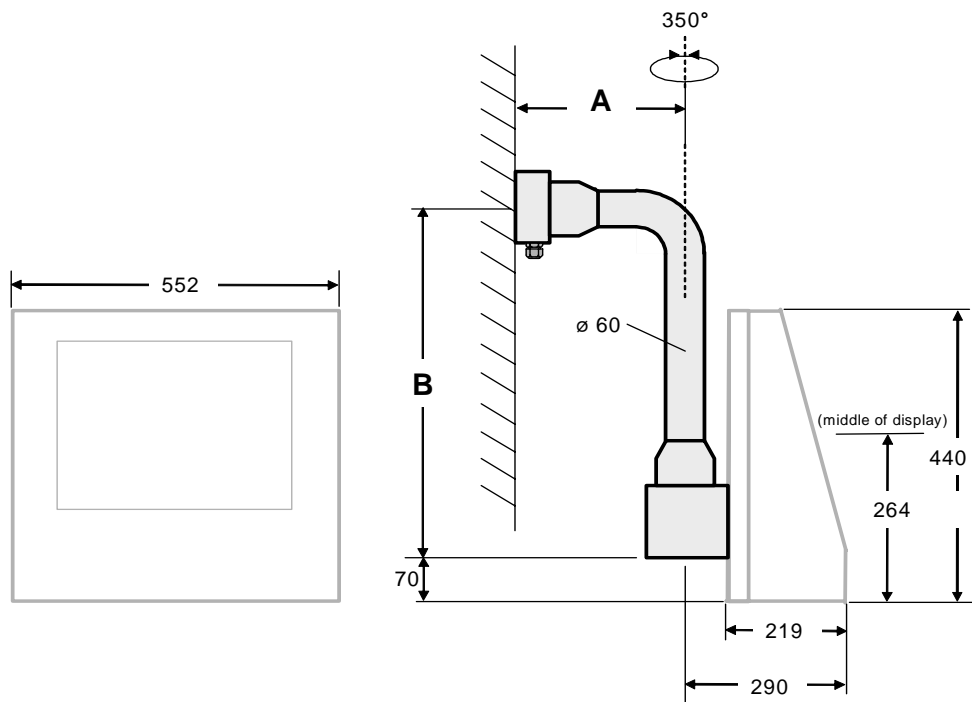
all dimensions in mm

ABG-STANDFUSS-2

Optional stand for PCEX-412-AG1, not turnable.
Same structural shape as ABG-STANDFUSS-1

ABG-TRAGARM-1-1

For connection cable gland 2xM20
Optional bracket for PCEX-412-AG1

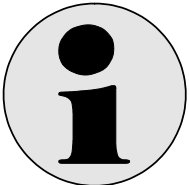


ABG-TRAGARM-1-1

Weight of case: Tragarm-1-1 approx. 11 kg

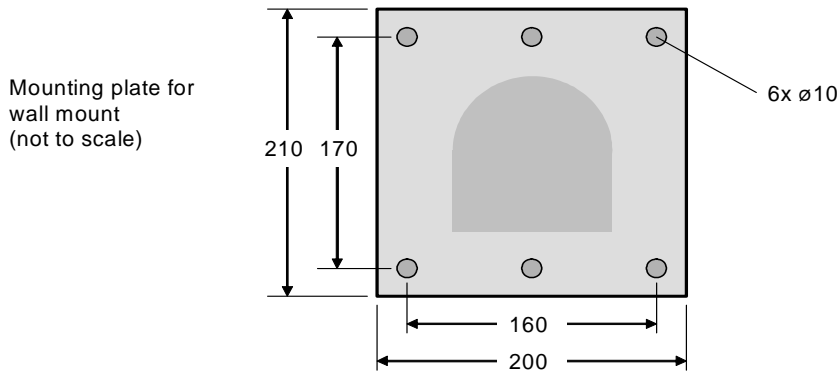
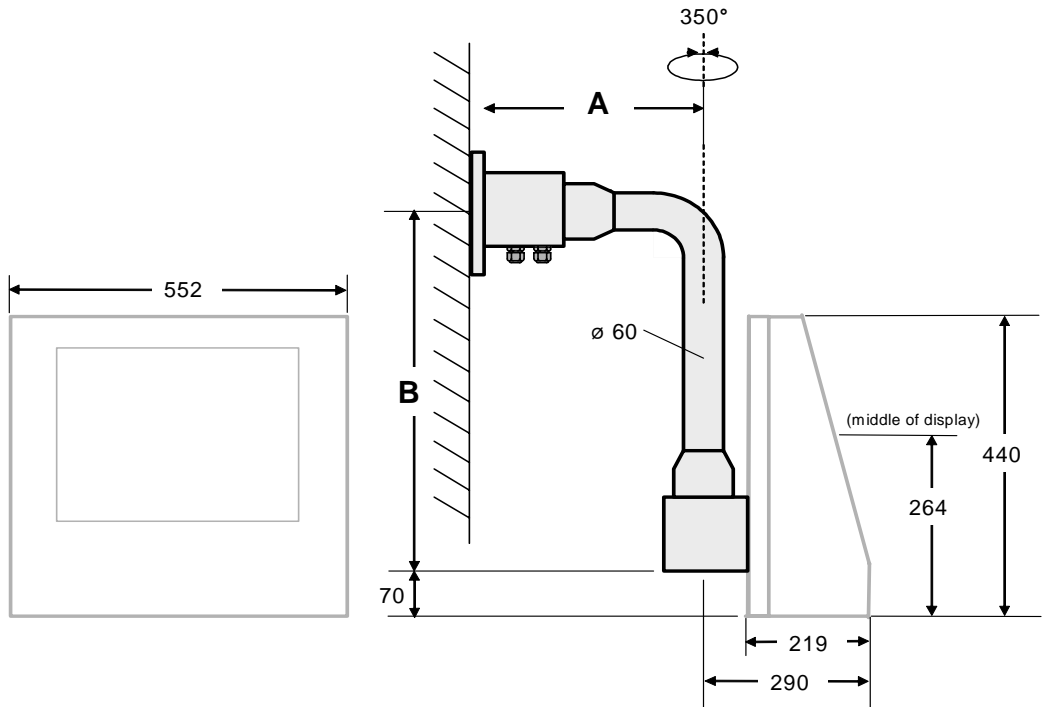
all dimensions in mm

Amin = 355 mm
Bmin = 645 mm

| | |
|---|--|
|  | <p>Not:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-1-1 is supplied with the minimum dimensions: Non-standard dimensions must be explicitly specified.</p> |
|---|--|

ABG-TRAGARM-1-2

For connection gland 1xM25 and 3xM20
Optional braket for ABG-PCEX-412-AG1



ABG-TRAGARM-1-2

Weight: Tragarm-1-2 approx. 11 kg

all dimensions in mm

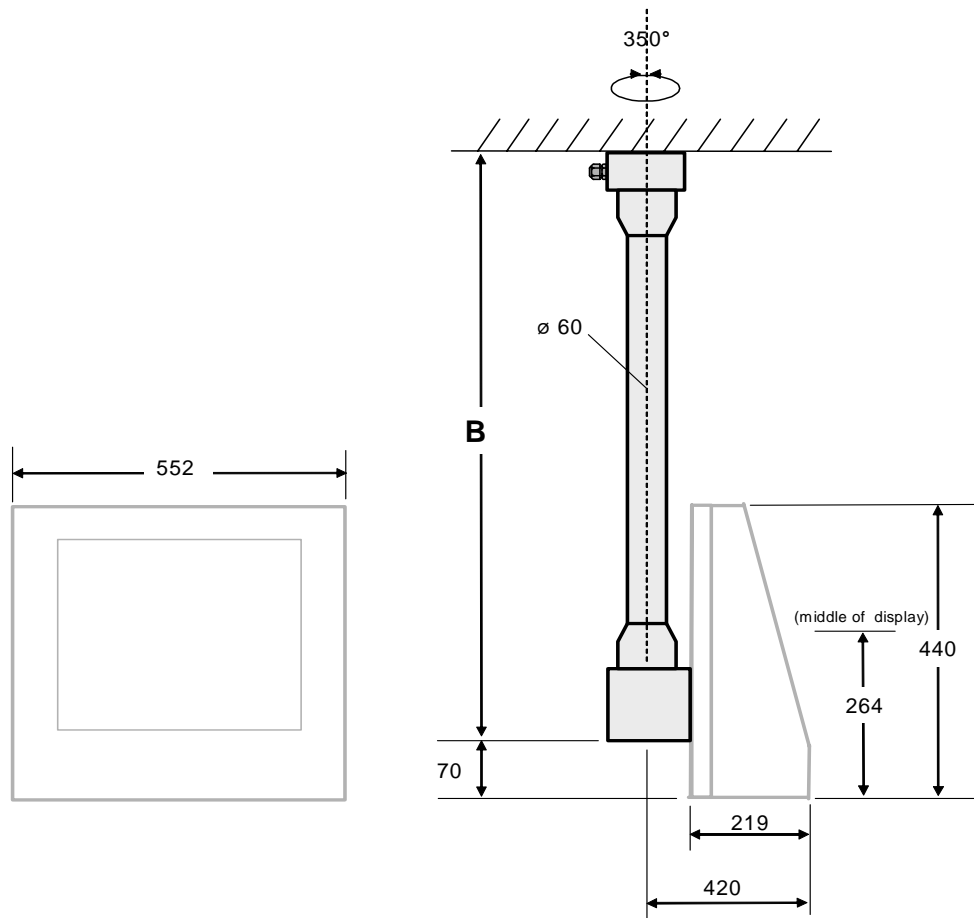
Amin = 455 mm

Bmin = 645 mm

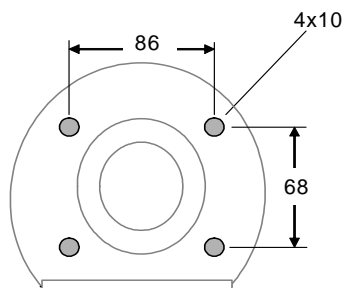
| | |
|--|--|
| | <p>Note:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-1-2 is supplied with the minimum dimensions: Non-standard dimensions must be explicitly specified</p> |
|--|--|

ABG-TRAGARM-2-1

For connection cable gland 2xM20
Optional bracket for PCEX-412-AG1



Drilling pattern for ceiling mount (not to scale)



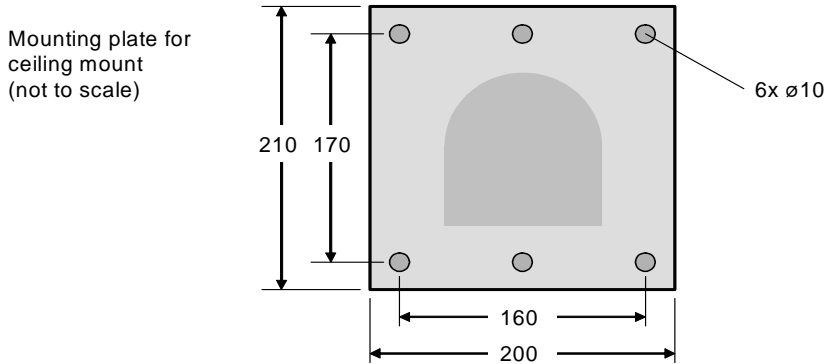
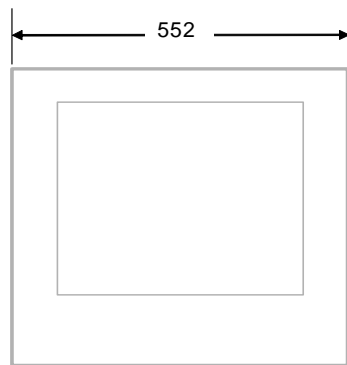
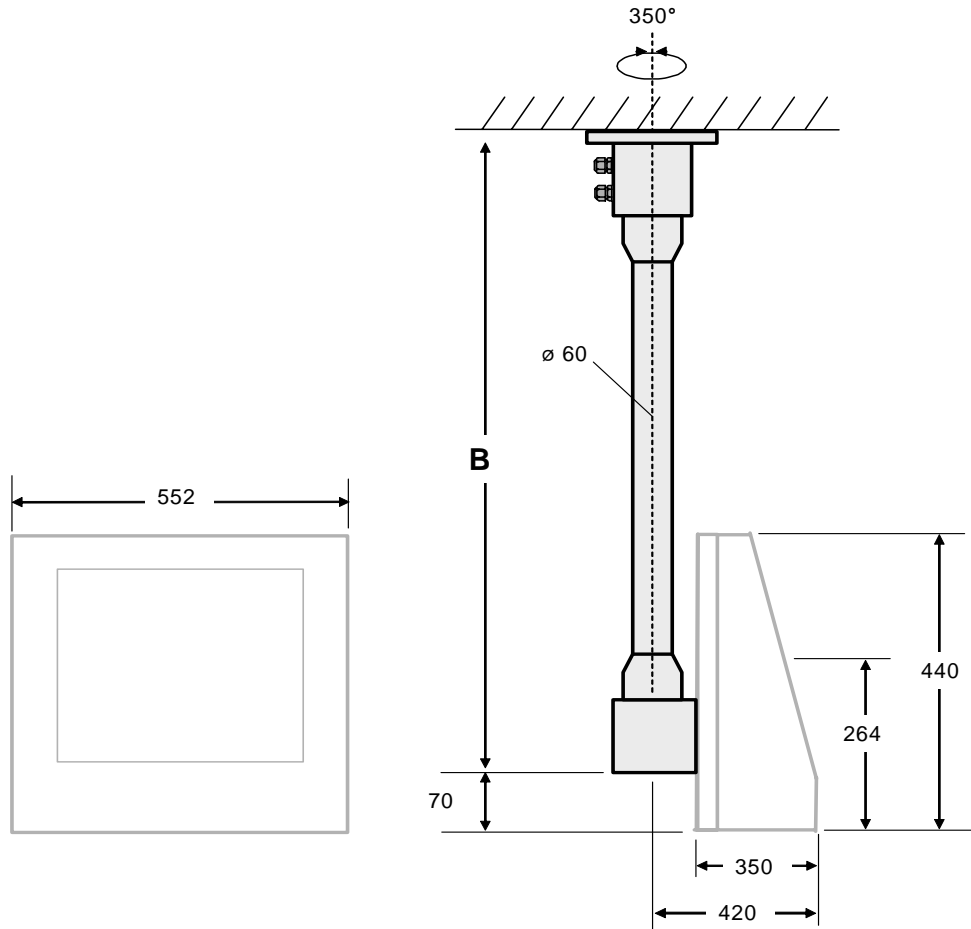
ABG-TRAGARM-2-1

Weight: Tragarm-2-1 approx. 11 kg
Bmin = 700 mm

| | |
|--|--|
| | <p>Note:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-2-1 is supplied with the minimum dimensions: Non standard dimensions must be explicitly specified</p> |
|--|--|

ABG-TRAGARM-2-2

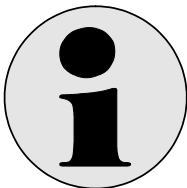
For connection gland 1xM25 und 3xM20
 Optional bracket for PCEX-412-AG1



AGB-TRAGARM-2-2

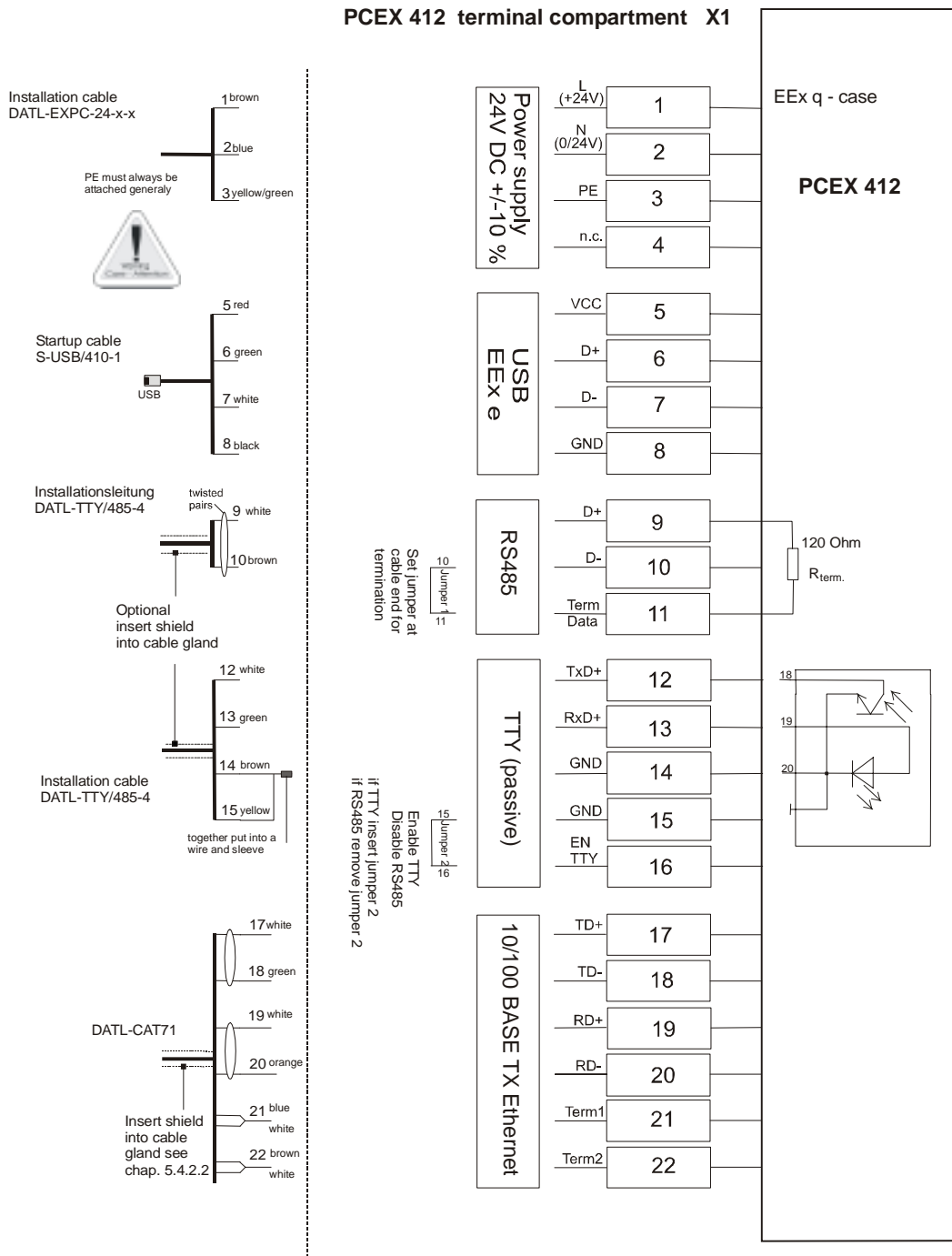
alle Maße in mm

Weight: Tragarm-2-2 approx. 11 kg
 Bmin = 800 mm

| | |
|---|--|
|  | <p>Note:</p> <p>Unless otherwise indicated in the order the ABG-TRAGARM-2-2 is supplied with the minimum dimensions: Non standard dimensions must be explicitly specified</p> |
|---|--|

4.6 Connection and wiring diagrams PCEX 412

4.6.1 Terminal compartment X1 EEx e



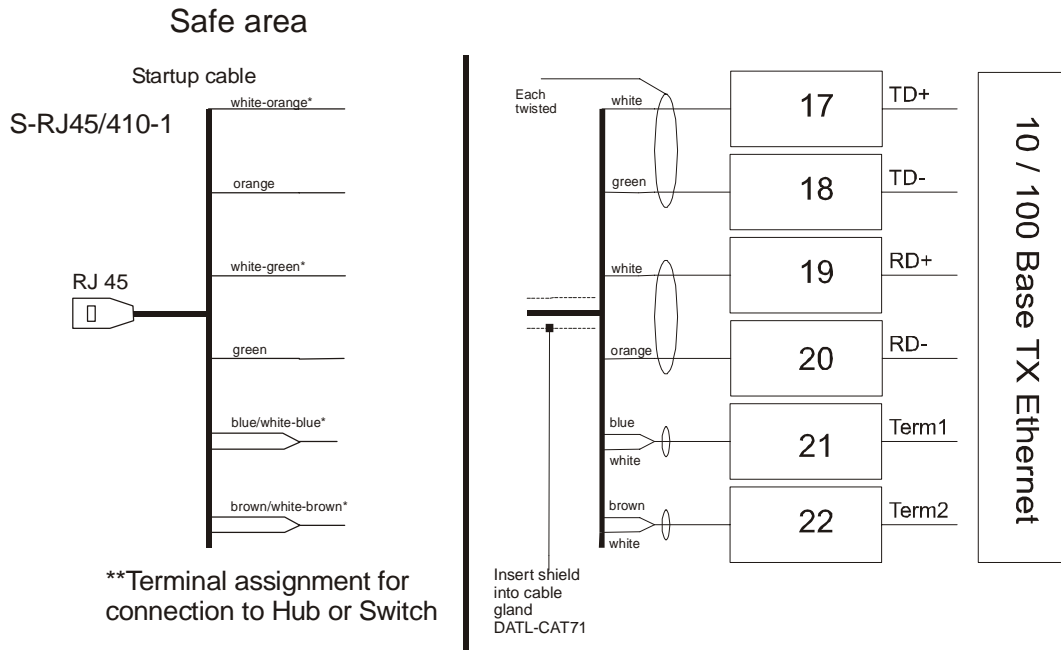
4.6.2 Label for USB adapter



This label is also affixed inside the terminal compartment.

4.6.3 Terminal compartment X1 (EEx e) startup cable

PCEX 412 terminal compartment X1 EEx e



*Instead of „white“ is also black in the line coding possible.

**For direct connection to Host or PC the pairs of insulated conductors must be changed from (white-orange / orange) to (white-green / green).

The braiding must be inserted into the cable gland.



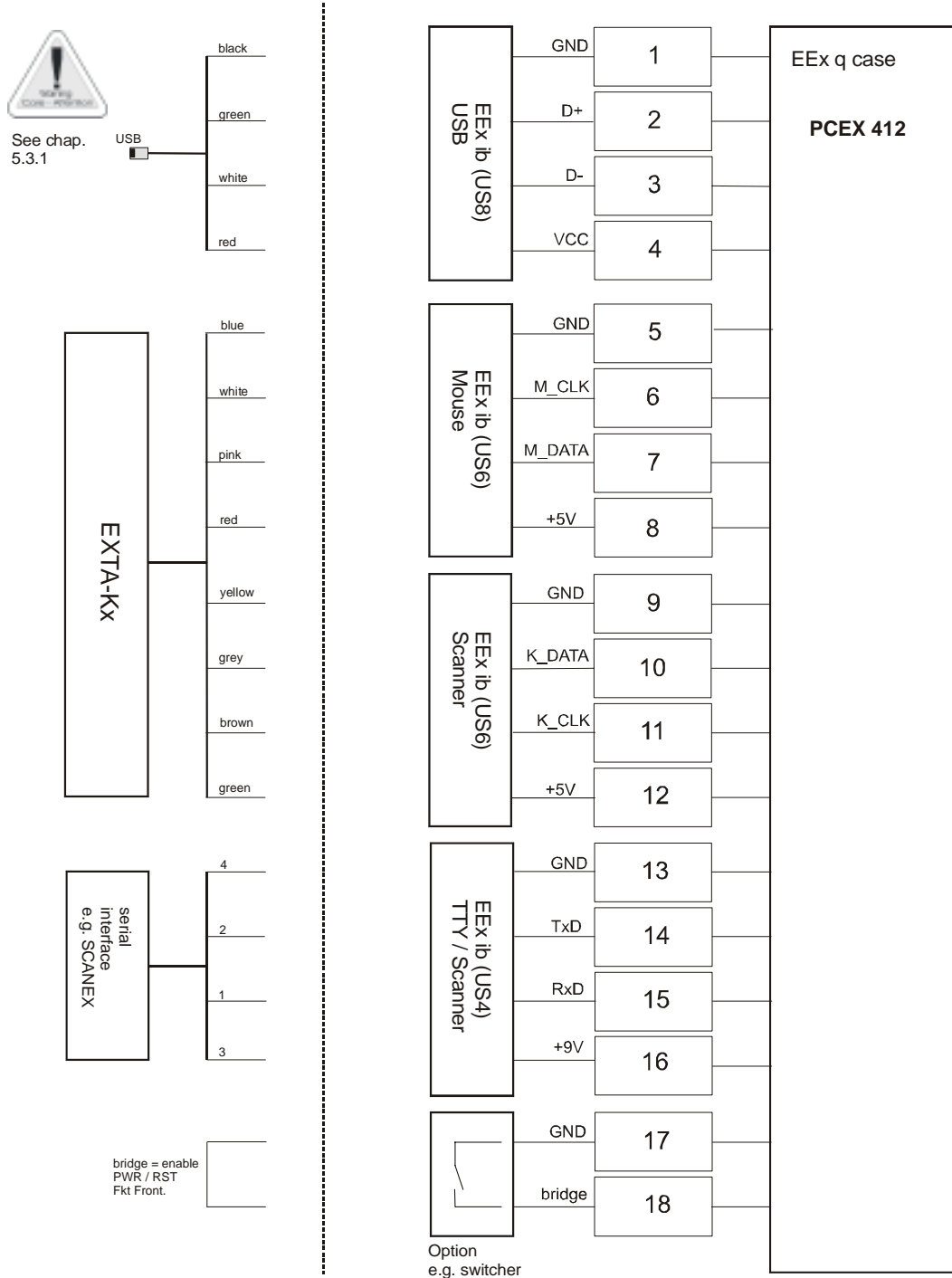
**Start-up cable
Don't use in hazardous area!**

4.6.4 Terminal compartment X2 (EEx ib) intrinsically safe circuits

- External keyboard with mouse (optional)
- TTY-interface
- USB-interface 2
- Konfiguration Power-switching functions on the front plate

Terminals 17 and 18 must be jumpered. The power OFF and RESET functions on the front-plate keyboard are activated. A key-operated switch, for instance, can also be connected externally instead of a jumper.

