BARTEC

ATEX / IECEx Zone 1 and Zone 21

User Manual

POLARIS COMFORT

POLARIS Touch Panel 5.7" to 12.1" Type 17-71V1-....

BARTEC

User Manual - TRANSLATION

POLARIS COMFORT

POLARIS Touch Panels 5.7" / 10.4" / 12.1"

Type 17-71V1-....

ATEX / IECEx

Zone 1 and Zone 21

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BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

Phone: +49 7931 597-0
Fax: +49 7931 597-119

Contact:
support-polaris@bartec.de
Download:
www.bartec.de/automation-download

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1. Basic Safety Instructions

1.1 Notes on this manual

Please read carefully before commissioning the devices.

The user manual is a constituent part of the product. It must be kept in the direct vicinity of the device and accessible at all times to installation, operating and maintenance personnel.

It contains important notes, safety instructions and test certificates which are necessary for perfect functioning when the devices are being operated and handled.

The user manual is written for all people who carry out assembly, installation, commissioning and maintenance work on the product, whereby the directives and standards applicable to areas with a gas or dust atmosphere (99/92/EC, EN 60079-17, EN 60079-19, IEC 60079-17, IEC 60079-19) must be observed when doing such work.

Familiarity with and strict adherence to the safety instructions and warnings in this manual are essential for safe installation and commissioning. Careful handling and consistent observation of these instructions can prevent accidents, personal injuries and damage to property.

The illustrations in these operating instructions serve to make the information and descriptions more clear. They are not necessarily true to scale and may deviate slightly from the actual construction of the device.

Safety instructions and warnings are specially highlighted in this manual and marked by symbols.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

ATTENTION

ATTENTION identifies a potentially damaging situation which, if not avoided, could damage the equipment or something in its environment.

Important instructions and information on effective, economical and environmentally compatible handling.

1.1.1 Languages

The original user manual is written in German. All other available languages are translations of the original user manual.

The user manual is available in German, English and French. If you require any other languages, please ask BARTEC or request them when placing the order.

1.1.2 Changes to the document

BARTEC reserves the right to alter the contents of this document without notice. No guarantee is given for the correctness of the information. In case of doubt, the German safety instructions shall apply because it is not possible to rule out errors in translation or in printing. In the event of a legal dispute, the “General Terms and Conditions” of the BARTEC group shall apply in addition.

The respective up-to-date versions of data sheets, manuals, certificates, EC Declaration of Conformity may be downloaded at www.bartec-group.com under products and solutions in the area “Automatic Technology” or ordered directly from BARTEC GmbH.

1.2 Handling the Product

The product described in these user manual has been tested and left the factory in perfect condition as regards meeting safety requirements. To maintain this condition and ensure that this product operates perfectly and safely, it may be used only in the manner described by the manufacturer. Appropriate transportation, suitable storage and careful operation are also essential for the perfect and safe operation of this product. The POLARIS must be installed properly and securely if it is to work perfectly and correctly.

The safe and perfect mounting of the POLARIS is a precondition for faultless and correct operation.

1.3 Use in Accordance with the Intended Purpose

1.3.1 Exclusive Purpose

It is used exclusively in combination with operating devices which satisfy the requirements for Overvoltage Category I.

The POLARIS COMFORT series have been designed specially for use in hazardous (potentially explosive) areas in Zone 1 or Zones 21.

It is essential to observe the permissible operational data for the device being used.

1.3.2 Improper Use

Any other use is not in accordance with the intended purpose and can cause damage and accidents. The manufacturer will not be liable for any use beyond that of its exclusive intended purpose.

1.4 Owner's/Managing Operator's Obligations

The owner/managing operator undertakes to restrict permission to work with the POLARIS to people who:

- are familiar with the basic regulations on safety and accident prevention and have been instructed in the use of the POLARIS;
- have read and understood the documentation and the chapter on safety and the warnings.

The owner/managing operator must check that the safety regulations and accident prevention rules valid for the respective application are being observed.

1.5 Safety Instructions

1.5.1 General Safety Instructions

- Take the device out of the hazardous area before wiping it with a dry cloth or cleaning it!
- Do not open devices in a hazardous area.
- The general statutory regulations or directives relating to safety at work, accident prevention and environmental protection legislation must be observed, e.g. the German industrial health and safety ordinance (BetrSichV) or the applicable national ordinances.
- In view of the risk of dangerous electrostatic charging, wear appropriate clothing and footwear.
- Avoid the influence of heat that is higher or lower than the specified temperature range.
- Protect the device from external influences! Do not expose the device to any caustic/aggressive liquids, vapours or mist! In the event of malfunctioning or damage to the enclosure, take the device out of the potentially explosive area immediately and bring it to a safe place.

1.6 Safety Instructions for Operation

1.6.1 Upkeep

For electrical systems the relevant installation and operating regulations must be complied with (e.g. Directive 99/92/EC, Directive 94/9/EC and the national applicable ordinances IEC 60079-14 and the DIN VDE 0100 series)!

The disposal of this equipment must comply with the national regulations on the disposal of waste.

1.6.2 Maintenance

Regular servicing is not necessary if the equipment is operated correctly in accordance with the installation instructions and environmental conditions. In this context, please refer to Chapter "Maintenance, Inspection, Repair".

1.6.3 Inspection

Under IEC 60079-19 and EN 60079-17, the owner/managing operator of electrical installations in hazardous areas is obliged to have these installations checked by a qualified electrician to ensure that they are in a proper condition.

1.6.4 Repairs

Repairs on explosion-protected operating equipment may be done only by authorised persons working in accordance with the latest developments in technology and using original spare parts. The applicable regulations must be observed.

1.6.5 Commissioning

Before commissioning, check that all components and documents are there.

1.7 Ex Protection Type, Certification and Standards

Markings specifying Ex protection and certification are put on the device. For Ex protection markings, see Chapter 3 "Technical Data".

The POLARIS COMFORT series conform to Directive 94/9/EC for devices and protective systems for use to their intended purpose in potentially explosive areas (ATEX Directive). For the standards conformed to, see Chapter 3 "Technical Data".

1.8 Warranty

⚠ WARNING

It is not permissible to make any modifications or implement any conversions unless the manufacturer gives his approval in writing.

If components other than those specified are used, protection against explosion can no longer be assured. It cannot be guaranteed that parts procured from other suppliers have been designed and produced in conformance to safety requirements and with the necessary stress tolerance.

▶ Contact the manufacturer to obtain approval before making any modifications or conversions. Use only original spare parts and original expendable parts.

The manufacturer grants a complete warranty only and exclusively for the spare parts ordered from him, the manufacturer.

As a fundamental rule, our “General Conditions of Sale and Delivery” apply. These are made available to the owner/managing operator at the latest on formation of a contract. Guarantee and liability claims for personal injury and damage to property are excluded if they are due to one or more of the following reasons:

- Use of the POLARIS for a purpose other than that for which it is intended.
- Incorrect installation, commissioning, operation and maintenance.
- Non-compliance with the instructions in the manual with respect to transport, storage, assembly, installation, commissioning, operation and maintenance.
- Structural modifications without our prior authorisation.
- Inadequate monitoring of components that are subject to wear
- Repairs done incorrectly.
- Disasters due to the effects of foreign matter or Act of God (events outside human control).

We guarantee the POLARIS and its accessories for a period of 1 year starting on the date of delivery from the Bad Mergentheim factory. This guarantee covers all parts of the delivery and is restricted to the replacement free of charge or the repair of the defective parts in our Bad Mergentheim factory. As far as possible, the delivery packaging should be kept for this purpose. In the event of such a claim, the product must be returned to us after written arrangement. The customer cannot claim to have the repairs done at the site of installation.

2. Product Description

2.1 Definition

All POLARIS COMFORT Touch Panels have high-resolution displays and touch screens as standard. They not only offer the utmost in operating comfort, they can also be ideally integrated into any application.

Even in poor lighting conditions or at unfavourable viewing angles, state-of-the-art LED display technology assures an exceptionally brilliant image quality.

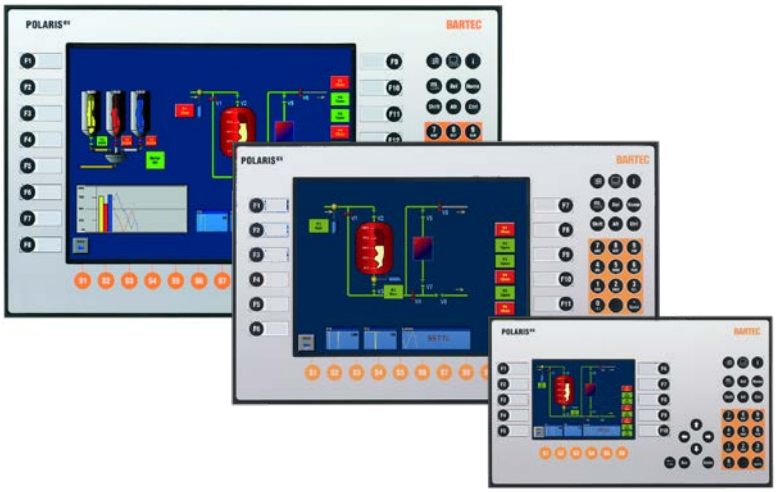


Illustration 1: POLARIS COMFORT - Series

The POLARIS COMFORT series works with the new generation of BARTEC BMS-Graf-pro 7.x.x.x visualisation software. It has sufficient processing power to comfortably manage all tasks such as image presentation, communication for controlling, and the transfer of projects through Ethernet.

Illustration 2: "BMS-Graf-pro Version 7" visualization software

The project files can be transferred through the Ethernet connection or by means of the Ex i version of BARTEC´s USB memory flash drive. Alternative possibilities are the presentation of HTML pages or the use as a remote client.

Illustration 3: Ex i USB memory stick

A direct connection to the control or to the process control system is possible through Ethernet, PROFIBUS-DP or serial COM interfaces. A finger mouse, trackball, touchpad and joystick are available as options.

Standard assembly of the POLARIS COMFORT series is mounting on the front panel which can be performed quickly and easily. On request we also supply the POLARIS COMFORT series as a turn-key system solution in a stainless steel enclosure for wall and floor mounting. Customised designs are possible on request.

Illustration 4: Types of enclosure

2.2 Schematic diagram

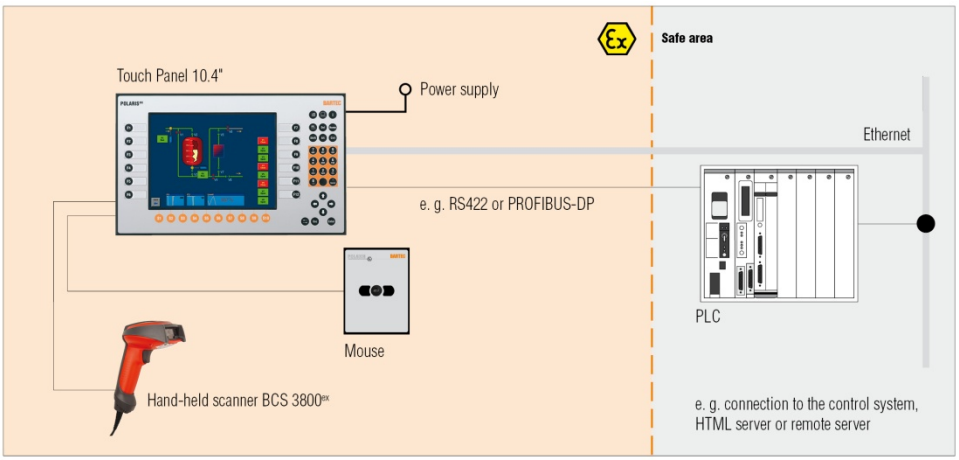


Illustration 5: Simple set-up

3. Technical Data

3.1 POLARIS Touch Panels

3.1.1 Explosion Protection

Type	17-71V1-....
Ex protection type ATEX	II 2G Ex eb qb [ib op pr] IIC T4 bzw. II 2G Ex db eb qb [ib op pr] IIC T4 II 2D Ex tb IIIC T120° -20 °C ≤ Ta ≤ 60 °C
Certification	IBExU 05 ATEX 1117 X
Standards	EN 60079-0:2009 EN 60079-1:2007 EN 60079-5:2007 EN 60079-7:2007 EN 60079-11:2012 EN 60079-28:2007 EN 60079-31:2009
Ex protection type IECEx	Ex db eb qb [ib] IIC T4 Ex tb IIIC T120°C IP6X
Certification	IECEx IBE 11.0007X
Standards	IEC 60079-0:2007 Edition: 5 IEC 60079-1:2003 Edition: 5 IEC 60079-5:2007-03 Edition: 3 IEC 60079-7:2006-07 Edition: 4 IEC 60079-11:2011-06 Edition: 6 IEC 60079-31:2008 Edition: 1
Directives	94/9/EG 2004/108/EG
Product marking	CE 0044
Further test certificates Brazil Russia Belarus India	 - 11/UL-BRHZ-0131X - GOST R POCC DE.ME92.B02509 - PPC 00-37280 - GOSPROMNADZOR 11-02-0015-2012 - CCEs P261984

3.1.2 Electrical Data

Supply voltage	DC 24 V ± 10 % Terminals X10-X12
Ethernet (10 BaseT)	Terminals X13-X16
COM interface	Terminals X17-X26

Intrinsically safe data and supply circuits

Hand-held scanner	U_0	5,5 V
	I_0	440 mA
	P_0	1.25 W
Terminal X1-X3	R_i	25 Ω
	C_0	55.8 µF
	L_0	0.2 mH

