BARTEC

POLARIS BASIC 5.7" up to 12.1" Zone 1/Zone 21

User Manual

BARTEC

User Manual - TRANSLATION

POLARIS BASIC

POLARIS Panel PCs 5.7" / 10.4" / 12.1"

Type 17-71V1-….

ATEX / IECEx / CSA

Zone 1 and Zone 21

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Reservation: Technical data subject to change without notice. Changes, errors and misprints may not be used as a basis for any claim for damages.

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1. Basic safety instructions

1.1 Notes on this manual

Read carefully before putting the devices into operation.

The user manual is a fixed part of the product. It must be kept in the direct vicinity of the device and the installation, operating and service staff must have access to it at all times.

The user manual contains important information, safety instructions and test certificates which are necessary for the perfect function of the device in operation.

The user manual is directed at all individuals concerned with the commissioning, handling and servicing of the product. The applicable guidelines and standards for areas with gas and dust atmosphere (2014/34/EU, EN/IEC 60079-17 and EN/IEC 60079-19) must be observed when conducting this work.

Knowledge of the safety and warning information in this user manual and the strict compliance with it is essential for safe installation and commissioning. Accidents, injuries and material damage can be avoided by circumspect handling and systematically following the instructions.

The examples, tables, and figures provided in this user manual are for illustration purposes. Due to the different requirements of the respective application, the BARTEC company cannot assume responsibility or liability for actual use based on the examples and figures.

The BARTEC company reserves the right to carry out technical changes at any time.

In no event will BARTEC company be responsible or liable for indirect or consequential damages resulting from the use or application of this user manual.

Safety instructions and warnings are specially highlighted in these operating instructions and marked by symbols.

DANGER

DANGER describes a directly imminent danger. If not avoided, death or severe injury will be the consequence.

WARNING

WARNING describes a possibly imminent danger. If not avoided, death or severe injury may be the consequence.

CAUTION

CAUTION describes a possibly imminent danger. If not avoided, mild or slight injury may be the consequence.

ATTENTION
ATTENTION describes a possibly damaging situation. If not avoided, the plant or objects in its vicinity may be damaged.

Important information on effective, economical & environmentally compliant handling.

1.1.1 Languages

The original user manual with safety information is written in English. All other available languages are translations of the original user manual.

The user manual is available in German and English. If further languages are required, these must be requested from BARTEC or stated on placing an order.

1.1.2 Changes in the document

BARTEC reserves the right to change the content of this document without notification. No warranty is assumed for the correctness of the information. In cases of doubt, the German safety instructions apply because it is not possible to rule out errors of translation or printing. In the case of legal disputes, the “General Terms and Conditions of Business” of the BARTEC GmbH also apply.

The current versions of the datasheets, operating instructions, certificates and EU declarations of conformity can be downloaded from www.bartec.de or may be requested directly from BARTEC GmbH.

1.2 Handling the product

The product described in these operating instructions 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 Intended use

1.3.1 Exclusive purpose

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

The POLARIS BASIC 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 Unintended 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 Duties of the operator

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, 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 information

1.5.1 General

- 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 General safety information for operation

1.6.1 Maintenance

The pertinent erection and operating provisions for electrical systems must be observed! (e.g. Directive RL 2014/34/EU, BetrSichV and nationally applicable ordinances EN 60079-14, IEC 60079-14 and the series DIN VDE 0100)!

Observe the national waste disposal regulations when disposing of materials.

1.6.2 Servicing

No constant servicing will be necessary if operated correctly under consideration of the assembly instructions and environmental conditions. See Chapter "Service, inspection, repair" in this respect.

1.6.3 Inspection

According to EN/IEC 60079-17 and EN/IEC 60079-19, the operator of electrical systems in potentially explosive atmospheres is obliged to have these inspected by an electrician to ensure correct condition.

1.6.4 Repairs

Repairs to explosion-proof equipment may only be performed by persons authorized by BARTEC, who must employ the latest technological practices, observe the manufacturer's instructions and use only original spare parts. The applicable regulations are to be observed here.

1.6.5 Commissioning

It must be checked that all components and documents are available before commissioning.

1.7 Labelling, test certificate and standards

The device features an explosion protection label, as well as a test certificate. For an explanation of the symbols and information used, see chapter 4 "Technical data".

The POLARIS BASIC series complies with Directive 2014/34/EU on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX Directive). For information on standards that must be observed, see chapter 3 "Explosion protection and approvals".

1.8 Warranty

WARNING

Explosion protection cannot be guaranteed if non-specified components are used.

- ▶ Do not make any changes or perform any reconstruction work on the device.
- ▶ Use only original spare parts.

The manufacturer provides a full warranty exclusively for the spare parts it supplies. When using parts from third parties, there is no guarantee that they have been designed or manufactured to handle the requisite stress or offer the requisite degree of safety.

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, 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).

BARTEC grants a warranty period of one year on the POLARIS series, starting from the BARTEC delivery date. The warranty period for accessories is 1 year from the date of delivery. This warranty covers all parts of the delivery and is limited to the free-of-charge replacement of or repair of the defective parts by BARTEC. The packaging supplied should ideally be retained for this purpose (return shipping). If necessary and following written consultation, the products should be sent to us with an RMA form. No claims may be submitted for repair work to be performed at the installation location.

2. Product description

2.1 Definition

The **POLARIS BASIC Panel PCs** have been consistently developed from the BAT Series, and permit downwards compatibility. The latest TFT technology with very high viewing angle is used for the display.

These unit sizes have been designed as “Human Machine Interface” for convenient

– controllers on simple machinery such as mixers, dryers or fuelling stations

– operation of more complex machinery and simple systems such as reactors, centrifuges or ball mills

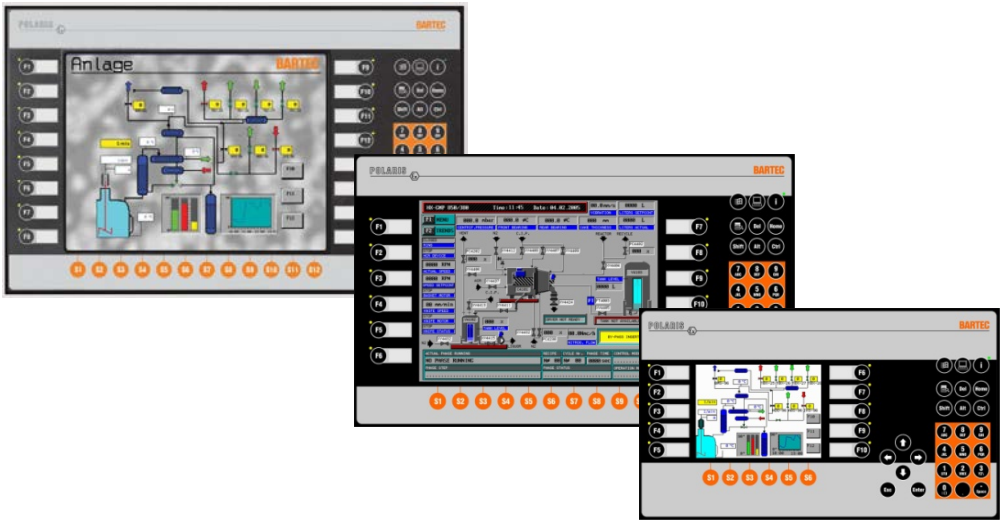


Illustration 1: POLARIS BASIC - Series

With the POLARIS BASIC Series it is possible to connect directly to the potentially explosive area process visualisations without additional intrinsically safe separator cards.