PCEX 412 terminal compartment X2



5 Components VISUEX series PCEX 410/412

5.1 Scanner

The PCEX 410/412 can operate an intrinsically safe barcode reader belonging to the SCANEX series at its intrinsically safe TTY interface. The following products can be used at present:

EX-Dragon-M101 (radio scanner) with EXOM base station



EX-Dragon-D101 with connecting cable



EX-NANO80A



Please also refer to the relevant operating instructions if one of these intrinsically safe barcode readers is connected. The terminal assignment of the PCEX 410 is shown in section 3.7.4 and for the PCEX 412 in section 4.6.4.

5.2 Mass storage

5.2.1 Hard disk

The device is supplied with a 20 GB (gross) hard disk (IDE primary master). Part of this disk (approx. 3 GB) is required to make a backup copy of the factory settings. This improves the reliability of the system and allows the factory installation to be restored quickly in the event of a crash (software application, virus or installation error). A second, separate data carrier is also provided (refer to section 5.2.2), for instance to permit the MBR (boot sector) to be restored as well.

This functionality cannot take the place of regular data backups!

5.2.2 Compact Flash

The device incorporates a 64 MB Compact Flash memory, which acts as the IDE secondary master. This memory contains important emergency information and is not allowed to be modified.

5.3 Data interfaces

5.3.1 Intrinsically safe interfaces (EEx ib)

The device features the following intrinsically safe (EEx ib) data interfaces:

- PS/2 interface for operating an external, intrinsically safe keyboard and mouse.
- 20 mA TTY interface (implemented as COM2) for operating external input devices, such as a barcode scanner
- USB 1.1 interface intrinsically (EEx ib)

The connected equipment must conform to the specifications contained in the technical data for the intrinsically safe circuits. That applies also to test purposes within at safe area. When using the offered Pepperl + Fuchs components this is ensured

5.3.2 Increased safety interfaces (EEx e)

The device features the following data interfaces with the EEx e type of protection (increased safety):

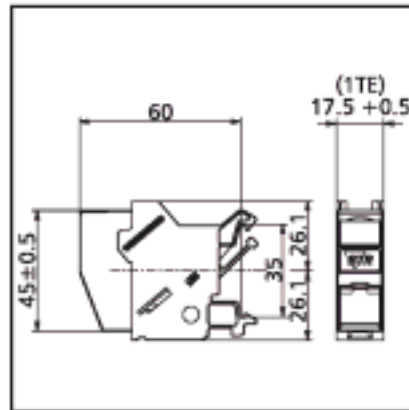
- Ethernet 100BASE-TX for operation in a LAN or controlling remote I/Os
- RS485 interface (implemented as COM1)
- Alternative to RS485 interface: 20 mA TTY interface (implemented as COM1)
- USB 1.1 interface, only for connecting safe Ex-approved apparatus or cables belonging to this apparatus. No apparatus (e.g. a USB stick) is allowed to be operated in the EEx e box !

Only devices which conform to EN 60950 are allowed to be connected. These devices must be implemented with safety extra-low voltage (SELF, max. 60 V).

5.4 BOX-A10 (Ethernet RJ45 patch panel)

A simple RJ45 patch panel, which is designed to be installed in the IT control cabinet in the safe area, for instance, can be supplied as an accessory for the PCEX 410. It allows the Ethernet to be wired to the next hub or to a PLC.

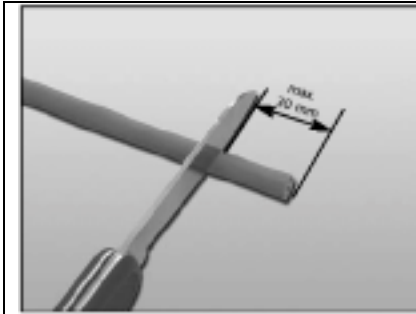
Box-A10



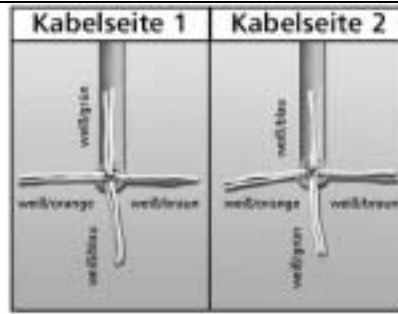
All dimensions in mm

5.4.1 Connection instructions

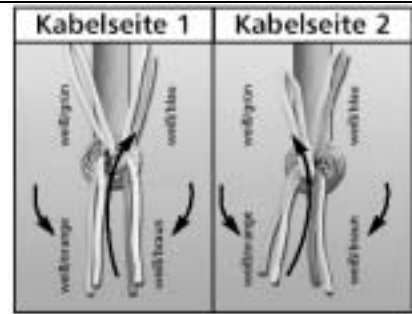
| Preparation of the BOX-A10 for installation on a DIN rail (35 mm) | | |
|---|--|--|
| <p>Erdung / Potentialausgleich</p> | <p>Isolierter Einbau</p> | <p>Schritt 1</p> |
| <p>The modules are grounded directly on the rail via the ground contact spring. This spring is connected by a ground terminal to the equipotential bonding. The rail must be electrically conductive.</p> | <p>If the module is not supposed to be grounded, press the locking latch on the housing down and remove the ground contact spring.</p> | <p>Then snap the lower housing part of the E-DAT REG module onto the rail.</p> |
| Preparation of the DATL-CAT71 Ethernet cable | | |
| | | |
| <p>Remove about 25 mm (max. 30 mm) of the plastic sheath.</p> | <p>Fold back the braided shield...</p> | <p>...and wrap it around the plastic sheath.</p> |



Glue in the shield film for the wire pairs and remove.

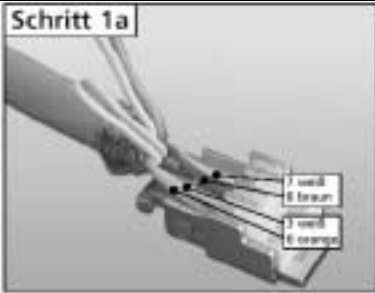


Separate the pairs of wires according to how they exit at the cable ends...

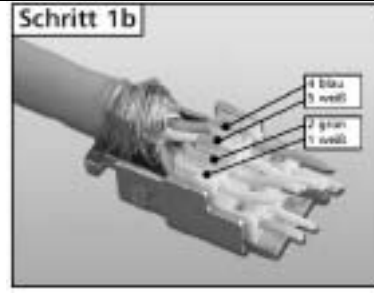


..and arrange them as shown in the photo to facilitate wire insertion into the loader later.

Cable termination



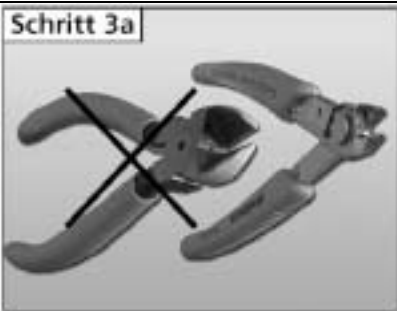
Insert the white/brown and white/orange pairs of wires into the lower part of the loader...



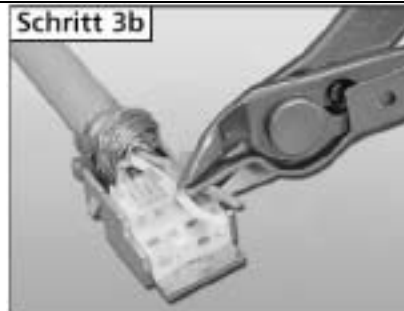
...and the blue/white and green/white pairs of wires into the upper part.



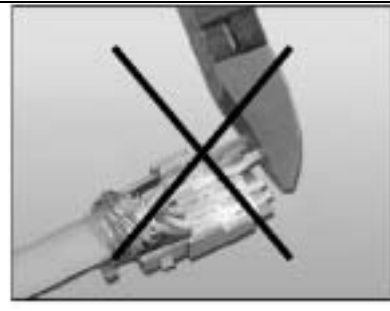
Fit a cable tie as strain relief and cut off the excess length.



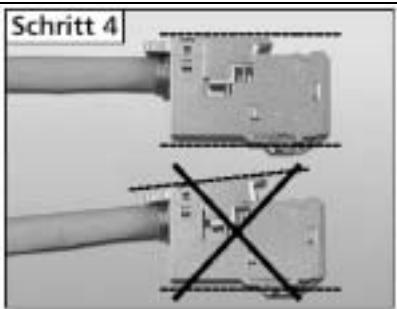
Use a wire cutter of appropriate size to remove the wire ends...



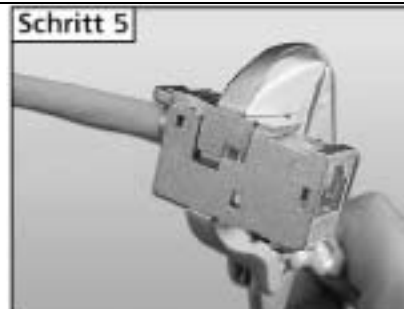
...and cut them flush.



The wires cannot be cut properly flush with an unsuitable wire cutter. This will cause problems when the two housing parts are assembled.



Assemble the housing by positioning the loader straight on the lower housing part.

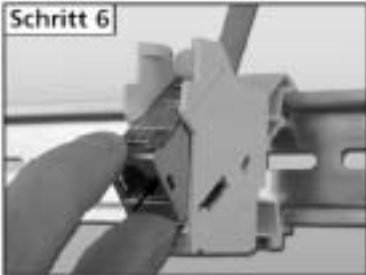


Apply pliers in the middle of the module and squeeze them until the housing is closed.

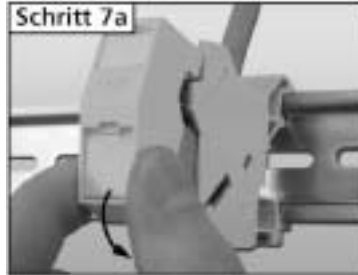


If the pliers are applied too far back, the loader may be displaced, damaging the ID connectors inside the module.

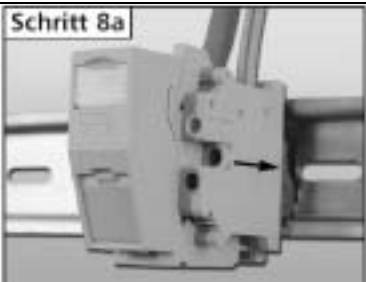
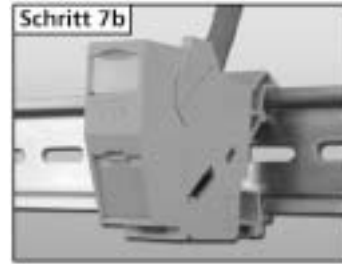
Installation of the modules



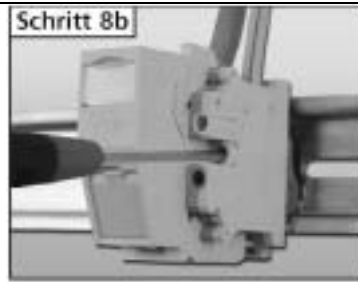
Insert the assembled 8(8) module into the lower part of the REG housing.



Attach the housing cover to the top of the lower section and click it downwards into place.



The rail must be connected by a ground terminal to the ground electrode, to ensure proper equipotential bonding of the modules.

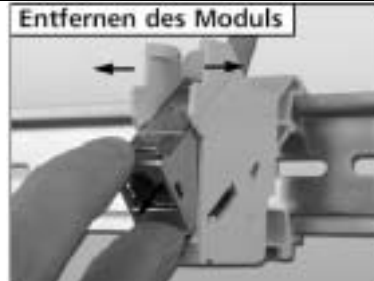


Simply fit this terminal onto the rail, screw it tight and connect it to the equipotential bonding.

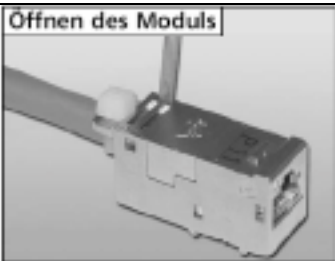
Disassembly of the individual components



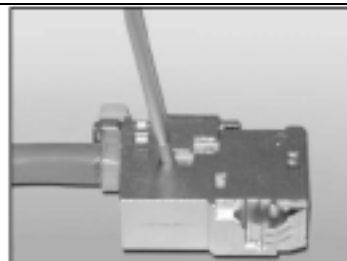
Loosen the upper housing part with a screwdriver and remove.



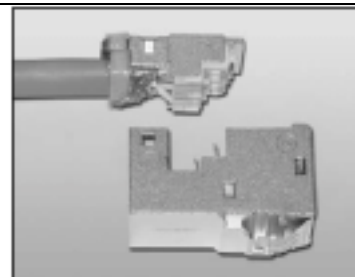
Press the housing walls gently outwards and take out the module.



Lever out the loader with the screwdriver...



... and carefully separate the two parts of the housing.



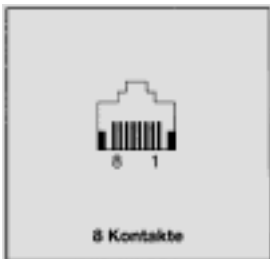
5.4.2 Technical data

5.4.2.1 Connection instructions PCEX 410

DATL-CAT71-8

Plug socket BOX A10

View of spring-loaded contacts



Mechanical characteristics

Wire connection:

Insulation piercing connecting device BTR-IDC: Conductor 0.4 – 0.65 mm

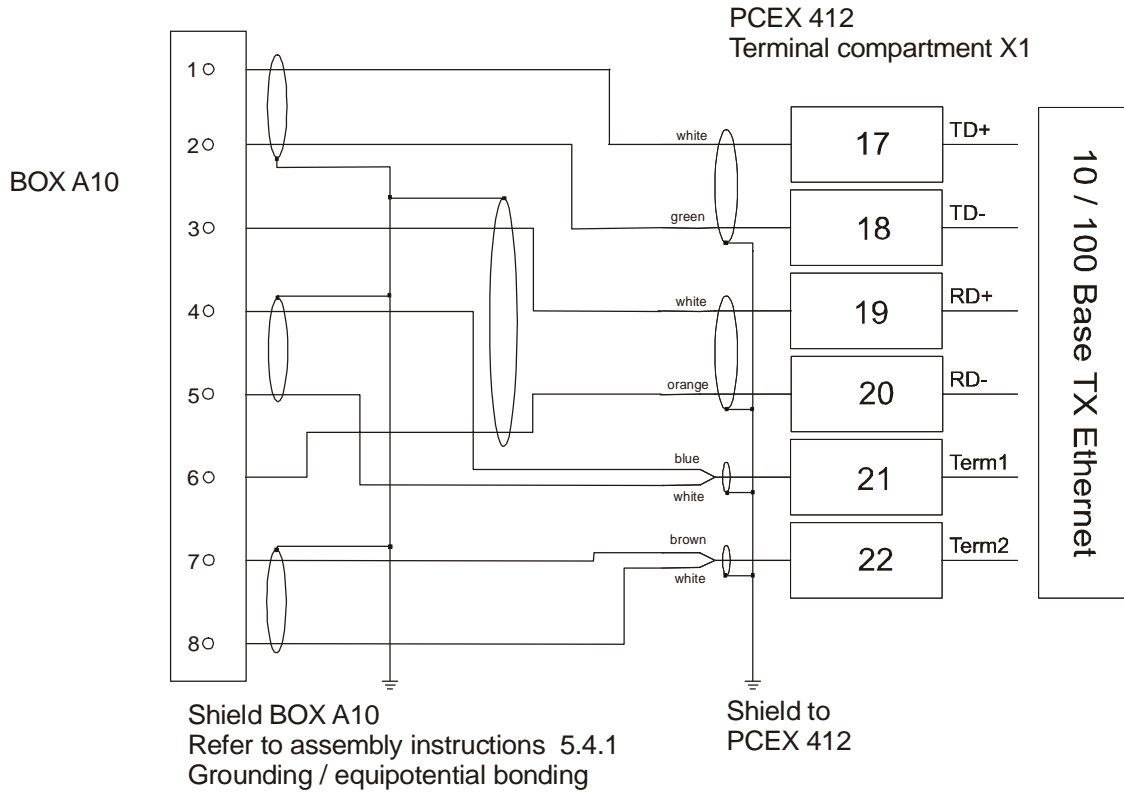
AWG 26 – 22 insulation 0.7 – 1.4 mm (1.6 mm)

AWG 26/7 stranded wire conductor with 7 Cu strands, uninsulated

Can be reused for AWG 22, AWG 23 and AWG 24, providing an identical or larger cross-section is selected.

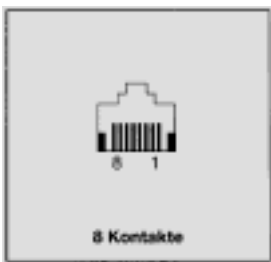
5.4.2.2 Connection instructions PCEX 412

DATL-CAT71-8



Plug socket BOX A10

View of spring-loaded contacts



Mechanical characteristics

Wire connection:

Insulation piercing connecting device BTR-IDC: Conductor 0.4 – 0.65 mm

AWG 26 – 22 insulation 0.7 – 1.4 mm (1.6 mm)

AWG 26/7 stranded wire conductor with 7 Cu strands, uninsulated

Can be reused for AWG 22, AWG 23 and AWG 24, providing an identical or larger cross-section is selected.

5.5 Operating systems PCEX 410/412

Windows XP Professional is used as the standard operating system. Windows 2000, Windows XP Embedded or UNIX operating systems such as Linux can be used alternatively.



5.5.1 Windows 2000

Version without CD in the variantes:

- Windows 2000 SPS Prof EN (English)
- Windows 2000 SPS Prof DE (German)

5.5.2 Windows XP professional

Version with CD in the variantes:

- Windows XP SP2 Prof EN (English)
- Windows XP SP2 Prof DE (German)
- Windows XP SP2 Prof MUI (Multi Language)
 - Preinstalled languages:
English, German, French, Spanish, Italian, Portuguese, Chinese, Japanese, Korean, Arab, Russian
 - Further languages are on the enclosed CDs:

Original designation Microsoft: Arabic, Chinese (Simplified), Chinese (Traditional), English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish

5.6 EXTA-Kx PC keyboards

The intrinsically safe EXTA-Kx keyboards integrate different mouse systems. The dimensions are the same for all versions. The keyboards are designed to be installed in a case.

5.6.1 EXTA-K1 Exi PC keyboard without mouse system



| Technical data | EXTA-K1 |
|-----------------------------------|---|
| Approvals: | |
| Type of protection | II 2 G, EEx ib IIC T4 |
| Approval | DMT 01 ATEX E177 |
| Degree of protection | IP 65 |
| Ambient conditions (operation): | |
| Temperature range | 0 °C – +50 °C |
| Relative humidity | Max. 85% without condensation (48 h endurance test) |
| Ambient conditions (storage): | |
| Temperature range | -10 °C – +70 °C |
| Mechanical data: | |
| Material | Aluminum / polyester foil |
| Weight | 1.2 kg |
| Dimensions (W x H x D) in mm | 482.6 x 177.8 x 45 |
| Installation cutout (W x H) in mm | 450 x 150 |
| Power supply | Exi, via data cable |
| Cable | 1.8 m / end sleeves |
| Interface | TTL / PS/2 |
| No. of keys: | 105 |
| Layouts: | |
| | German US international French Swedish Korean Danish |

5.6.2 EXTA-K3 Exi PC keyboard with trackball mouse



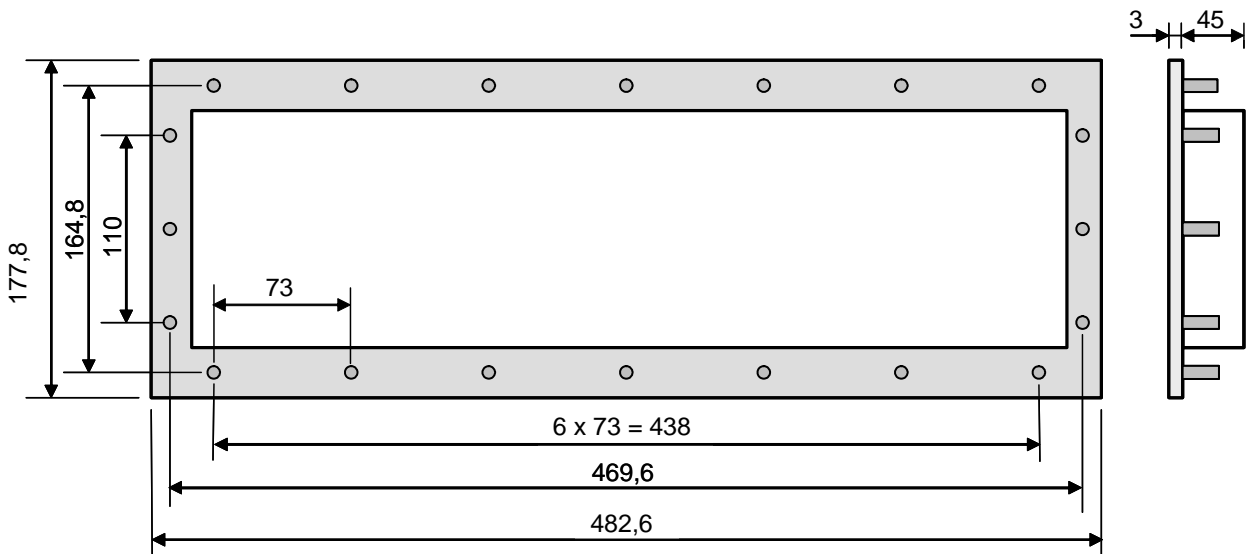
| Technical data | EXTA-K3 |
|-----------------------------------|---|
| Approvals: | |
| Type of protection | II 2 G, EEx ib IIC T4 |
| Approval | DMT 01 ATEX E177 |
| Degree of protection | IP 65 with resting trackball With movement undefined |
| Ambient conditions (operation): | |
| Temperature range | 0 °C – +50 °C |
| Relative humidity | Max. 85% without condensation (48 h endurance test) |
| Ambient conditions (storage): | |
| Operation: | -10 °C – +70 °C |
| Mechanical data: | |
| Material | Aluminum / polyester foil |
| Weight | 1.2 kg |
| Dimensions (W x H x D) in mm | 482.6 x 177.8 x 45 |
| Installation cutout (W x H) in mm | 450 x 150 |
| Power supply | Exi, via data cable |
| Cable | 1.8 m / end sleeves |
| Interface | TTL / PS/2 |
| No. of keys: | 105 |
| Trackball: | |
| Ball diameter | 51 mm |
| Ball material / color | Phenolic resin / black |
| Tracking force | 0.5 N |
| Required drivers | Microsoft Mouse®, PS/2 |
| Layouts: | |
| | German US international French Swedish Korean Danish |

5.6.3 EXTA-K4 Exi PC keyboard with touchpad mouse



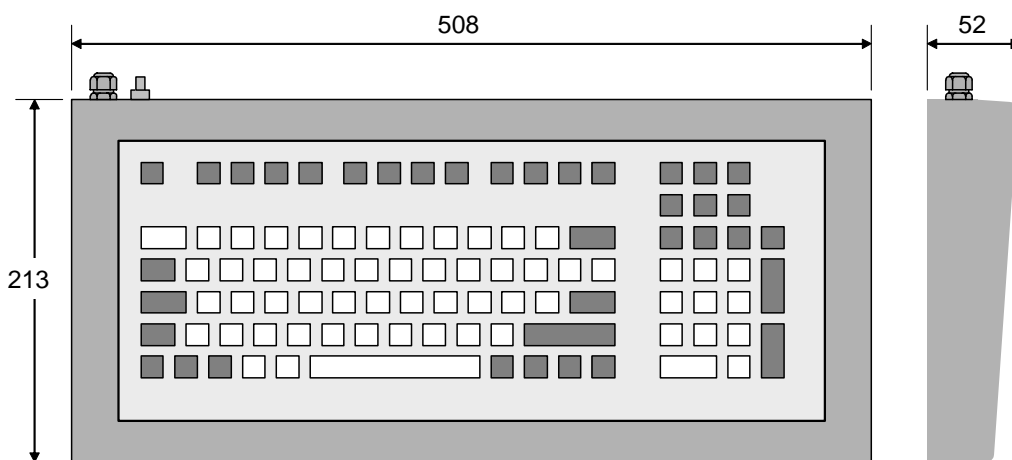
| | |
|-----------------------------------|---|
| Technical data | EXTA-K4 |
| Approvals: | |
| Type of protection | II 2 G, EEx ib IIC T4 |
| Approval | DMT 01 ATEX E177 |
| Degree of protection | IP 65 |
| Ambient conditions (operation): | |
| Temperature range | 0 °C – +50 °C |
| Relative humidity | Max. 85% without condensation (48 h endurance test) |
| Ambient conditions (storage): | |
| Temperature range | -10 °C – +70 °C |
| Mechanical data: | |
| Material | Aluminum / polyester foil |
| Weight | 1.2 kg |
| Dimensions (W x H x D) in mm | 482.6 x 177.8 x 45 |
| Installation cutout (W x H) in mm | 450 x 150 |
| Power supply | Exi, via data cable |
| Cable | 1.8 m / end sleeves |
| Interface | TTL / PS/2 |
| No. of keys: | 105 |
| Touchpad: | |
| Operating principle | Capacitive |
| Resolution | 40 points / mm |
| Required drivers | Microsoft Mouse®, PS/2 |
| Dimensions (W x H) in mm | 66 x 50 |
| Layouts: | |
| | German US international French Swedish Korean Danish |

5.6.4 EXTA-K Keyboard installation dimensions



All dimensions in mm
 Installation cutout: W x H 450 x 150 mm
 Installation depth: 45 mm
 20 circumferential studs (M3 x 10)

5.6.5 EXTA-K Surface-mounting case type ABG-EXTA-K134



All dimensions in mm
 ABG-EXTA-K134-10

Weight (incl. keyboard): Approx. 5.4 kg
 Degree of protection of case: IP 65
 Equipotential bonding:

If the keyboard is installed in a metal surface-mounting case with equipotential bonding, the equipotential connection is made by means of the circumferential studs.