Input devices	U_0	6.0 V
	I_0	2.29 A
	$I_{stationary}$	0.16 A
Terminal X4-X9	P_0	0.20 W
	C_0	40 µF
	L_0	5 µH

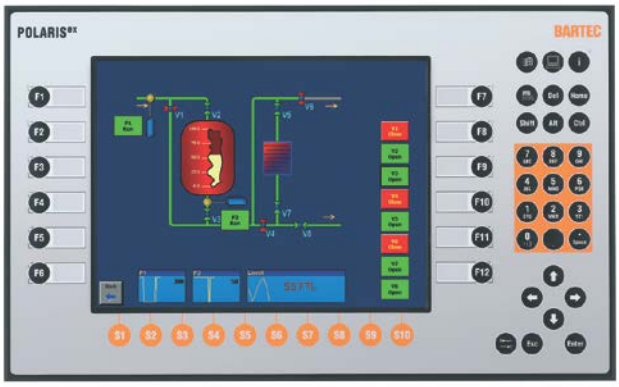
3.1.3 General Data

Construction	Front panel fitting optional turn-key system solutions in a stainless steel enclosure as floor or wall mounting.
Display	TFT colour display
Touch screen	Resistive touch
Backlighting	LED technology Service life approx. 50,000 hours (at +25 °C)
Computer capacity	LX800 Prozessor, 500 MHz Compact Flash 4 GB
Operating system	Windows® XP Embedded (pre-installed) Note: protected by EWF e.g. Built 008
Interface (basic version)	1 x Ex e Ethernet 100/10BaseT (optional LWL) 1 x Ex e RS422 1 x Ex i USB for Ex i memory stick 1 x Ex i for PS/2 for intrinsically safe mouse
Interface (optional)	only POLARIS Touch Panel 10.4" and 12.1" 1 x Ex i Supply module for hand-held scanner
Permissible ambient temperature Storage/Transport Operation	 -20 °C to +50 °C 0 °C to +50 °C (optional -20 °C to +50 °C)
Relative air humidity	5 to 95 % non-condensing
Vibration	0.7 g/1 mm; 5 Hz-500 Hz pulse in all 3 axes
Shock	15 g, 11 ms pulse in all 3 axes
Material Front Rear panel	 Polyester foil on anodised aluminium plate (conditionally UV-resistant) galvanised sheet steel, bichromated
Protection class Front Rear site	 IP65 IP54

3.1.4 Characteristics POLARIS Touch Panel 5.7"

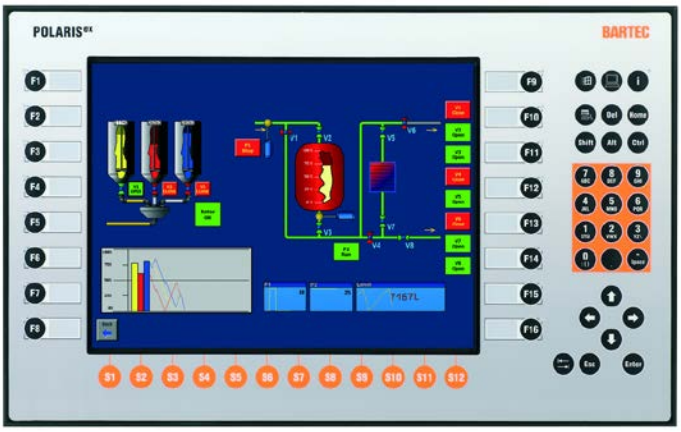
Display	– 5.7" graphics-capable TFT colour display – VGA resolution 640 x 480 pixels – 262,144 colours – Brightness 700 cd/m^2 – Visible surface approx. 115 x 86 mm – Contrast 800:1
Keyboard (short-stroke keys)	– Alphanumeric key block – 4 cursor keys – 6 special keys – 10 function keys able to be labelled with LEDs
Max. power consumption	P_{max} <30 W
Dimensions (width x height x depth)	335 mm x 199 mm x 130 mm
Wall cut-out (width x height)	321 mm x 179 mm ± 0,5 mm
Weight	approx. 10 kg

3.1.5 Characteristics POLARIS Touch Panel 10.4"



Display	– 10.4" graphics-capable TFT colour display – SVGA resolution, 800 x 600 pixels – 262,144 colours – Brightness 400 cd/m² – Visible surface approx. 211 x 158 mm – Contrast 700:1
Keyboard (short-stroke keys)	– Alphanumeric key block – 4 cursor keys – 10 special keys – 12 function keys able to be labelled with LEDs
Max. power consumption	P_{max} <30 W
Dimensions (width x height x depth)	400 mm x 246 mm x 130 mm
Wall cut-out (width x height)	386 mm x 226 mm ± 0.5 mm
Weight	approx. 14 kg

3.1.6 Characteristics POLARIS Touch Panel 12.1"



Display	– 12.1" graphics-capable TFT colour display – XGA resolution, 1024 x 768 pixels – 262,144 colours – Brightness 500 cd/m² – Visible surface approx. 246 x 184 mm – Contrast 700:1
Keyboard (short-stroke keys)	– Alphanumeric key block – 4 cursor keys – 12 special keys – 16 function keys able to be labelled with LEDs
Max. power consumption	P_{max} <35 W
Dimensions (width x height x depth)	440 mm x 275 mm x 130 mm
Wall cut-out (width x height)	425 mm x 255 mm ± 0.5 mm
Weight	approx. 18 kg

3.2 Finger mouse, Trackball, Touchpad and Joystick

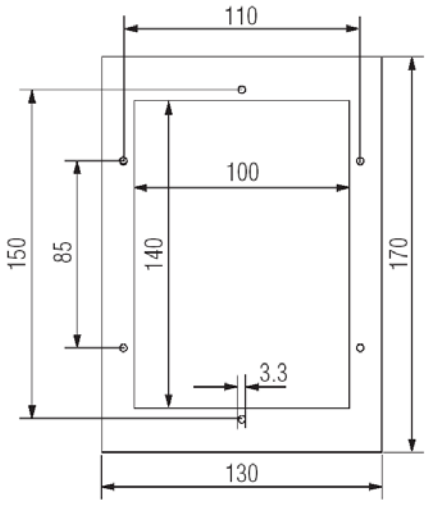
3.2.1 Explosion Protection

Ex protection type ATEX	II 2G Ex ib IIC T4 II 2D Ex ib IIIC T120°C -20 °C ≤ Ta ≤ 60 °C
Certification	IBExU 05 ATEX 1117 X
Standards	EN 60079-0:2009 EN 60079-11:2012 EN 60079-31:2009
Ex protection type IECEx	Ex ib IIC T4 Ex ib IIIC T120°C IP6X
Certification	IECEx IBE 11.0007X
Standards	IEC 60079-0:2007 Edition: 5 IEC 60079-11:2011-06 Edition: 6 IEC 60079-31:2008 Edition: 1

3.2.2 General Data

Construction	Front panel fitting
Material	Polyester foil on aluminium sheet (conditionally UV-resistant)
Protection class (front site)	IP65
Dimensions (width x height)	130 mm x 170 mm
Wall cut-out (width x height)	100 mm x 140 mm

Dimensions and wall cut-out (mm)



All hole diameter: 3.3 mm

Finger mouse

Type	17-71VZ-1000
Installation depth	15 mm
Weight	approx. 270 g

Touchpad

Type	17-71VZ-2000
Installation depth	15 mm
Weight	approx. 250 g

Trackball

Type	17-71VZ-3000
Installation depth	43 mm
Weight	approx. 500 g

Joystick without button

Type	17-71VZ-8000
Installation depth	43 mm
Weight	approx. 500 g

Joystick with button

Type	17-71VZ-9000
Installation depth	43 mm
Weight	approx. 500 g

3.3 Ex i Memory Stick

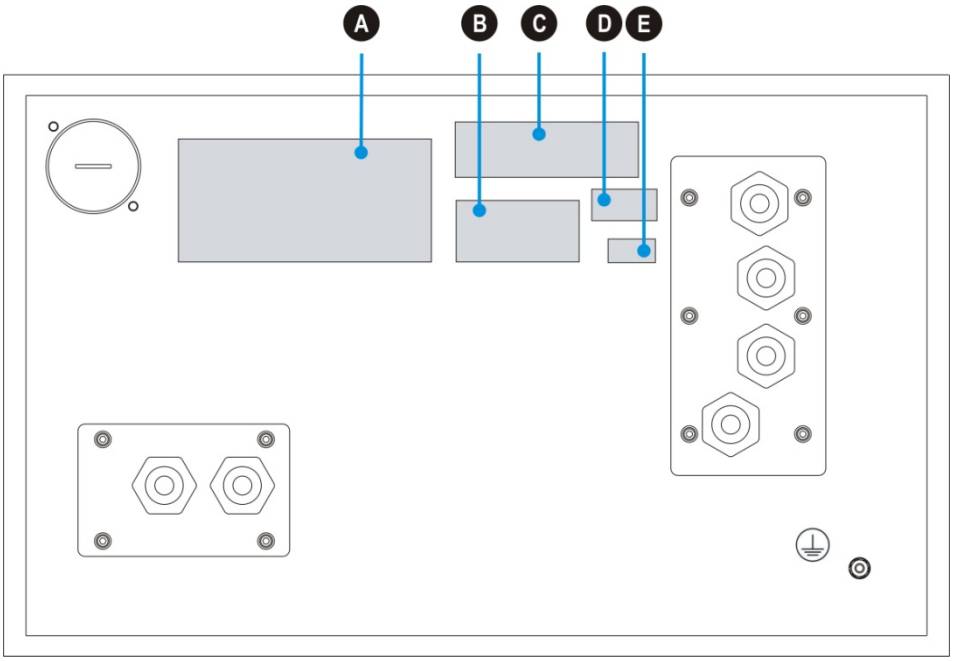
3.3.1 Explosion Protection

Type	17-71VZ-5000/0100
Ex protection type ATEX	II 2G Ex ib IIC T4 -20 °C ≤ Ta ≤ 60 °C
Certification	IBExU 05 ATEX 1117 X
Standards	EN 60079-0:2009 EN 60079-11:2012
Ex protection type IECEx	Ex ib IIC T4
Certification	IECEx IBE 11.0007X
Standards	IEC 60079-0:2007 Edition: 5 IEC 60079-11:2011-06 Edition: 6

3.3.2 General Data

Product type	USB flash drive
Storage capacity	4 GB
Dimensions (length x width x depth)	approx. 92 mm x 22 mm x 7.2 mm
Weight	28 g
Enclosure material	Anodised aluminium
Use	Data backup and Ex i recovery stick

3.4 Product Labelling



A Example: Type label with label ATEX and IECEx	CE 0044 POLARIS Typ 17-71V IBExU 05 ATEX 1117 X II 2 G / II 2 D Ex eb qb [ib] IIC T4 Ex tb IIIC T120°C IP6X IECEx IBE 11.0007X 0°C ≤ Ta ≤ +50°C DC 24 V BARTEC 97980 Bad Mergentheim / Germany S/N: Version: elektrische Daten siehe Baumusterprüfbescheinigung *electrical data see EC-type examination certificate*
B Type label with label INMETRO	Segurança INMETRO BARTEC 97980 Bad Mergentheim / Germany 11/UL-BRHZ-0131X ATENÇÃO - NÃO SEPARE QUANDO ENERGIZADO ATENÇÃO - ESTE INVÓLUCRO VEM SELADO DA FÁBRICA. NÃO ABRA.
C Warnings on the device	Dieses Gehäuse ist werksseitig verschlossen. Nicht öffnen! Cette enveloppe est scellée en usine. Ne pas l'ouvrir! This enclosure is factory sealed. Do not open!
D Test sticker	Ex geprüft A 0712
E Licence sticker	Windows® XP Pro for Embedded Systems OEM Software Product Key Microsoft

4. Transport und Assembly

4.1 Transport

A written report of any transport damage or missing items must be given to the appointed forwarder and to BARTEC GmbH immediately on receipt of the delivery.

Damage caused by incorrect storage and transport shall not fall within the warranty provisions of BARTEC GmbH.

CAUTION

This device is heavy (10-18 kg).
There is a risk of injury if it is lifted or moved incorrectly.

- ▶ You will need help from others when transporting it.

4.2 Intermediate Storage

ATTENTION

Damage to property through incorrect storage!

- ▶ Comply with the correct storage temperatures.
- ▶ Keep the POLARIS free of moisture.

4.3 Assembly

Before assembling the device, make sure you have all the components and documents.