The laying of blue lines for intrinsically safe circuits is dropped. A separate wiring of the data line is not necessary.

The POLARIS BASIC Series can be directly connected to the PROFIBUS-DP or the communication interface of the control station.

Available features include e. g. RS422/RS485, PROFIBUS-DP, RS232 or TTY. An intrinsically safe USB interface for a USB Ex i-memory stick enables the device configuration’s easy transferability.

Illustration 2: USB Ex i memory stick

The creation of a visualisation is carried out using the “BMS-Graf-pro” Version 6.xxx program package which has been specially developed for this purpose.

Illustration 3: Visualisation software BMS-Graf-pro Version 6.xxx

Standard assembly of the POLARIS BASIC Series is mounting on the front panel which can be performed quickly and easily. On request we also supply the POLARIS BASIC Series as 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 design

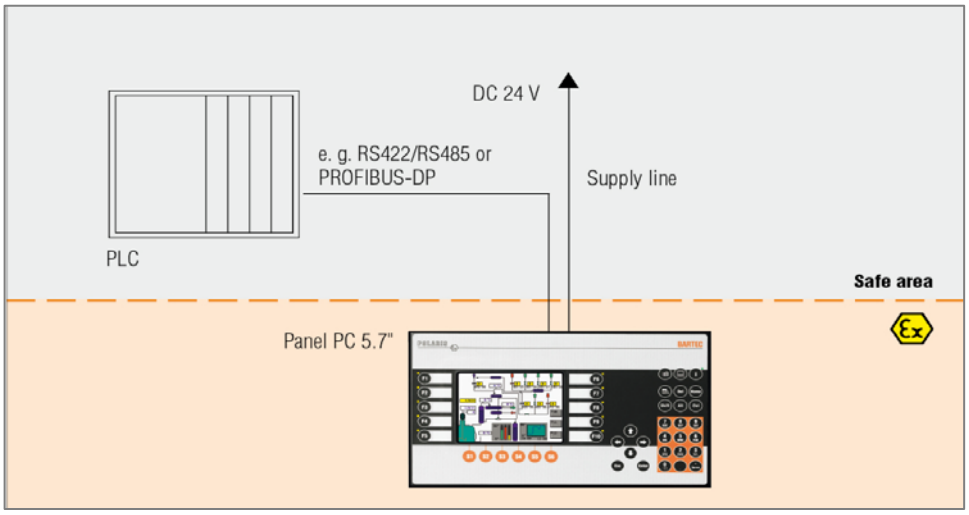


Illustration 5: Simple set-up

3. Explosion protection and approvals

POLARIS BASIC Type 17-71V1-….	
ATEX	
Ex protection type	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 in accordance with EMC Directive 2014/34/EU	EN 60079-0:2012+A11:2013 EN 60079-1:2007 EN 60079-5:2007 EN 60079-7:2007 EN 60079-11:2012 EN 60079-28:2007 EN 60079-31:2014
IECEx	
Ex protection type	Ex db eb qb [ib op pr] IIC T4 Ex tb IIIC T120 °C
Certification	IECEx IBE 11.0007X
Standards in accordance with EMC Directive 2014/34/EU	IEC 60079-0:2011 Edition: 6 IEC 60079-1:2007-04 Edition: 6 IEC 60079-5:2015 Edition: 4 IEC 60079-7:2006-07 Edition: 4 IEC 60079-11:2011 Edition: 6 IEC 60079-28:2006-08 Edition: 1 IEC 60079-31:2013 Edition: 2
Special conditions	The intrinsically safe circuits and the enclosure are galvanically connected. The equipotential bonding must be guaranteed at the installation of the intrinsically safe circuits. High charging mechanisms at the operation surface of the Visual units respectively accessories (for example pneumatic particle transport) must be excluded at the application. The degree of protection (IP code) must be ensured by the installation of the units in enclosures (IP code).
CSA	
Ex protection type	Class I, Zone 1 (A)Ex d e q [ib op pr] IIC T4; Gb Class II, Zone 21 (A)Ex tb IIIC T120 °C; Db
Certification	CSA 15.70010166

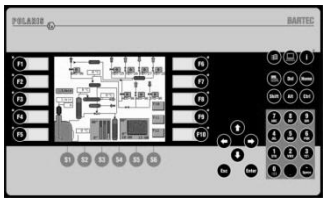
Further test certificates	
INMETRO	11/UL-BRHZ-0131X
Customs Union Russia (EAC)	TC RU C-DE.GB06.B.00334
Korea	KTL 14-KB4BO-0258X
India	CCEs P261984
More test certificates	www.bartec.de
EU-conformity	
RoHS-Directive	2011/65/EU
Standards in accordance with EMC Directive 2014/30/EU	EN/IEC 61000-6-2:2005 EN 61000-6-4:2007 + A1:2011 IEC 61000-6-4:2006 + A1:2010 EN 60529:1991 + A1 2000 + A2 :2013 IEC 60529:1989 + A1 1999 + A2 :2013
Electrical safety	EN/IEC 61010-1:2010
Product labelling	CE 0044

4. Technical data

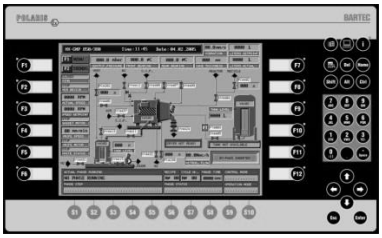
4.1 General data

Construction	Front panel fitting, optional turn-key system solutions in a stainless steel enclosure as floor or wall mounting.
Computer capacity	Processor 500 MHz 256 MB RAM Compact Flash 512 MB
Power supply	DC 24 V ±10 %
Max. power consumption	P_{max} < 30 W
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	 Polyester foil on anodized aluminium plate (conditionally UV-resistant) sheet steel bichromated
Permissible ambient temperature Storage/Transport Operation	 -20 °C to +50 °C 0 °C to +50 °C
Protection class Front Rear	 IP66 IP54
Optional approved accessories	Ex-i memory stick
Below +10 °C the unit has to be heated in order to guarantee the lifetime of the backlight illumination.	