If the keyboard is installed in a case without separate equipotential bonding (mobile case), the equipotential connection must be made via the shield of the connecting cable.

5.6.6 EXT-A-Kx Core assignment

| | Assignment | Core identification for EXT-A-K1 | Core identification for EXT-A-K3 / -K4 |
|--|------------|----------------------------------|--|
| Keyboard | +5 V | Green | Green |
| | GND | Yellow | Yellow |
| | K_DATA | Grey | Grey |
| | K_CLK | Brown | Brown |
| Mouse (EXT-A-K3 / EXT-A-K4 only) | +5 V | | Red |
| | GND | | Blue |
| | M_DATA | | Pink |
| | M_CLK | | White |



Warning

If an EXT-A-K keyboard is connected, please make sure that the cores are correctly assigned; failure to comply may result in malfunctions or in irreparable damage to the electronics.

Core assignment refer to **PCEX 410 section 3.7.4**
 PCEX 412 section 4.6.4

5.7 Technical data

| General operating and limit values: | | |
|---|--|--|
| | PCEX 410 | PCEX 412 |
| Approvals: ATEX 95, Richtlinie 94/9/EG | | |
| Equipment category: | II 2 G / II 3 D | II 2 G / II 2 D |
| Type of protection: | EEx qe [ib] IIC T4 / | EEx qe [ib] IIC T4 / |
| | Optional: | |
| | EEx qe [ib] II 3D IP 54 T 80°C | EEx qe [ib] II 2D IP 65 T95°C |
| Type examination certificate: | IBEXU 04 ATEX 1190 | IBEXU 04 ATEX 1190 |
| Degree of protection of case: | | |
| Degree of protection of case (front): | IP65 | IP65 |
| Degree of protection of case (rear): | IP54 (in the EEx ib terminal compartment IP20) | IP65 |
| Dimensions (WxHxD) in mm | | |
| Dimension: | 452 x 295 x 140 | 396 x 305 x 172 |
| Cutout dimensions: | 416 x 258 | 360 x 268 |
| Surface-mounting case (IP65): | 552 x 440 x 219 | 552 x 440 x 219 |
| Ambient conditions: | | |
| Operating temperature range: | 0°C ... +45°C | 0°C ... +45°C |
| Storage temperature range: | -20°C ... +60°C | -20°C ... +60°C |
| Relative humidity: | Max. 85% without condensation (48 Std. endura test) | Max. 85% without condensation (48 Std. endura test) |
| Mass: | 17 kg | 22 kg |
| Power supply: | | |
| Supply voltage: | 24V DC \pm 20%; power supply unit acc. to EN60950 | 24V DC \pm 20%; power supply Unit acc. to EN60950 |
| Power consumption: | max. 36W | max. 44W |
| Degree of protection: | EEx e | EEx e |
| Place of connection: | EEx e terminal compartment clamp X1 | EEx e terminal compartment clamp X1 |
| Type of connection: | Screw terminal | Screw terminal |
| Range of the cross-section: | 0,5 - 2,5mm ² | 0,5 - 2,5mm ² |
| Display: | | |
| Type: | TFT active matrix with touch (resistiv) | TFT active matrix with touch (resistiv) |
| Size: B x H (mm) Active range | 211,2 x 158,4 (10,4" diagonal) | 245,8 x 184,3 (12" diagonal) |
| Colors: | 262144 (18 bit) | 262144 (18 bit) |
| Pixels: | 800 x 600 (SVGA) | 1024 x 768 (XGA) |
| Pixel pitch: | 96dpi | 96dpi |
| Image refresh rate: | Max. 75 Hz | Max. 75 Hz |
| Contrast (typical): | 300 | 500 |
| Brightness (typical) | 230 cd/m ² | 300 cd/m ² |
| Reading off angle: | Horizontal 120°, vertical 100° | Horizontal 120°, Vertical 100° |

| General and limit values: | | |
|--|------------------------------------|------------------------------------|
| | PCEX 410 | PCEX 412 |
| External keyboard (EXTA-Kx, option): | | |
| Degree of protection: | EEx ib | EEx ib |
| Interface, type: | PS/2 intrinsically safe | PS/2 intrinsically safe |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx ib terminal compartment | EEx ib terminal compartment |
| | clamp X3 | clamp X2 |
| *Range of the cross-section: | 0,1 – 2,5 mm ² | 0,08 - 2,5 mm ² |
| External pointing device (EXTA-Kx, option): | | |
| Degree of protection: | EEx ib | EEx ib |
| Interface, type: | PS/2 intrinsically safe | PS/2 intrinsically safe |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx ib terminal compartment | EEx ib terminal compartment |
| | clamp X3 | clamp X2 |
| *Range of the cross-section: | 0,1 – 2,5 mm ² | 0,08 - 2,5 mm ² |
| USB-1: | | |
| Degree of protection: | EEx ib | EEx ib |
| Interface, type: | USB 1.1 intrinsically safe | USB 1.1 intrinsically safe |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx ib terminal compartment | EEx ib terminal compartment |
| | clamp X3 | clamp X2 |
| *Range of the cross-section: | 0,1 – 2,5 mm ² | 0,08 - 2,5 mm ² |
| TTY 20mA (1): | | |
| Degree of protection: | EEx ib | EEx ib |
| Interface, type: | 20mA current interface active | 20mA current interface active |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx ib terminal compartment | EEx ib terminal compartment |
| | clamp X3 | clamp X2 |
| *Range of the cross-section: | 0,1 – 2,5 mm ² | 0,08 - 2,5 mm ² |
| TTY 20mA (2): | | |
| Degree of protection: | EEx e; devices acc. EN60950 | EEx e; devices acc. EN60950 |
| Interface, type: | 20mA current interface passive | 20mA current interface passive |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx e terminal compartment | EEx e terminal compartment |
| | clamp X1 | clamp X1 |
| *Range of the cross-section: | 0,5 - 2,5 mm ² | 0,5 - 2,5 mm ² |
| RS485:: | | |
| Degree of protection: | EEx e; devices acc. EN60950 | EEx e; devices acc. EN60950 |
| Interface, type: | RS485 with end terminal- | RS485 with end terminal- |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx e terminal compartment | EEx e terminal compartment |
| | clamp X1 | clamp X1 |
| *Range of the cross-section: | 0,5 - 2,5 mm ² | 0,5 - 2,5 mm ² |

| General and limit values: | | |
|--|--|------------------------------------|
| | PCEX 410 | PCEX 412 |
| USB-2 | | |
| Degree of protection: | EEx e; devices acc. EN60950 | EEx e; devices acc. EN60950 |
| Interface, type: | USB 1.1 | USB 1.1 |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx e terminal compartment | EEx e terminal compartment |
| | clamp X1 | clamp X1 |
| *Range of the cross-section: | 0,5 - 2,5 mm ² | 0,5 - 2,5 mm ² |
| Ethernet: | | |
| Degree of protection: | EEx e; devices acc. EN60950 | EEx e; devices acc. EN60950 |
| Interface, type: | 10/100BASE-TX | 10/100BASE-TX |
| Type of connection: | Screw terminal | Screw terminal |
| Place of connection: | EEx e terminal compartment | EEx e terminal compartment |
| | clamp X2 | clamp X1 |
| *Range of the cross-section: | 0,5 – 2,5 mm ² 2,5 mm ² with identical cross-section and conductor type 2 x 1mm ² | 0,5 – 2,5 mm ² |
| For max. cable length refer to section 6.4.1 | | |

*** Range of the cross sections:**

The range of the cross section refers to massive conductors. With use of flexible wires with wire end sleeves the max. rated cross section decreases by 1 stage.

| General and limit values: | | |
|----------------------------------|---|---|
| | PCEX 410 | PCEX 412 |
| Computer – kernel: | | |
| CPU: | X86 compatible processor | X86 compatible processor |
| System memory: | 256 MB SDRAM | 256 MB SDRAM |
| Frequency: | 400 MHz | 733 MHz |
| Hard disk: | 1,8" 20 GB | 1,8" 20 GB |
| VGA/LCD Interface | | |
| Chipset: | VIA Twister chip with integrated Savage4 2D/3D/Video Accelerator | VIA Twister chip with integrated Savage4 2D/3D/Video Accelerator |
| Video memory: | supports 8/16/32 MB | supports 8/16/32 MB |
| Ethernet Interface: | | |
| Chipset: | RTL 8139 | RTL 8139 |
| Ethernet Interface: | 10/100 BASE-T-Fast Ethernet compatible | 10/100 BASE-T-Fast Ethernet compatible |
| | | |

5.8 Connection data of the intrinsically safe circuits PCEX 410/412

5.8.1 Terminal block US4 for serial interface (intrinsically) e.g. for Scanner

Maximum values of the intrinsically safe circuits:

| | US4 |
|---------------|-----------------------|
| U_{max} | 9,0V |
| $I_{k_{max}}$ | variable, see table 1 |
| P_{max} | variable, see table 1 |
| $C_{i_{max}}$ | 0,33 μ F |
| $C_{a_{max}}$ | 4,5 μ F |
| $L_{i_{max}}$ | ≈ 0 |

table 1

| P_{max} | $I_{k_{max}}$ | Type designation |
|-----------|---------------|------------------|
| 1,1 W | 0,122 mA | Z |
| 1,2 W | 0,133 mA | A |
| 1,3 W | 0,144 mA | M |
| 1,4 W | 0,156 mA | S |

The models of scanners have different explosion prevention-technical limit values. Therefore it must be considered when ordering the PCEX 410/412, which version of the feed circuit US4 is needed. (see type designation)

5.8.2 Terminal block US6 for external keyboard and mouse (intrinsically)

Maximum values of the intrinsically safe circuits:

| | US6 |
|---------------|--------------|
| U_{max} | 6.3 V |
| $I_{k_{max}}$ | 177 mA |
| P_{max} | 1.14 W |
| $C_{i_{max}}$ | 0.6 μ F |
| $C_{a_{max}}$ | 30.0 μ F |
| $L_{i_{max}}$ | ≈ 0 |
| $L_{a_{max}}$ | 0.2 mH |

5.8.3 Terminal block US8 for intrinsically safe USB

Maximum values of the intrinsically safe circuits:

| | US8 |
|---------------|--------------|
| U_{max} | 6.3 V |
| $I_{k_{max}}$ | 234 mA |
| P_{max} | 1.2 W |
| $C_{i_{max}}$ | 0.12 μ F |
| $C_{a_{max}}$ | 30 μ F |
| $L_{i_{max}}$ | ≈ 0 |
| $L_{a_{max}}$ | 0.2 mH |

5.9 Technical data PCEX 410/412 touchscreen

| | |
|---------------------------|--|
| touchscreen | |
| General data: | |
| Technology | Resistive analog touchscreen |
| Touch resolution | 1024 x 1024 points |
| Light transmission | 80% |
| Activation force | 50 – 150 g/cm ² |
| Response time | 10 – 15 msec |
| Position accuracy | 3 mm |
| Functions | Mouse click, double click, drag, right click |
| Scratch resistance | 3H pencil hardness |
| Durability | 3 000 000 touches per point min. |
| Operating systems: | |
| | Windows 95, 98, ME, NT4.0, 2000, XP |

5.10 Chemical resistance of the front foil of PCEX 410/412 and EXTA-Kx keyboards

Polyester foil, resistant to the following chemicals in accordance with DIN 42 115 Part 2:
(concentration 100%, unless otherwise specified)

| | |
|---------------------------|--|
| Alcohols: | Alkaline solutions: |
| Ethanol | Ammonia < 2% |
| Cyclohexanol | Sodium hydroxide solution < 2% |
| Diaceton alcohol | |
| Glycol | Saline solutions: |
| Glycerin | Alkali carbonates |
| Isopropanol | Bichromates |
| Methanol | Potassium prussiates |
| | |
| Aldehydes: | Miscellaneous substances: |
| Acetaldehyde | Molecular chlorine |
| Formaldehyde | Cresol phenol soaps in solution |
| | Oxygen |
| Hydrocarbons: | Tricresyl phosphate |
| Aliphatic hydrocarbons | Water |
| Benzine | Hydrogen peroxide < 25% |
| Benzene | |
| Toluene | Washing, rinsing and cleaning agents: |
| Xylene | Potassium soap |
| | Detergent solution (tensides) |
| Chlorinated hydrocarbons: | Softener |
| Chlorofluorocarbon | |
| Perchloroethylene | Industrial oils and greases: |
| III-trichloroethylene | Cutting emulsions |
| Trichloroethylene | Diesel oil |
| | Varnish |
| Other organic solvents: | Fuel oil |
| Ether | Paraffin oil |
| Acetone | Castor oil |
| Diethyl formamide | Silicone oil |
| Dioxane | Turpentine oil and turpentine substitute |
| | |
| Acids: | |
| Formic acid < 50% | |
| Acetic acid | |
| Phosphoric acid < 30% | |
| Hydrochloric acid ≤ 10% | |
| Nitric acid ≤ 10% | |

Not resistant to:

| | |
|---|--------------------------------------|
| Concentrated mineral acids Concentrated alkaline solutions High-pressure vapor hotter than 100 °C | Benzyl alcohol Methylene chloride |
|---|--------------------------------------|

Like all polyester foils, not resistant in case of long-term exposure to direct sunlight (UV)

5.11 PCEX 410/412 touchscreen

Chemical resistance of the front foil

Material of front foil: PC (polycarbonate)
 Material of top layer: PET backing material with ITO coating

Front foil resistant to the following chemicals:

| |
|--|
| Alcohols |
| |
| Aldehydes: |
| Formaldehyde |
| |
| Other organic solvents: |
| Acetone |
| |
| Industrial oils and greases |
| |
| Wahing, rinsing and cleaning agents |
| |
| Hydrocarbons: |
| Benzine |

Not resistant to:

| |
|----------------------|
| Hydrocarbons: |
| Benzene, toluene |
| |

5.11.1 Damage to / incorrect use of the front foil

- Front foil torn → Touchscreen no longer works
- Front foil damaged mechanically → Previous load, i.e. cursor follows force centre point

6 Installation PCEX 410/412

6.1 General instructions and explosion protection requirements

The general installation instructions for hazardous areas must be complied with (refer also to section 2). Cables are only allowed to be connected when deenergized. Make sure that all terminal compartments are tightly sealed in accordance with regulations prior to starting up the equipment.

All cable glands must be screwed tight and checked to ensure that they are securely in position.

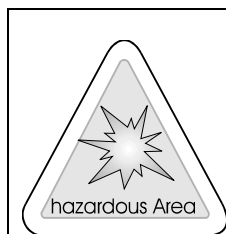
The minimum clearances in air and creepage distances in the vicinity of the terminals must be maintained; they must not be shortened by stripping the wires too far. (isolated wire end sleeve with $l_{max}=8mm$)

- The cables in the vicinity of terminal compartments (EEx e) must be fixed-mounted.
- The cables in the vicinity of the intrinsically safe terminal compartment (EEx ib) can be flexibly laid.

6.2 External equipotential bonding

Explosion-protected electrical equipment in a metal case must be provided with external equipotential bonding, which must be connected to the equipotential bonding of the system over the shortest possible distance.

6.3 Place of assembly in areas with combustible types of dust



In areas with combustible types of dust you have to select the place of assembly of the devices that in the proximity are no high-energy promotion processes of combustible types of dust.

6.4 Cable types and maximum cable lengths

6.4.1 Power supply (EEx e)

Installation cable for fixed mounting

If the connecting cable is laid over a long distance, it have to be considered the cable resistance and the voltage drop.

PCEX 410: Max. power consumption in the normal operation: 35W

PCEX 412: Max. power consumption in the normal operation: 44W

When long cables DATL-EXPC-24-15-0 and DATL-EXPC-24-25-0 are necessary the cable resistance has to be considered. Therefore the following maximum cable lengths vaild:

| | Typ. Current consumption 24 V | Max. current consumption Supply voltage -20% | DATL-EXPC-24-15-0 1,5mm ² 11,5 Ohm/km Ø 7,5 mm | DATL-EXPC-24-25-0 2,5mm ² 6,9 Ohm/km Ø 8,9 mm |
|-----------------|----------------------------------|--|--|---|
| PCEX 410 | 1,45 A | 1,85 A | 110 m | 185 m |
| PCEX 412 | 1,6 A | 2,2 A | 90 m | 150 m |

6.4.2 20 mA TTY interface (EEx e) COM 1

Data cable for fixed mounting with copper braiding and a cross-section of 0.75 mm², e.g. LiYY (TP) 2 x 2 x 0.75.

The maximum cable length is 400 m the maximum baudrate 19200 baud.

| baud | Meter |
|-------|-------|
| 19200 | 400 |
| 9600 | 400 |
| 4800 | 400 |

6.4.3 RS485 interface (EEx e) COM 1

Paired data cable for fixed mounting with copper braiding and a cross-section of 0.75 mm², e.g. LiYCY (TP) 2 x 2 x 0.75.

The maximum cable length is 1200 m and the maximum baudrate 57600 baud.

6.4.4 Ethernet 100BASE-TX (EEx e)

Standard cable Cat. 7 (4 x 2 x AWG22/1 paired, twisted and shielded) in accordance with EN 50288-4-1 or EN 50173 and ISO/IEC 11801 (1.2 GHz).

The maximum possible total cable length is 80 m

6.4.5 20 mA TTY-interface (EEx ib) e.g.. Scanner COM 2

This interface is used to connect intrinsically safe apparatus, e.g. input devices such as a barcode reader.

6.4.6 External keyboard (EEx ib)

The keyboard is supplied with the cable already connected. See chapters 5.6.6 terminal compartment, for the PCEX 410 chapters 3.7.4 terminal compartment X3 and for the PCEX 412 chapters 4.6.4 terminal compartment X2.

6.5 Shielding of data cables

6.5.1 Shielding concept

The purpose of cable shielding is usually to improve the signal quality and reduce interference as well as radiation from electromagnetic fields.

The data cables (RS485, TTY, Ethernet) must be shielded. The shields must be continuously connected and grounded in order to guarantee the necessary interference suppression.

One of the following three techniques should be used:

1. Connect and hard ground both ends of the shield. This method achieves the greatest reduction in electromagnetic interference. There is, however, a risk of current loops with high compensating currents. These currents can lead to safety problems if their values are excessive.
2. Connect and hard ground one end of the shield. This method achieves a reduction in electromagnetic interference while simultaneously preventing the above-mentioned current loops.
3. Provide a hard connection at one end of the shield (PCEX 410/412) and capacitive grounding at the other end in the safe area. This method achieves a relatively large reduction in electromagnetic interference while simultaneously preventing current loops with high compensating currents.
A capacitor (approx. 10 nF) with a fixed dielectric (ceramic) and a test voltage > 1500 V can be installed in the safe area for this purpose.

The final decision regarding the most suitable shielding concept must be based on a detailed observation of the equipotential bonding system.

Example 1:

If a low-impedance equipotential bonding system (building grounding system) is effective under all operating conditions, both ends of the shield must be connected and grounded. Caution is necessary, however, if transients that cannot be statically measured are produced when machines are switched.

Example 2:

If there is no equipotential bonding system or only a poor system, or if the equipotential bonding system does not have a very low impedance or has a high noise voltage, variant 2 or 3 should be preferred.

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

No liability can be accepted by the manufacturer for this decision.





A non-connected shield at the PCEX 410/412 end must always be properly insulated in order to prevent sparking!

The Box-10-A (Ethernet patch panel) allows the shield to be optionally connected or not connected to ground. It is connected by means of a small contact spring on the DIN rail.

Each user must ascertain which form of EMC protection is necessary, and offers sufficient reliability for their particular installation. In systems that are relatively insusceptible to electromagnetic interference, it may be adequate to connect and ground only one end of the shield.

6.5.2 Assembly instructions for Ex EMC cable glands

The supply cables for the EEx e Ethernet and the RS485 or TTY EEx e data interface, the EEx i keyboard and the EEx i scanner must be shielded, in order to ensure sufficient immunity to interference (EMC). The cable shields must be connected to the PCEX 410/412 in accordance with the assembly instructions below:

| | |
|---|--|
|  | <p>Step 1</p> <ul style="list-style-type: none"> • Strip the cable • Uncover the braiding • Strip the braiding and insulation staircase-style • With thin cables, the braiding can be folded back over the insulation jacket • Insert the cable into the gland until the braiding reaches the contact position • Tighten the gland |
|  | <p>Step 2</p> <ul style="list-style-type: none"> • Insert the cable through the union nut • Insert the cable into the clamping insert • Fold the braiding over the insert • The braiding must overlap the O-ring by approx. 2 mm |
|  | <p>Step 3</p> <ul style="list-style-type: none"> • Fit the clamping insert into the intermediate gland • Assemble the cable gland • That's all ! |
|  | <p>If the braiding ends in the cable gland</p> |

7 System settings PCEX 410/412

7.1 BIOS

The settings in the system BIOS are optimized for PCEX 410/412 applications. We recommend that you leave these settings unchanged.

If you alter them, there is a danger that you will no longer be able to operate the equipment at all because, among other things, the new display settings prevent information from being represented correctly.

7.2 Power OFF and RESET functions

The special functions for tripping power OFF and RESET on the front-plate keyboard (refer to section PCEX 410 chap. 3.4.4 and PCEX 412 chap. 4.4.3) are activated when the equipment is delivered. A jumper in the EEx i terminal compartment (X3 PCEX 410, X2 PCEX 412) must be removed as described in order to deactivate these functions. (Jumper between clamp 17 and 18)

7.3 Touchscreen calibration

The touchscreen is calibrated in the factory. It may, however, be necessary to recalibrate it in operation.

Proceed as follows to do so:

Open the program by selecting Windows Start menu / Programs / "Hampshire TSHARC Control Panel".



Click the "Calibration Type" button to set the calibration type.

7-point calibration is usually sufficient. Click "Run" to recalibrate. You can also set various mouse emulation parameters here.



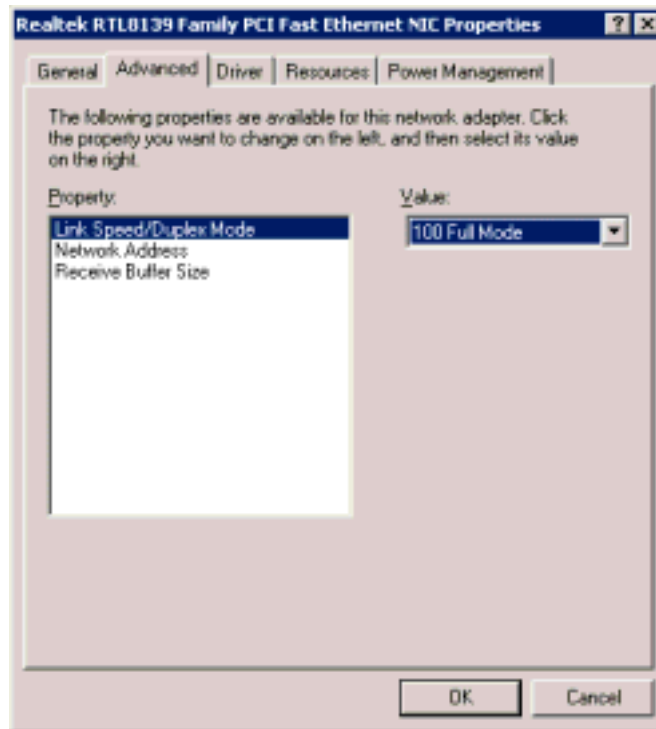
For calibration the user rights of an administrator are necessary!

7.4 Ethernet data transmissionrate of the driver

It can be useful to work with a fix Ethernet data transmissionrate of the driver, instead of the default attitudes “auto”.


Possible reasons to change the attitude “auto”:

- Possibly provides for smaller error rate with 10 MBit
- Some switches and hubs can have problems with the attitude “auto”.



7.5 Interface EEx TTY / RS 485 COM1

7.5.1 Characteristics of the RS 485 2-wire half duplex interface

| | |
|---|---|
|  | <p>Information:</p> <p>To be able to serve the RS 485 interface the drivers software (e.g. OPC server etc.) must be able to serve the hardware handshake correctly.</p> <p>The direction change over must be made over the RTS signal of the COM1 in the PCEX 410/412 before sending data packets. After sending (receipt) the RTS is to be deactivated again</p> <p>In the software-Add-ons is a terminal program as demo, which supports the flow control (RTS toggle mode).</p> <p>Desktop - EXTEC-tools - AddOn - SerialTestTool</p> |
|---|---|

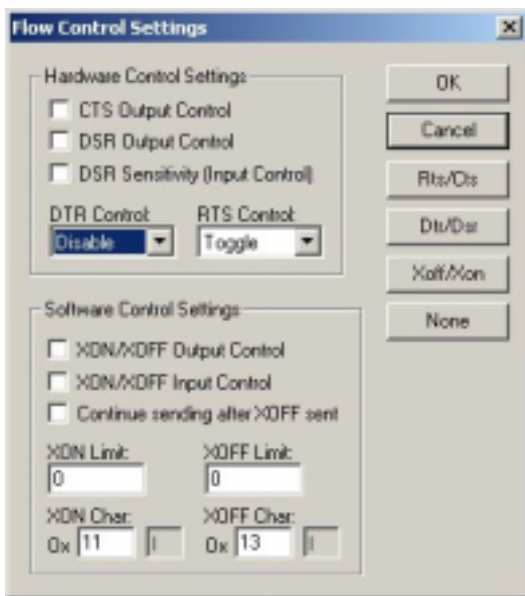
7.5.2 Interface switching EEx e TTY↔ RS485

The COM1 data interface must be specially configured before it can be used as TTY or RS485. You can only configure one of these operating modes at a time (either RS485 or TTY). The interface is configured with a jumper as shown in the connection diagram in section 3.7.1 for PCEX 410 (and connection diagram in section 4.6.1 for PCEX 412).

7.5.3 Test of the RS 485 interface

Test equipment: external keyboard, PC with RS 485 interface.
 First check, if the RS 485 connection work basically.