Scope:	1 x POLARIS Touch Panel 1 x Reinforcement frame 1 x Set of mounting clamps 1 x User manual POLARIS COMFORT – Touch Panel	
Optional:	Enclosure and supporting system for floor and wall mounting	
Not enclosed:	Assembly material and cable for voltage supply and data line	
Required Tools:	POLARIS (mounting clamps)	1 x hex key 3 mm 1 x slotted screwdriver
	POLARIS termination compartments	1 x hex key 2.5 mm 1 x slotted screwdriver
	POLARIS PE connection	1 x ring spanner 7 mm

4.3.1 Installation options

The POLARIS can be installed directly in:

- Enclosures
- Switch cabinet doors
- Operating consoles

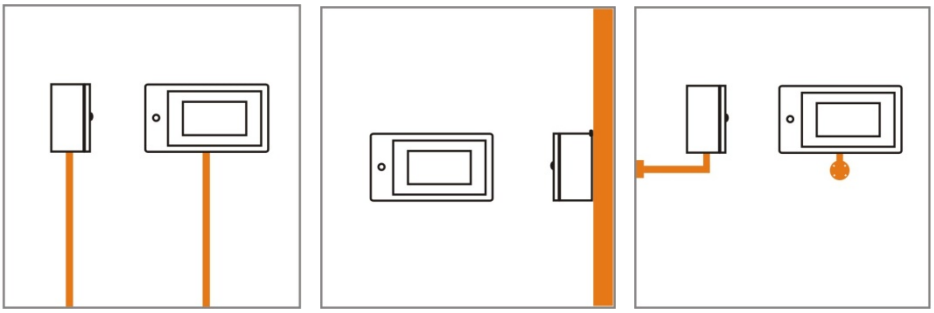


Illustration 6: Examples of floor and wall mounting

5. Installation

We recommend setting up and testing the entire system before its ultimate installation in the ex-area.

DANGER

Electrostatic charging through a stream of particles.

There is a risk of fatal injury in an explosive atmosphere!

- ▶ Make sure there are no highly energetic charging mechanisms at the user interface on the display unit or its accessories.
- ▶ Do not install the device in the stream of particles.

DANGER

No PE connection. Risk of fatal injury in an explosive atmosphere!

- ▶ The POLARIS must be integrated in the equipotential bonding.

The POLARIS COMFORT series is approved for an ambient temperature of from 0 °C to +50 °C or from -20 °C to +50 °C and a relative air humidity of from 5 to 95 % non-condensing.

5.1 Requirements

- The place where the POLARIS is installed must have sufficient mechanical stability/fastening.
- The enclosure intended for accommodating the POLARIS must be designed to bear the device's weight.
- If a supporting system is used, the surface underneath and the means of fastening the supporting system must be designed to bear the weight of the POLARIS Touch Panel.
- Choose the optimum height for operating the POLARIS.
- Ensure good lighting conditions for a perfectly legible display (no direct exposure to the sun's rays).
- Do not mount in direct proximity to switching or current changing devices.
- The POLARIS must be heated when at temperatures below 0°C. We furthermore recommend protecting the display from the cold, e.g. with a door on the front of the enclosure.
- The POLARIS should be heated when at temperatures below +10 °C to avoid the service life of the backlighting being curtailed.
- Only install the POLARIS in conjunction with the reinforcement frame in an IP65 enclosure. Failure to comply with this can lead to water penetrating and damaging the device.

Outdoor installation

ATTENTION

Damage to the formation of condensation or from overheating!

- ▶ Avoid direct sunlight!
  Remedy: e.g. shelter with sufficient air circulation.
- ▶ Remove condensation on the POLARIS immediately.
- ▶ A POLARIS built into an enclosure must be heated and not removed from the mains.
- ▶ Equip the protective housing with breather.

5.2 Mechanical Installation

CAUTION

This device is heavy (10-18 kg).
Risk of injury if lifted or moved incorrectly.

- ▶ Two people are needed for mounting/dismounting the device.

Only qualified personnel, i.e. trained skilled specialists will have the necessary specialised know-how to be able to perform all the mechanical work. Familiarity with and the technically perfect implementation of the safety instructions described in this manual are preconditions for safe installation and commissioning.

DANGER

Sealed crew plug! The device is closed in the factory.

The explosion protection is lost if opened, and there is a risk of fatal injury in an explosive atmosphere!

- ▶ Do not open the crew plug!

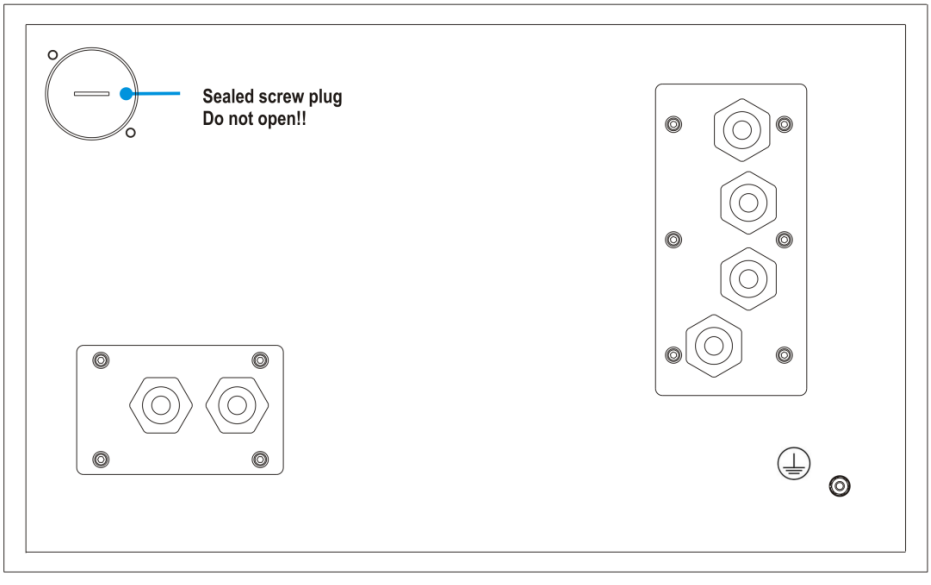


Illustration 7: Rear panel POLARIS

5.2.1 Installation in 2G/3D enclosure

In order to guarantee the IP degree of enclosure protection = IP54 for installation in 2G enclosures of Ex e type of protection (e.g. control equipment), and = IP6X for installation in 2D enclosures in areas where combustible dusts exist - with “protection through the enclosure” type of protection - the reinforcement frame should be used for fastening on the front side.

A reinforcement frame is inserted between the retaining brackets and the enclosure material for good transmission of the clamping force. This ensures even transmission of force.

⚠ DANGER

If there is no reinforcement frame, it will not be possible to maintain the IP protection. There is a risk of fatal injury in an explosive atmosphere!

- ▶ Only use enclosure with at least 2 mm wall thickness.
- ▶ Insert the reinforcement frame between the holder and the enclosure.

Reinforcement frame for maintenance of Protection Class IP65	
POLARIS 5.7"	05-0205-0006
POLARIS 10.4"	05-0205-0008
POLARIS 12.1"	05-0205-0007

Work steps:

– Insert the POLARIS into the cut-out in the enclosure.

– From the back, place the reinforcement frame over the POLARIS.

– Use screws to fasten all mounting clamps onto the POLARIS and tighten the clamping screws evenly.

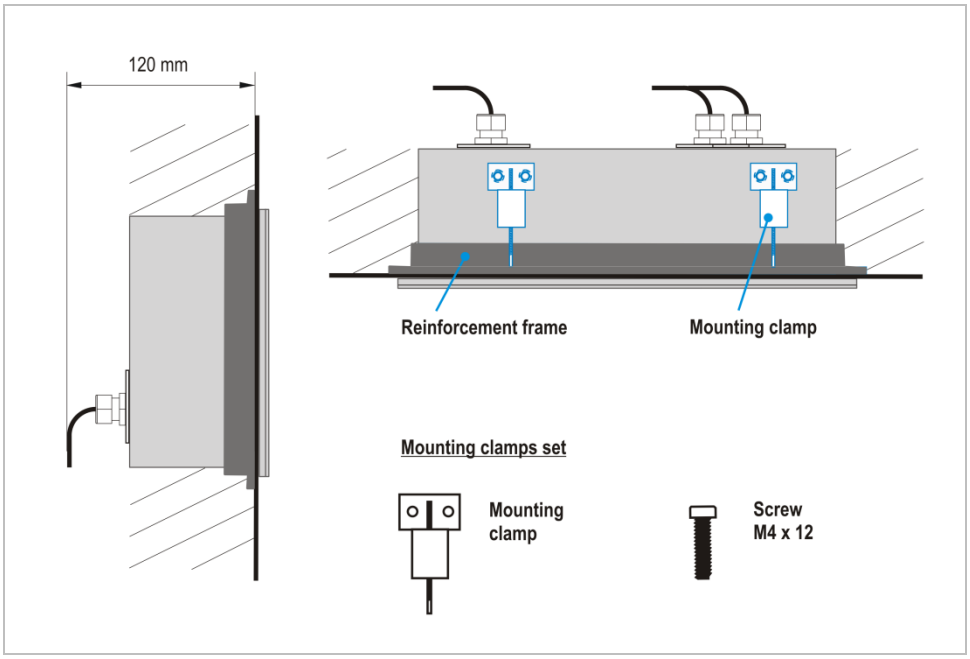


Illustration 8: Minimum installation depth and mounting reinforcement frame

5.2.2 Installation as a System Solution in the Stainless Steel Enclosure

The POLARIS is available as turn-key system solution in a stainless steel enclosure for floor or wall mounting.

Stainless steel enclosure "Standard" for floor and wall mounting	
Type	Dimensions (Width x Height x Depth)
POLARIS 5.7"	500 mm x 280 mm x 200 mm
POLARIS 10.4"	560 mm x 320 mm x 200 mm
POLARIS 12.1"	600 mm x 350 mm x 200 mm

Work steps for floor mounting:

– Prepare supply and data line(s).
– Prepare installation on the basis of the drilling template (see Illustration 9).
– Install supply and data line(s) in the base.
– Attach base to the floor using suitable material.
– Pull supply and data line(s) through the cable glands provided into the enclosure. Ensure there is sufficient length.
– Mount the enclosure on the base.
– Open the enclosure and wire according to the terminal assignment.

For POLARIS built into the enclosure door:

The open door must be supported and secured during the installation and servicing phase. Otherwise the wall thickness specified may lead to the door sagging slightly when open.

– Close the enclosure door.

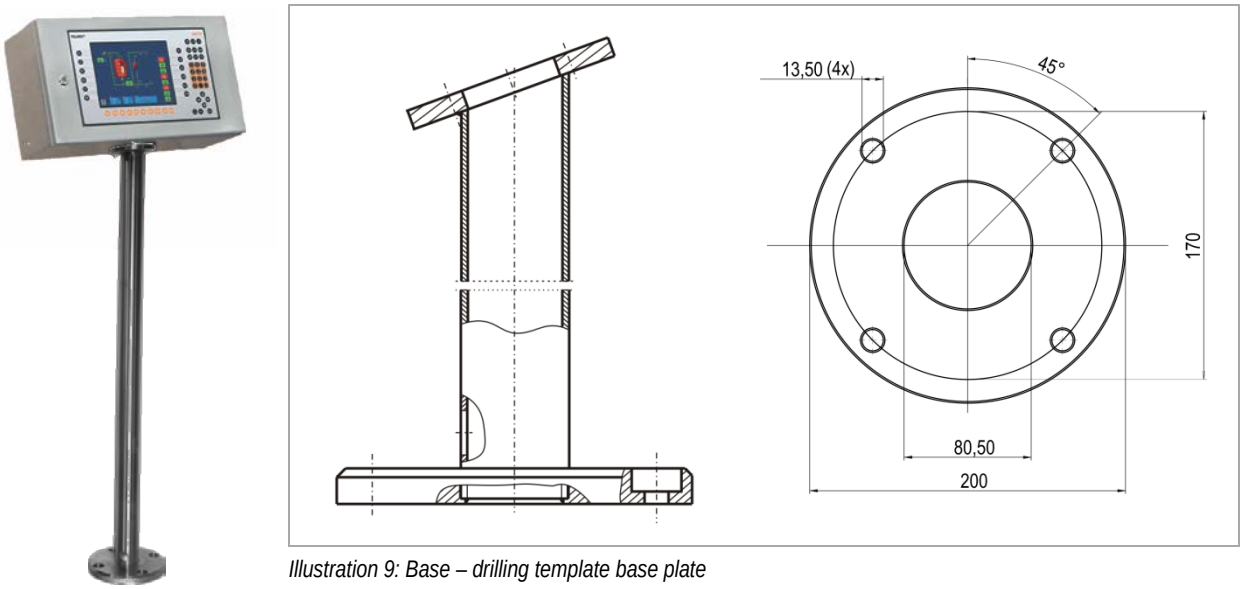


Illustration 9: Base – drilling template base plate

Work steps for wall mounting:

– Prepare supply and data line(s).
– Prepare installation on the basis of the drilling template (see Illustration 10).
– Attach POLARIS to the wall.
– Pull supply and data line(s) through the cable glands provided into the enclosure. Ensure there is sufficient length
– Open the enclosure and wire according to the terminal assignment.

The open door must be supported and secured during the installation and servicing phase. Otherwise the wall thickness specified may lead to the door sagging slightly when open.

– Insert the supply and data line(s) through the cable glands and connect up. Close unused cable glands with blanking plugs.
– Close the enclosure door.