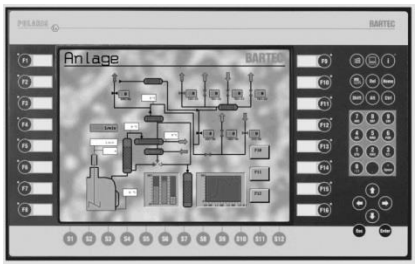
4.1.1 Characteristics POLARIS Panel PC 5.7"

Display 	5.7" graphics-capable TFT colour display 262,144 colours QVGA resolution 320 x 240 pixels Brightness 400 cd/m² Visible surface approx. 116 mm x 88 mm Contrast 400:1 Antireflection coating glass pane
Backlighting	CFL technology Service life approx. 50,000 hours (at +25 °C)
Keyboard (short-stroke keys)	Alphanumeric key block 4 cursor keys 6 special keys 10 function keys able to be labelled with LEDs
Interface (Basic version)	1 x Ex e RS422/RS485 1 x Ex i USB for Ex i memory stick
Dimensions (width x height x depth)	335 mm x 199 mm x approx. 130 mm
Wall cut-out (width x height)	321 mm x 179 mm ± 0,5 mm
Weight	approx. 10 kg

4.1.2 Characteristics POLARIS Panel PC 10.4"

Display 	10.4" graphics-capable TFT colour display 262,144 colours VGA resolution, 640 x 480 pixels Brightness 450 cd/m² Visible surface approx. 211 x 158 mm Contrast 600:1 Antireflection coating glass pane
Backlighting	CFL technology, Service life approx. 50,000 hours (at +25 °C)
Keyboard (short-stroke keys)	Alphanumeric key block 4 cursor keys 10 special keys 12 function keys able to be labelled with LEDs
Interface (Basic version)	1 x Ex e RS422/RS485 1 x Ex i USB for Ex I memory stick
Interface (optional)	1 x Ex i Supply module for hand-held scanner
Dimensions (width x height x depth)	400 mm x 246 mm x approx. 130 mm
Wall cut-out (width x height)	386 mm x 226 mm ± 0.5 mm
Weight	approx. 14 kg

4.1.3 Characteristics POLARIS Panel PC 12.1"

Display 	12.1" graphics-capable TFT colour display 262,144 colours SVGA resolution, 800 x 600 pixels Brightness 350 cd/m^2 Visible surface approx. 249 x 188 mm Contrast 400:1 Antireflection coating glass pane
Backlighting	CFL technology, Service life approx. 50,000 hours (at +25 °C)
Keyboard (short-stroke keys)	Alphanumeric key block 4 cursor keys 12 special keys 16 function keys able to be labelled with LEDs
Interface (Basic version)	1 x Ex e RS422/RS485 1 x Ex i USB for Ex i memory stick
Interface (optional)	1 x Ex i Supply module for hand-held scanner
Dimensions (width x height x depth)	440 mm x 275 mm x approx. 130 mm
Wall cut-out (width x height)	425 mm x 255 mm ± 0,5 mm
Weight	approx. 18 kg

4.2 USB Ex i Memory stick

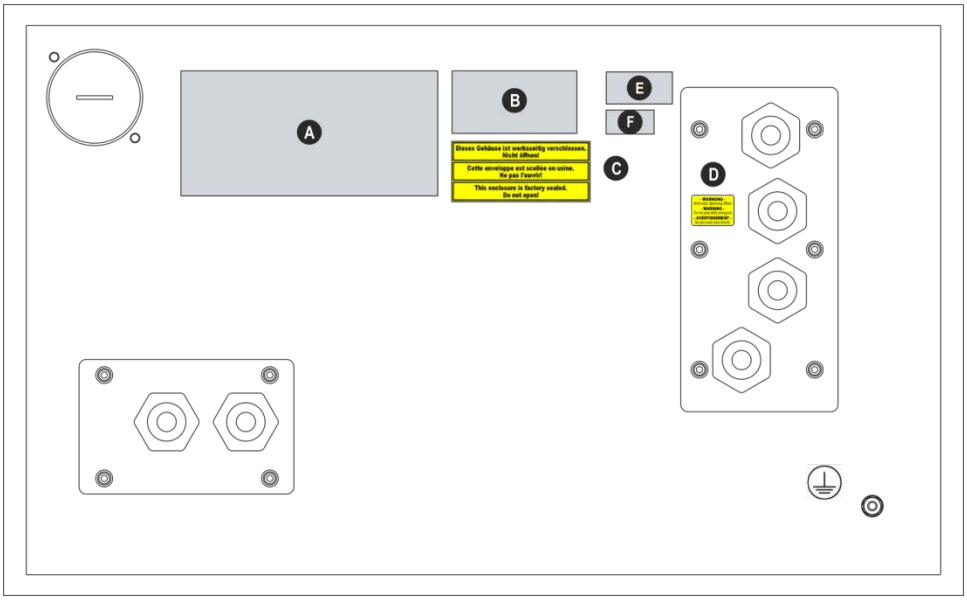
4.2.1 Explosion Protection

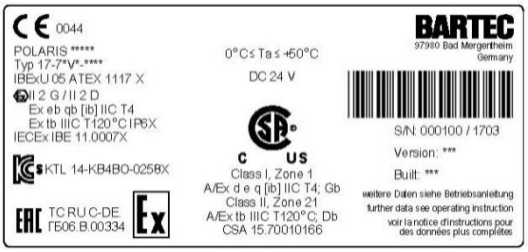
Type	17-71VZ-5000/0100
Ex protection type ATEX	Ⓔx II 2G Ex ib IIC T4 -20 °C ≤ Ta ≤ 60 °C
Certification	IBExU 05 ATEX 1117 X
Standards	EN 60079-0:2012 EN 60079-11:2012
Ex protection type IECEx	Ex ib IIC T4
Certification	IECEx IBE 11.0007X
Standards	IEC 60079-0:2011 Edition: 6 IEC 60079-11:2011 Edition: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

4.2.2 General Data

Product type	USB flash drive
Storage capacity	64 MB / FAT 16 system
Dimensions (width x height x depth)	approx. 92 mm x 22 mm x 7,2 mm
Weight	28 g
Material Enclosure	Anodized aluminum