- At the PCEX 410/412 is a tool to check the RS 485 interface.
- Open the folder „EXTEC Tools“.
- Open the folder „addON“.
- Start the serial port test tool.
- Set the same interface settings for the com port of PCEX as you have set at the device of the other side at the RS 485 connection.
- Press “Flow control” .
- Set at RTS control “Toggle”.
- Set at DTR control „Disable“.
- Press „OK“.
- Click to file.
- Select „Connect“.
- Now you can press keys at an extended keyboard. The device at the other side should receive the data.



8 Software PCEX 410/412

8.1 How to install an operating system

This section describes how to install an operating system on the VISUEX PCEX 410/412.

An external USB CD-ROM (available as an accessory) is needed in order to install an operating system. An external keyboard and mouse are also useful. (PCEX 410 terminal compartment X3 see chap. 3.7.4, PCEX 412 terminal compartment X2 see chap. 4.6.4)

- (1) Connect the CD-ROM drive to the port provided for this purpose on the VISUEX PCEX 410/412 (PCEX 410 see chap. 3.7.1, PCEX 412 see chap. 4.6.1).
- (2) Specify the CD-ROM as the boot device. To do so, start the PCEX 410/412 and press the key while the startup message is displayed, in order to change to the BIOS. You can then set <First Boot Device> to <USB-CDROM> under <Advanced Bios Features>. The <Second Boot Device> should be set to <HDD-0>. Press <F10> to exit the BIOS and save your changes.
- (3) Insert the installation CD in the CD-ROM drive and reboot the device. The message <Boot CD> appears on the display and the installation routine begins.
- (4) Follow the instructions provided by the installation routine. Install the operating system on the first partition of your hard disk.
- (5) Install the system drivers supplied by Pepperl + Fuchs (Windows 2000 and Windows XP only).

Note:

- The installed operating system must support USB CD-ROM drives (e.g. Windows 2000 SP 3).
- Copy your operating system onto the first partition of the hard disk (16 GB).
- If you want to access this partition from more than one operating system, you should use the FAT32 LBA file system.
- If you need to enter a large amount of text during the installation procedure, we recommend that you connect an external keyboard (refer to section PCEX 410 chap.3.7.4, PCEX 412 chap.4.6.4).
- If you need to enter special characters during the installation procedure (e.g. network access passwords), we recommend that you connect an external keyboard (refer to section PCEX 410 chap.3.7.4, PCEX 412 chap.4.6.4).
- The touchscreen is not normally available until you after have installed the driver supplied by Pepperl + Fuchs. If you need to use a mouse during the installation procedure, you must connect an external one (refer to section PCEX 410 chap.3.7.4, PCEX 412 chap.4.6.4).

Useful Windows shortcuts:

| | |
|--|---------------------------|
| Open Windows Start menu: | EXTEC + ⇐ |
| Activate menu: | Alt |
| Scroll / select entry: | Arrow keys |
| Select entry: | Space / Enter |
| Shift input focus: | Tab |
| Activate application: | Alt+tab |
| Execute default action for selected entry: | Enter (usually File Open) |
| Close window / exit Windows: | Alt+F4 |
| Open Utility Manager: | EXTEC + keyboard |

8.2 How to install system driver and Tools

After installing the operating system on the *PCEX 410412* you have to install under *Windows 2000* and *Windows XP Professional* the supplied driver from the Pepperl + Fuchs installation-CD.

Note: By systems of *Pepperl + Fuchs* which are pre-configured the drivers and Tools are already pre-installed.

Put in the Pepperl + Fuchs -CD or start the Pepperl + Fuchs -Homepage. After selecting a language arrive either over selection of <VISUEX> and then <Software> or the menu option <Software, driver or update> and then <Software, driver, update> in the section <Panel-PC Visuex> to the current drivers.

8.2.1 Chipset VIA

- Select <Download> by <driver for via chipsatz> and save the ZIP file on the local hard disc.
- Un'zip the file and start subsequently <VIAHyperion4in1449x.exe>.
- Follow the instructions of the installation routine, select the point <Quick Installation> .
- To activate the driver the system must be rebooted.

Note: Depending on the operating system it may be that you get the message that this driver was not certified by Microsoft. The driver was tested and can be installed without hesitation.

8.2.2 VGA Controller

- After installing the driver for the <Chipset VIA> the driver for the graphik card should be installed.
- Select <Download> by <driver S3-graphik card> and save the ZIP file on the local hard disc.
- Un'zip the file and start the installation with the call <setup.exe>.
- Follow the instructions of the installation routine.
- To activate the driver the system must be rebooted.

Note: Depending on the operating system it can be that you get the message that this driver was not certified by Microsoft. The driver was tested and can be installed without hesitation.

Note: The display and the graphik card operate with a resolution of 800x600 pixel, TrueColor (32Bit) and with a refresh rate of 60 Hz.

8.2.3 Touch Screen

- Select <download> by <driver for Tsharc-touchscreen> and save the file on the local hard disc.
- Start the installation with the call <Visuex Tsharc61.EXE>
- Follow the instructions of the installation routine.
- Select for <controller type> <12 or 10 bit controller> and for <controller interface> <USB>.
- To activate the driver the system must be rebooted.

Note: Depending on the operating system it can be that you get the message that this driver was not certified by Microsoft. The driver was tested and can be installed without hesitation.

For problems with the installation you must first deinstall the driver. After you deinstalled the driver you have to shut down the computer and switch off for a short time. (ON-LED must be out) Try there'after the installation again as described above.

8.2.4 Install additional programme

Pepperl + Fuchs supplies numerous additional programme described in this documentation. These can be installed as follows:

- Select <Download> by <P+F Zusatzprogramme> and save the file on your local hard disk
- Start the file <VisuexPcEx410Setup.exe>.
- Follow the instructions of the installation routine.
- To activate the programme the system must be rebooted.

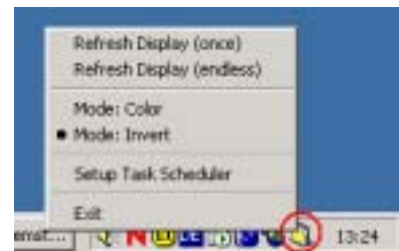
Note: The installation routine optimizes the system additionally for the employment with the PCEX-410/412. The complete system becomes faster and more stable thereby.

8.3 Refresh display

LCD displays can be damaged by a continuously invariably lining up picture. Shade or color distortions can arise.

With this program this can be prevented or a regeneration of the display be accomplished

Application registers itself into the task scheduler of Windows and starts themselves automatically to the given dates.



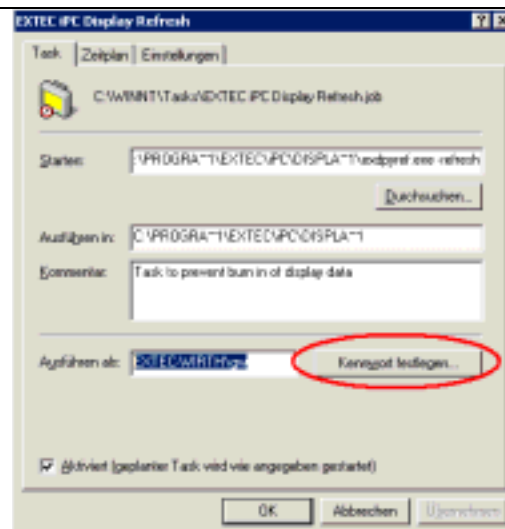
Resetting the display takes place via switching colors or inverting the display.

8.3.1 Installation refresh display

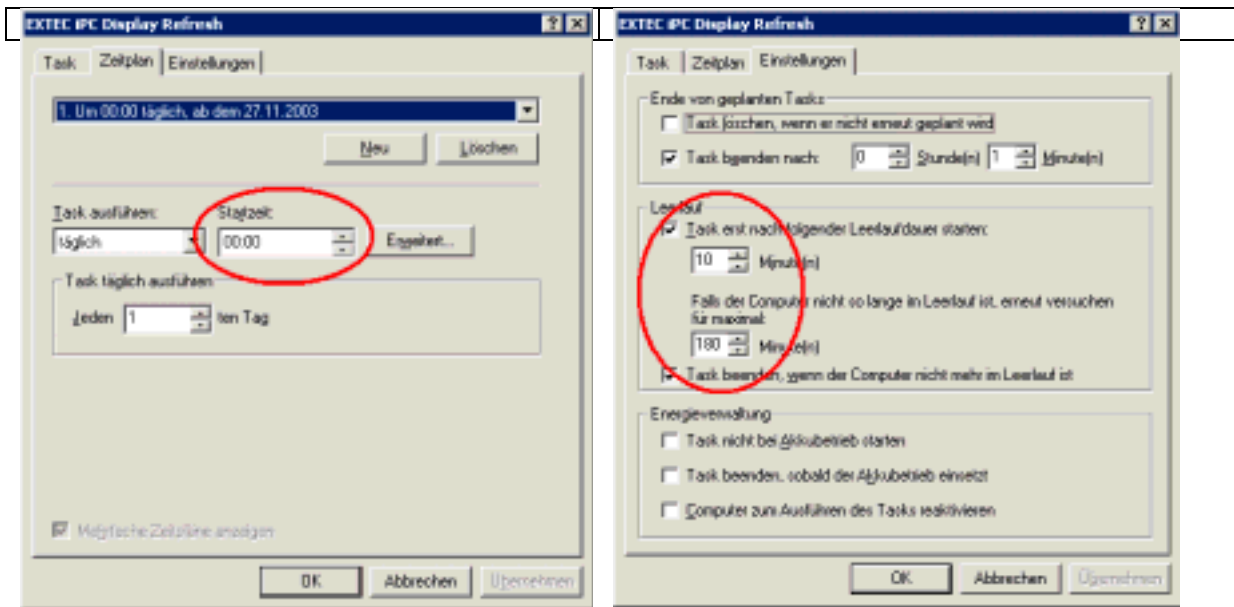
- 1) Start the installation. Activate <ExDpyRef32.exe>. Follow the instructions of the installation routine.

- 2) During the installation you are requested to enter the password for the user. Thus the program can be executed automatically by the task scheduler. Users and password must be equal as in the later operation.

Note:
the password must be absolutely entered.

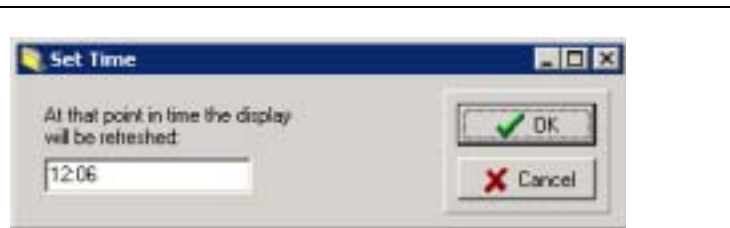


- 3) the program starts normally between 0 o'clock and 3 o'clock at night, if the computer were not used for 10 minutes (Idle condition).



- 4) After the installation you can change the attitudes under <Start / Programme / IPC Display Refresh / Setup>.

Note: If a task scheduler should not be installed on your system, the program uses its own task scheduler. This task planner offers only a reduced function range, it can only the starting time be set.



8.3.2 Command line parameter

The program <exdpyref.exe> can be opened also via the command line. Use for this the following syntax:

```
exdpyref [-install] | [-uninstall] | [-setup] | [-refresh]
```

- install** Register call of program in the task scheduler. Defaults: Call between 0 o'clock and 3 o'clock, after the computer was not used for 10 minutes.
- uninstall** Delete call of program from the task scheduler.
- setup** Indicate the dialogue for attitudes of the task scheduler. If the Windows task scheduler is installed, this is used, otherwise the task scheduler installed in the program.
- refresh** Execute refresh display once.

8.3.3 Menu order

After the program start you find the symbol in the symbol border down right apart from the time. A click with the right mouse button opens the menu:



- Refresh Display (once)** Execute display refresh once. The mode set before is used.
- Refresh Display (endless)** Execute display refresh endless. The mode set before is used. Over one mouse-click or key input the completion breaks off.

Note: Hereby a regeneration of the display can be achieved!
- Mode: Color** In this mode for 20 seconds the screen is dyed with different colors. In the center the text "refresh" stands. After always 2 second the color changes.
- Mode: Invert** This mode inverts the current display contents for 3 seconds, afterwards again the normal display is to be seen.
- Setup Task Scheduler** Calls a dialogue, with which one time for the automatic completion can be defined. If the task scheduler from Windows is installed, this is used, otherwise the integrated task scheduler. You receive a detailed assistance to the Windows task scheduler in the on-line assistance of Windows.

Note: Thus the damage of the display can be reduced with constantly same picture!
- Exit** Ends program.

8.3.4 Prevent burn in

LCD displays can be damaged by a continuously invariably lining up picture. Shade or color distortions can arise. To reduce this effect you should start the program refresh display once daily.

Over the task scheduler you can start the program manually or automatically.
Enter for this with <Setup Task Scheduler> , when the *refresh* should be executed.

Warning: While the refresh is executed, no data can be read off from the display.

8.3.5 Regenerate display

If shade or color distortions should have already developed, you should call the menu option < Refresh display (endless) >
Finish the execution after the display regenerated.

8.4 Installation problems with older applications

If problems occur when you attempt to install an application, it could be that your software was not designed to work under Windows 2000 or Windows XP. Microsoft recommends setting Compatibility mode for all older applications. Proceed as follows to do so:

- (1) Copy the complete installation routine to the hard drive of the VISUEX PCEX 410/412 via the network, the USB port or the installation CD.
- (2) Open <Explorer> and select the start routine for your installation (usually setup.exe).
- (3) Open the Properties dialog by selecting <File/Properties>.
- (4) Select <Compatibility> and tick <Run this program in Compatibility mode>. Select the operating system for which the software was developed from the drop-down list and confirm your input with <OK>.
- (5) Now restart the modified installation routine.

Note

- Many installation routines require unrestricted access to the system. Make sure that you are logged in as the Administrator.

8.5 Logging in with special characters

If you need to log into Windows using special characters that are not available on the PCEX 410/412 keyboard, open the Windows *on-screen keyboard*.

To do so, press <EXTEC+keyboard> to open the *Utility Program Manager*. Then select <On-screen keyboard> and click <Start> to confirm. The Microsoft *on-screen keyboard* appears on the screen.

8.6 Start menu

The Start menu allows you to restore the factory condition of the PCEX 410/412. You can also save and reimport your complete hard disk partition via the network. All safety-critical functions are password-protected.

Note that selecting one of these menu commands allows you to diagnose the PCEX 410/412 hardware components independently of Windows.

The boot loader program that is started when you switch on the system contains the following commands:

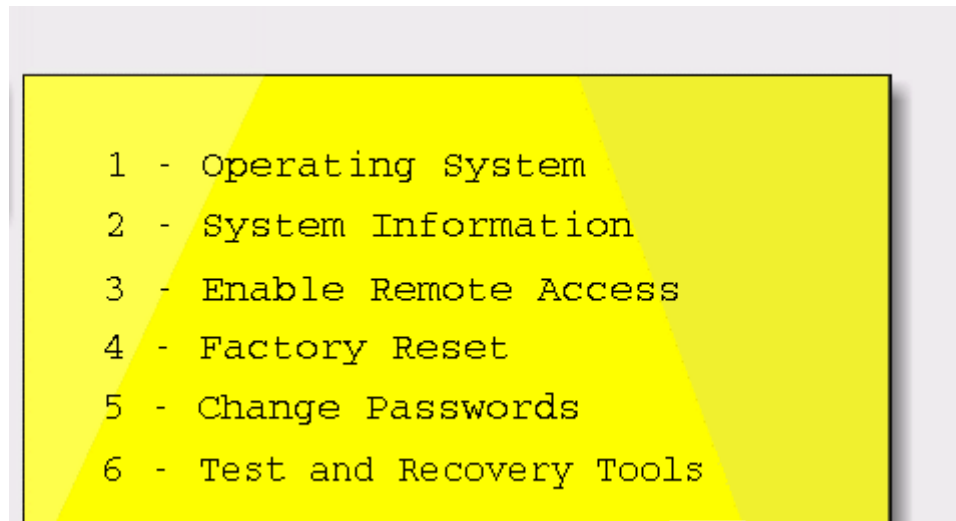


Fig.: Boot menu

The default selection is Operating System. This command is automatically executed – in other words, the operating system is started – if no keys are pressed for three seconds.

The other commands are described on the next few pages.

Note: Please always shut down the system in a controlled way. Simply switching it off can cause damage to the file system, with the result that the system no longer boots correctly.

8.6.1 System Information

By selecting System Information, you can display general information about the system:

| | |
|------------------------------|--|
| User Partition Size | Partition size of the operating system |
| LINUX Partition Size | Partition size of the system |
| Factory Settings Size | Size of the restore file |
| Serial Number | Serial number |
| ManufactureDate | Date of manufacture |
| BackupVersion | Version number of the system |
| Hostname | Name of the system in the network |
| IP-Address | IP address of the system |

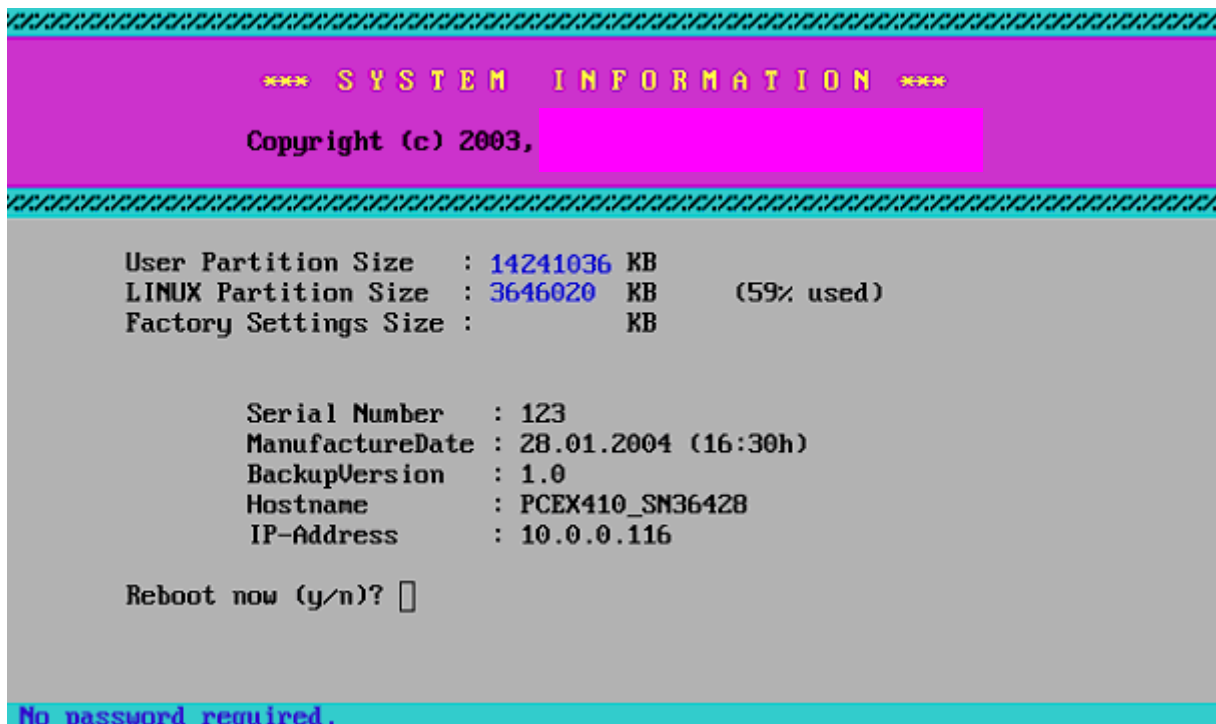


Fig. 1: System Information

After reading this information, confirm the prompt asking if you want to reboot with <y>. The system is then shut down in a controlled way.

8.6.2 Enable Remote Access

By selecting <Enable Remote Access>, you can save a complete copy of the current operating system via the network or reimport an existing copy.

In this case, connect the PCEX 410/412 to the network, then reboot and select <Enable Remote Access>.

The following information is displayed if you enter the password correctly:

| | |
|-----------------------|--|
| Partition Size | Partition size of the operating system |
| IP-Address | IP address of the system |
| Bytes Send | Number of bytes sent via the network |
| Bytes Received | Number of bytes received via the network |

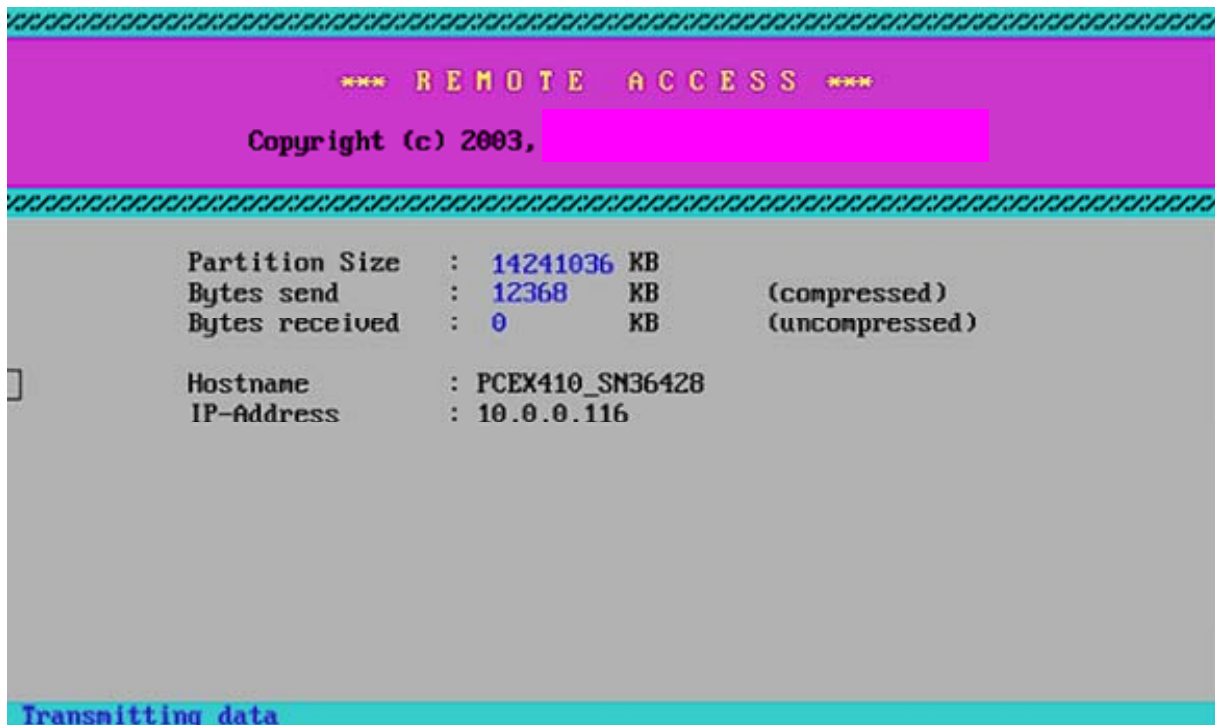


Fig. 2: Remote Access

If the system is now ready to transfer data over the network, the message <Process started> appears in the status bar at the bottom of the screen. Make a note of the system's IP address and start the *VISUEX Remote Backup* tool supplied by Pepperl + Fuchs on a Windows computer that is likewise connected to the network.

Choose <Connect> and enter the IP address you noted in the previous step in the field provided. The port address is normally 7321 (if not, try another port in the range from 7321 to 7399). Select <Backup> or <Restore> is the connection is set up successfully.

You can interrupt the copy routine by pressing SHIFT+Q. Confirm the prompt asking if you want to reboot with <y>. The system is then shut down in a controlled way.

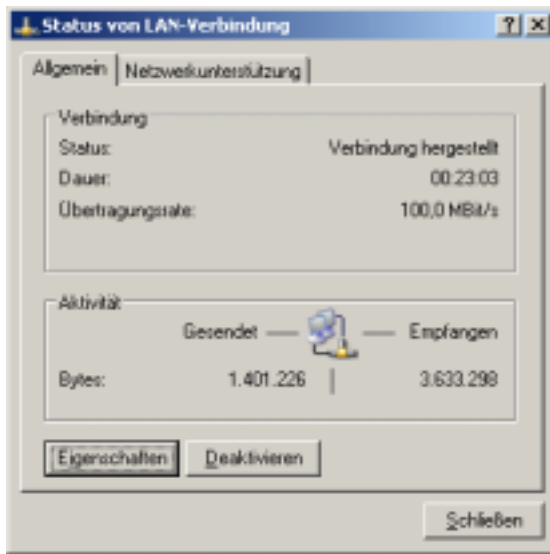
8.6.2.1 Statical IP-Adress

If no DHCP server is in your VISUEX network and/or if no dynamic IP address is available (e.g. because the VISUEX is connected with a laptop point to point) then in the case of Remote Access the IP address 192.168.217.119 is assigned statically.

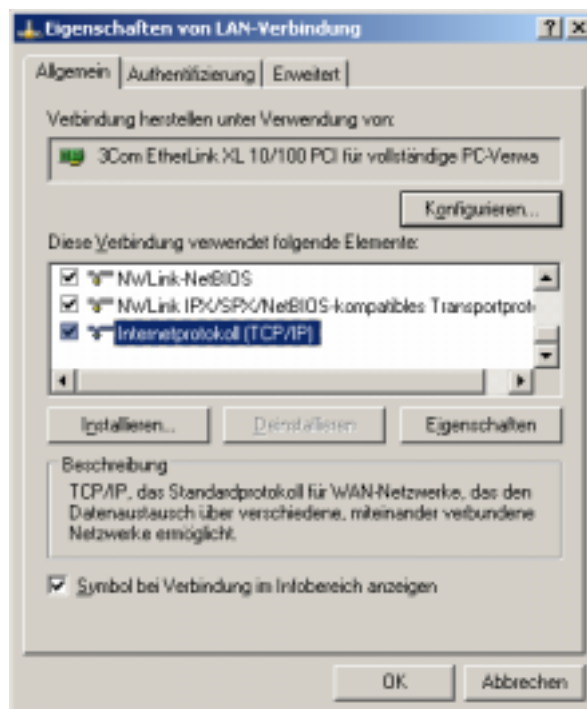
Thereby it is possible to still use the remote ACCESS mechanism of the VISUEX. The backup computer must be only configured in such a way that he can access the VISUEX: Set the IP address of the backup computer to **192.168.217.120** and set the subnet mask to 255.255.255.0.