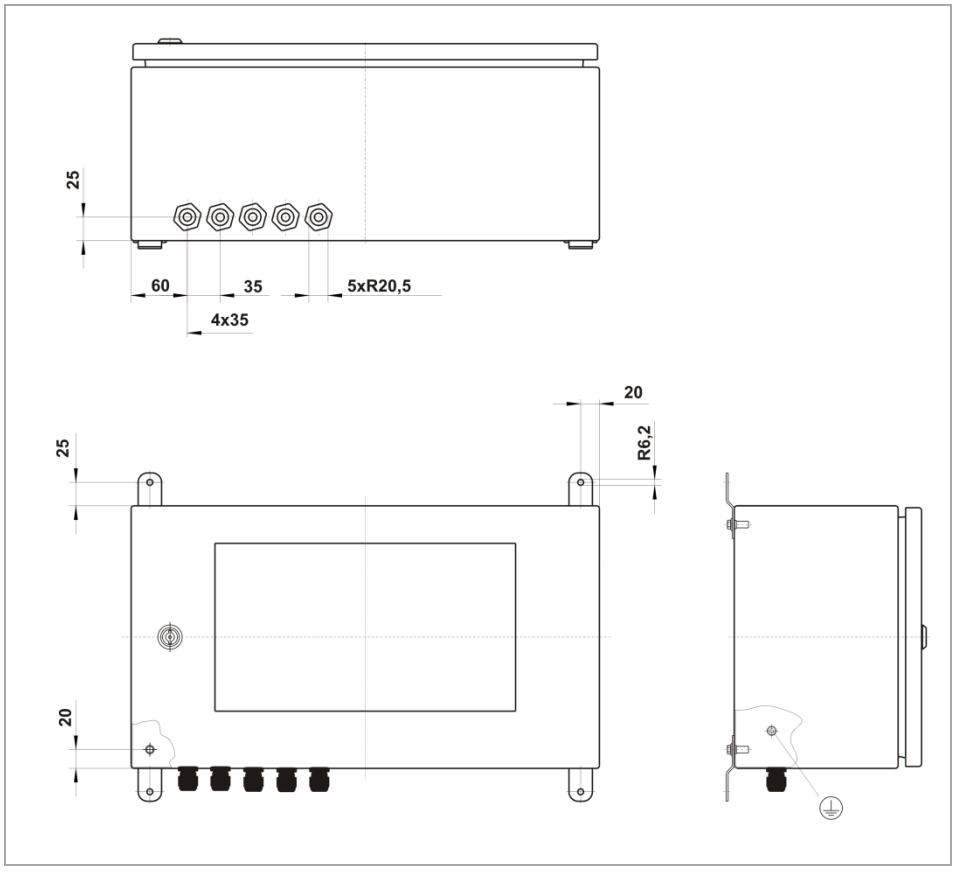


Illustration 10: Wall mounting – dimensions of mounting straps

5.3 Electrical Installation

5.3.1 Installation guidelines

Only qualified personnel, i.e. trained electricians will have the required specialised knowledge to be able to do all the electrical work.

Familiarity with and the technically perfect implementation of the safety instructions described in this manual are preconditions for safe installation and commissioning.

- The user may do only the wiring at the terminals that are accessible to him/her (Ex i and Ex e terminal compartment).
- Any unused cable glands on the Ex e terminal compartment should be closed using an approved blanking plug.
- More extensive dismantling work on the device may be done only by the manufacturer or by persons authorised by the manufacturer for this purpose. The device is factory-sealed. Never open it!
- The equipotential bonding connection point must be connected to the equipotential bonding conductor in the hazardous area. Since the intrinsically safe circuits are galvanically connected to earth, equipotential bonding is required throughout the entire installation of the intrinsically safe circuits.
- The safety and accident prevention regulations applicable to the respective individual case must be observed.
- Devices must be properly installed first before they may be operated.
- It must be possible at all times to disconnect the devices from the voltage supply (in fixed installations by means of an all-pole mains isolating switch or fuse).
- It must be ensured that the supply voltage agrees with the specifications in this user manual and the tolerances must be observed. Use smoothed direct current.
- Malfunctioning cannot be ruled out if levels exceed or drop below the specified tolerances.
- If there is a power failure or if the power supply is interrupted, make sure the system has not been put into a dangerous, undefined condition.
- EMERGENCY STOP mechanisms must remain effective throughout all modes and states of operation.
- Connection cables (particularly data transmission cables) must be selected and laid in a way that ensures that capacitive and inductive interference will not have any adverse effect on the equipment. Appropriate measures must be taken to handle line interruptions to prevent any undefined states occurring.
- Wherever malfunctioning can cause material damage or personal injuries, additional external safety circuits must be provided (e.g. limit switch, mechanical interlocking devices etc.).

5.4 Terminal Compartments

DANGER

Sealed screw plug! The device is closed in the factory.

The explosion protection is lost if opened, and there is a risk of fatal injury in an explosive atmosphere!

▶ Do not open the crew plug!

DANGER

Non-certified cable glands and non-sealed cable entries endanger the IP protection and accordingly the protection against explosions.
There is a risk of fatal injury in an explosive atmosphere!

▶ Use Ex-certified cable glands.
▶ Close non-sealed cable entries.

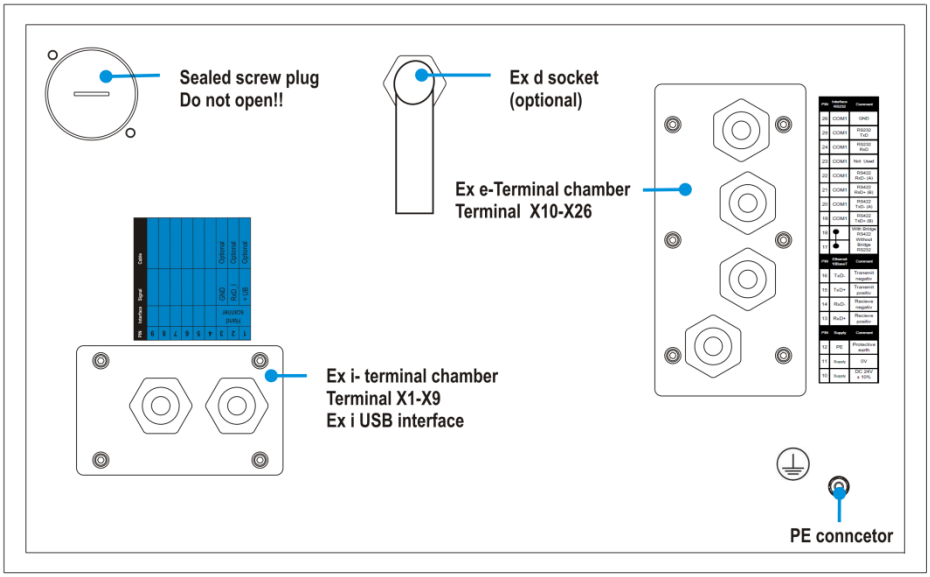


Illustration 11: Pin assignment POLARIS

5.5 Ex e Terminal Compartments

5.5.1 Cable entries

When connecting cables and leads to supplies / communications equipment in increased safety protected areas, Ex certified cable entries must be used which are suitable for each type of cable and lead. You must maintain the protection concept “e” and include a suitable sealing element so that an IP rating of at least IP 54 is maintained.

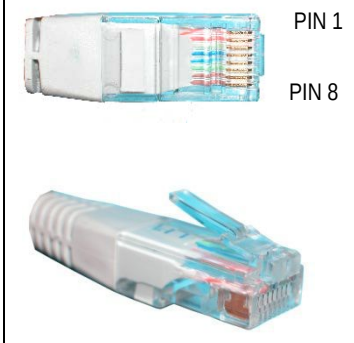
5.5.2 Supply voltage terminal assignment

Mains Connection Variant DC 24 V			
Terminal	Interface	Signal	Remarks
X10	Supply	+	DC 24 V ± 10 %
X11	Supply	-	0 Volt
X12	Supply	PE	Protective earth

5.5.3 Ethernet Terminal Assignment

Configuration Ethernet 10BaseT			
Terminal	Interface	Signal	Remarks
X13	Ethernet	RxD +	100/10 BaseT Receive positive
X14	Ethernet	RxD -	100/10 BaseT Receive negative
X15	Ethernet	TxD +	100/10 BaseT Transmit positive
X16	Ethernet	TxD -	100/10 BaseT Transmit negative

Assignment RJ45 plug for Ethernet to POLARIS Touch Panel terminal block

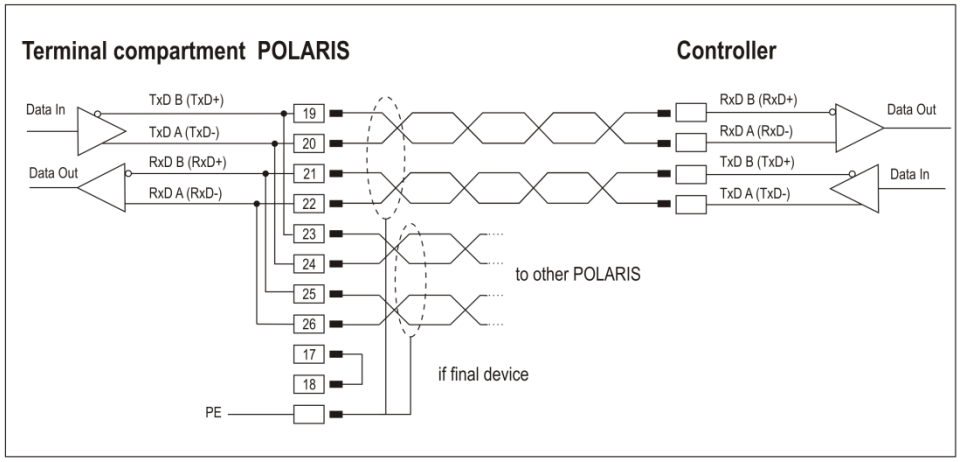


Connection RJ45		POLARIS
PIN	Signal	Terminal
1	TX+	X13
2	TX-	X14
3	RX+	X15
4	not used	
5	not used	
6	RX-	X16
7	not used	
8	not used	

5.5.4 RS422 Interface

Configuration RS422				
Terminal	Interface	Signal	Remarks	
X17 X18	Termination On/Off		Jumper between terminal X17 and X18 for activation of the terminator resistors	
X19	Interface COM 1	TxD B (TxD+)	Transmission cable	Input
X20	Interface COM 1	TxD A (TxD-)	Transmission cableI	Input
X21	Interface COM 1	RxD B (RxD+)	Receiving cable	Input
X22	Interface COM 1	RxD A (RxD-)	Receiving cable	Input
X23	Interface COM 1	TxD B (TxD+)	Transmission cable	Output
X24	Interface COM 1	TxD A (TxD-)	Transmission cable	Output
X25	Interface COM 1	RxD B (RxD+)	Receiving cable	Output
X26	Interface COM 1	RxD A (RxD-)	Receiving cable	Output

RS422 connection mode (full duplex)



▶ Maximum length of the data line 1,000 m.

Pins 19-23, 20-24, 21-25, 22-26 are already connected inside.

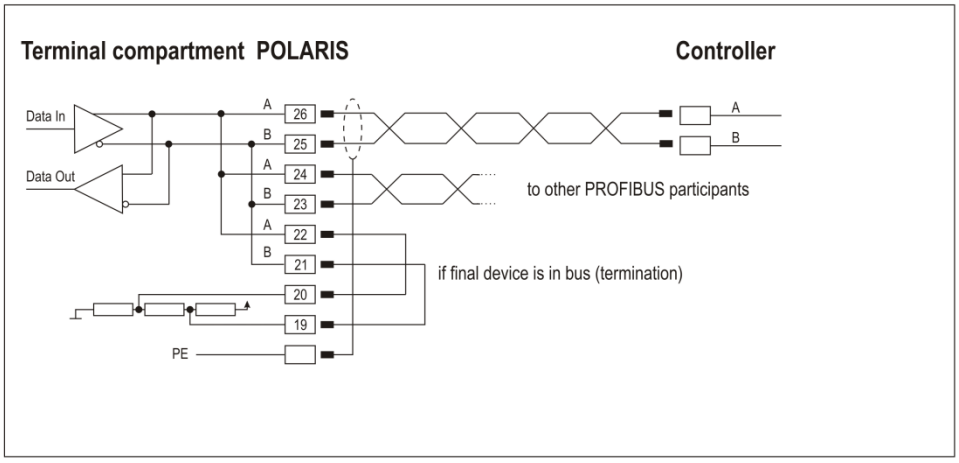
Setting of the terminal resistors at the start and end of the bus line is not necessary in most cases due to internal EMC measures. Depending on local circumstances, the data transmission may worsen in individual cases.

The appropriate pin assignment of the controller can be found in the manufacturer's interface description.

5.5.5 PROFIBUS-DP interface (optional)

Configuration PROFIBUS-DP			
Terminal	Interface	Signal	Remarks
X17	not connected		
X18	not connected		
X19	Interface COM 1	Termination B2	Bridge for terminating network (B1-B2)
X20	Interface COM 1	Termination A2	Bridge for terminating network (A1-A2)
X21	Interface COM 1	Termination B1	Bridge for terminating network (B1-B2)
X22	Interface COM 1	Termination A1	Bridge for terminating network (A1-A2)
X23	Interface COM 1	Out B	Signal B Output
X24	Interface COM 1	Out A	Signal A Output
X25	Interface COM 1	In B	Signal B Input
X26	Interface COM 1	In A	Signal A Input

Connection of a controller via the PROFIBUS-DP interface of the POLARIS.



▶ Maximum line length: see PNO specification.