4.3 Product labelling



A **Example: Type label with label ATEX and IECEx**	 CE 0044 POLARIS ***** Typ 17-7"V*-**** 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 KTL 14-KB4BO-0258X TC RU C-DE ГБ06.В.00334 0°C≤ Ta ≤ +50°C DC 24 V C US Class I, Zone 1 A/Ex d e q [ib] IIC T4; Gb Class II, Zone 21 A/Ex tb IIIC T120°C; Db CSA 15.70010166 BARTEC 97980 Bad Mergentheim Germany S/N: 000100 / 1703 Version: *** Built: *** weitere Daten siehe Betriebsanleitung further data see operating instruction voir la notice d'instructions pour des données plus complètes
B **IMMETRO type label**	 Segurança INMETRO BR OCP-0029 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 **Warning on terminal compartment!**	 - WARNUNG - Nicht unter Spannung öffnen - WARNING - Do not open while energized - AVERTISSEMENT - Ne pas ouvrir sous tension
E **License sticker**	depending on the operating system
F **Test sticker**	 Ex geprüft A 0712

Since 01.01.2016, all devices of the POLARIS BASIC series are delivered with an operating system: "Free DOS". "Free DOS" is an MSDOS compatible operating system, which falls under GNU (General Public License) and is thus freely available. No license sticker is required.

5. Transport, Storage, Scope and Assembly

5.1 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.

5.2 Intermediate storage

ATTENTION

Damage to property through incorrect storage!

▶ Comply with the correct storage temperatures.

▶ Keep the POLARIS free of moisture.

5.3 Scope of delivery

1 x POLARIS Panel PC

1 x Reinforcement frame

1 x Set of mounting clamps

1 x User manual POLARIS BASIC – Panel PC

Not enclosed

– Assembly Material,

– Cable for voltage supply and data line

5.3.1 Accessories optional

– Enclosure and supporting system for wall and floor mounting

5.4 Assembly

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

Required Tools:	POLARIS (mounting clamps)	1 x hex key 3 mm 1 x slotted screwdriver
	POLARIS termination-compartments	1 hey key 2,5 mm 1 x slotted screwdriver
	POLARIS PE-connection	1 x ring spanner 7 mm

5.4.1 Installation options

The POLARIS can be installed directly in:

- Enclosures
- Switch cabinet doors
- Operating consoles

The POLARIS series are mounted by fitting them into front panels, which can be done with very little effort. On request, we supply the operating devices as ready-to-use system solutions in stainless steel enclosures for mounting onto walls or floors.

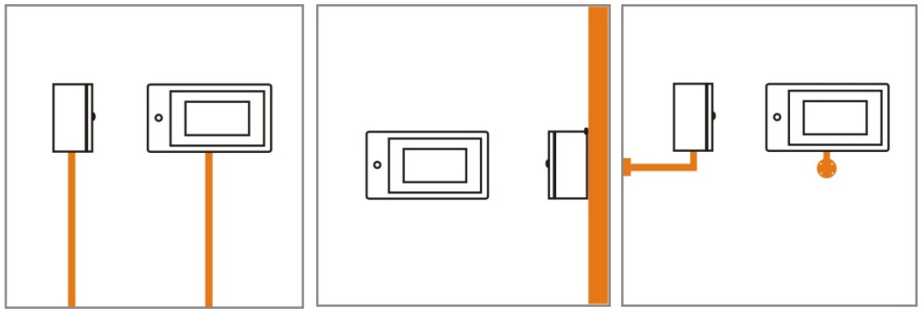


Illustration 6: Examples of floor and wall mounting

6. Installation

We recommend setting up and testing the entire system before its ultimate installation in the ex-area. If a long connection cable is not available, please use a patch cable to test the basic functions.

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 Series is approved for an ambient temperature of from 0 °C to +50 °C and a relative air humidity of from 5 to 95 % without condensation.

6.1 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

Selecting the location

CAUTION

Pay attention to wall and ground condition!

A sufficiently stable wall (e.g. concrete or limestone) or floor (e.g. concrete) must be selected for securing the load-bearing system.

- ▶ The structural stability of the wall or floor must be able to bear 4 times the weight of the POLARIS as system solution.
- ▶ The support arm system must be assembled using suitable mounting materials (M12) (e.g. dowels or stud bolts).

- 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.

POLARIS with CFL backlighting

– 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.

Outdoor installation

ATTENTION

Damage from condensation or 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.

6.2 Mechanical installation

⚠ 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.

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.

6.2.1 Installation in 2G-/2D-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.

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.

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 BASIC 5.7"	05-0205-0006
POLARIS BASIC 10.4"	05-0205-0008
POLARIS BASIC 12.1"	05-0205-0007

Fit the reinforcement frame

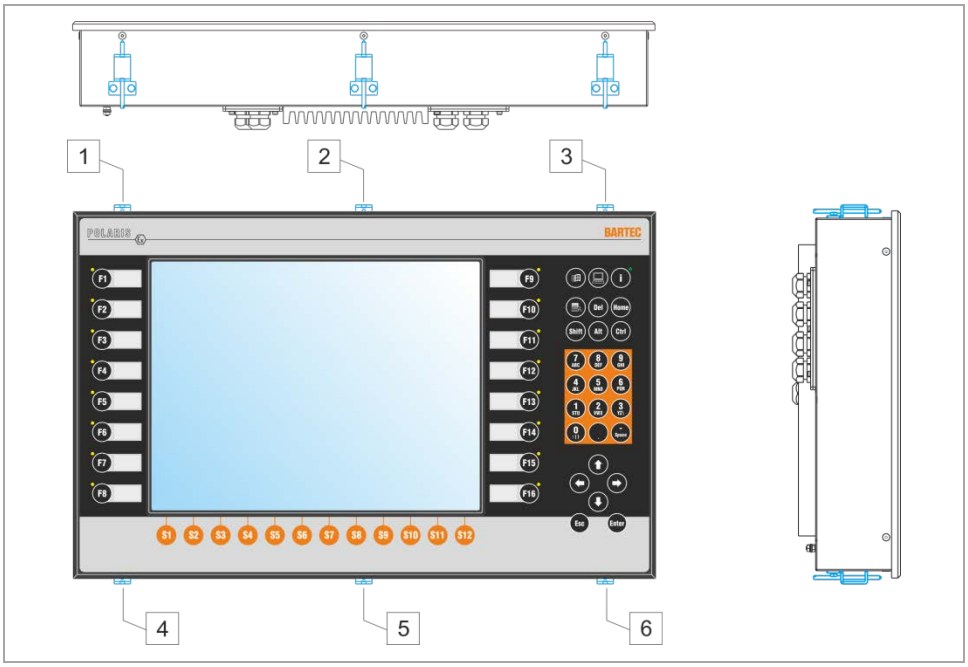


Illustration 7: Minimum installation depth and mounting reinforcement frame

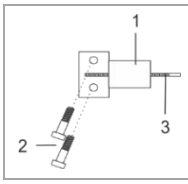
Work steps

(1) Insert the POLARIS into the cut-out in the enclosure.