For this proceed as follows:

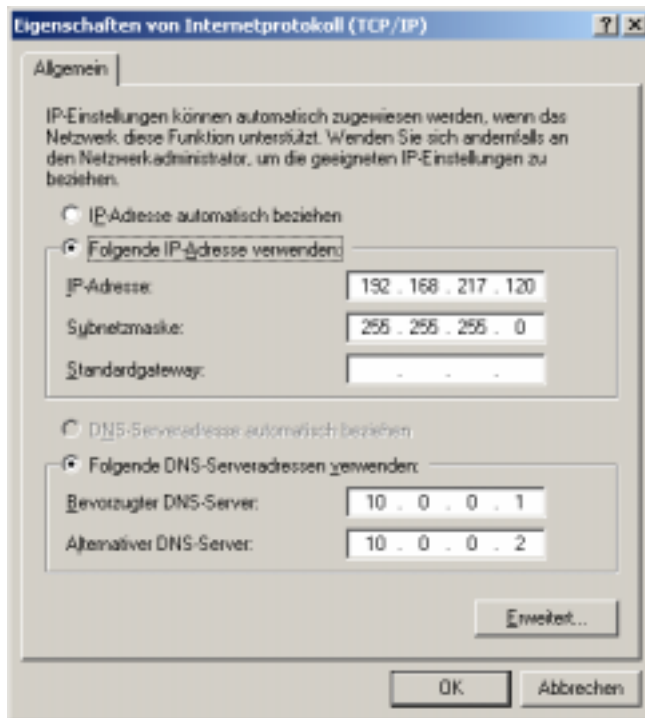
1. Open the dialog LAN-connection under network connection :



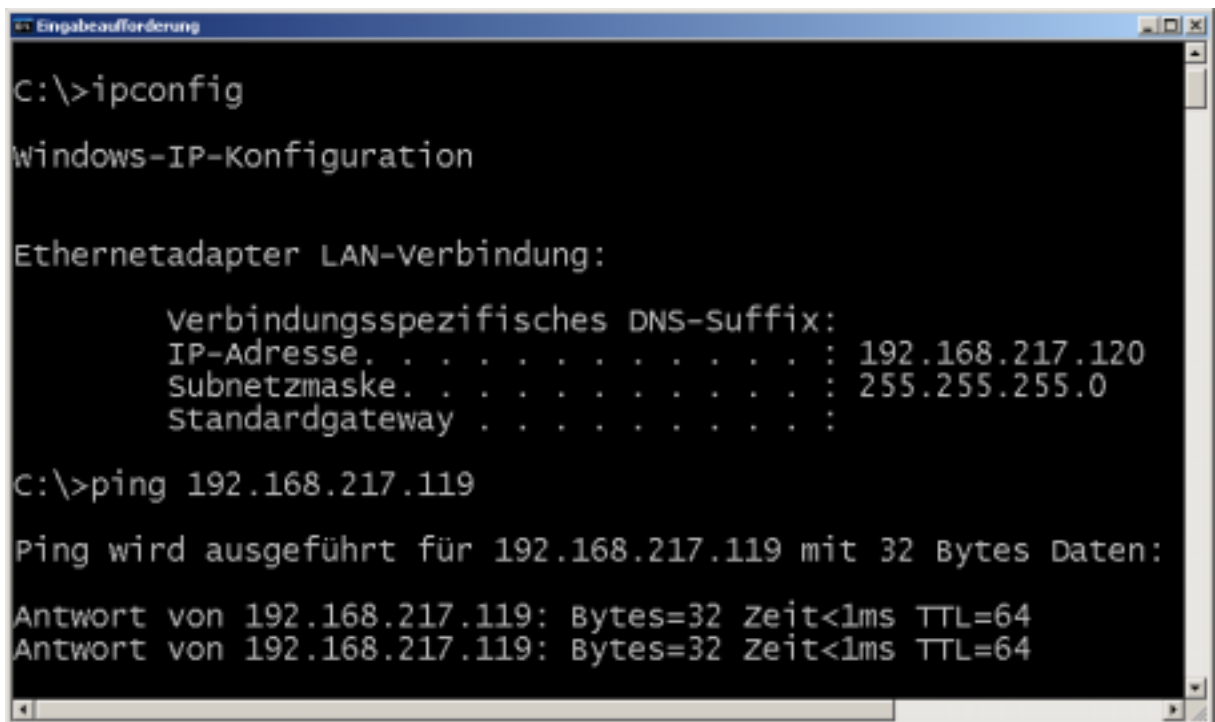
2. Doubleclick in thereupon itself opening dialogue to the internet protocoll (TCP/IP):
- 3.



- Please register in the following dialog the new IP-adress 192.168.217.120 and the subnet mask 255.255.255.0. Confirm the inputs with ok.



- Check whether the attitudes were correctly taken over by opening the command line and let indicate with the command ipconfig.exe your current IP-adress. In case of success please send a ping to the VISUEX.
-



8.6.3 Factory Reset

By selecting <Factory Reset>, you can reset the PCEX 410/412 to the factory condition.

The following information is displayed if you enter the password correctly:

| | |
|-------------------------|--|
| Source Size | Size of the compressed backup file |
| Destination Size | Partition size of the operating system |
| Bytes Restored | Number of restored bytes |



Fig. 3: Factory Reset

Only confirm the prompt with <y> if you are sure that you want to restore the factory condition. If not, select <n> instead. Note that the factory condition can take several hours to restore.

Important: By restoring the factory condition, you simultaneously destroy all data on the hard disk. This action cannot be undone.

You can interrupt the restore at any time by pressing SHIFT+Q. If you cancel it in this way, however, there will no longer be an executable operating system on your hard disk. You will have to start again from the beginning. Confirm the prompt asking if you want to reboot with <y>. The system is then shut down in a controlled way.

Note: Unlike with *Enable Remote Access*, it is not necessary to set up a connection to the network, because all the data that is necessary to restore the factory settings is stored on your local hard drive.

8.6.4 Change Passwords

By selecting <Change Passwords>, you can change the system passwords.

Select the password you want to change (factory reset or remote access) and type in the "old" password. The default passwords are as follows:

- Factory Reset** pass1
- Remote Access** pass2

Now type in the new password. Retype this password to confirm it. The new password is now stored.



Fig. 4: Change Passwords

Confirm the prompt asking if you want to reboot with <y>. The system is then shut down in a controlled way.

8.6.5 Test and Recovery Tools

By selecting Test and Recovery Tools, you can run the test and recovery programs on the flash disk. Refer also to section 8.12

8.7 Data backups

8.7.1 Data backup with NTBackup

You can run a <Factory Reset> at any time in the factory condition with *Windows XP Embedded*. This restores the original condition of the operating system. If you have also installed data and programs of your own, however, you must back them up separately.

A program called <NTBackup.exe> is preinstalled together with *Windows XP Embedded*. You can use this program to back up all the data on your hard disk via the network. Proceed as follows to do so:

- (1) Open the Properties dialog for the C: drive. choose <Explorer / Local Disk / File / Properties>.
- (2) Change to <Options> and select <Backup now..> under <Backup>.

Note: You can also start this program by choosing <Start / Programs / Accessories / System Tools / Backup>.

- (3) In the <ntbackup.exe> program, choose <Backup> and specify the files you want to back up. Specify a backup medium, then select <Start backup>.

Note:

- You can find a detailed description of the NTBackup program in the online help.

8.7.2 Recovery with NTBackup

A program called <NTBackup.exe> is preinstalled together with *Windows XP Embedded*. You can use this program to back up all the data on your hard disk via the network and then recover it later.

In order to recover the data on your hard disk, you must first make a backup copy (as described in section 8.7.1 above).

- (1) Open the Properties dialog for the C: drive. choose <Explorer / Local Disk / File / Properties>.
- (2) Change to <Options> and select <Backup now..> under <Backup>.

Note: You can also start this program by choosing <Start / Programs / Accessories / System Tools / Backup>.

- (3) In the <ntbackup.exe> program, choose <Recovery> and specify the files you want to recover. Then select <Start recovery>.

Note:

- If your operating system is defective, you should run a <Factory Reset> on the system first. This restores the original condition of the operating system. This only works, however, if the device was delivered with *Windows XP Embedded* preinstalled.

8.8 Language settings

8.8.1 Changing the language of menus and dialog boxes

Five languages are installed on the system in the factory condition with *Windows XP Embedded* (English, German, French, Italian and Spanish). You can change the language of the menus and dialog boxes at any time. Proceed as follows to do so:

- (1) Open the <Regional and Language Options> dialog in Windows. You can open this dialog either by selecting <EXTEC Tools / EXTEC Select Language> or with <Start / Control Panel / Regional and Language Options>.
- (2) Choose a new language in the <Languages> dialog under <Language used in menus and dialogs>. Confirm with <OK>.
- (3) Then log out of Windows and log in again to activate the new user interface language.

Note:

- You cannot reselect or reinstall a language after you have removed it.
- Not all programs support language switching. In this case, all texts in menus, dialog boxes and help files are in future only available in one language. With operating system programs, this language is usually English. As far as your own programs are concerned, it depends on the language you selected at installation time.
- Shortcuts on the Desktop or in menus are not automatically translated, in other words they keep their old text.

8.8.2 Delete a language

Five languages are installed on the system in the factory condition with *Windows XP Embedded* (English, German, French, Italian and Spanish). You can delete one or more of these languages. This frees approximately 50 – 100 MB of memory per language on your hard disk. **Since you cannot reselect or reinstall a language after you have deleted it, however, we strongly advise you to keep all languages!** Proceed as follows to delete a language:

- (1) Select <Start/Run...> and type <muisetup.exe>.
- (2) Click <Accept the License Agreement> and <Continue>. All installed languages are offered in a selection box.
- (3) Untick the languages you want to delete and confirm the changes with <OK>. The languages are deleted from your system.

Note:

- You cannot restore a language after you have deleted it.
- You should never delete languages unless you desperately need the space on the hard disk. Approximately 50 – 100 MB is freed per language.
- If you only want to disable language selection, it is better to simply delete the relevant country codes in the Registry under <HKEY_LOCAL_MACHINE\SYSTEM\ControlSet001\Control\Nls\MUILanguages> (the codes must actually be deleted, not just set to 0).

0409 = English

0407 = German

0410 = Italian

0C0A = Spanish

040C = French

8.9 Applications

8.9.1 Problems with applications (Compatibility mode)

If problems occur when you attempt to run an application, it could be that your software was not designed to work under Windows 2000 or Windows XP. Microsoft recommends setting Compatibility mode for all older applications. Proceed as follows to do so:

- (1) Open <Explorer> and select the application that is causing the problems.
- (2) Open the Properties dialog by selecting <File/Properties>.
- (3) Select <Compatibility> and tick <Run this program in Compatibility mode>. Select the operating system for which the software was developed from the drop-down list and confirm your input with <OK>.
- (4) Now restart the modified application.

Note:

- Many older applications require unrestricted access to the system. Make sure that you are logged in as the Administrator.

8.10 File system

8.10.1 Read and write errors

If you frequently encounter file errors while you are working with the VISUEX PCEX 410/412, you should check the transfer mode on your hard disk. The VISUEX supports <Multiword DMA Mode 2>.

- (1) Open the Device Manager: choose <Start / Control Panel / System / Hardware / Device Manager>.
- (2) Open the primary IDE channel settings: choose <IDE ATA/ATAPI Controller / Primary IDE Channel / Advanced Settings>. The following settings should be selected here:

Device 0:

| | |
|-------------------------------|----------------------|
| Transfer mode: | DMA if available |
| Current transfer mode: | Multiword DMA Mode 2 |

- (3) If anything else is entered here, you must reboot your system and change to the BIOS Setup. Press the key while the startup message is displayed. Open the <Integrated Peripherals> menu and set all entries from <Primary Master UDMA> to <Secondary Slave UDMA> to <Disable>. Then restart the operating system.
- (4) Recheck the settings as described in step (2). If <PIO only> is entered here, change this field to < DMA if available> and reboot your system. Recheck the settings as described in step (2).

8.10.2 Converting the file system (FAT32 => NTFS)

In the factory condition with *Windows Embedded XP*, the operating system is installed on a partition formatted for FAT32. FAT32 is faster than the NTFS file system and also permits easy access to files from other operating systems (DOS, LINUX etc.).

There are, however, a few situations in which it is necessary to convert to NTFS. The NTFS file system supports selective access protection and files of any size.

The *Windows Embedded XP* package includes a program called <convert.exe>, which converts the preinstalled system from FAT32 to NTFS. You can start this program as follows:

- (1) Choose <Start / Run / CONVERT c: /FS:NTFS>.
- (2) Since the operating system is installed on this partition and files are open, you must answer <Yes> when you are asked whether you want to convert the program the next time you start the system.

Note:

- Free space is required on the hard disk to carry out the conversion. Approximately 1 GB should be available initially.

8.11 System recovery

8.11.1 Boot problems

If the PCEX 410/412 is not shut down in a controlled way or if it crashes in operation, the hard disk is automatically tested with <autochk> the next time you boot the system. This test can take several minutes (up to 40 minutes in extreme cases).

The problem is as follows: when you boot the system, you see the Windows logo briefly. The screen then goes dark for the duration of the test and the HDD LED is on.

There are three possible ways to rectify this problem:

- Press F8 while the system is booting to display the Boot menu. Choose <Start Windows Using Last Known Good Configuration>. => <autochk> is skipped.
- Display the progress of <autochk> by deactivating the graphical Boot menu.
 - Choose <Start/Run> and then <msconfig>.
 - Click <boot.ini>.
 - Activate </noguiboot>.
- Deactivate the disk boot test.
 - Choose <Start/Run> and then <chkntfs /x C:> (see Microsoft Knowledge Base Article – 160963).

8.11.2 Restoring user files

If you want to be able to restore user files on the hard disk, you must make backup copies at regular intervals. Please refer to section 8.6 for further details.

8.11.3 Restoring the previous condition after an installation

Windows XP automatically starts Automated System Recovery. This utility automatically creates a recovery point before Windows updates or unsigned drivers are installed and before other installation routines are executed. Recovery points allow you to restore your system's previous condition prior to the installation.

If your system no longer works correctly after an installation, you can run the Automated System Recovery to restore the old condition. Proceed as follows to do so:

- (1) Start the system restore by choosing <Start / Programs / Accessories / System Tools / System Restore>.
- (2) Choose <Restore My Computer to an earlier time> and then <Next>.
- (3) This opens a calendar containing a restore point for each bold entry. Select a restore point and confirm it by clicking <Next>.
- (4) The system now asks again whether you are sure you want to return to this restore point. Confirm with <Next>.

Note:

- A system restore causes all documents, mails, graphics etc. that were created later than the restore point to be lost!
- The best method is to return to each restore point one at a time until the system runs stably again. You should always start with the most recent restore point.

The Automated System Recovery can also be started in Safe Mode. This is useful if your system will not boot up any other way (refer to section 8.11.5).

8.11.4 Restoring old driver versions

Microsoft Windows XP integrates a new function called "Device Driver Rollback". When a new driver is installed, this function makes a copy of the old driver to enable the new driver installation to be undone if necessary.

The rollback function can be activated easily in the Properties of any hardware that is listed in the Device Manager. The "Driver" tab includes a button called "Roll Back Driver". If you click this button, XP attempts to restore the old driver.

- (1) Open the Device Manager: choose <Start / Control Panel / System / Hardware / Device Manager>.
- (2) Select the last device for which a driver was installed in the tree view. Then open the Properties for this entry with the context menu.
- (3) You can now restore the last driver by choosing <Driver> and <Roll Back Driver>.

Note:

- You can only restore the most recent driver.
- If several drivers were installed at once, you must restore each driver individually.
- If Windows cancels the start procedure with a blue screen and a STOP message, the reason is probably that the driver was not integrated correctly. A useful remedy in this case is the "Last Known Good Configuration" mechanism, which restores the last configuration that is known to have worked correctly. This option is automatically suggested by Windows after a failed system start. It can also be activated by pressing F8 while the system is booting (refer to section 8.11.5).
- Device Driver Rollback can also be started in Safe Mode. This is useful if your system will not boot up any other way (refer to section 8.11.5).

8.11.5 Starting Windows in Safe Mode

If your system will no longer boot up, you can try starting Windows in Safe Mode. Safe Mode is a special operating system mode which only loads absolutely essential drivers, in other words the VISUEX PCEX 410 is just about able to function in this minimum configuration. It allows previously installed software components (such as device drivers) that have not been working correctly or that have caused the operating system to crash to be uninstalled again.

To enter Safe Mode, press F8 while the system is booting. Then choose one of the following options:

| | |
|---------------------------------------|---|
| Safe Mode | Windows starts in Safe Mode with the Windows GUI. |
| Safe Mode With Network Support | Windows starts in Safe Mode with the Windows GUI and network drivers. |
| Safe Mode With Command Prompt) | Windows starts in Safe Mode with a command prompt (without the Windows GUI). |
| Last Known Good Configuration | If Windows cancels the start procedure with a blue screen and a STOP message, the reason is probably that the driver was not integrated correctly. A useful remedy in this case is the "Last Known Good" mechanism, which restores the last configuration that is known to have worked correctly. |

Note:

- If you are able to start the system in Safe Mode, you can subsequently repair it with [NTBackup](#), [Automated System Recovery](#) or [Device Driver Rollback](#).

8.11.6 Windows will not start in Safe Mode

If Windows will not start in Safe Mode either, there are several possible reasons. Please check the points below in the given order:

- (1) Is the MBR of the hard disk in order? If the Boot menu no longer appears when you start the system, try restoring the MBR (refer to section 8.12.6 Restore MBR of Harddisk).
- (2) If the system comes to a halt after the BIOS start message, you should check whether your hard disk is still working (refer to section 8.12.1 Harddisk Test Utility)
- (3) If nothing else helps but your hard disk is not defective, try running a factory reset (refer to section 8.6.3 Factory Reset).

8.12 Flash memory: test and recovery tools

In addition to the built-in hard disk, the VISUEX PCEX 410/412 has a flash memory that can be used as a second hard drive. In the factory condition, this memory card contains several test and recovery tools.

The VISUEX PCEX 410/412 is normally booted from the hard disk (BIOS = HDD-0), but you can also set <First Boot Device> to <HDD 1> in the BIOS under <Advanced BIOS Features>. The system then boots from the built-in memory card. A menu with the following tools is displayed:

```
TEST / RECOVERY TOOLS
===== (c) 2004 by EXTEC Oesterle GmbH =====

(1) Harddisk Test Utility
(2) Hardware Information Tool
(3) Memory Test Program
(4) Network Card Test Utility
(5) Update Bios Version
(6) Restore MBR of Harddisk
```

8.12.1 Harddisk Test Utility

This tool can be used to test and repair the built-in hard disk. If you have a suspected problem with your hard drive, you can read the disk status (S.M.A.R.T.) and run a surface analysis with this program.

The test tool features an integrated online help function with explanations of all other options.

Important: This tool can also be used to format the hard disk. In this case, all data on the hard disk is lost and cannot be restored!

8.12.2 Hardware Information Tool

This tool can be used to display supplementary information about the hardware. All built-in components and settings are shown. The program is very useful whenever additional information is needed about the processor, memory, hard disk etc.

The test tool features an integrated online help function with explanations of all other options.

8.12.3 Memory Test Program

This test program can be used to test the built-in memory chips. It writes test patterns into the memory and then reads them out again. You should run the program if you have a suspected problem with your memory chips.

The test tool features an integrated online help function with explanations of all other options.

8.12.4 Network Card Test Utility

This test program can be used to test the built-in memory chips. It writes test patterns into the memory and then reads them out again. You should run the program if you have a suspected problem with your memory chips.

The test tool features an integrated online help function with explanations of all other options.

8.12.5 Update Bios Version

You must copy the new BIOS version to the flash card before you select this command. In this case please contact Pepperl + Fuchs support!



Warning!

Make sure that that the new version is suitable for your motherboard before you start the update. If you import the wrong BIOS version, you will have to return the device to the factory for repair!

8.12.6 Restore MBR of Harddisk


The MBR (Master Boot Record) of a hard disk contains the partition data (number of partitions, size, file system type etc.). If you are unable to start the hard disk, invalid files entered in this table could be the reason. **This command can be used to restore the MBR to the factory condition.**



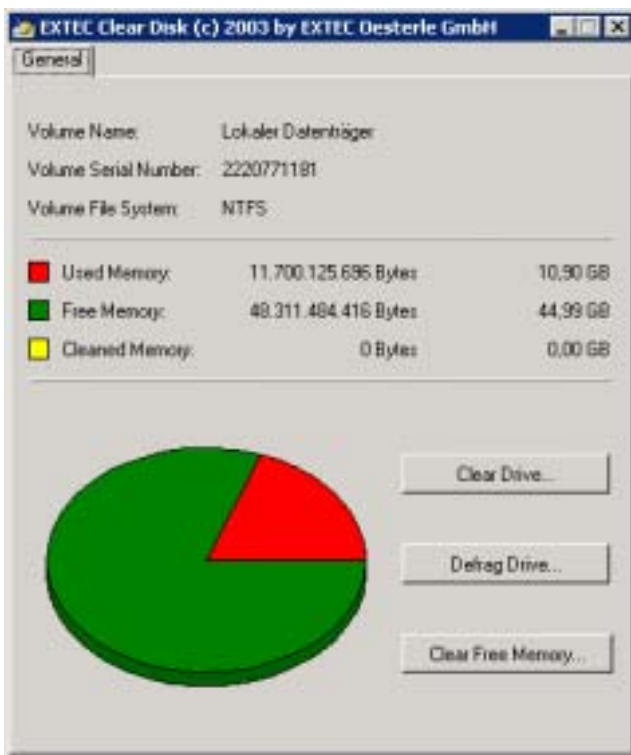
Important: If you have made any changes of your own (e.g. if you have changed the file system from FAT to NTFS, altered the partition size, or added or deleted partitions), you must not use this command. If you do, all data on your hard disk will be lost!

9 Additional software supplied by Pepperl + Fuchs

PCEX 410/412

| | |
|---|---|
|  | <p>Note:</p> <p>All tools mentioned here are only available in case of a pre-installation of the operating system from Pepperl+Fuchs GmbH!</p> |
|---|---|

9.1 EXTEC Clean Disk



Utility program for clearing or defragmenting drives and for clearing free memory.

The program is designed to optimize data backups of whole hard disk partitions.

Any files that are no longer needed can be deleted and free memory efficiently cleared.

9.1.1 Clear Drive



Clear Drive allows you to free additional memory on your hard disk. It scans the drive and displays a list of temporary files, Internet cache files and program files that are no longer needed and can be deleted without any risk. You can then tell Clear Drive to delete some or all of these files.

The following tasks for freeing hard disk memory can all be executed in the Clear Hard Drive Wizard in Windows:

- Delete temporary Internet files.
- Delete all downloaded program files (ActiveX controls and Java applets that have been downloaded from the Internet).
- Empty the Recycle Bin.
- Delete temporary Windows files.
- Delete Windows components that are not used.
- Remove installed programs that are no longer used.

9.1.2 Defrag Drive



Defrag Drive searches for fragmented files and folders on local drives. Fragmented files and folders are split into many small parts and scattered all over the drive.

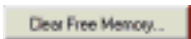
A large number of fragmented files and folders stored on a drive slows down file access in Windows, because pasting the fragments back together again entails additional read operations on the drive concerned. Creating new files and folders also takes longer, because the available memory is distributed throughout the drive. As a result, all new files and folders have to be stored at several different drive addresses.

The defragmentation program moves the many file and folder fragments to a single location on the drive, so that each file or folder can be assigned a contiguous memory address. This method guarantees fast access to files and folders and ensures that new data is efficiently stored. When files and folders are consolidated by Defrag Drive, free memory space is consolidated as well to prevent new files from being fragmented.

This process of searching for and consolidating fragmented files and folders is known as "defragmentation". The time needed to defragment depends on several factors, such as the size of the disk, the number of files stored on it, the degree of fragmentation and the availability of local system resources. Before starting Defrag Drive, you should check the disk in order to locate the fragmented files and folders. The number of fragmented files and folders stored on the drive is then displayed and you are advised whether or not it should be defragmented.

Defrag Drive can defragment all disks formatted with the FAT, FAT32, and NTFS file systems.

9.1.3 Clear Free Memory



When you delete files from a hard disk, only the corresponding directory entries are deleted and not the actual data.

This program calculates the amount of free memory on the hard disk and then clears this space by overwriting the data with a bit pattern. The purged data can no longer be restored.

If you need to back up a whole hard disk partition, it is best to run this program first. This prevents data trash in the free memory from being backed up as well and the created backup files are much smaller.