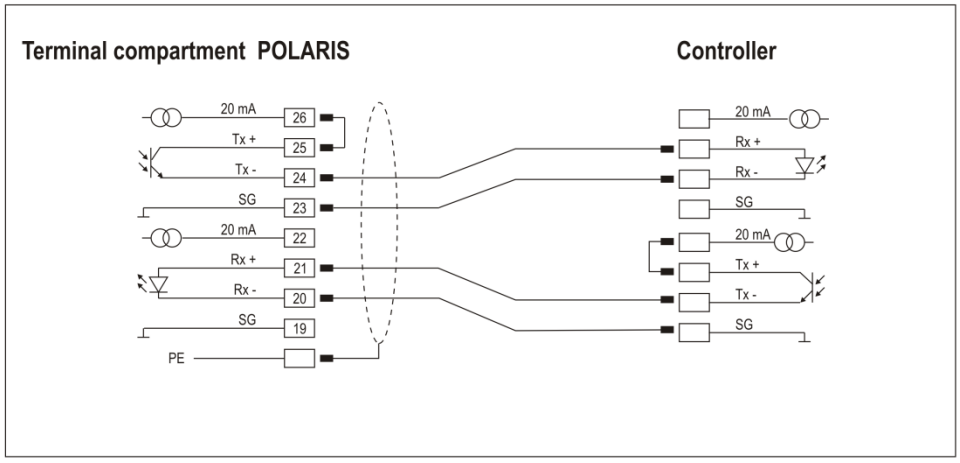
Pins 26-24-22, 25-23-21 are already connected inside.

See the interface description from the controller manufacturer for the relevant pin assignment of the controller.

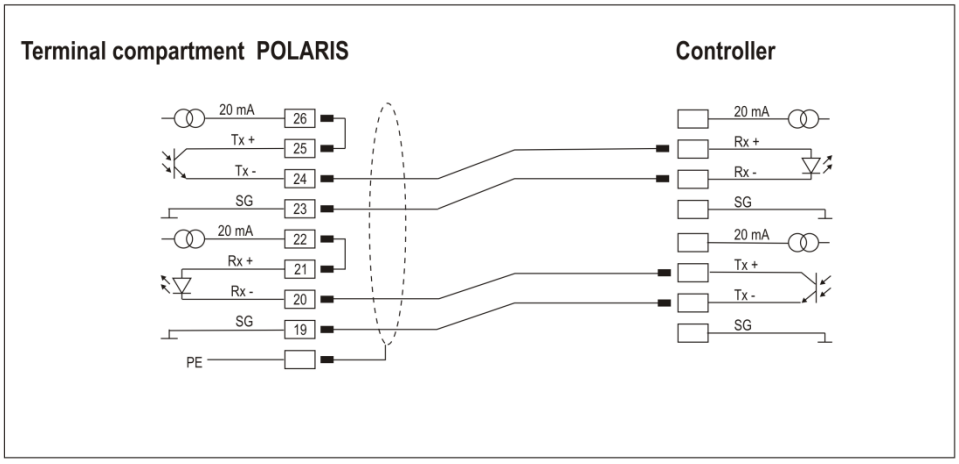
5.5.6 TTY interface (optional)

Configuration TTY			
Terminal	Interface	Signal	Remarks
X17	Not connected		
X18	Not connected		
X19	Interface COM 1	GND	Signal ground for receiver
X20	Interface COM 1	Rx-	Cathode
X21	Interface COM 1	Rx+	Anode
X22	Interface COM 1	20 mA	Signal power source for receiver
X23	Interface COM 1	GND	Signal ground for transmitter
X24	Interface COM 1	Tx-	Emitter
X25	Interface COM 1	Tx+	Collector
X26	Interface COM 1	20 mA	Signal power source for transmitter

The transmitter is active and the receiver is passive in both the POLARIS and the control.



In the POLARIS the transmitter and receiver are active. The control is completely passive.



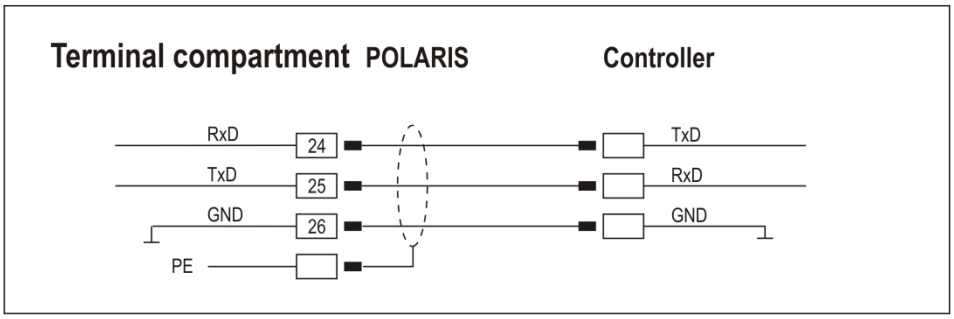
▶ Maximum line length depending on baud rate of up to 1,000 m.

See the interface description from the controller manufacturer for the relevant pin assignment of the controller.

5.5.7 RS232 interface (optional)

Configuration RS232			
Terminal	Interface	Signal	Remarks
X17	Not connected		
X18	Not connected		
X19	Not connected		
X20	Not connected		
X21	Not connected		
X22	Not connected		
X23	Not connected		
X24	Interface COM 1	RxD	Receive
X25	Interface COM 1	TxD	Transmit
X26	Interface COM 1	GND	Signal ground

Connection of a controller via RS232 interface of the POLARIS.



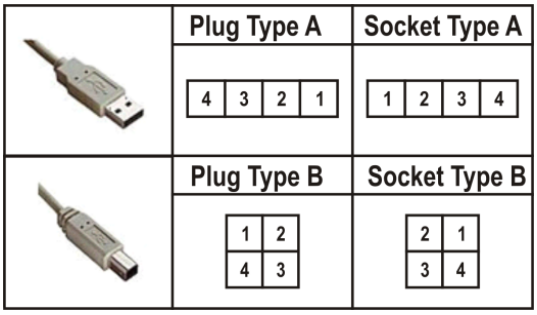
▶ Maximum length of the data line 15 m.

See the interface description from the controller manufacturer for the relevant pin assignment of the controller.

5.5.8 USB interface (optional)

Configuration USB			
Terminal	**Interface**	**Signal**	
X17 - X22	not connected		
X23	USB	VCC	+5 V
X24	USB	Data-	USB data signal
X25	USB	Data+	USB data signal
X26	USB	GND	

The individual conductors are colour-coded in a 4-wire USB cable as follows:



Touch Panel	USB connection	Colour	Function
X23	1	RD	VCC (+5 V)
X26	4	BK	GND
X25	3	GN	+ Data
X24	2	WH	- Data

The maximum length of a lead should not exceed 2 m.
Maximum current: 500 mA.

5.5.9 Interface RS422/Ex e USB (optional)

Configuration RS422/Ex e USB				
Terminal	**Interface**	**Signal**		
X17 - X18	not connected			
X19	COM 1	TxD B (TxD+)	Transmission cable	Input
X20	COM 1	TxD A (TxD-)	Transmission cable	Input
X21	COM 1	RxD B (RxD+)	Receiving cable	Input
X22	COM 1	RxD A (RxD-)	Receiving cable	Input
X23	USB	VCC	+5 V	
X24	USB	Data-	USB data signal	
X25	USB	Data+	USB data signal	
X26	USB	GND		

5.6 Ex i Terminal Compartment

DANGER

Accessories which have not been approved jeopardise the explosion protection. There is a risk of fatal injury in an explosive atmosphere!

▶ Only use POLARIS accessories!

The cover for the Ex i terminal compartment need not be used when deploying a protective enclosure with protection class of at least IP20.

5.6.1 Connection of Ex i input device to the POLARIS (optional)

Do not connect the mouse, trackball, touchpad, joystick while the power supply is active.

PS/2 for input devices					
Terminal	Interface	Colour	Signal	Remarks	
X4	PS/2	WH/BR	VCC	Supply voltage	
X5	PS/2	GN/YE	GND	Mass connected to protective earth	
X6	not used				
X7	not used				
X8	PS/2	BL	MS_CLK	Mouse	clock signal
X9	PS/2	RD	MS_DATA	Mouse	data signal

5.6.2 Ex i USB interface for BARTEC Ex i memory stick

USB socket, 4-pole, Type A

Extension of the USB when using a protective enclosure (IP20)

The USB wall bushings on the protective enclosure must correspond at least to protection class IP20.

The following types of cable should be used for the extension (max. 2 m).

Cable name: Inline E258105 AWM STYLE 2725, 80°C 30V VW-1
28AWGX1P, 24AWGX2C; USB 2.0 High speed cable

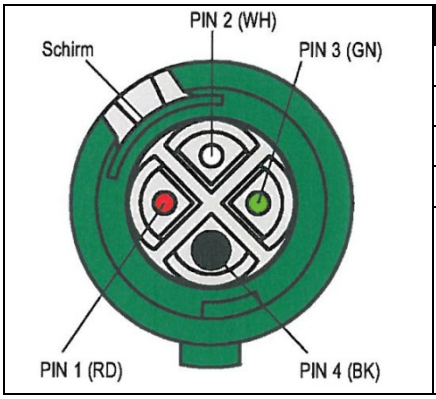
5.6.3 Ex d socket (optional)

DANGER

Live plug-in connections! Risk of fatal injury if opened in an explosive atmosphere!

- ▶ Before opening the protective cap on the Ex socket on the POLARIS, make sure there is no connection to voltage.
- ▶ Plug-in connections must be closed with a protective cap immediately after separation. The closing element must be positioned correctly.
- ▶ Use flanged socket outlets and appliance couplers only with appropriate plug-in connectors/couplings that are not damaged in any way.

Plug-in connectors in the (red insert) series cannot be combined with plugs in the new geometrically modified (green insert) series. When replacements are delivered, the plug-in system must be replaced in pairs.



PIN	Signal	Colour
Pin 1	VCC1	RD
Pin 2	Data-	WH
Pin 3	Data +	GN
Pin 4	GND	BK

5.6.4 Connection of a BARTEC BCS 3800ex hand scanner (optional)

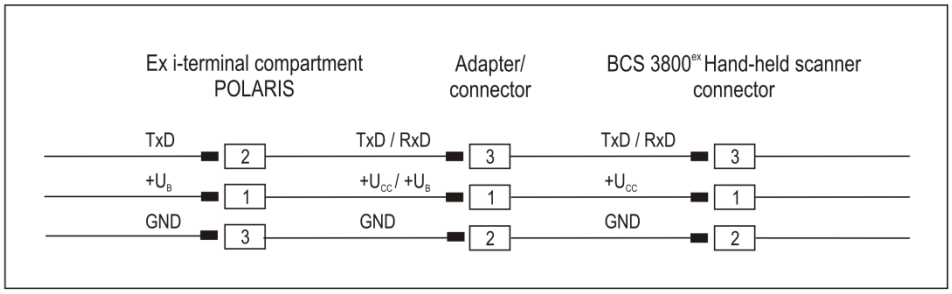
Only for POLARIS Touch Panel 10.**4" or** POLARIS Touch Panel 12.**1"**

Do not connect the hand scanner when there is an active power supply.

Configuration of hand scanner connection (optional))			
Terminal	Interface	Signal	Remarks
X1	Hand-held scanner	+UB	Supply voltage +5 V
X2	Hand-held scanner	RxD-I	Data input RS232-Signal
X3	Hand-held scanner	GND	Earth connected to protective ground

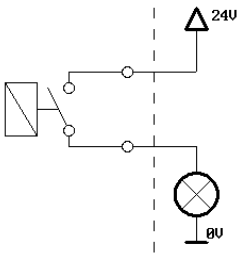
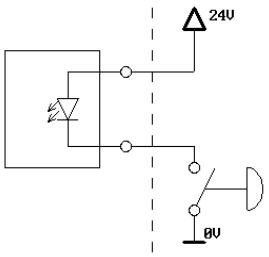
Intrinsically safe data and supply current circuits Terminals X1-X3	U_0	5.5	V
	I_0	440	mA
	P_0	1.25	W
	R_i	25	Ω
	C_0	55.8	µF
	L_0	0.2	mH

Terminal connection diagram: BCS 3800[ex] hand scanner to supply module by means of connector/adapter.



5.7 Connection via cable bushing (optional)

Potential-free "Digital I/O"

Inputs/ Outputs	Conductor colouring	Max. voltage/ current	Remarks	Example
Output 1	WH	200 mA / 24 V		
	BN			
Output 2	GN	200 mA / 24 V		
	YE			
Output 3	GY	200 mA / 24 V		
	PK			
Input 1	BU	24 V	Anode	
	RD	0 V	Cathode	
Input 2	BK	24 V	Anode	
	VT	0 V	Cathode	
Input 3	GY-PK	24 V	Anode	
	RD-BU	0 V	Cathode	
Input 4	WH-GN	24 V	Anode	
	BN-GN	0 V	Cathode	

Place all cables on Ex e terminals.

5.8 EMC (Electromagnetic Compatibility)

This is a class A unit and can cause radio interference in residential areas; if it does, the owner/managing operator may be required to implement suitable measures and pay for loss or damage.

Only shielded conductors may be used as connecting conductors. This applies both to the data line and to all other conductors too.

The data lines must be stranded in pairs.
Example 2 x 2 x 0.75 mm² LIYCY TP.

As far as possible, separate conductors should be used for power supply and data.

5.8.1 Power supply

A regulated mains adapter with an output of at least 2 A must be used as power supply. It is not permitted to fall below or exceed the power supply of DC 24 V ± 10 % at the installation site. The voltage drop on the supply line must be observed and corrected where necessary.