(2) From the back, place the reinforcement frame over the POLARIS.

(3) Using the M4x12 (2) screws to fasten the mounting clamps (1) to the rear side of the POLARIS and tighten to 1.37 Nm.

(4) Tighten the clamping screw (3) of the mounting clamps to a torque of 1.02 Nm.



Number of retaining claws	
POLARIS BASIC 5.7" / 10.4" / 12.1"	6 pieces

Always tighten the mounting clamps crosswise.

6.2.2 Installation as a System Solution in the Stainless Steel Enclosure

The POLARIS is available as a ready-made system solution in a stainless steel enclosure e.g. for floor or wall mounting.

CSA approval

The CSA approval for the POLARIS series only includes the basic device POLARIS BASIC.

Other system solutions and mounting systems (e.g. table mounting) have **not** been tested and approved in accordance with CSA.

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.

Selecting the location

CAUTION

Pay attention to wall and ground condition!

- A sufficiently stable wall (e.g. concrete or limestone) or floor (e.g. concrete) must be selected for securing the load-bearing system.
- The structural stability of the wall or floor must be able to bear 4 times the weight of the POLARIS as system solution.
- The support arm system must be assembled using suitable mounting materials (M12) (e.g. dowels or stud bolts).

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

Work steps

(1) Prepare supply and data line(s).

(2) Prepare installation on the basis of the drilling template (see illustration 8 - 9).

(3) Install supply and data line(s) in the base.

(4) Fasten the supporting system.

(5) Pull supply and data line(s) through the cable glands provided into the enclosure. Ensure there is sufficient length.

(6) Mount the enclosure on the supporting system.

(7) Open the terminal compartments on the POLARIS and feed the supply and data line(s) through the cable glands and wire them. Block unused terminal compartments with a blanking plug.

(8) Close the door of the enclosure.