9.2 EXTEC SMART Monitor

IDE0 Model: ST360021A SN: 3HR2QK6Y Firmware: 3.19

| Status | Attribute Name | T.E.C. | ID | Value | Worst | Threshold | Raw Data | Meaning | Flags |
|--------|-------------------------------------|--------|----|-------|-------|-----------|--------------|----------|----------------|
| OK | Raw Read Error Rate | | 01 | 67 | 67 | 34 | 000006736FE1 | | Fw Lc Pp Er |
| OK | Spin Up Time | | 03 | 70 | 70 | 0 | 000000000000 | | Fw Lc |
| OK | Start/Stop Count | | 04 | 100 | 100 | 20 | 000000000006 | 6 hrs. | Lc Ec Sp |
| OK | Reallocated Sector Count | | 05 | 100 | 100 | 36 | 000000000000 | | Fw Lc Ec Sp |
| OK | Seek Error Rate | | 07 | 73 | 60 | 30 | 00000168A533 | | Fw Lc Pp Er |
| OK | Power-On Hours Count | | 09 | 100 | 100 | 0 | 0000000002F5 | 757 hrs. | Lc Ec Sp |
| OK | Spin Retry Count | | 0A | 100 | 100 | 97 | 000000000000 | | Fw Lc Ec |
| OK | Drive Power Cycle Count | | 0C | 100 | 100 | 20 | 0000000000AD | 173 hrs. | Lc Ec Sp |
| OK | Drive Temperature | | C2 | 43 | 50 | 0 | 00000000002B | 43 °C | Lc Sp |
| OK | Hardware ECC Recovered | | C3 | 67 | 66 | 0 | 000006736FE1 | | Lc Er Ec |
| OK | Current Pending Sector Count | | C5 | 100 | 100 | 0 | 000000000000 | | Lc Ec |
| OK | Off-Line Scan Uncorrectable Sectors | | C6 | 100 | 100 | 0 | 000000000000 | | Ec |
| OK | Ultra ATA CRC Error Count | | C7 | 200 | 194 | 0 | 000000000006 | | Lc Pp Er Ec Sp |
| OK | Write Error Count | | C8 | 100 | 253 | 0 | 000000000000 | | |
| OK | TA Counter Increased | | CA | 100 | 253 | 0 | 000000000000 | | Lc Ec Sp |

Legend: Ok Warning Error

9.2.1 What does S.M.A.R.T. stand for?

S.M.A.R.T. = "Self Monitoring And Reporting Technology". It is a standard interface that allows disk to check its status, report it to a host system, and provide some estimate of a failure date.

9.2.2 What is T.E.C.?

T.E.C. stands for "Threshold Exceeded Condition" and basically means a failure. When your S.M.A.R.T. control tool reports a "T.E.C. date" or "Nearest T.E.C. predicted" it really means "Failure date".

9.2.3 What is the S.M.A.R.T attribute?

The S.M.A.R.T attribute is a specific property of the disk being monitored. The attribute is referred to either by its number or its descriptive name. An attribute value is a positive, integral number, usually in the range from 1 to 100 (sometimes to 200 or 253). Maximum values are good, minimum values indicate that some component of the disk is about to fail. A specific threshold is assigned to each attribute. Once the value drops below this threshold, S.M.A.R.T considers the disk to be faulty. Some attributes are considered life-critical and others are merely "informative". A T.E.C. with an "informative" attribute does not necessarily mean a drive failure.

9.2.4 Understanding the SMART Attributes

Status

Provided a status for the attribute. OK means the attribute value is well in the safe zone. WARNING means that the attribute value is approaching the attribute threshold and FAIL means that a Threshold Exceeding Condition has been detected.

Attribute Name

A text description of the attribute. See below for a more detailed description of each attribute.

T.E.C.

"Threshold Exceeded Condition". The monitor watch the attribute changes and guess the date the value will reach the threshold value.

ID

The attribute ID.

Value

The current normalized attribute value.

Worst

The worst (lowest) value recorded so far. This is an indicator of how close to failure the drive has ever been.

Threshold

The attribute threshold. This value will not change and represents the lowest possible safe attribute value.

Raw Data

The attributes current raw value. This may be a count, a number of errors or hours, or even a temperature, depending on the attribute.

Flags

F Pre-Failure Warranty
W

LC On Line Collection

PF Performance Attribute

ER Error Rate Attribute

EC Event Count Attribute

SP Self-Preserving
Attribute

9.2.5 Are S.M.A.R.T predictions accurate?

S.M.A.R.T can only predict a gradual degradation of the disk. It cannot and it does not predict catastrophic events, including but not limited to head crashes, power spikes and so on. There is a general rule to follow when interpreting S.M.A.R.T results: if S.M.A.R.T reports a disk failure, it's time to immediately backup its data; if S.M.A.R.T reports the disk to be O.K., it's time to backup anyway.

9.2.6 What is "Spin up time"? My disk reports a "Spin up time" of about 75. Is it about to crash?

"Spin up time" describes the amount of time it takes to spin the platters up to their rated rotation speed (usually 5400 or 7200 RPM). Values above 80 should be considered good. Values between 70 and 80 are acceptable. There is a known issue with Quantum (Maxtor) hard drives: out-of-the-box new drives' "Spin up time" drops to 70 within the first two weeks of use, causing S.M.A.R.T tools to predict a failure within a month. This is usually a false alarm. After some initial "burn-in" period the "Spin up time" becomes constant and the drive functions normally.

9.2.7 What is "Ultra ATA CRC Error Rate"?

The UDMA controller performs error checking on the data it receives from the HDD, ensuring that the data was not damaged while being transmitted over the cable. Each time an error is detected, the controller requests a retransmission, thus slowing down the overall transfer speed. Lower values of "Ultra ATA CRC Error Rate" correspond to a higher number of errors, usually indicating a cabling problem.

9.2.8 How can I measure the drive temperature using S.M.A.R.T tools?

Some modern hard drives are equipped with thermal sensors and can report their temperature to the host system using S.M.A.R.T technology.

9.2.9 What other S.M.A.R.T attributes exist?

Following is a list of some attributes. Please note that it does not include all possible attributes.

9.2.10 Life Critical Attributes

| | |
|----------------------------------|---|
| Reallocated sectors count | Indicates the amount of the spare sector pool that is available. Spare sectors are used to replace sectors that become bad for some reason. A value of 100 means that no sectors are remapped, 1 means that spare sectors are exhausted due to many remaps. |
| Read error rate | Indicates the rate at which read retries are requested. Lower values indicate that there is a problem with either the disk surface or the read/write heads. |
| Write error rate | Similar to the above. |
| Recalibration retries | Indicates the number of times recalibration was requested. A low value (multiple recalibrations) usually indicates some head positioning problem. |
| Spin retry count | Indicates the number of times the disk was unable to spin its platters up on the first attempt (lower values mean more retries). |

"Informative" attributes

| | |
|-------------------------------|---|
| Power on hours count | The raw value of this attribute indicates how long the drive was working (powered on) |
| Drive start/stop count | The raw value of this attribute indicates the total number of drive start/stop cycles (including both power on/off switching and suspend/wakeup switching). |
| Temperature | This attribute shows the temperature for drives equipped with a thermal sensor. The exact temperature can be obtained from the Raw value. |

9.2.11 S.M.A.R.T.-Monitor and Event Viewer

The S.M.A.R.T. Monitor also monitors the Windows Event Viewer. If any problems occur with your hard disk, they are automatically displayed. The entries correspond to the Windows system log.

Note: To open the Windows *Event Viewer*, choose <Start / Settings / Control Panel / Administrative Tools / Event Viewer>. Select <System Log> in the Event Viewer.

Note: The S.M.A.R.T. Monitor checks all entries whenever the system is booted up or the system log is changed. You should delete the events in the <System Log> to prevent old messages from being displayed every time the system is booted. To do so, select <Delete all events> in the context menu of the Windows Event Viewer.

9.2.12 EXTEC S.M.A.R.T Monitor status warnings

As long as this program is active, it runs on your computer in the background. The kernel service controls the disk parameters and predicts potential failures or drops in performance.

WARNING: We recommend you start backing up all critical data on this disk!

This message informs you that the nearest predicted T.E.C. date for the specified disk drive is very close. This warning must be taken seriously. You should start backing up all important data on your hard disk and please contact Pepperl + Fuchs support.

ERROR: One or more S.M.A.R.T attributes had exceeded its threshold condition! Backup your critical data immediately!

Some of the S.M.A.R.T. attributes of the specified hard disk have exceeded their threshold limits and the disk is no longer safe to use. Back up your data immediately! You are advised not to save any more important data on this disk.

9.3 Hotkey Tool

A service for defining keys and shortcuts is installed on the VISUEX PCEX 410/412. Among other things, this tool allows you to start applications with the function keys or change the assignment of key codes to keys.

It consists of a permanently executing program that monitors the keys (VisuexKeyService.exe) and a user interface for inputs.

Inputs are made via the Control Panel. Choose <Start / Settings / Control Panel> and double-click the <VISUEX Settings> icon.



You can assign keys new functions in the screen which is opened next.



This screen has three buttons:

- New** Creates a new entry
- Edit** Edits an existing entry
- Delete** Deletes an existing entry

<New> and <Edit> open a new dialog, in which you can define or edit an entry.

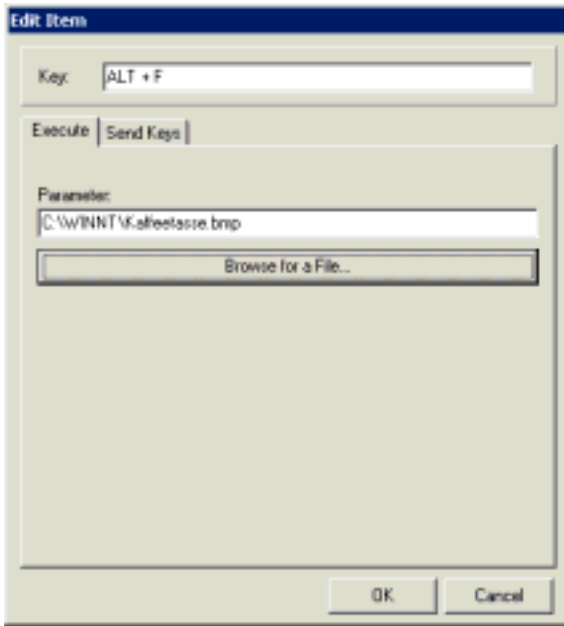
Point the cursor at the <Key> field and press the key or shortcut you want to (re)define. Then choose either <Execute> or <Send Keys>.

Execute You can enter the program to be executed here. You can also specify another file, providing an application is registered for the file extension.

Send Keys Here, you can define the keys, shortcuts or key sequences that must be output instead of the key that is physically pressed.

Note:

- Function keys <F13> to <F24> generate key codes <Ctrl+Shift+F1> to <Ctrl+Shift+F12>. They can be redefined with this application.
- System keys and keyboard shortcuts such as <Ctrl+Alt+Del> and <Alt+Tab> cannot be redefined.
- Many applications do not accept these changes until you reboot the system.

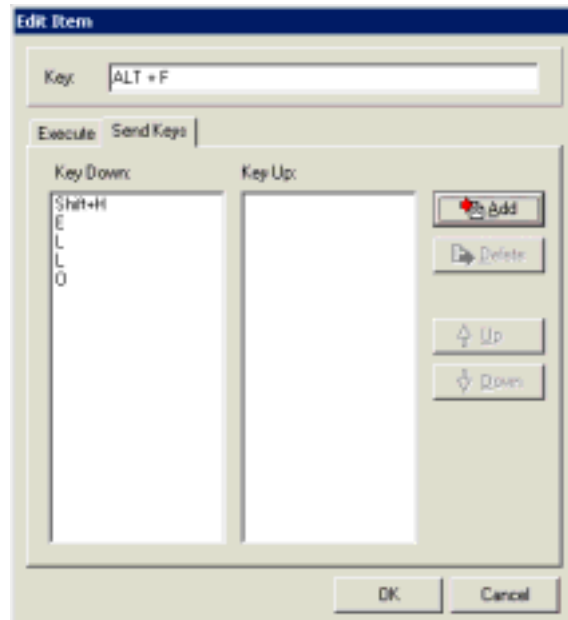


Example 1:

Pressing <Alt+F> on the VISUEX PCEX 410 (key S1 (Shift) at VISUEX PCEX 412) opens a file called <Kaffeetasse.bmp> with the program that is registered for the BMP extension.

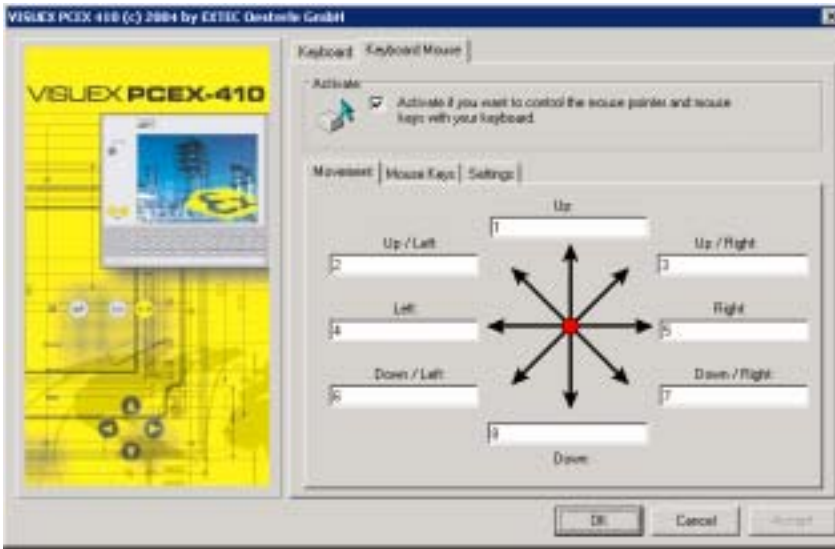
Example 2:

Pressing <Alt+F> causes the key sequence "Hello" to be sent to the currently active application.



To simulate the mouse with the keyboard

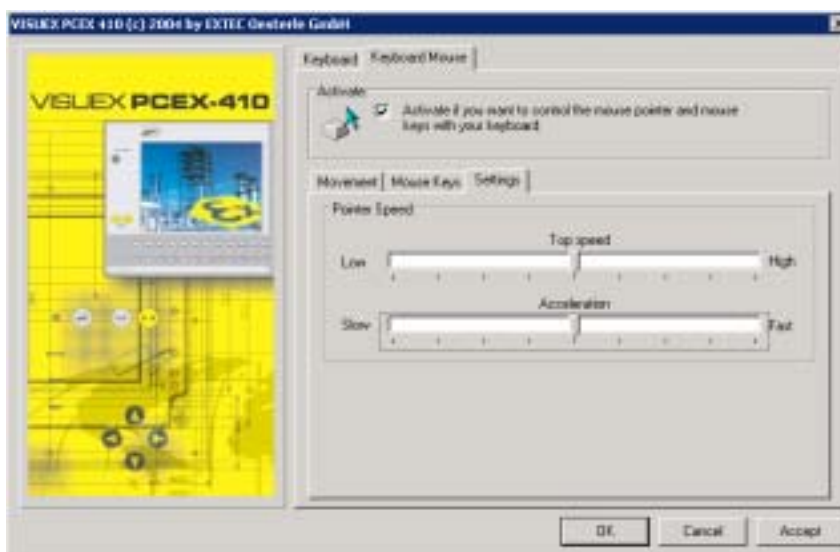
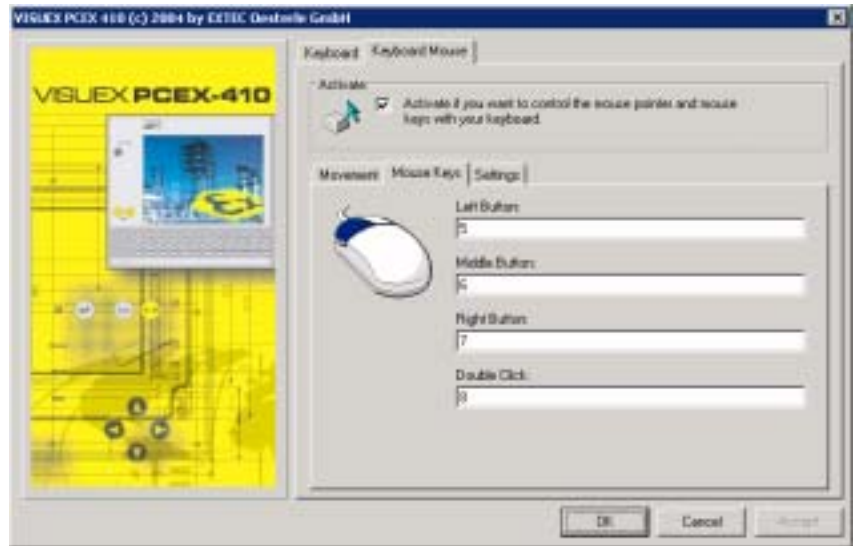
You can simulate the mouse with the keyboard by selecting *<Keyboard Mouse>*. Any keys on the VISUEX PCEX 410/412 can be assigned either to the movement of the mouse pointer or to the mouse buttons.



Choose *<Activate>* to activate the keyboard mouse.

<Movement> assigns keys to the mouse movement. Point the cursor at one of the fields and press the required key or shortcut on the PCEX 410/412.

On the *<Mouse Keys>* tab, you can assign a key or shortcut to the left, right and middle mouse buttons as well as to a double click. Point the cursor at one of the fields and press the required key or shortcut on the PCEX 410/412.



On the *<Settings>* tab, you can change the *speed* and *acceleration* settings.

Advanced settings

System settings can be changed with *<Advanced Settings>*. A basic distinction is made between settings that affect all users (system settings) and settings that only concern the user who is currently logged in (user settings).

Note: The system must be rebooted after changing the Advanced Settings.



System: Disable Task Keys (ALT+TAB)

ALT+TAB: Toggles between open elements or programs.

System: Disable Task Keys (ALT+TAB)

Toggles between elements or programs in the order in which they were opened.

System: Disable Taskbar

Hides the taskbar.

System: Disable Start Menu (CTRL+ESC)

CTRL+ESC: Opens the **Start** menu.

System: Disable Close (ALT+F4)

ALT+F4: Closes the active element or exits the active program. Exits Windows if no programs are open.

User: Disable Shutdown without Logon button

Disables the *<Shutdown>* button in the Login dialog.

User: Disable Task Manager button

Disables the *<Task List>* button in the dialog that opens when you press CTRL+ALT+DEL.

User: Disable Logoff button

Disables the *<Logoff>* button in the Start menu.

User: Disable Lock Workstation button

Disables the *<Lock Workstation>* button in the dialog that opens when you press CTRL+ALT+DEL.

User: Disable Change Password button

Disables the *<Change Password>* button in the dialog that opens when you press CTRL+ALT+DEL.

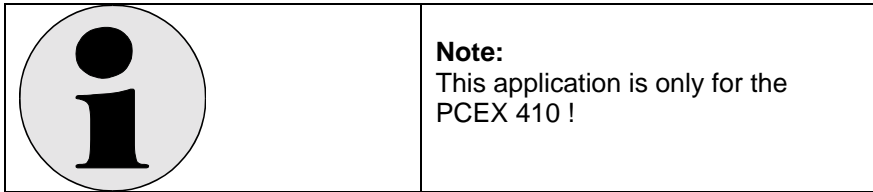
User: Disable and remove the Turn Off Computer button

Disables or removes the *<Turn Off Computer>* button in the Start menu.

System: Exclude drive c: from boot-time check (disable autochk.exe)

Excludes the c: drive from *<autochk>* after a system crash. The system is booted much faster as a result, but any defective files are not automatically repaired.

9.4 How to control LEDs for PCEX 410

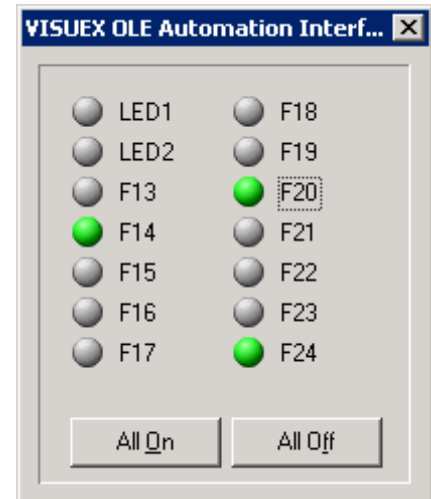


9.4.1 Description

Pepperl + Fuchs provides an OLE automation interface for controlling the LEDs on the VISUEX PCEX 410. The LEDs can be controlled via this interface regardless of the currently used programming language or application, providing your application supports Microsoft's COM interface.

You can find the OLE server <VisuexOleServer.exe> and the type library <VisuexOleServer.tlb> in the Windows <System32> directory.

The server has the name "EXTEC VISUEX PC-EX410 Library". The interface is called <IVisuexPcEx410Leds>.



9.4.2 Installation

The OLE server is normally preinstalled. You can also reinstall it later, however. To do so, enter the following command line:

```
VisuexOleServer.exe /REGSERVER
```

9.4.3 Examples

You can find control examples on the PCEX 410 in the <Programs\EXTEC\VISUEX\PCEX 410\VISUEX OLE SERVER> subdirectory.

9.4.4 Type library

The IDL file of the OLE automation interface is reproduced below. This file lists all the available attributes and functions.

```
// Generated .IDL file (by the OLE/COM Object Viewer)
//
// typelib filename: VisuexOleServer.exe

[
  uuid(192B2364-16D2-4422-A9A0-7FDEE5EFD4FE),
  version(1.0),
  helpstring("EXTEC VISUEX PC-EX410 Library")
]
library VisuexPcEx410
{
  // TLib : // TLib : OLE Automation : {00020430-0000-0000-C000-000000000046}
  importlib("stdole2.tlb");

  // Forward declare all types defined in this typelib
  interface IVisuexPcEx410Leds;

  [
    odl,
    uuid(1E470D6E-DD91-411B-BBB6-0734E1AD3596),
    version(1.33),
    helpstring("Dispatch Interface for LEDs Object"),
    dual,
    oleautomation
  ]
  interface IVisuexPcEx410Leds : IDispatch {
    [id(0x00000001), propget, helpstring("Read state of LED F13")]
    HRESULT F13([out, retval] VARIANT_BOOL* Value);
    [id(0x00000001), propput, helpstring("Read state of LED F13")]
    HRESULT F13([in] VARIANT_BOOL Value);
    [id(0x00000002), propget, helpstring("Read state of LED F14")]
    HRESULT F14([out, retval] VARIANT_BOOL* Value);
    [id(0x00000002), propput, helpstring("Read state of LED F14")]
    HRESULT F14([in] VARIANT_BOOL Value);
    [id(0x00000003), propget, helpstring("Read state of LED F15")]
    HRESULT F15([out, retval] VARIANT_BOOL* Value);
    [id(0x00000003), propput, helpstring("Read state of LED F15")]
    HRESULT F15([in] VARIANT_BOOL Value);
    [id(0x00000004), propget, helpstring("Read state of LED F16")]
    HRESULT F16([out, retval] VARIANT_BOOL* Value);
    [id(0x00000004), propput, helpstring("Read state of LED F16")]
    HRESULT F16([in] VARIANT_BOOL Value);
    [id(0x00000005), propget, helpstring("Read state of LED F17")]
    HRESULT F17([out, retval] VARIANT_BOOL* Value);
    [id(0x00000005), propput, helpstring("Read state of LED F17")]
    HRESULT F17([in] VARIANT_BOOL Value);
    [id(0x00000006), propget, helpstring("Read state of LED F18")]
    HRESULT F18([out, retval] VARIANT_BOOL* Value);
    [id(0x00000006), propput, helpstring("Read state of LED F18")]
    HRESULT F18([in] VARIANT_BOOL Value);
    [id(0x00000007), propget, helpstring("Read state of LED F19")]
    HRESULT F19([out, retval] VARIANT_BOOL* Value);
    [id(0x00000007), propput, helpstring("Read state of LED F19")]
    HRESULT F19([in] VARIANT_BOOL Value);
    [id(0x00000008), propget, helpstring("Read state of LED F20")]
    HRESULT F20([out, retval] VARIANT_BOOL* Value);
    [id(0x00000008), propput, helpstring("Read state of LED F20")]
    HRESULT F20([in] VARIANT_BOOL Value);
  }
}
```

```

[id(0x00000009), propget, helpstring("Read state of LED F21")]
HRESULT F21([out, retval] VARIANT_BOOL* Value);
[id(0x00000009), propput, helpstring("Read state of LED F21")]
HRESULT F21([in] VARIANT_BOOL Value);
[id(0x0000000a), propget, helpstring("Read state of LED F22")]
HRESULT F22([out, retval] VARIANT_BOOL* Value);
[id(0x0000000a), propput, helpstring("Read state of LED F22")]
HRESULT F22([in] VARIANT_BOOL Value);
[id(0x0000000b), propget, helpstring("Read state of LED F23")]
HRESULT F23([out, retval] VARIANT_BOOL* Value);
[id(0x0000000b), propput, helpstring("Read state of LED F23")]
HRESULT F23([in] VARIANT_BOOL Value);
[id(0x0000000c), propget, helpstring("Read state of LED F24")]
HRESULT F24([out, retval] VARIANT_BOOL* Value);
[id(0x0000000c), propput, helpstring("Read state of LED F24")]
HRESULT F24([in] VARIANT_BOOL Value);
[id(0x0000000d), helpstring("Turn all LEDs ON")]
HRESULT AllOn();
[id(0x0000000e), helpstring("Turn all LEDs OFF")]
HRESULT AllOff();
};

[
  uuid(FFD88D2F-956F-4DF5-90B8-EA8AA1044F6C),
  version(1.0),
  helpstring("LEDs Object")
]
coclass VisuexPcEx410Leds {
  [default] interface IVisuexPcEx410Leds;
};
};