The voltage drop on the supply line is calculated according to the following equation:

ΔU	Voltage drop on the supply line at power supply voltage of DC 24 V	Max. 2.4 V
ΔU	Voltage drop on the supply line with maximum permissible mains adapter overvoltage DC 24 V +10 % (26.4 V)	Max. 4.8 V (until 10% undervoltage is achieved)
I	Electricity for a POLARIS Touch Panel	At least 1.5 A
A	Cable cross-section of the supply line	
κ	Specific conductance of copper	$56\frac{m}{\Omega \cdot mm^2}$
l	Length of the supply line (consider both the outgoing and return line)	

$$R = \frac{l}{\kappa \cdot A} \quad R = \frac{\Delta U}{I} \qquad \Delta U = \frac{l}{\kappa \cdot A} \cdot I$$

Examples	Cable cross-section	Maximum line length
Supply voltage DC 24 V	0.75 mm²	approx. 50 m
	1.5 mm²	approx. 100 m
	2.5 mm²	approx. 170 m

If the voltage drop cannot be balanced out or the calculation produces excessive cable cross-sections, a separate mains adapter must be installed near the installation site.

Example: pressure-tight encapsulation or ex-free area on the outside of the building.

As a result of the connection of the power supply to the POLARIS, the earth for the power supply is connected to the PE. It is essential to ensure that the earth for the power supply on the POLARIS, if this is not electrically isolated, indicates no potential difference to the PE/PA.

5.8.2 Back-up fuse

The POLARIS COMFORT series with DC 24 V is internally protected by a slow 1.6 A fuse. The fuse can trip in the case of voltage drops or undervoltage.

We recommend protecting the devices with a fast-acting 1.6 A back-up fuse to prevent the tripping of the internal fuse in the device. The internal fuse can only be changed by BARTEC.

5.8.3 Interference suppression

Certain basic measures must be taken to ensure freedom from interference when the POLARIS are installed:

- Certain basic measures must be taken to ensure freedom from interference when the POLARIS are installed:
- The interference voltages coupled into the device via power, data and signal line and the electrostatic voltage caused by contact are to be dissipated through the equipotential bonding.
- The installation point should be as far as possible away from fields of electromagnetic interference. This is especially important if there are frequency converters in the vicinity. Under certain circumstances will it be advisable to set up partitions to isolate the graphic display from interference.
- If inductive devices are fitted in the vicinity (e.g. contactor, relay or solenoid coils), especially if they are powered from the same source, protective circuits (e.g. RC elements) must be installed.
- Power supply and data cables must be laid so as to avoid interference. This can be achieved, for example, by avoiding laying such cables in close proximity to high-current carrying cables.

5.8.4 Shielding

- Only cables with braided shielding should be used (recommended cover density > 80%).
- Sheet shielding should not be used.
- Generally, connection of the shielding at both ends results in optimum damping of all interference frequencies.
- Connection of the shielding at one side only may be more advisable if a difference in potential exists and no equipotential bonding cable can be laid.

5.8.5 Connection of shielding

A low impedance connection to the circuit protective conductor is important to ensure a low current fault path.

When sub-D connectors are used, the shielding should always be connected to the metal casing of the sub-D plug.

The plug casing of some controllers is not always well connected to earth. In such cases it may prove advantageous to insulate the shielding from the sub-D plug of the controller and connect it directly to the protective earth conductor by means of a cable that should be kept as short as possible (0.75 mm² ...1.5 mm²).

5.8.6 Examples of Shielding Connections

Double-sided shield connection on the connecting cables:

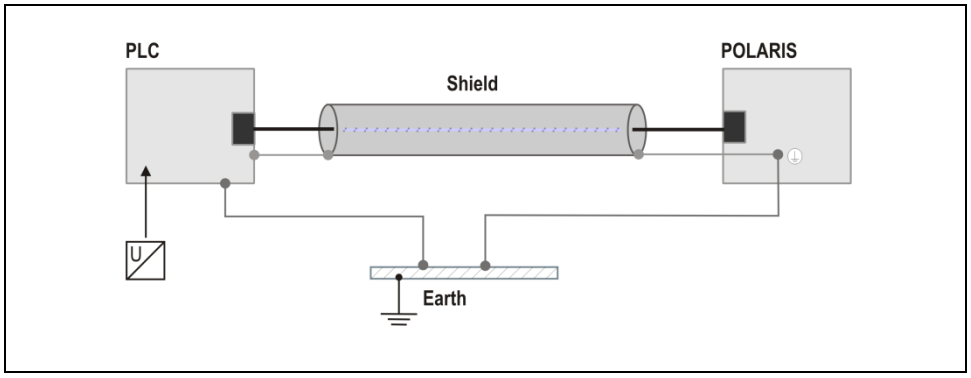


Illustration 12: Example of double-sided shield connection

Generally, connection of the shielding at both ends results in optimum damping of all interference frequencies. This method is to be recommended when there is good equipotential bonding between the individual units. In such cases it is possible to make use of the controller's voltage supply cable even if this is not electrically isolated.

Single-sided shield connection on the connecting cables:

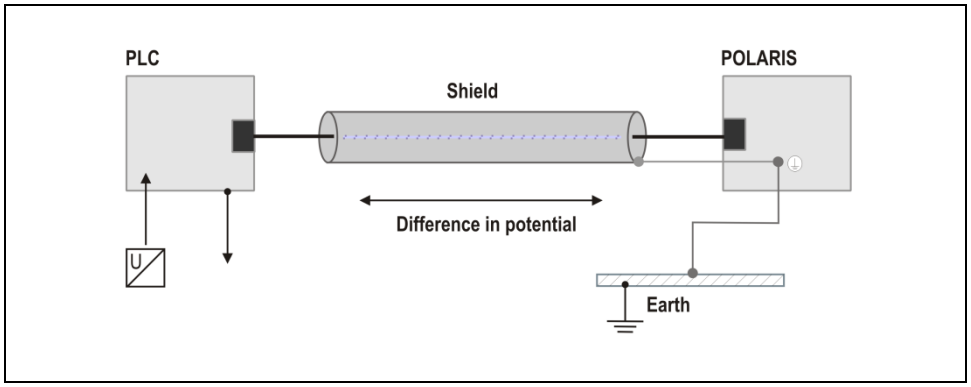
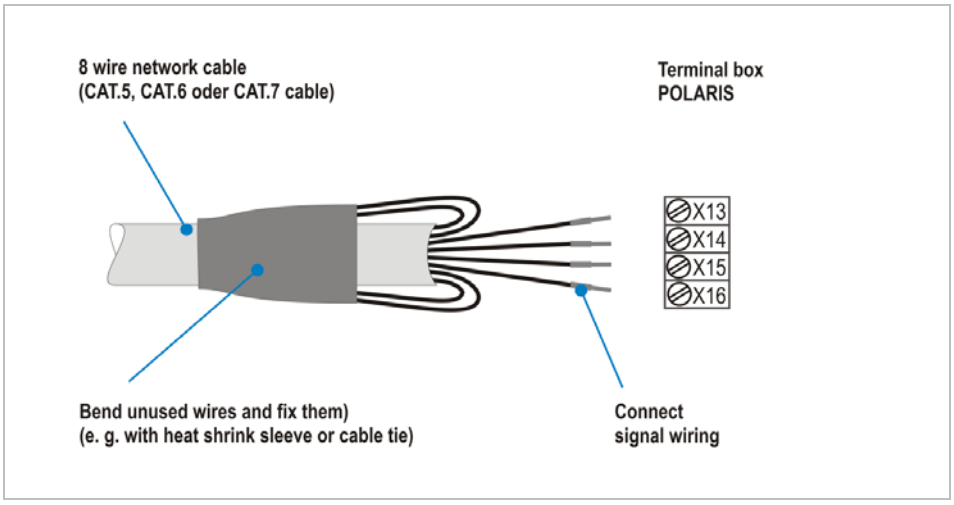


Illustration 13: Example of single-sided shield connection

Connection of the shielding at one end only is recommended when there is inadequate equipotential bonding, or none at all. In such cases an electrically isolated power supply unit must be used.

Before the equipment goes into service the directions from the controller manufacturer regarding proper assembly and operation must be read carefully. They should then be applied taking full account of the recommendations we make here.

5.8.7 Ethernet



6. Commissioning

For electrical systems the relevant installation and operating specifications (e.g. Directives 99/92/EC and 94/9/EC, BetrSichV and the applicable national ordinances, IEC 60 079-14 and the DIN VDE 0100 series) must be observed.

The operator of an electrical system in a hazardous environment must keep the operating equipment in an orderly condition, operate it correctly, monitor it and do the required maintenance and repairs.

Before commissioning the devices, check that all components and documents are there.

6.1 Final Inspection

Check the following requirements before commissioning the device:

Only open the ex e terminal compartment with terminals for the supply and data line(s) once it has been ensured that no potentially explosive atmosphere is present and that the power supply has been turned off.

- Has the reinforcement frame between the bracket and enclosure been inserted?
- Is there no damage to seals, cable connections or glass panel?
- Are the supply and data line(s) correctly wired?
- Have the supply and data line(s) been tightened in the screw terminals?
- Are all terminal compartments closed?
- Have all cable glands been tightened and all open cable entries closed with blanking plugs?

Only start the POLARIS (if a potentially explosive atmosphere is present) once the final inspection has been carried out.

6.2 Commissioning Software

6.2.1 EWF (Enhanced Write Filter)

What is EWF?

The Enhanced Write Filter is a write protection and it protects the POLARIS Touch Panel operating system if there is a power failure, ensuring that the POLARIS Touch Panel will be able to start perfectly.

What is the as-delivered condition?

The POLARIS Touch Panel 5.7", 10.4" and 12.1" with Windows XP Embedded are supplied with an activated EWF (Enhanced Write Filter).

Processor LX800: Built 008

The CF card (4 GB) used is divided into:

– Partition C Size: approx. 2 GByte
boot drive with operating system
protected by EWF

– Partition D Size: approx. 1.8 GByte
application data (BMS Graf Runtime)
not protected by EWF

Behaviour when EWF is activated?

– Partition C

When the EWF is activated, it is not possible to write on Partition C. All write accesses to the C: partition are redirected into an RAM overlay. The changes that are made are not available after rebooting.

– Partition D

Is not protected by EWF. Write access to Partition D is possible at any time. The data is still available after a reboot.

Data can be lost during write access if there is a power failure.

Procedure when changing system settings

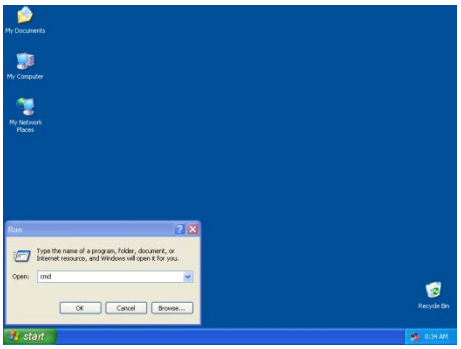
ATTENTION

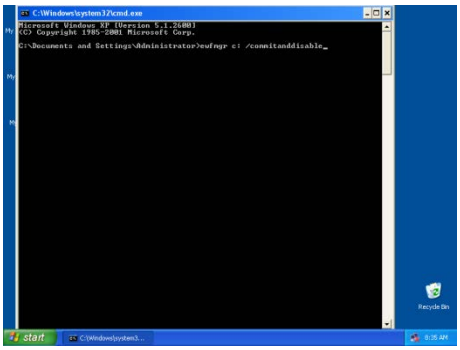
Switching off when the EWF is deactivated can cause a loss of data inside the operating system!

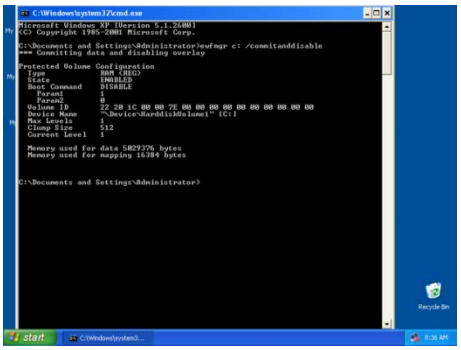
▶ Activate the EWF immediately after changes.
▶ Shut down the operating system properly.

Deactivating the EWF

- ▶ Select "CMD" in the START MENU.
- ▶ Enter the "ewfmgr c: /commitanddisable" command line into the command window.
- ▶ Confirm with the Enter key.
- ▶ Reboot the system.
- ▶ Changes/settings can be made in the operating system.

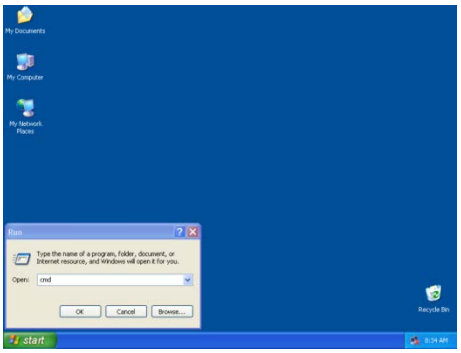


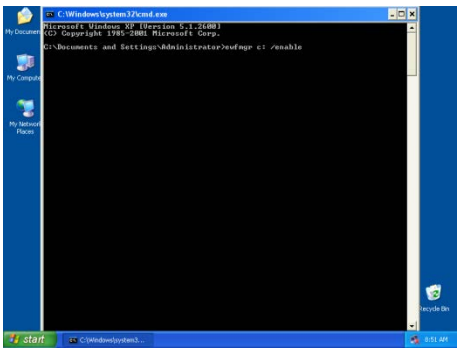


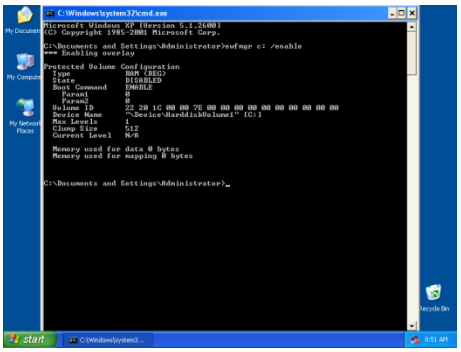


Activating the EWF

- ▶ Select "RUN" in the START menu.
- ▶ Enter CMD In the command field.
- ▶ Confirm with "OK".
- ▶ Enter the "ewfmgr c: /enable" command line into the command window.
- ▶ Confirm with the Enter key.
- ▶ Reboot the system.
- ▶ EWF is active.