6.2.3 Floor mounting stainless steel enclosure

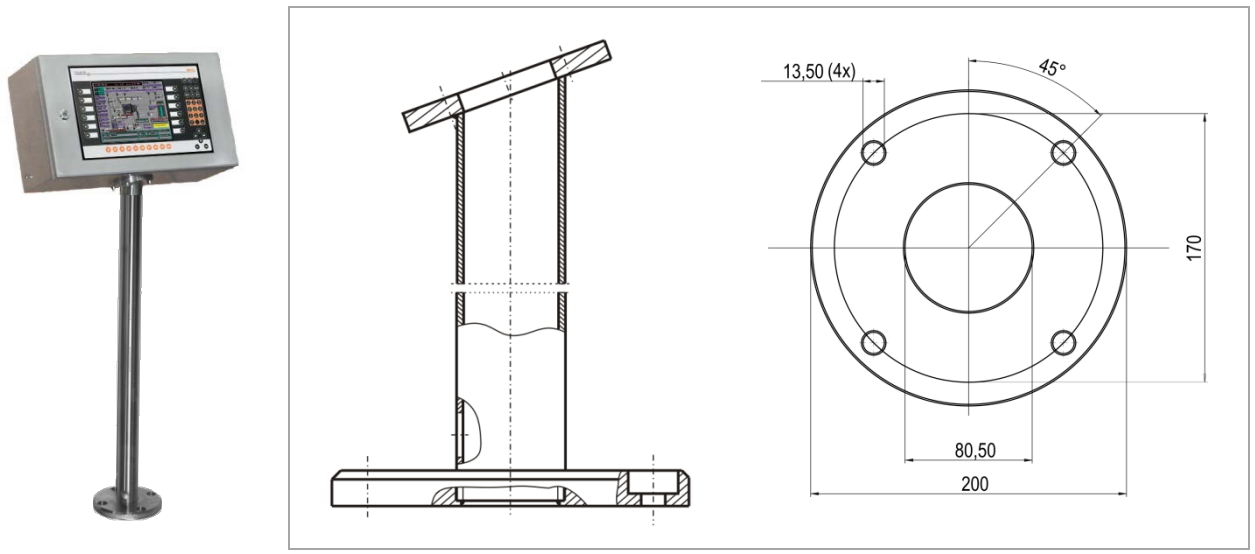


Illustration 8: Base – drilling template base plate

6.2.4 Wall mounting Stainless steel enclosure

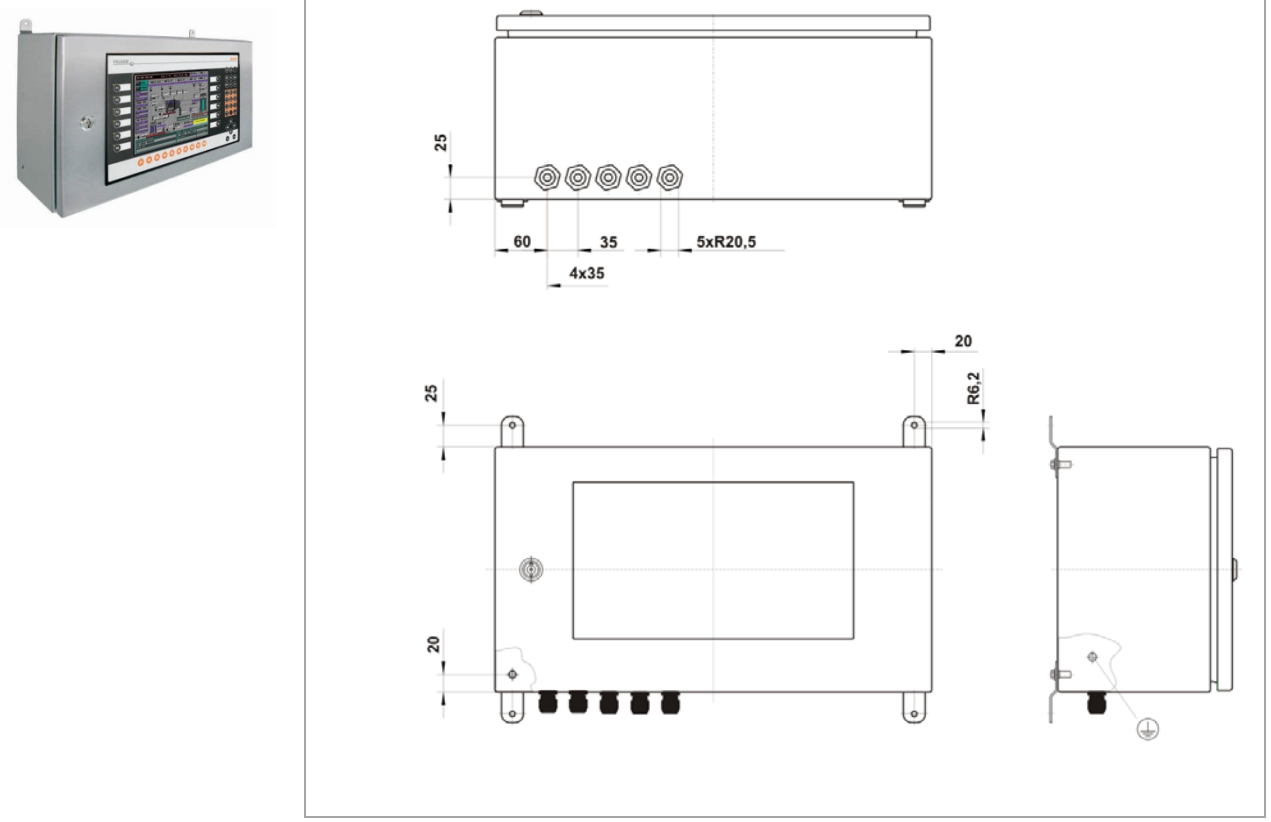


Illustration 9: Wall mounting – dimensions of mounting straps

6.3 Electrical installation

6.3.1 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.).

6.4 Terminal compartments

DANGER

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

The explosion protection is lost if opened, and danger to life exists in an explosive atmosphere!

▶ Do not open the locking screw!

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.

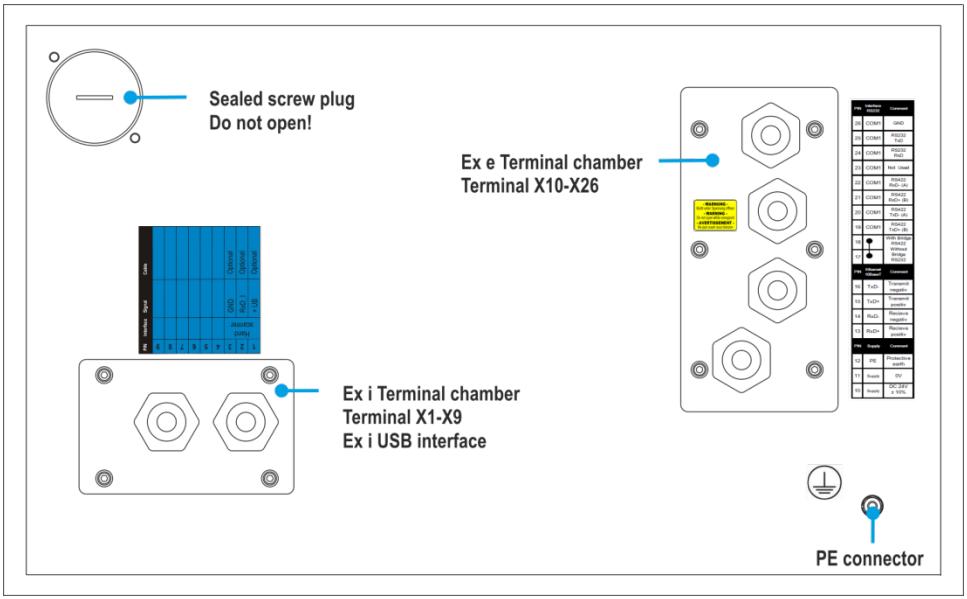


Illustration 10: Pin assignment POLARIS

All connection screws and terminals in the terminal compartment must be tightened with a torque spanner under consideration of the recommended torque of 0.4 Nm up to a max. 0.5 Nm.

6.5 PE conductor connection

DANGER

Death or danger of injury as a result of no PE conductor connection.
There is no explosion protection.

- ▶ Equipotential bonding with a core cross-section of at least 4 mm² is to be set up for the POLARIS (see Figure).
- ▶ Secure PE conductor connections against self-loosening.

Stainless steel enclosure

- ▶ Attach equipotential bonding to the enclosure.
- ▶ All moving parts must be earthed.
- ▶ Secure PE conductor connections against self-loosening.

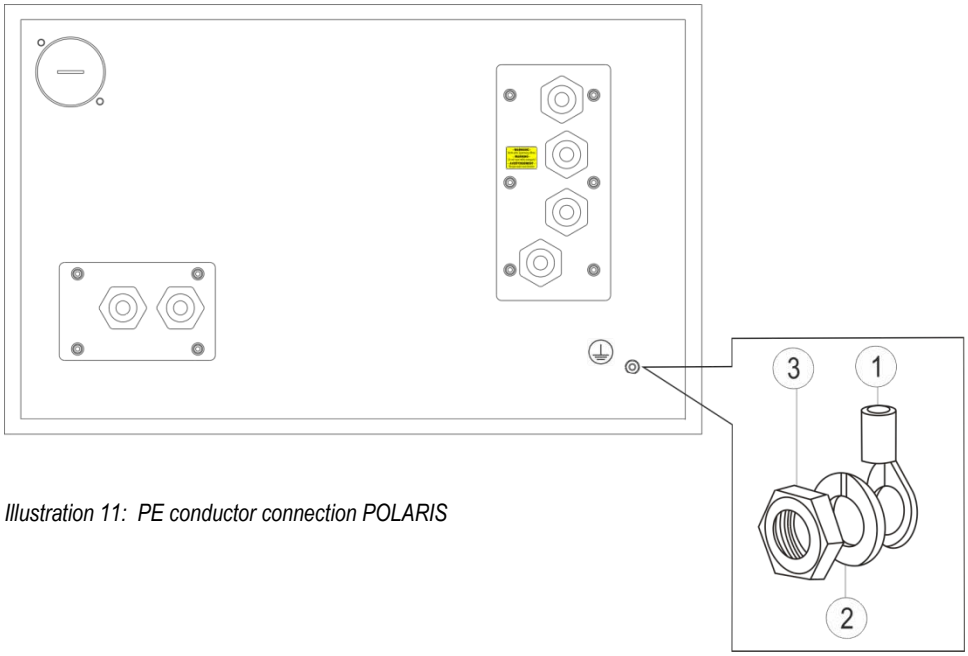


Illustration 11: PE conductor connection POLARIS

Work steps

(1) Push non-sheathed cable with PE cable lug (1) on to earthing stud.

(2) Position spring washer (2) on threaded bolt and secure with hexagonal nut (3), max. torque: 2.9 Nm.

(3) Lay cable close to enclosure so that it cannot become loose.

ATTENTION

Device can be damaged by differences in potential!