```

10 Software licenses PCEX 410/412

10.1 References to Windows Embedded XP

10.1.1 EULA (End User License Agreement)

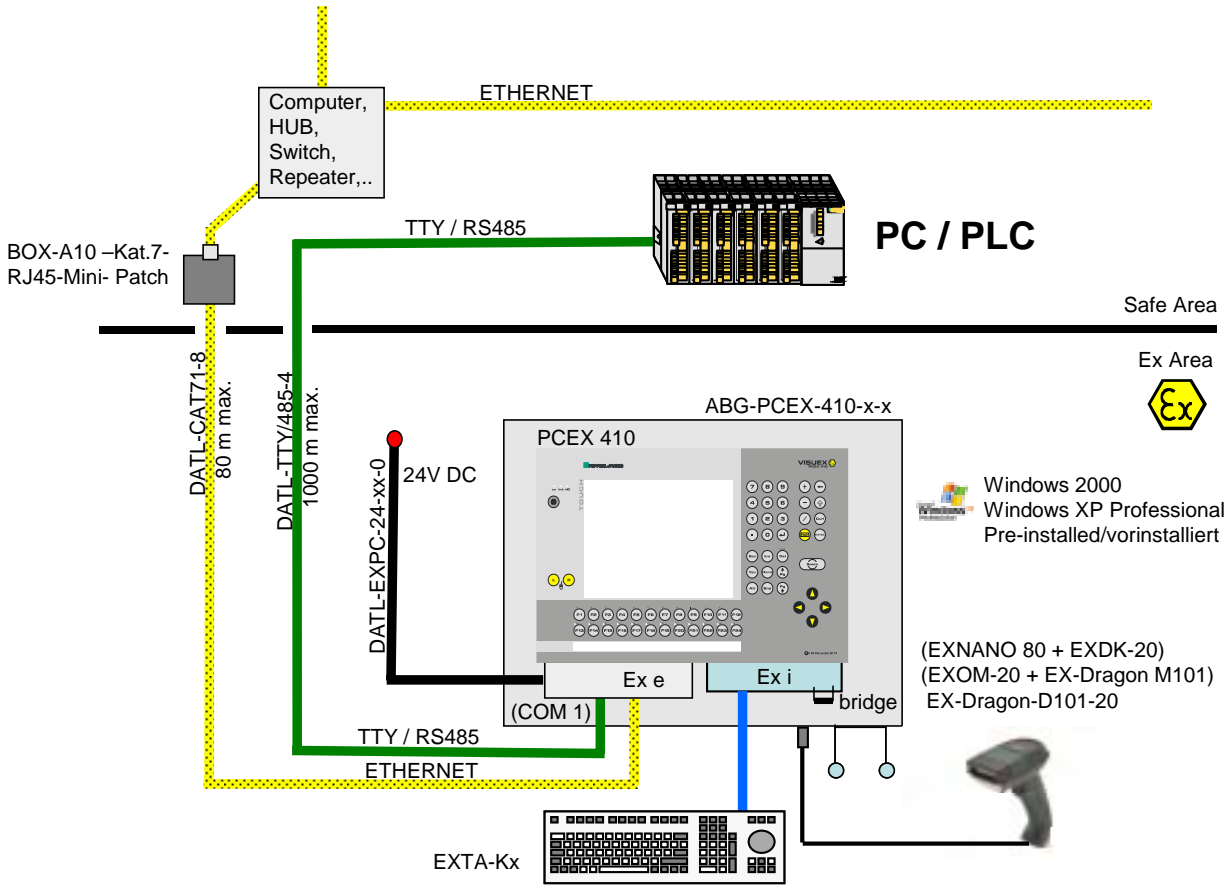
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Pepperl+Fuchs GMBH
Königsberger Allee 87
D-68307 Mannheim

11 Connecting cables PCEX 410

PANEL-PC VISUEX PCEX 410 Standard

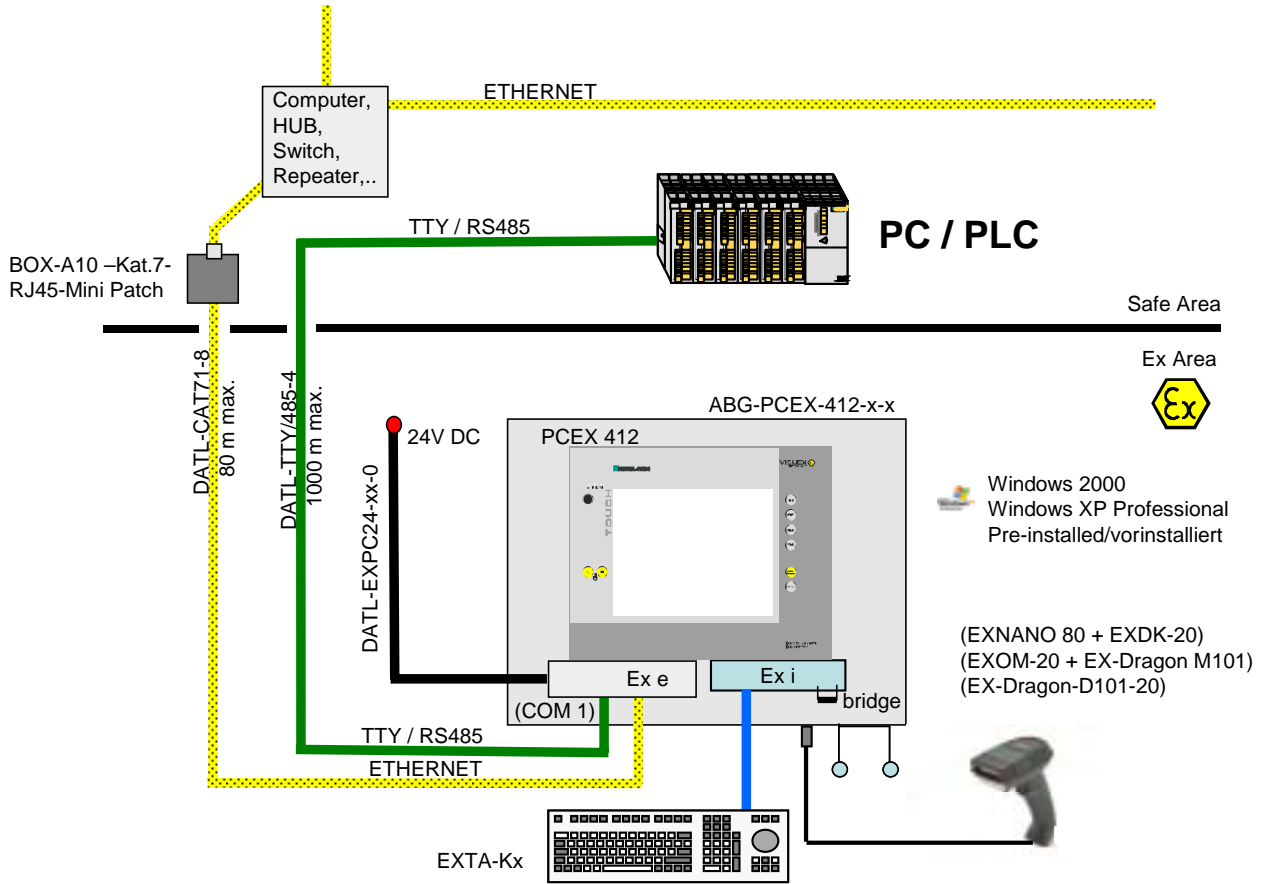
Ex- Zone, Category II 2G (Zone 1, 2)



12 Connecting cables PCEX 412

PANEL-PC VISUEX PCEX 412 Standard

Ex- Zone, Category II 2G (Zone 1, 2), II 2D (Zone 21, 22)



13 Installation cables PCEX 410/412

13.1 Power supply cable

DATL-EXPC-24-15-0

Power supply cable for 24V DC

- 2 x 1,5 mm², cable diameter approx. 7,5 mm
- for firmly rooting
- for terminal connection
- max. length 110 m

DATL-EXPC-24-25-0

Power supply cable for 24V DC

- 2 x 2,5 mm², cable diameter approx. 8,9 mm
- for firmly rooting
- for terminal connection
- max. length 185 m

13.1.1 Maximum length for the power supply cable 24V DC

When long cables DATL-EXPC-24-15-0 and DATL-EXPC-24-25-0 are necessary the cable resistance has to be considered. Therefore certain maximum lengths apply. (See chapter 6.4.1)

13.2 TTY- interface cables / RS485 interface cables

DATL-TTY/485-4

| | |
|-------|-------------|
| TTY | max. (400m) |
| RS485 | max (1200m) |

13.3 Ethernet cable

DATL-CAT71-8 (max. 80m)

13.4 USB Adapter cable

The USB adapter cable must not be used in the hazardous area! That concerns the operation like also there whereabouts in the terminal compartment.

14 Accessory for start-up PCEX 410/412

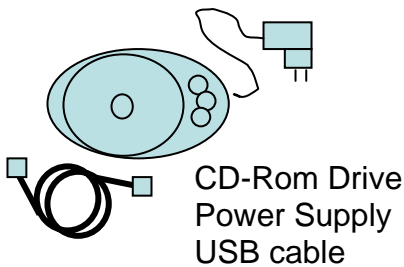
14.1 Pepperl + Fuchs -CD with HW-Drivers SW-Tools



Do not use in hazardous area!



14.2 CD-ROM Drive Power Supply USB cable

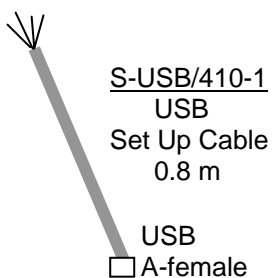


Do not use in hazardous area!



14.3 Connection cables

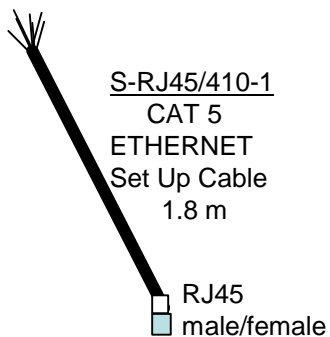
14.3.1 USB Set up cabel 0,8m



Do not use in hazardous area!



14.3.2 ETHERNET Set up cable 1,8m

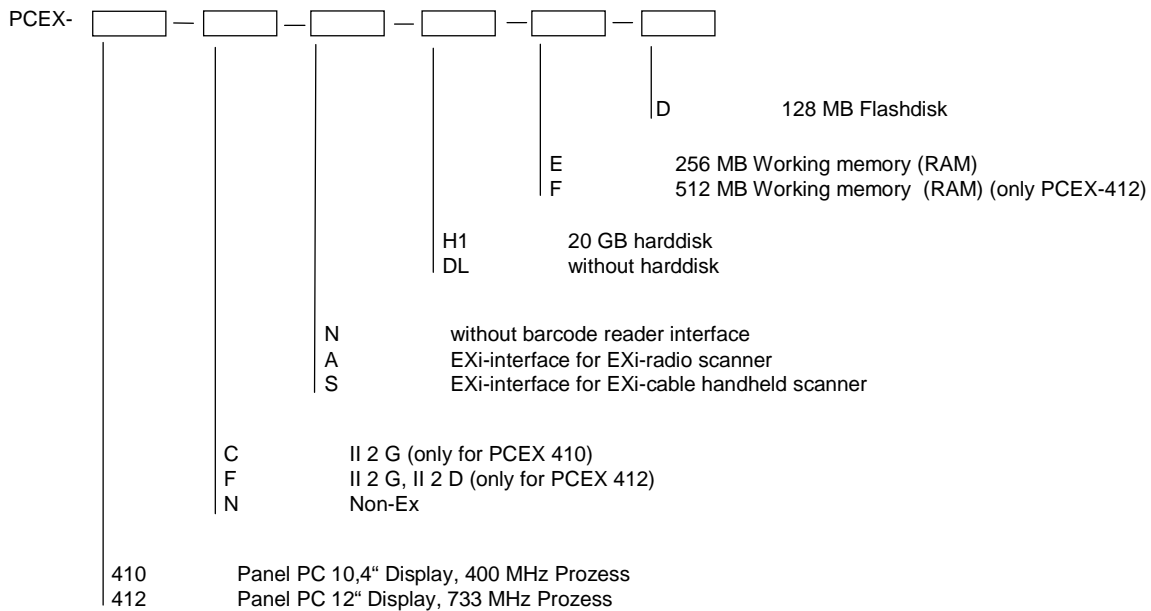


Do not use in hazardous area!



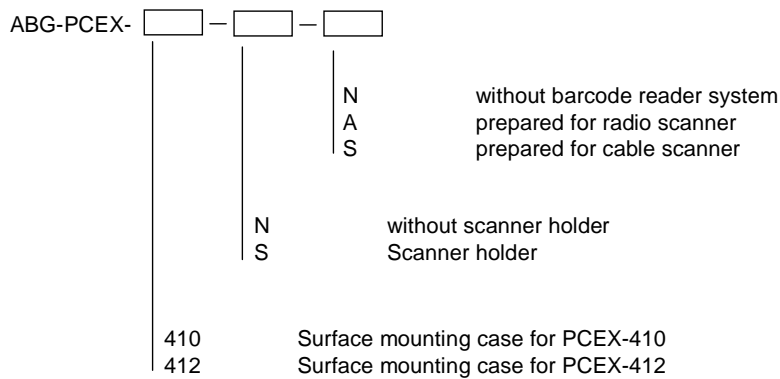
15 Order designations PCEX 410/412

15.1 PCEX 410/412 type code



15.2 PCEX 410/412 case stainless steel

ABG-housing



15.3 ABG PCEX-410/412 – additional components

| | | |
|--------------|--|--|
| ABG- | | |
| wall-bracket | Wall mount | |
| Standfuss-1 | turnable | |
| Standfuss-2 | not turnable | |
| Tragarm-1-1 | turnable for ceiling for cable gland 2xM20 | |
| Tragarm-1-2 | turnable for ceiling for cable gland 1xM25 und 3xM20 | |
| Tragarm-2-1 | turnable for ceiling for cable gland 2xM20 | |
| Tragarm-2-2 | turnable for ceiling for cable gland 1xM25 und 3xM20 | |

15.4 EXTA keyboards

| Type | Schnittstelle | Tastatur/Maus | EX-Zulassung | Gehäuse | Kabel | Layout |
|------|---------------------|-------------------|---|---------------|-------|--------|
| EXTA | Tastatur EX-Version | | | | | |
| | Schnittstelle | | | | | |
| | P | PS2 Schnittstelle | | | | |
| | | Tastatur/Maus Typ | | | | |
| | | K1 | Tastatur ohne Maus | | | |
| | | K3 | Tastatur mit Trackball Maus, 50mm Durchmesser | | | |
| | | K4 | Tastatur mit Touchpad Maus, 50x60 mm | | | |
| | | | EX-Zulassung | | | |
| | | C | ATEX II 2 G | | | |
| | | | Gehäuse TASTEX | | | |
| | | C0 | Frontplatte mit Abdeckblech | | | |
| | | ABG | Tastatur mit Gehäuse | | | |
| | | | Kabel | | | |
| | | | 1,8 | Kabellänge | | |
| | | | 10 | Kabellänge | | |
| | | | | Layout | | |
| | | | US | International | | |
| | | | GER | Deutsch | | |
| | | | FR | Französisch | | |
| | | | SW | Schwedisch | | |
| | | | DK | Dänisch | | |
| | | | U/K | US-Kyrillisch | | |
| | | | ES | Spanisch | | |
| | | | CH | Swiss | | |
| | | | KOR | Koreanisch | | |

15.5 Accessory operating systems

| Type designation | |
|--------------------------------|---|
| Windows-XP-Prof.-GER | Windows XP Professional German, pre-installed |
| Windows-XP-Professional-US | Windows XP Professional English, pre-installed |
| Windows-XP-Prof.-multilingual | Windows XP Professional multilingual, pre-installed |
| Windows-2000-GER | Windows 2000 Professional deutsch, pre-installed |
| Windows-2000-US-PCEX410/412-V1 | Windows 2000 Professional English, pre-installed |
| Windows-XP-PCEX410/412-V1 | Windows XP embedded, pre-installed |
| LINUX | LINUX, pre-installed |

15.6 Accessory cables

| Type designation | |
|-------------------------------|-------------------------------------|
| DATL-CAT71-8 | CAT7 cable (xxx metre) |
| KONFEKT-CAT7-1 | Manufacturing DATL-CAT7-8 |
| DATL-TTY/485-4 | RS-485 Kabel, shielded, (xxx metre) |
| KONFEKT-4-1-DATL-TTY | Manufacturing DATL-TTY/RS485-4 |
| Box-A10-Kat.7-RJ45-Mini-Patch | Mini-Patchfield CAT7-cable |

15.7 Accessory power supply

| Type designation | |
|--------------------|-------------------------|
| BN-24/2500-AC-LOGO | Power supply 24V, 2,5 A |

15.8 Accessory Setup-Tools

| Type designation | |
|------------------------------|---|
| CD-ROM-Drive-1-USB-RW | CD-ROM drive for USB interface |
| S-RJ45/PCEX-1-Setup-Kabel | Set up cable for Ethernet Exe interface |
| S-USB/PCEX-1-USB-Setup-Kabel | Set up cable for USB interface |
| | |

16 Rating plates

16.1 Rating plate PCEX 410



16.2 Rating plate PCEX 412



17 Applied harmonized standards of the applicable directives

This is an addition to Pepperl+Fuchs Declaration of Conformity in accordance with EN 45014:1998 in the appendix.

| Directives | | Applied harmonized standards |
|-------------------|---------------|--|
| Directives | 94/9EC (ATEX) | EN 50014: 1997 EN 50017: 1998 EN 50019: 2000 EN 50020: 2002 |
| Directives | 89/336/EEC | EN 61000-4-3 EN 61000-4-6 EN 61000-6-2 |

18 Appendix EEx Certification

Please refer the following pages.

IBExU03ATEX1190 (3 pages in German, 3 pages in English)

IBExU03ATEX1190 1. Amendment (2 pages in German, 2 pages in English)

IBExU03ATEX1190 2. Amendment (2 pages in German, 2 pages in English)

IBExU03ATEX1190 3. Amendment (1 page in German, 1 page in English)

Konformitätserklärung / Declaration of Conformity

nach EN 45014:1998 / in accordance with EN 45014:1998

Diese Konformitätserklärung gilt nur in Zusammenhang mit dem gültigen Pepperl+Fuchs Datenblatt und/oder Betriebsanleitung für alle Pepperl+Fuchs Produkte, die unter die Richtlinie 89/336/EWG (EMV) und 94/9/EG (ATEX) fallen.

This Declaration of Conformity is only valid in connection with the valid datasheet and/or instruction of Pepperl+Fuchs, for all Pepperl+Fuchs products that are relevant to the EC-directive 89/336/EWG (EMV) and 94/9/EG (ATEX)

Die Pepperl+Fuchs GmbH in 68301 Mannheim erklärt hiermit in alleiniger Verantwortung, daß alle richtlinienrelevanten Produkte mit den angegebenen Normen oder normativen Dokumenten übereinstimmen und, wenn notwendig, von einer zuständigen Stelle freigegeben wurden.

We, Pepperl+Fuchs GmbH at 68301 Mannheim hereby declare under our sole responsibility that all directive relevant products are in accordance with the listed harmonized standards or normative documents and, where necessary, a competent body has been released.

Angewandte harmonisierte Normen :
Applied harmonized standards

Siehe gültiges Datenblatt / Betriebsanleitung
See valid datasheet / instruction

Benannte Stelle für QS-Überwachung :
Notified body for QA-Assessment

PTB Physikalisch-Technische Bundesanstalt Nr.: 0102



Reg. Nr. 14 763-02

Hersteller Unterschrift :
Signature of manufacturer

P. Adolphs
Dr. Adolphs

Funktion des Unterzeichners :
Function of the signer

Geschäftsführer
Managing Director

J. Käfer
Dr. Käfer
Geschäftsführer
Managing Director

Datum / date : September 2003

EMV-ATEX-efb2003.doc / 10.00.03a6



IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] **EG-BAUMUSTERPRÜFBESCHEINIGUNG**
gemäß Richtlinie 94/9/EG, Anhang III



[2] Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung
in explosionsgefährdeten Bereichen, Richtlinie 94/9/EG

[3] EG-Baumusterprüfbescheinigungsnummer: **IBExU03ATEX1190**

[4] Gerät Ex-q Computer mit Display Typ PCEX 410-**-**

[5] Hersteller: EXTEC Oesterle GmbH

[6] Anschrift: Schorndorfer Str. 35
D-73730 Esslingen

[7] Die Bauart des unter [4] genannten Gerätes sowie die verschiedenen zulässigen Ausführungen
sind in der Anlage zu dieser EG-Baumusterprüfbescheinigung festgelegt.

[8] IBExU Institut für Sicherheitstechnik GmbH, BENANNT STELLE Nr. 0637 nach Artikel 9 der
Richtlinie 94/9/EG des Europäischen Parlaments und des Rates vom 23. März 1994, bescheinigt,
dass das unter [4] genannte Gerät die in Anhang II der Richtlinie festgelegten grundlegenden Si-
cherheits- und Gesundheitsanforderungen für die Konzeption und den Bau der Geräte zur be-
stimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen erfüllt.
Die Prüfergebnisse sind in dem Prüfbericht IB-03-3-343 vom 05.02.2004 festgehalten.

[9] Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Überein-
stimmung mit EN 50014:1997 +A1 +A2, EN 50017:1998, EN 50019:2000 und EN 50020:2002.

[10] Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen
für die sichere Anwendung des Gerätes in der Anlage zu dieser EG-Baumusterprüfbescheinigung
unter [17] hingewiesen.

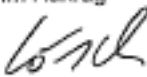
[11] Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf die Konzeption und den Bau des
festgelegten Gerätes. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das
Inverkehrbringen dieses Gerätes.

[12] Die Kennzeichnung des unter [4] genannten Gerätes muß die folgenden Angaben enthalten:

Ⓔ II 2G EEx qe [ib] IIC T4
0 °C ≤ T_a ≤ +50°C, 45 °C bzw. 40 °C

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - D-09599 Freiberg
Tel.: 03731 3805-0 - Fax: 03731 23650

Zertifizierungsstelle Explosionsschutz
Im Auftrag


(Dr. Lösch)



- Siegel -
(Kenn-Nr. 0637)

Freiberg, 06.02.2004

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Bescheinigungen dürfen nur
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werden.

Anlage

[13] **Anlage**

[14] **zur EG-BAUMUSTERPRÜFBESCHEINIGUNG IBExU03ATEX1190**

[15] **Beschreibung des Gerätes**

Der Ex-q Computer PCEX 410 dient der Steuerung, Bedienung und Visualisierung von Prozessdaten. Er besteht aus einem mit Glaskugeln gefüllten Metallgehäuse mit Frontplatte. Das Gerät enthält Baugruppen mit eigensicheren Ausgängen für Peripheriegeräte. Die nichteigensicheren Daten-Signale werden über integrierte Schnittstellen-Barrieren angekoppelt. Der elektrische Anschluss erfolgt in getrennten Anschlussräumen.

Umgebungstemperaturbereich:
(In Abhängigkeit der Verlustleistung) 0 °C bis +50 °C für PCEX410-35-**
0 °C bis +45 °C für PCEX410-40-**
0 °C bis +40 °C für PCEX410-45-**

Schutzart des Gehäuses: ≥ IP 54

Elektrische Daten

Bemessungsspannung (U_m) 60 V

Versorgungsstromkreis
(KI.X1: 1, 2, PE: 3, 4) 24 VDC ±10 %

USB EEx e Schnittstelle
(KI.X1: 5-8) bis 5 V, 500 mA

RS485/TTY-Schnittstelle
(KI.X1: 9-16) bis 5 V, 50 mA

Ethernet (100 Base TX)
(KI.X2: 1-6) ± 5 V, 50 mA

Eigensichere Daten- und Versorgungsstromkreise
in Zündschutzart EEx ib IIC mit folgenden Höchstwerten:

US4 (KI. X3: 3, 5-7) EXTEC Betriebsmittel /Scanner

| | |
|-------|--------|
| U_0 | 9,0 V |
| I_0 | 133 mA |
| P_0 | 1,2 W |
| C_0 | 4,7 µF |
| L_0 | 0,2 mH |

US6 (KI. X3: 9, 11-15) externe Tastatur und Zeigegerät

| | |
|-------|---------|
| U_0 | 6,8 V |
| I_0 | 177 mA |
| P_0 | 1,14 W |
| C_0 | 17,0 µF |
| L_0 | 0,2 mH |

US8 (KI. X3: 19-21) externer USB Datenstromkreis

| | |
|-------|---------|
| U_0 | 6,8 V |
| I_0 | 240 mA |
| P_0 | 1,2 W |
| C_0 | 17,5 µF |
| L_0 | 0,2 mH |

US5 (KI. X3: 1) BRÜCKE1/GDN nur für Power/Reset

Eigensichere Stromkreise und Gehäuse sind galvanisch verbunden (GND = PA). Im gesamten Verlauf der Errichtung der eigensicheren Stromkreise muss Potenzialausgleich bestehen.

- [16] **Prüfbericht**
Der Nachweis des Explosionsschutzes ist im Detail im Prüfbericht IB-03-3-343 vom 05.02.2004 dargelegt. Die Prüfunterlagen sind Bestandteil des Prüfberichtes und dort aufgelistet.

Zusammenfassung der Prüfergebnisse:


Der Ex-q Computer mit Display erfüllt die Anforderungen des Explosionsschutzes für die Gerätegruppe II und Kategorie 2G, Temperaturklasse T4 der Zündschutzart Sandkapselung in Verbindung mit Erhöhter Sicherheit. Er stellt eigensichere Stromkreise für externe Geräte bereit.

- [17] **Besondere Bedingungen**
keine

- [18] **Grundlegende Sicherheits- und Gesundheitsanforderungen**
Erfüllt durch Einhaltung von Normen (siehe [9]).

Im Auftrag

Freiberg, 06.02.2004



(Dr. Lösch)

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- [1] **1. Ergänzung zur
EG-BAUMUSTERPRÜFBESCHEINIGUNG IBExU03ATEX1190**
gemäß Richtlinie 94/9/EG, Anhang III



- [2] **Gerät:** Ex-q Computer mit Display Typ PCEX 410-**-**
- [3] **Hersteller:** EXTEC Oesterle GmbH
- [4] **Anschrift:** Schorndorfer Str. 55
D-73730 Esslingen

[5] **Ergänzung/Änderung**

Für den eigensicheren Ausgang US4 (Scanner und ähnliche Betriebsmittel) werden zusätzliche elektrische Ausgangswerte festgelegt.

[6] **Prüfunterlagen**

Ergänzung zu PCEX 410 (Ident-Nr. 6140 00002548) 4 Blatt

[7] **Prüfergebnis**

Die bescheinigten elektrischen Werte sind im Anhang aufgelistet. Der Nachweis des Explosionsschutzes des Computers mit Display ist im Prüfbericht IB-04-3-243/C vom 05.07.2004 dokumentiert.