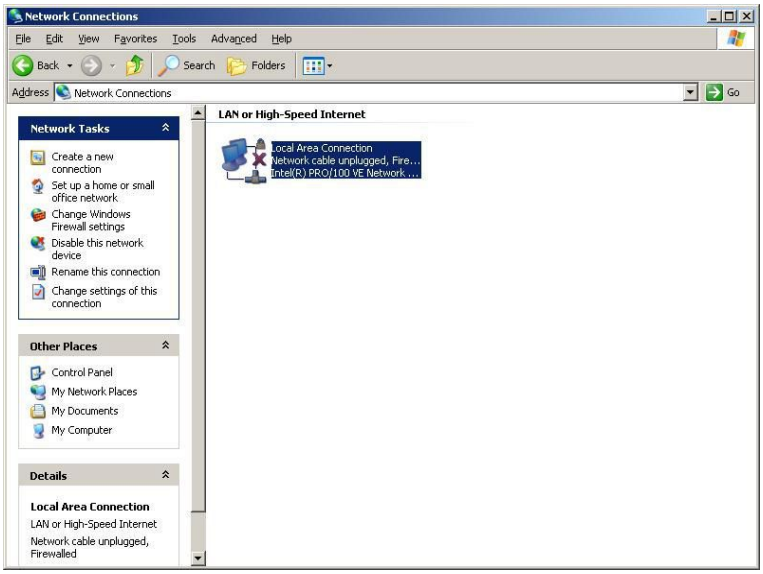


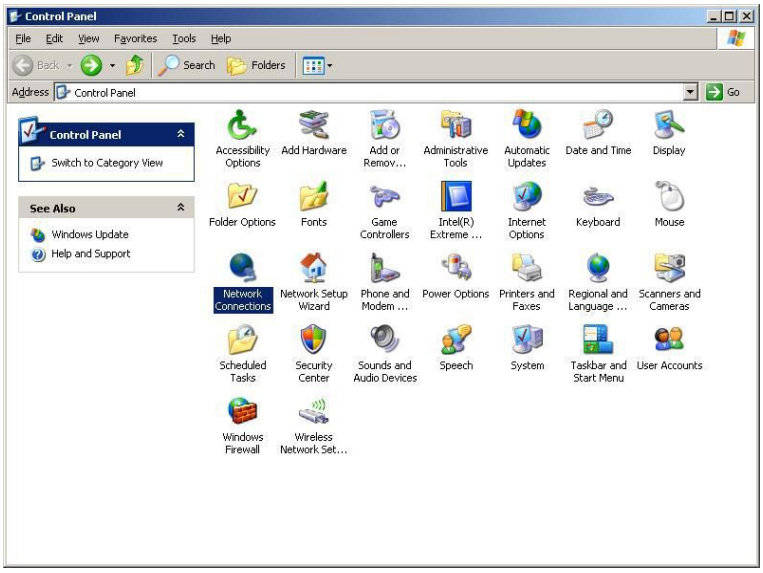
6.2.2 Network (Ethernet) Setup

Requirements

Network (Ethernet) setup: Physical connection (connection of Ethernet cable to a network).

- ▶ Go to Start ⇨ Control panel <double click>.
- ▶ Mark "Network connections" and start with <double click>.
- ▶ Select LAN connection with < double click >.





- ▶ To select the function Internet Protocol click (figure 1) on sub item "Properties"
- ▶ With a < double click > on Internet Protocol (figure 2) the function is started.

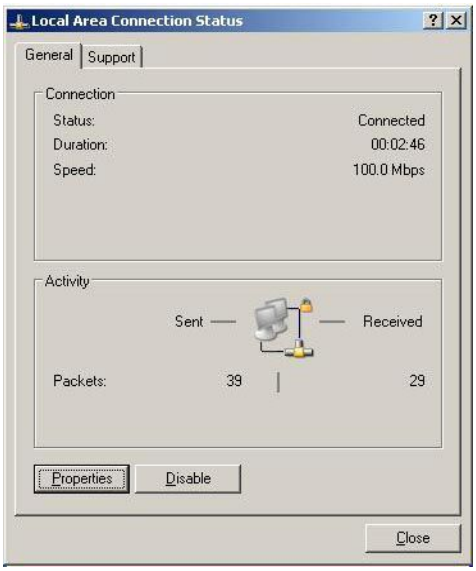


Figure 1

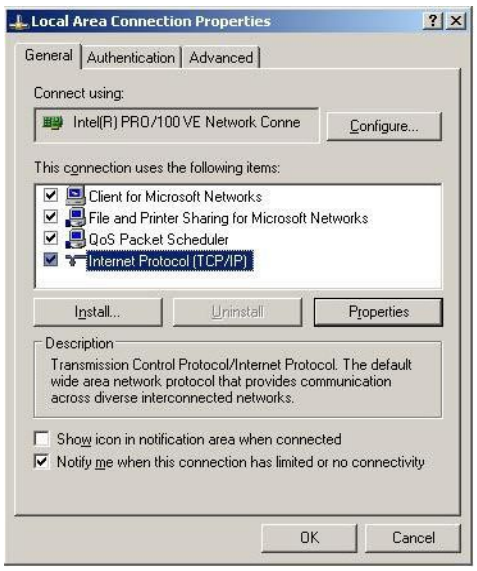


Figure 2

- ▶ The chart (figure 3) appears when the network and a DHCP server are available.
- ▶ Configuration example (figure 4) when no DHCP server is available.

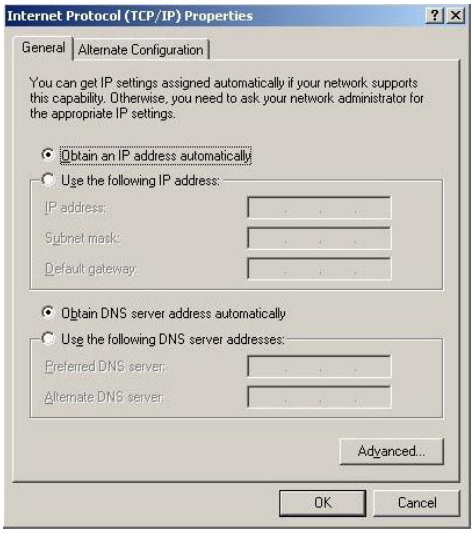


Figure 3

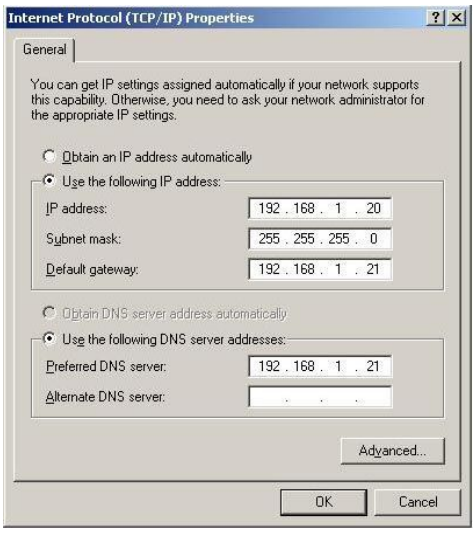


Figure 4

6.2.3 Keyboard Settings

▶ Keyboard customization to suit the respective application

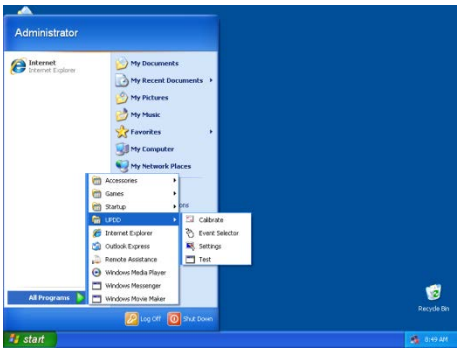
This is not necessary with the BMS Graf pro visualisation software. The use of software from other sources must be checked in each individual case.

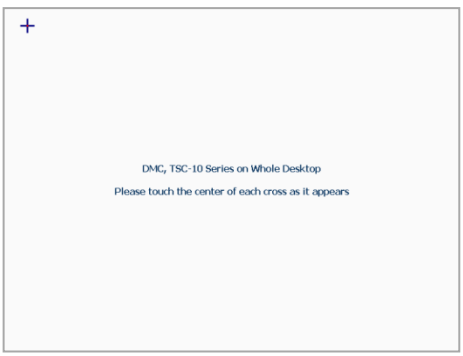
6.2.4 Touch Screen

In the POLARIS with touch screen, the touch screen software is pre-installed already. The touch screen software is available for download under
http://www.bartec.de/automation-download/

Calibration

▶ Open the program by clicking on Start> All programs> UPDD> Calibrate.
▶ Follow the instructions.





The EWF must be deactivated first before the touch screen can be calibrated.

7. Operation

Once the final inspection has been carried out, the device can be put into operation.

The POLARIS series does not have any ON/OFF switch.

7.1 Operating System

The POLARIS series are fully pre-installed with the Windows XP Embedded operating systems. The license sticker is affixed on the back of the POLARIS, next to the type plate. Please note that according to the license issued for Windows XP Embedded the application of this system as an Office PC is not permitted.

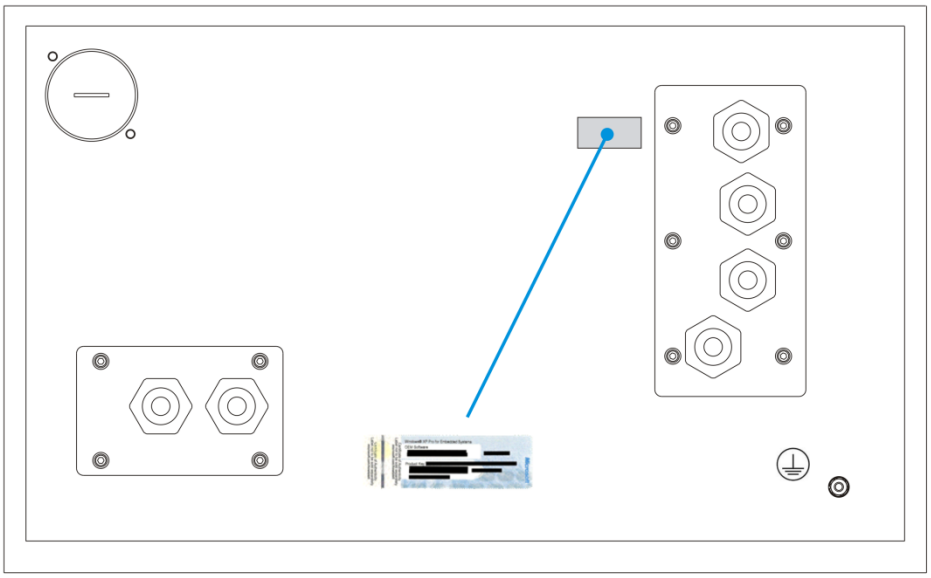


Illustration 14: Licence sticker

7.2 Autostart Menu / Download

Once the operating voltage has been applied, the POLARIS Touch Panel boots in XP Embedded.

The user [administrator] is logged on automatically with a password [22021963] an input is not necessary. The Explorer starts, which in turn runs the Autostart menu in Autostart.

7.2.1 Autostart-Menu

Splash screen:

If no key is pressed, the last application selected is started, which can be:

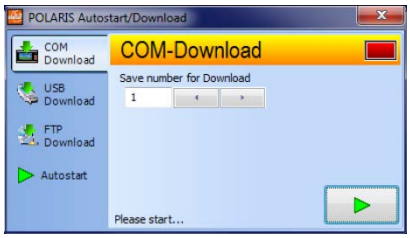
a: BMS-Graf-Runtime

b: Internet Explorer

c: Remote desktop

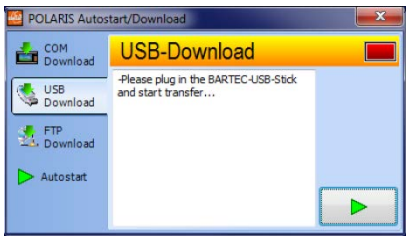
If a key is pressed or a mouse button clicked within 5 seconds of the appearance of the start screen, the following settings can be made:

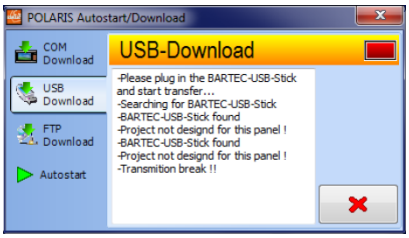
Download the BMS-Graf-pro Project through the serial interface.



- ▶ Set the station number and activate the download server  .
- ▶ Start the transfer into BMS-Graf-pro.
- ▶ The BMS-Graf-Runtime starts automatically after the transfer.