- ▶ Avoid differences in potential (see chapter 6.8.5)

6.6 Ex e terminal compartments

6.6.1 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.

The terminal area of the M20 cable glands is printed on the cable glands.

A different terminal area may only be substituted with a cable gland that complies with the current version of the approval.

The assembly instructions and installation conditions for the cable glands must be observed.

Tightening torque of the cable glands

Torque	Connecting thread	Nut
non-armoured cables	2,3 Nm	1,5 Nm
armoured cables	8 Nm	5 Nm

DANGER

Do not connect cables and leads when the power supply is active.
Danger to life exists in an explosive atmosphere!

- ▶ Das Gerät vor Beginn der Arbeiten spannungsfrei schalten.
- ▶ Nur zertifizierte Kabelverschraubungen verwenden, die für den Kabeldurchmesser der Anschlussleitung zugelassen sind
- ▶ Nicht benötigte Kabelverschraubungen müssen durch einen zugelassenen Blindstopfen verschlossen werden.

6.6.2 Supply voltage terminal assignment)

Mains Connection Variant DC 24 V			
Terminal	**Interface**	**Signal**	**Remarks**
X10	Supply	L	DC 24 V ± 10 %
X11	Supply	N	Neutral
X12	Supply	PE	Protective earth

6.6.3 Ethernet terminal assignment

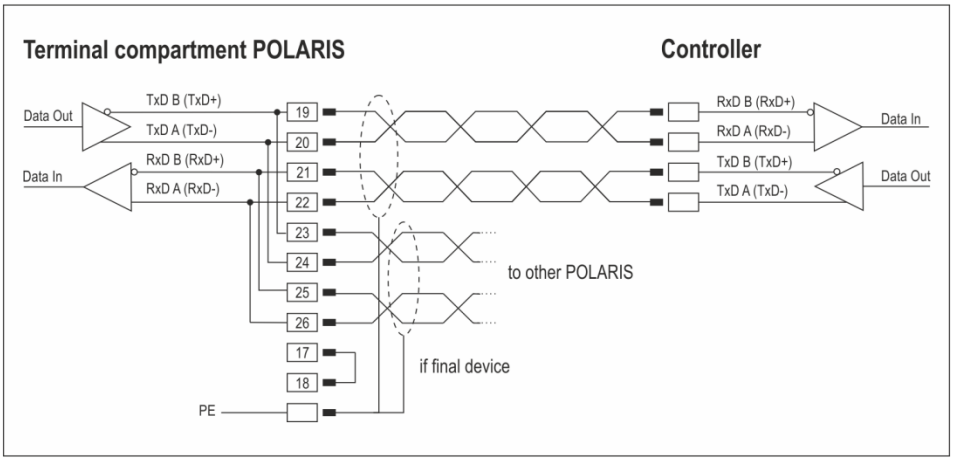
Configuration Ethernet 10BaseT				
Terminal	**Interface**	**Signal**	**Remarks**	
X13	Ethernet	RxD +	10BaseT Receive	positive
X14	Ethernet	RxD -	10BaseT Receive	negative
X15	Ethernet	TxD +	10BaseT Transmit	positive
X16	Ethernet	TxD -	10BaseT Transmit	negative

The Ethernet 10BaseT interface is not supported by the software.

6.6.4 RS422/RS485 interface (optional)

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 cable	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)



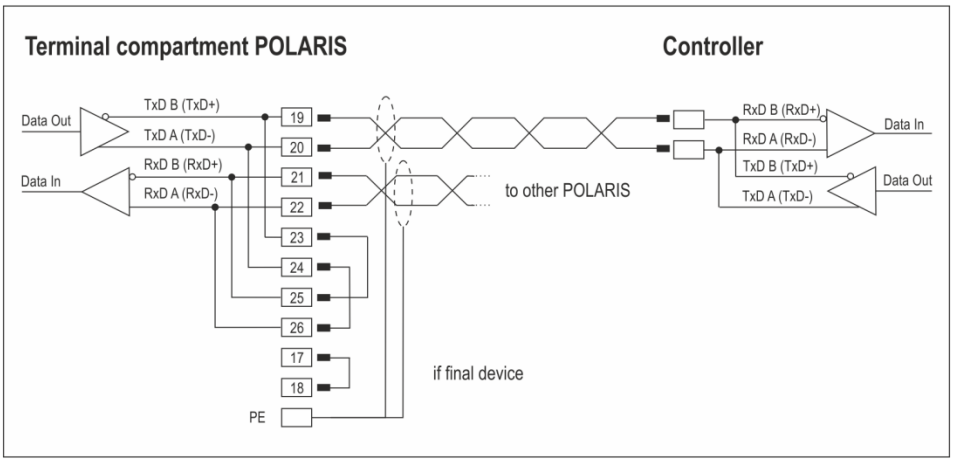
Maximum length of the data line 1,000 m.

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.

RS485 connection mode (semi duplex)



Maximum length of the data line 1,000 m.

BARTEC delivers all RS485 interfaces as RS422.

If the RS422 interface is used as RS485, external bridges must be placed between pin 23/pin 25 and between pin 24/pin 26.

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

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.

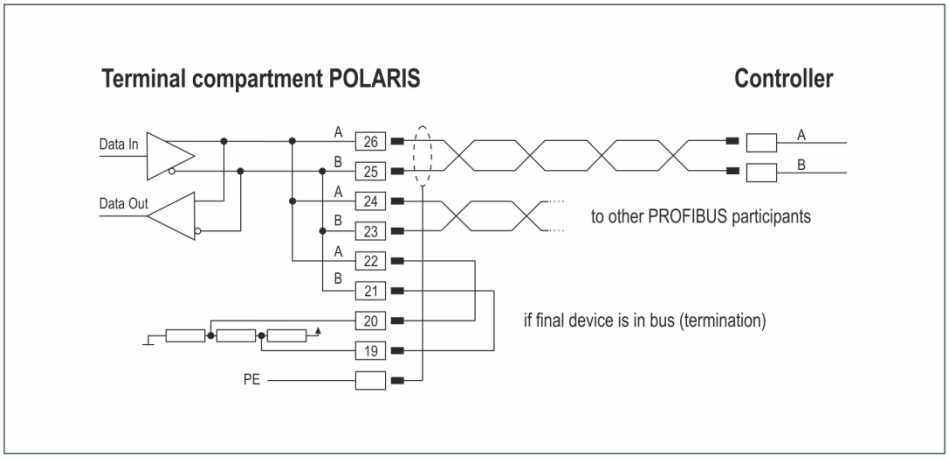
Depending on local circumstances, the data transmission may worsen in individual cases.