Alle weiteren Angaben der EG-Baumusterprüfbescheinigung gelten unverändert für diese Ergänzung.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 D-09599 Freiberg
Tel.: 03731 3805.0 Fax: 03731 23650

Zertifizierungsstelle Explosionsschutz
im Auftrag

(Dr. Lösch)



- Siegel -
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Freiberg, 05.07.2004

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Anhang

Anhang

zur 1. Ergänzung EG-BAUMUSTERPRÜFBESCHEINIGUNG IBExU03ATEX1190

**Eigensichere Stromkreise in Zündschutzart EEx ib IIC
US4 (Kl. X3: 3, 5-7)**

| U₀ [V] | I₀ [mA] bei P₀ = 1,1 W | I₀ [mA] bei P₀ = 1,2 W | I₀ [mA] bei P₀ = 1,3 W | I₀ [mA] bei P₀ = 1,4 W | C₀ [µF] | L₀ [mH] |
|--------------------------|---|---|---|---|---------------------------|---------------------------|
| 5,2 | 211 | 230 | 250 | 269 | 77 | 0,2 |
| 5,3 | 208 | 226 | 245 | 264 | 8,2 | 0,2 |
| 5,4 | 204 | 222 | 241 | 259 | 8,2 | 0,2 |
| 5,5 | 200 | 218 | 236 | 255 | 8,2 | 0,2 |
| 5,6 | 196 | 214 | 232 | 250 | 8,2 | 0,2 |
| 5,7 | 193 | 211 | 228 | 246 | 8,2 | 0,2 |
| 5,8 | 190 | 207 | 224 | 241 | 8,2 | 0,2 |
| 5,9 | 186 | 203 | 220 | 237 | 8,2 | 0,2 |
| 6 | 183 | 200 | 217 | 233 | 8,2 | 0,2 |
| 6,1 | 180 | 197 | 213 | 230 | 8,2 | 0,2 |
| 6,2 | 177 | 194 | 210 | 226 | 8,2 | 0,2 |
| 6,3 | 175 | 190 | 206 | 222 | 8,2 | 0,2 |
| 6,4 | 172 | 188 | 203 | 219 | 8,2 | 0,2 |
| 6,5 | 169 | 185 | 200 | 215 | 8,2 | 0,2 |
| 6,6 | 167 | 182 | 197 | 212 | 8,2 | 0,2 |
| 6,7 | 164 | 179 | 194 | 209 | 8,2 | 0,2 |
| 6,8 | 162 | 176 | 191 | 206 | 8,2 | 0,2 |
| 6,9 | 159 | 174 | 188 | 203 | 8,2 | 0,2 |
| 7 | 157 | 171 | 186 | 200 | 8,2 | 0,2 |
| 7,1 | 155 | 169 | 183 | 197 | 8,2 | 0,2 |
| 7,2 | 153 | 167 | 181 | 194 | 8,2 | 0,2 |
| 7,3 | 151 | 164 | 178 | 192 | 8,2 | 0,2 |
| 7,4 | 149 | 162 | 176 | 189 | 8,2 | 0,2 |
| 7,5 | 147 | 160 | 173 | 187 | 8,2 | 0,2 |
| 7,6 | 145 | 158 | 171 | 184 | 8,2 | 0,2 |
| 7,7 | 143 | 156 | 169 | 182 | 8,2 | 0,2 |
| 7,8 | 141 | 154 | 167 | 179 | 8,2 | 0,2 |
| 7,9 | 139 | 152 | 165 | 177 | 8,2 | 0,2 |
| 8 | 137 | 150 | 162 | 175 | 8,2 | 0,2 |
| 8,1 | 136 | 148 | 160 | 173 | 4,7 | 0,2 |
| 8,2 | 134 | 146 | 159 | 171 | 4,7 | 0,2 |
| 8,3 | 133 | 145 | 157 | 169 | 4,7 | 0,2 |
| 8,4 | 131 | 143 | 155 | 167 | 4,7 | 0,2 |
| 8,5 | 129 | 141 | 153 | 165 | 4,7 | 0,2 |
| 8,6 | 128 | 140 | 151 | 163 | 4,7 | 0,2 |
| 8,7 | 126 | 138 | 149 | 161 | 4,7 | 0,2 |
| 8,8 | 125 | 136 | 148 | 159 | 4,7 | 0,2 |
| 8,9 | 124 | 135 | 146 | 157 | 4,7 | 0,2 |
| 9 | 122 | 133 | 144 | 155 | 4,7 | 0,2 |

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- [1] **2. Ergänzung zur EG-BAUMUSTERPRÜFBESCHEINIGUNG IBExU03ATEX1190**
gemäß Richtlinie 94/9/EG, Anhang III

- [2] Gerät: VISUEX Panel-PC Typ PCEX ***
- [3] Hersteller: EXTEC Oesterle GmbH
geändert in
Pepperl + Fuchs – EXTEX GmbH
- [4] Anschrift: Schorndorfer Str. 55
D-73730 Esslingen

[5] **Ergänzung/Änderung**

Die Bezeichnung des in der EG-Baumusterprüfbescheinigung IBExU03ATEX1190 vom 08.04.2004 unter [4] genannten Gerätes Ex-q Computer mit Display Typ PCEX 410-**-** wird in VISUEX Panel-PC Typ PCEX *** geändert.

Der Hersteller des unter [2] genannten Gerätes hat sich geändert.

Der zulässige Umgebungstemperaturbereich wird auf 0 °C bis +45 °C festgelegt.

Es gelten veränderte Anschlusswerte für US4, US6 und US8 in Zündschutzart EEx Ib IIC:

US4 (Kl. X3: 3, 5-7) Scanner und EXTEC-Geräte

| | | | | |
|-------|-------------|-------------|-------------|-------------|
| U_0 | 9,0 V | 9,0 V | 9,0 V | 9,0 V |
| I_0 | 0,122 A | 0,133 A | 0,144 A | 0,156 A |
| P_0 | Typ Z 1,1 W | Typ A 1,2 W | Typ M 1,3 W | Typ S 1,4 W |
| C_0 | 4,5 µF | | | |
| L_0 | 0,2 mH | | | |

US6 (Kl. X3: 9, 11-15) Tastatur und Zeigegerät

| | |
|-------|--------|
| U_0 | 6,3 V |
| I_0 | 177 mA |
| P_0 | 1,14 W |
| C_0 | 30 µF |
| L_0 | 0,2 mH |

US8 (Kl. X3: 19-21) externer USB Datenstromkreis

| | |
|-------|--------|
| U_0 | 6,3 V |
| I_0 | 234 mA |
| P_0 | 1,2 W |
| C_0 | 30 µF |
| L_0 | 0,2 mH |

[6] **Prüfunterlagen**

Der Nachweis des Explosionsschutzes des unter [2] genannten Gerätes ist im Prüfbericht IB-05-3-002 vom 05.04.2005 dokumentiert. Die Konstruktionsunterlagen sind im Prüfbericht aufgelistet.

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[7] Prüfergebnis

Es ist eine höhere Verlustleistung bei max. Umgebungstemperatur +45 °C zulässig. Alle weiteren Angaben und elektrischen Werte (ausgenommen US4 für Ex-q Computer mit Display Typ PCEX 410-**-** gemäß 1. Ergänzung der EG-Baumusterprüfbescheinigung IBExU03ATEX1190) gelten unverändert. Das Gerät erfüllt auch die Anforderungen des Staubexplosionsschutzes für Gerätegruppe II Kategorie 3D (Oberflächentemperatur T 80 ° C, Schutzart IP 54).

Die Kennzeichnung des unter [2] genannten Gerätes muss folgende Angaben enthalten:

II 2G EEx qe[ib] IIC T4
 $0\text{ °C} \leq T_a \leq +45\text{ °C}$

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Fuchsmühlenweg 7 D-09599 Freiberg
Tel.: 03731 3805.0 Fax: 03731 23650

Zertifizierungsstelle
-Explosionsschutz-

Im Auftrag



(Dr. Läsch)



- Siegel -
(Kenn-Nr. 0637)

Freiberg, 06.04.2005

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[1] **3. Ergänzung zur
EG-BAUMUSTERPRÜFBESCHEINIGUNG IBExU03ATEX1190**
gemäß Richtlinie 94/9/EG, Anhang III

[2] **Gerät:** VISUEX Panel-PC Typ PCEX 412

[3] **Hersteller:** Pepperl + Fuchs – EXTEC GmbH

[4] **Anschrift:** Schorndorfer Str. 55
D-73730 Esslingen

[5] **Ergänzung/Änderung**


Für die geänderte Ausführung wurden zusätzliche Gehäuseabdichtungen vorgenommen

[6] **Prüfunterlagen**

Der Nachweis des Explosionsschutzes des unter [2] genannten Gerätes ist im Prüfbericht IB-05-3-185 vom 10.06.2005 dokumentiert. Die Prüfunterlagen sind im Prüfbericht aufgelistet.

[7] **Prüfergebnis**

Das Gerät erfüllt die Anforderungen des Staubexplosionsschutzes für Gerätegruppe II Kategorie 2D
Die Kennzeichnung des unter [2] genannten Gerätes muss folgende Angaben enthalten:

 II 2D IP 65 T 95 °C
0 °C ≤ T_a ≤ +45 °C

[8] **Sicherheitstechnischer Hinweis**

Bei der Verwendung sind elektrostatische Lademechanismen an der Bedienoberfläche des Anzeigeterminals, welche stärker sind als manuelles Reiben (z. B. Reinigen von Hand), auszuschließen.

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Fuchsmühlenweg 7 - D-09599 Freiberg
Tel.: 03731 3805.0 - Fax: 03731 23650

Zertifizierungsstelle Explosionsschutz

Im Auftrag

(Dr. Lösch)



- Siegel -
(Kenn-Nr. 0637)

Freiberg, 13.06.2005

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[1] EC TYPE EXAMINATION CERTIFICATE**Ex**

In accordance with Directive 94/9/EC, Annex III

- [2] Equipment and protective systems for use to the intended purpose in potentially explosive atmospheres, Directive 94/9/EC
- [3] EC Type Examination Certificate no.: **IBExU03ATEX1190**
- [4] Equipment: Ex-q Computer with Display Type PCEX 410-**-**
- [5] Manufacturer: EXTEC Oesterle GmbH
- [6] Address: Schornfelder Str. 35
D - 73730 Esslingen
- [7] The design of the equipment indicated under [4] and the various permissible variants are specified in the Appendix to this Type Examination Certificate.
- [8] IBExU Institut für Sicherheitstechnik GmbH, ACCREDITED as BODY no. 0637 in accordance with Article 9 of Directive 94/9/EC of the European Parliament and the Council dated March 23rd 1994, hereby certifies that the equipment indicated under [4] conforms with the basic safety and health requirements relating to the design and construction of equipment for use to the intended purpose in potentially explosive atmospheres in accordance with Annex II of the same Directive.
The results of the test are recorded in Test Report IB-03/3-343, dated February 5, 2004.
- [9] The basic safety and health requirements are satisfied through conformance with EN 50014:1997 + A1 + A2, EN 50017:1998, EN 50019:2000 and EN 50020:2002.
- [10] If the mark "X" appears after the certificate number, it means that this equipment is subject to the special conditions for safe usage specified under [17] in the Appendix to this EC Type Examination Certificate.
- [11] This EC Type Examination Certificate only refers to the design and construction of the equipment described here. The manufacture and introduction into circulation of the equipment are subject to other Directive requirements.
- [12] The marking on the equipment indicated under [4] must include the following information:

Ex II 2G EEx qe [ib] HC T4
 $0\text{ °C} \leq T_a \leq +50\text{ °C}$, 45 °C or 40 °C

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlweg 7 - D-09599 Freiberg
Phone: +49 (0)3731 3805-0 - Fax: +49 (0)3731 23650
Explosion Protection Certification Body

Freiberg, February 6, 2004

pp.
(Signature illegible)
(Dr. Lösch)

(Seal)
Explosion Protection Certification Body
Identification No. 0637
IBExU Institut für Sicherheitstechnik GmbH

Certificates without a signature or
without a seal are not valid.
Certificates are only allowed to be
passed on to others in unmodified
form.

Appendix

- Seal -
(Identification No. 0637)

Page 1 of 3
IBExU03ATEX1190

LEGAL CERTIFICATION

I hereby certify that this is a complete and correct translation of the original document drawn up in the German language

Date: 26 February 2004



David Allison
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Regional Court of Stuttgart in Baden-Württemberg, Federal Republic of Germany.



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IBExU Institut für Sicherheitstechnik GmbH
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[13]

Appendix

[14]

to EC TYPE EXAMINATION CERTIFICATE IBExU03ATEX1190

[15]

Description of the equipment

The PCEX 410 Ex-q computer is used to control, operate and visualize process data. It consists of a metal case filled with glass beads and fitted with a front plate. The equipment contains modules with intrinsically safe outputs for peripheral devices. The non-intrinsically safe data signals are connected by means of integrated interface barriers. The electrical connections are made in separate terminal compartments.

Ambient temperature range: 0 °C to +50 °C for PCEX 410-35-**
(depending on power loss) 0 °C to +45 °C for PCEX 410-40-**
0 °C to +40 °C for PCEX 410-45-**
Degree of protection of case: \geq IP 54

Electrical data

Rated voltage (U_m) 60 V
Supply circuit 24 V DC \pm 10%
(Kl. X1: 1, 2, PE: 3, 4)
USB EEx e interface Max. 5 V, 500 mA
(Kl. X1: 5-8)
RS485/TTY interface Max. 5 V, 50 mA
(Kl. X1: 9-16)
Ethernet (100 Base TX) \pm 5 V, 50 mA
(Kl. X2: 1-6)

Intrinsically safe data and supply circuits

with the EEx ib IIC type of protection and the following maximum values:

US4 (Kl. X3: 3, 5-7) EXTEC apparatus / scanner

| | |
|----------------|-------------|
| U ₀ | 9 V |
| I ₀ | 133 mA |
| P ₀ | 1.2 W |
| C ₀ | 4.7 μ F |
| L ₀ | 0.2 mH |

US6 (Kl. X3: 9, 11-15) external keyboard and pointing device

| | |
|----------------|------------|
| U ₀ | 6.8 V |
| I ₀ | 177 mA |
| P ₀ | 1.14 W |
| C ₀ | 17 μ F |
| L ₀ | 0.2 mH |

US8 (Kl. X3: 19-21) external USB data circuit

| | |
|----------------|--------------|
| U ₀ | 6.8 V |
| I ₀ | 240 mA |
| P ₀ | 1.2 W |
| C ₀ | 17.5 μ F |
| L ₀ | 0.2 mH |

US5 (Kl. X3: 1) JUMPER I/GND for power/reset only

The intrinsically safe circuits and the case have a direct electrical connection (GND = equipotential bonding). Equipotential bonding must be provided continuously during the installation of the intrinsically safe circuits.

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- [16] **Test report**
The explosion protection is confirmed in detail in test report IB-03-3-343, dated February 5, 2004. The test documents form part of the test report and are listed there.
- Summary of test results:
The Ex-q computer with display fulfils the explosion protection requirements for equipment group II and category 2G, temperature class T4, type of protection "powder filling" in conjunction with increased safety. It makes intrinsically safe circuits available for external equipment.
- [17] **Special conditions**
None
- [18] **Basic safety and health requirements**
Satisfied through conformance with standards (refer to [9]).

pp.

Freiberg, February 6, 2004

(Signature illegible)

(Dr. Lösch)

Page 3 of 3
IBExU/ATEx 1790

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Date: 26 February 2004



David Allison
Officially appointed and sworn document translator for the English language at the Regional Court of Stuttgart in Baden-Württemberg, Federal Republic of Germany.





CERTIFIED TRANSLATION

IBExU Institut für Sicherheitstechnik GmbH
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[1] **1st Amendment to**

EC TYPE EXAMINATION CERTIFICATE IBExU03ATEX1190

In accordance with Directive 94/9/EC, Annex III

Ex

[2] Equipment: Ex-q Computer with Display Type PCEX 410-**-**

[3] Manufacturer: EXTEC Oesterle GmbH

[4] Address: Schomdorfer Str. 35
D - 73730 Esslingen

[5] **Amendment/modification**

Additional electrical output values are specified for the intrinsically safe US4 output (scanner and similar apparatus).

[6] **Test documentation**

Amendment to PCEX 410 (ID No. 6140 00002548) 4 sheets

[7] **Test results**

The certified electrical values are listed in the Appendix. The verified explosion protection of the computer with display is documented in Test Report IB-04-3-243/C dated July 5, 2004.

All other information contained in the EC Type Examination Certificate is also valid for this amendment.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlengeweg 7 D-09599 Freiberg
Phone: +49 (0)3731 3805-0 Fax: +49 (0)3731 23650

Explosion Protection Certification Body
pp.

Freiberg, July 5, 2004

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(Seal)

(Dr. Lösch) Explosion Protection Certification Body
Identification No. 0637
IBExU Institut für Sicherheitstechnik GmbH

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Appendix (Identification No. 0637)

LEGAL CERTIFICATION

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Appendix
to 1st Amendment to EC PROTOTYPE TEST CERTIFICATE IBExU03ATEX1190

Intrinsically safe circuits with the EEx ib HC type of protection
US4 (KI X3: 3, 5-7)

| U _e [V] | I _e [mA] for P _e = 1.1 W | I _e [mA] for P _e = 1.2 W | I _e [mA] for P _e = 1.3 W | I _e [mA] for P _e = 1.4 W | C _e [µF] | L _e [mH] |
|--------------------|--|--|--|--|---------------------|---------------------|
| 5.2 | 211 | 230 | 250 | 269 | 77 | 0.2 |
| 5.3 | 208 | 226 | 245 | 264 | 8.2 | 0.2 |
| 5.4 | 204 | 222 | 241 | 259 | 8.2 | 0.2 |
| 5.5 | 200 | 218 | 236 | 255 | 8.2 | 0.2 |
| 5.6 | 196 | 214 | 232 | 250 | 8.2 | 0.2 |
| 5.7 | 193 | 211 | 228 | 246 | 8.2 | 0.2 |
| 5.8 | 190 | 207 | 224 | 241 | 8.2 | 0.2 |
| 5.9 | 186 | 203 | 220 | 237 | 8.2 | 0.2 |
| 6 | 183 | 200 | 217 | 233 | 8.2 | 0.2 |
| 6.1 | 180 | 197 | 213 | 230 | 8.2 | 0.2 |
| 6.2 | 177 | 194 | 210 | 226 | 8.2 | 0.2 |
| 6.3 | 175 | 190 | 206 | 222 | 8.2 | 0.2 |
| 6.4 | 172 | 188 | 203 | 219 | 8.2 | 0.2 |
| 6.5 | 169 | 185 | 200 | 215 | 8.2 | 0.2 |
| 6.6 | 167 | 182 | 197 | 212 | 8.2 | 0.2 |
| 6.7 | 164 | 179 | 194 | 209 | 8.2 | 0.2 |
| 6.8 | 162 | 176 | 191 | 206 | 8.2 | 0.2 |
| 6.9 | 159 | 174 | 188 | 203 | 8.2 | 0.2 |
| 7 | 157 | 171 | 186 | 200 | 8.2 | 0.2 |
| 7.1 | 155 | 169 | 183 | 197 | 8.2 | 0.2 |
| 7.2 | 153 | 167 | 181 | 194 | 8.2 | 0.2 |
| 7.3 | 151 | 164 | 178 | 192 | 8.2 | 0.2 |
| 7.4 | 149 | 162 | 176 | 189 | 8.2 | 0.2 |
| 7.5 | 147 | 160 | 173 | 187 | 8.2 | 0.2 |
| 7.6 | 145 | 158 | 171 | 184 | 8.2 | 0.2 |
| 7.7 | 143 | 156 | 169 | 182 | 8.2 | 0.2 |
| 7.8 | 141 | 154 | 167 | 179 | 8.2 | 0.2 |
| 7.9 | 139 | 152 | 165 | 177 | 8.2 | 0.2 |
| 8 | 137 | 150 | 162 | 175 | 8.2 | 0.2 |
| 8.1 | 136 | 148 | 160 | 173 | 4.7 | 0.2 |
| 8.2 | 134 | 146 | 159 | 171 | 4.7 | 0.2 |
| 8.3 | 133 | 145 | 157 | 169 | 4.7 | 0.2 |
| 8.4 | 131 | 143 | 155 | 167 | 4.7 | 0.2 |
| 8.5 | 129 | 141 | 153 | 165 | 4.7 | 0.2 |
| 8.6 | 128 | 140 | 151 | 163 | 4.7 | 0.2 |
| 8.7 | 126 | 138 | 149 | 161 | 4.7 | 0.2 |
| 8.8 | 125 | 136 | 148 | 159 | 4.7 | 0.2 |
| 8.9 | 124 | 135 | 146 | 157 | 4.7 | 0.2 |
| 9 | 122 | 133 | 144 | 155 | 4.7 | 0.2 |

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[1] **2nd Amendment to****EC TYPE EXAMINATION CERTIFICATE IBExU03ATEX1190****Ex**

In accordance with Directive 94/9/EC, Annex III

- [2] Equipment: VISUEX Panel PC Type PCEX ***
- [3] Manufacturer: EXTEC Oesterle GmbH
changed to
Pepperl + Fuchs – EXTEC GmbH
- [4] Address: Schorndorfer Str. 35
D - 73730 Esslingen

[5] **Amendment/modification**

The designation of the device mentioned under [4] of EC type examination certificate IBExU03ATEX1190 dated April 8, 2004 is changed from "Ex-q Computer with Display Type PCEX 410-**-***" to "VISUEX Panel PC Type PCEX ***".

The manufacturer of the device mentioned under [2] has changed.

The permissible ambient temperature range is specified as 0°C to +45°C.

The connection data for US4, US6 and US8 with the **EEx ib IIC type of protection** is changed as follows:

US4 (Kl. X3: 3, 5-7) scanner and EXTEC apparatus

| | | | | |
|-------|--------------|--------------|--------------|--------------|
| U_n | 9,0 V | 9,0 V | 9,0 V | 9,0 V |
| I_n | 0,122 A | 0,133 A | 0,144 A | 0,156 A |
| P_n | Type Z 1,1 W | Type A 1,2 W | Type M 1,3 W | Type S 1,4 W |
| C_n | 4,5 µF | | | |
| L_n | 0,2 mH | | | |

US6 (Kl. X3: 9, 11-15) keyboard and pointing device

| | |
|-------|--------|
| U_n | 6,3 V |
| I_n | 177 mA |
| P_n | 1,14 W |
| C_n | 30 µF |
| L_n | 0,2 mH |

US8 (Kl. X3: 19-21) external USB data circuit

| | |
|-------|--------|
| U_n | 6,3 V |
| I_n | 234 mA |
| P_n | 1,2 W |
| C_n | 30 µF |
| L_n | 0,2 mH |

[6] **Test documentation**

The verified explosion protection of the device mentioned under [2] is documented in Test Report IB-05-3-002 dated April 5, 2005. The design documents are listed in the Test Report.

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[7] **Test results**

A higher power loss is allowed at the maximum ambient temperature of +45°C. All other information and electrical values (with the exception of US4 for "Ex-q Computer with Display Type PCEX 410-**-**" in accordance with the 1st Amendment to EC Type Examination Certificate IBExU03ATEX1190) are also valid for this amendment. The device additionally complies with the dust explosion protection requirements for group II, category 3D (surface temperature T 80°C, degree of protection IP54).

The marking on the device mentioned under [2] must contain the following information:

Ex II 2G EEx qe[ib] IIC T4
0°C ≤ T_a ≤ +45°C

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 D-09599 Freiberg
Phone: +49 (0)3731 3805-0 Fax: +49 (0)3731 23650

- Explosion Protection -
Certification Body

pp.
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(Dr. Lösch)

(Seal)

Explosion Protection Certification Body
Identification No. 0637

Appendix IBExU Institut für Sicherheitstechnik GmbH

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(Identification No. 0637)

Freiberg, April 6, 2005

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[1] **3rd Amendment to**

EC TYPE EXAMINATION CERTIFICATE IBExU03ATEX1190

Ex

In accordance with Directive 94/9/EC, Annex III

- [2] Equipment: VISUEX Panel PC Type PCEX 412
[3] Manufacturer: Pepperl + Fuchs – EXTEC GmbH
[4] Address: Scharndorfer Str. 35
D - 73730 Esslingen

[5] **Amendment/modification**

Additional seals have been used for the housing of the modified version.

[6] **Test documentation**

The verified explosion protection of the device mentioned under [2] is documented in Test Report IB-05-3-185 dated June 10, 2005. The test documents are listed in the Test Report.

[7] **Test results**

The device complies with the dust explosion protection requirements for group II, category 2D. The marking on the device mentioned under [2] must contain the following information:

Ex II 2D IP 65 T 95°C
 $0^{\circ}\text{C} \leq T_a \leq +45^{\circ}\text{C}$

[8] **Safety requirements**

Electrostatic charging mechanisms stronger than manual friction (e.g. cleaning by hand) must be prevented on the user surface of the display panel when the device is in use.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlengeweg 7 D-09599 Freiberg
Phone: +49 (0)3731 3805-0 Fax: +49 (0)3731 23650

Explosion Protection Certification Body

pp.

Freiberg, June 13, 2005

(Signature illegible)

(Seal)

(Dr. Läsch) Explosion Protection Certification Body
Identification No. 0637
IBExU Institut für Sicherheitstechnik GmbH

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Page 1 of 1

3rd Amendment to IBExU03ATEX1190

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Date: 21 June 2005

David Allison
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Worldwide Headquarters

Pepperl+Fuchs GmbH
68307 Mannheim · Germany
Tel. +49 621 776-0
E-mail: info@de.pepperl-fuchs.com

USA Headquarters

Pepperl+Fuchs Inc.
Twinsburg, Ohio 44087 · USA
Tel. +1 330 4253555
E-mail: sales@us.pepperl-fuchs.com

Asia Pacific Headquarters

Pepperl+Fuchs Pte Ltd.
Company Registration No. 199003130E
Singapore 139942
Tel. +65 67799091
E-mail: sales@sg.pepperl-fuchs.com

www.pepperl-fuchs.com

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