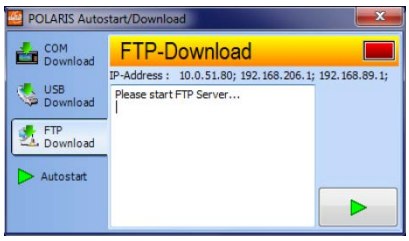
Transfer of the BMS-Graf-pro project data from the BARTEC USB stick to the POLARIS





- Insert the BARTEC USB stick (containing BMS-Graf-pro) into the intrinsically safe USB port and start the transfer .
- The BMS-Graf-Runtime starts automatically if the project was transferred successfully.

Start the FTP transfer into the BMS-Graf-pro



- Start the FTP server.
- Once the FTP server has started after switching on, data can be transmitted at any time without the need to reboot the FTP server. It is only necessary to reboot the FTP after a system start-up.
- The BMS-Graf runtime ends automatically and starts again after transmission.

Setting of the application to be automatically started.

The standard application which is to start automatically immediately or the next time the device starts is selected from among the Autostart options. Parameters for the applications (Remote Desktop and Internet Explorer) must be set in the corresponding program-specific options.

8. System-Related Extensions

8.1 Recovery/Backup Function

The POLARIS can be restored to delivery status by means of a recovery stick.

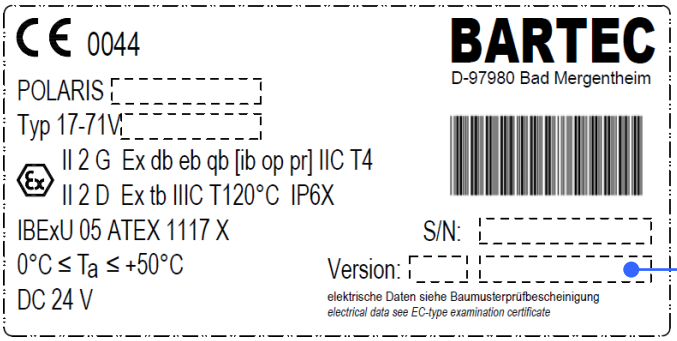
The recovery flash drive is not included in the scope of supply.
It can be ordered from the contact address support-polaris@bartec.de

The recovery flash drive contains the functions:

- image recovery (factory reset) flash drive
- backup
- restoration

8.1.1 Recovery-Stick Image

The recovery stick image for the POLARIS Touch Panel can be found on the POLARIS type label.



The POLARIS can be restored to the original state only with the BARTEC recovery stick or BARTEC recovery stick image.

8.1.2 Backup

We expressly point out that it is the user´s responsibility to make a backup of the POLARIS and all its functions!

We strongly recommend saving such a POLARIS backup on a "recovery stick"!

8.1.3 Backup on the USB Stick

– Insert the recovery/reset/backup stick into the USB port.
– Boot up the POLARIS and follow the instructions.

8.1.4 Switching Off and Shutting Down

Irrespective of the application, the Microsoft Windows operating system saves important data in the working memory during system operation. Before the PC or the POLARIS is switched off, this data must be saved on the hard disk.

ATTENTION

Shutting down the POLARIS in an orderly fashion prevents malfunctioning in the operating system.

▶ Use the Windows button to shut down or switch off the POLARIS.
▶ Do not switch off the POLARIS until Windows informs the user that the data has been saved (appearance of the logout script).

9. Faults and Troubleshooting

Fault	Possible cause	Remedy
No display	Device has shut down.	Reboot the device.
	Power Save Mode / screen saver is switched on	Press any key.
	No voltage supply	Check voltage supply and external line fuse.
	Voltage present No current consumption	Internal fuse tripped Return to manufacturer
	Backlighting defective	Return to manufacturer Replace backlighting
	Device defective	Return to manufacturer
Windows doesn´t start	Faults in the operating system	Install the operating system again Recovery stick
There are always stripes on the display.	Display defective or CPU does not boot up.	Return to manufacturer.
Display turns on and off	Voltage supply faulty	The power from the power supply unit is too low. Supply line cross-section is too narrow.
Dark background	The backlighting is coming to the end of its service life.	Return to manufacturer. Replace the backlighting.
Project cannot be transferred with the USB stick.	Wrong USB flash drive (stick) used.	Check if the BARTEC Ex i memory stick is being used.
	No directory created on the USB flash drive.	See user manual for BMS-Graf pro V7.x.x.x http://www.bartec.de/automation-download/

10. Maintenance, Inspection, Repair

Only trained and qualified personnel may commission and do maintenance work on the POLARIS! Trained qualified personnel are people who are familiar with the installation, assembly, commissioning and operation of the POLARIS, have been instructed about the risks and have the appropriate qualifications by virtue of the work they do.

10.1 Maintenance intervals

The mechanical status of the devices should be checked at regular intervals. The length of the maintenance intervals depends on the ambient conditions. We recommend checking at least once a year. Regular maintenance is not necessary if operated appropriately in conformance with the installation instructions and with due consideration to the ambient conditions.

DANGER

Prevent electrostatic charging in hazardous (potentially explosive) areas.

There is a risk of a fatal injury in an explosive atmosphere!

▶ Take devices out of hazardous areas before wiping them dry or cleaning them!

ATTENTION

There is a risk of condensation forming when installed outside. Damage to property may occur if this is not checked!

▶ Regularly check the POLARIS for the formation of condensation.

10.2 Inspection

Under IEC 60079-17, IEC 60079-19, EN 60079-17 and EN 60079-19, the owner/ managing operator of electrical installations in hazardous areas is obliged to have these installations checked by a qualified electrician to ensure that they are in a proper condition.

10.3 Maintenance and Repair Work

Adhere to the applicable regulations under Directive 99/92/EC, IEC 60079-19 and IEC 60079-17 when servicing, doing maintenance work on and testing associated operating equipment!

Assembly/disassembly, operating and maintenance work may be done only by trained specialists. The statutory rules and other binding directives on workplace safety, accident prevention and environmental protection must be observed.

10.3.1 Instructions for Repairs

If you wish to send in a defective device for repair, please read the RMA procedure guidance first. Then fill in and sign the RMA (Return Merchandise Authorisation) form and send it to our "Retouren Center".

E-mail: services@bartec.de

Fax: +49 7931 597-119

We cannot guarantee any contractually agreed processing times for devices that are sent in without an RMA number.

The RMA guide and the RMA form are available on our homepage for downloading.

http://www.bartec.de

> Quality and culture

> RMA form

Have you any questions? Write us an e-mail or call us.

E-mail: services@bartec.de

Phone: +49 7931 597-444

11. Disposal

The component of the POLARIS contains metal, plastic parts and electronic components.

The statutory requirements for electrical scrap must be observed therefore (e.g. disposal by an approved disposal company).

12. Dispatch and Packaging Instructions

ATTENTION

Sensitive Devices! Damage to property due to incorrect packaging!

- ▶ Take the device's maximum weight into account when selecting the packaging and mode of transport.
- ▶ Use the original packaging for transportation.

13. Accessories, Spare Parts

Included in the scope of the delivery:

Name		Order no.
POLARIS Touch Panel with Windows® XP Embedded		
Driver for Mainboard and Touch		
Mounting clamps		
Reinforcement frame	POLARIS 5.7"	05-0205-0006
	POLARIS 10.4"	05-0205-0008
	POLARIS 12.1"	05-0205-0007

Accessories, Spare Parts for POLARIS Touch Panels

Name			Order no.
Visualization software	BMS-Graf-Pro 7		17-28TF-0075
Ex i memory stick			17-71VZ-5000/0100
Mounting clamps	4 pieces		05-0091-0111
	6 pieces		05-0091-0112
Input devices	Mouse		17-71VZ-1000
	Trackball		17-71VZ-2000
	Touchpad		17-71VZ-3000
	Joystick without button		17-71V2-8000
	Joystick with button		17-71V2-9000
Connection cable	for mouse	1.8 m	05-0068-0163
		3.0 m	03-0068-0204
	for trackball/joystick	1.8 m	03-0068-0172
		3.0 m	05-0068-0205
	for touchpad	1.8 m	03-0068-0183
		3.0 m	03-0068-0206
Enclosure for floor mounting with stand			
	POLARIS 5.7"		07-56D7-9011/9002
	POLARIS 10.4"		07-56D7-9611/9002
	POLARIS 12.1"		07-56D7-9711/9002
Enclosure for wall mounting including mounting straps			05-0005-0050
	POLARIS 5.7"		07-56D7-9011/9001
	POLARIS 10.4"		07-56D7-9611/9001
	POLARIS 12.1"		07-56D7-9711/9001
Label strip	white DIN A4 sheet, for laser printer		03-3600-258
BCS 3800ex	Hand-held scanner with integrated decoder		17-21BA-0024
External converter	Converter external RS232 - RS422 Non Ex		03-9600-0258
MPI interface	Converter external MPI - RS422 Non Ex		17-28TZ-0007
Original packing	POLARIS 5.7"		04-9035-0004
	POLARIS 10.4"		04-9035-0005
	POLARIS 12.1"		04-9035-0006

14. Order Numbers

POLARIS Touch Panel 5.7"

Selection chart		
Version	**Interfaces**	**Code no.**
Touch Panel 5.7"	RS422	**00**
	BARTEC PROFIBUS-DP	**02**
	RS232	**09**
	TTY	**11**
	BARTEC PROFIBUS-DP, Ex d-USB	**33**
	RS422/Ex e USB	**37**
	Further Interface combinations on request	**XX**

Complete order no. 17-71V1-A0 ☐☐ /X000
Please insert correct code.

POLARIS Touch Panel 10.4"

Selection chart		
Version	**Interfaces**	**Code no.**
Touch Panel 10.4"	RS422	**00**
	BARTEC PROFIBUS-DP	**02**
	RS422, supply module for hand-held scanners	**04**
	BARTEC PROFIBUS-DP, supply module for hand-held scanners	**06**
	RS232	**09**
	TTY	**11**
	RS232, supply module for hand-held scanners	**13**
	TTY, supply module for hand-held scanners	**15**
	BARTEC PROFIBUS-DP, Ex d-USB	**33**
	RS422/Ex e USB	**37**
	Further Interface combinations on request	**XX**

Complete order no. 17-71V1-90 ☐☐ /X000
Please insert correct code.

POLARIS Touch Panel 12.1"

Selection chart

Version	Interfaces	Code no.
Touch Panel 12,1"	RS422	00
	BARTEC PROFIBUS-DP	02
	RS422, supply module for hand-held scanners	04
	BARTEC PROFIBUS-DP, supply module for hand-held scanners	06
	RS232	09
	TTY	11
	RS232, supply module for hand-held scanners	13
	TTY, supply module for hand-held scanners	15
	BARTEC PROFIBUS-DP, Ex d-USB	33
	RS422/Ex e USB	37
	Further Interface combinations on request	XX

Complete order no. 17-71V1-80 ☐☐/X000
Please insert correct code.

15. Additional Information

Resistance list – polyester front foil
POLARIS series

BARTEC

Page 1 of 1

The polyester front foil material used for the POLARIS series in accordance with DIN 42115, section 2, is resistant against the testing material specified as follows:

Alcohols
Ethyl acohol
Cyclohexanone
Glycol
Glycerol
Isopropanol
Methanol

Hydrocarbons
Aliphatic hydrocarbons
General
Benzine
Benzene
Toluene
Xylene

Chlorinated hydrocarbons
Chlorofluorocarbon
Perchloroethylene
III-trichloroethane
Trichloroethylene

Ester
Ethyl acetate

Other organic solvents
Aether
Dimethyl formamide
Dioxane

Acids	
Formic acid	< 50 %
Acetic acid	
Phosphoric acid	< 30 %
Hydrochloric acid	≤ 10 %
Nitric acid	≤ 10 %

Aldehydes
Acetaldehyde
Formaldehyde

Caustic solutions	
Ammonia	< 2 %
Caustic soda	< 2 %

Saline solutions
Alkalicarbonate
Bichromate
Prussiate of potash

Different substances	
Molecular chlorine	
Liquid cresolphenole soaps	
Oxygen	
Tricresyl phosphate	
Water	< 100 °C
Hydrogen peroxide	< 25 %

Detergents, scavengers and cleaning agents
Potassium soap
Detergent solutions (tenside)
Fabric softeners

Technical oils and fats
Cutting emulsion
Diesel oil
Varnish
Heating oil
Paraffin oil
Ricinus oil
Silicone oil
Turpentine oil and turpentine oil substitute

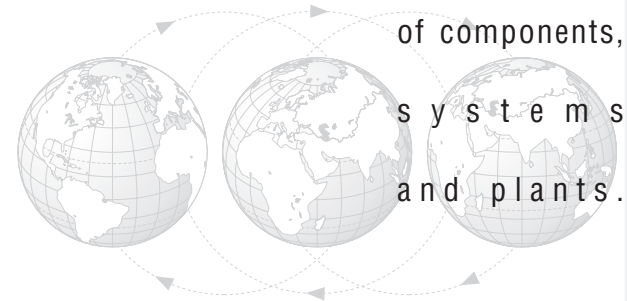
(Where not stated otherwise: concentration = 100%)

Polyester membranes have a limited resistance to UV light and should therefore not be exposed to direct sunlight for extended periods of time.

D_BMS791.doc • Resistance list Polyester front foil • Revision 1 / Status: July, 18th 2006 • Technical data subject to change

BARTEC

BARTEC protects people and the environment by the safety of components, systems and plants.



BARTEC GmbH
Germany

Max-Eyth-Straße 16
97980 Bad Mergentheim

Phone: +49 7931 597-0
Fax: +49 7931 597-119

info@bartec.de
www.bartec-group.com

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