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

6.6.5 PROFIBUS-DP interface (optional)

Configuration PROFIBUS-DP (BARTEC)			
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.

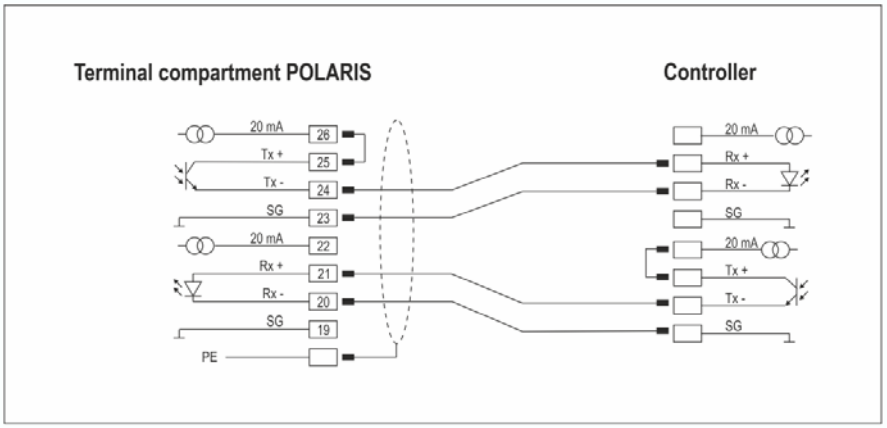
Pins 26-24-22, 25-23-21 are already connected inside.

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

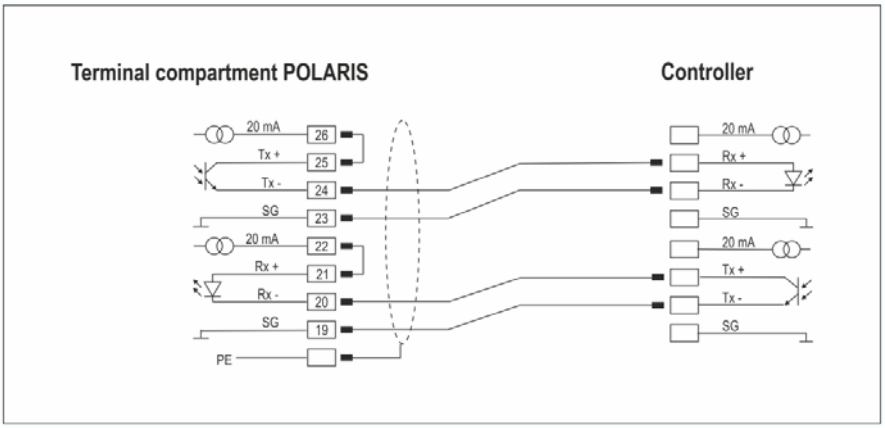
6.6.6 TTY interface (optional)

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.



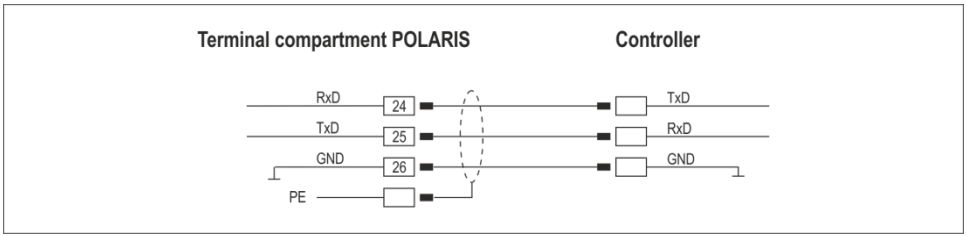
Maximum line length depending on baud rate of up to 1,000 m.

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

6.6.7 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.

6.7 Ex i terminal compartment

DANGER

Accessories which have not been approved jeopardise the explosion protection. Danger to life exists 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.

6.7.1 Ex i USB interface for BARTEC Ex i memory stick

USB socket, 4-pole, Type A

ATTENTION

The Ex i interface has not been designed for USB devices with their own power supply. Damage to property through incorrect use!

▶ Do not connect any USB equipment with its own power supply to the Ex i interface.

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

6.7.2 Connection of a BARTEC BCS 160ex hand scanner (optional)

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 scanner	+UB	Supply voltage +5 V
X2	Hand scanner	RxD-I	Data input RS232-Signal
X3	Hand scanner	GND	Earth connected to protective ground
Intrinsically safe data and supply current circuits Terminal 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

The BCS 160ex hand scanner series can only be used with the original connection cable from BARTEC. Not compatible is the hand scanner BCS 160ex with 1D/2D Imager (Type 17-21BA-M31S/I0000000)

Connection cable to BCS 160ex Barcode hand scanner (pre-assembled)

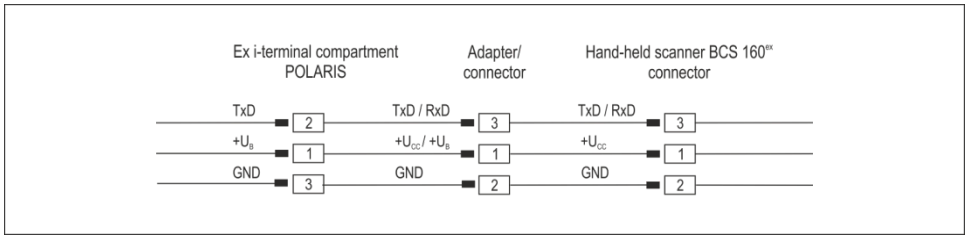
Cable specified for connection to:	Scanner cable	Version	Length	BARTEC order no.
POLARIS supply module	RS232/RS422 RS232/RS422	Smooth spiral	1.8 m 3.8 m	17-21BE-M000/0000 17-21BE-M010/0000

Connection cable to BCS 160ex BT Bluetooth hand scanner (pre-assembled)

Cable specified for connection to:	Scanner cable	Version	Length	BARTEC order no.
POLARIS supply module	RS232/RS422 RS232/RS422	Smooth spiral	1.8 m 3.8 m	17-21BE-M020/0000 17-21BE-M030/0000

Terminal connection diagram

BCS 160ex hand scanner to supply module by means of connector/adapter.



6.8 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

6.8.1 Voltage supply (DC variants)

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 in the DC variant of the supply line is calculated with the following formula:

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	At least 0,8 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.

6.8.2 Back-up fuse

The POLARIS BASIC 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.

6.8.3 Interference suppression

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.

6.8.4 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.

6.8.5 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).

6.8.6 Examples of shielding connections

ATTENTION

Device can be damaged by differences in potential!

▶ Avoid differences in potential.

Double-sided shield connection on the connecting cables

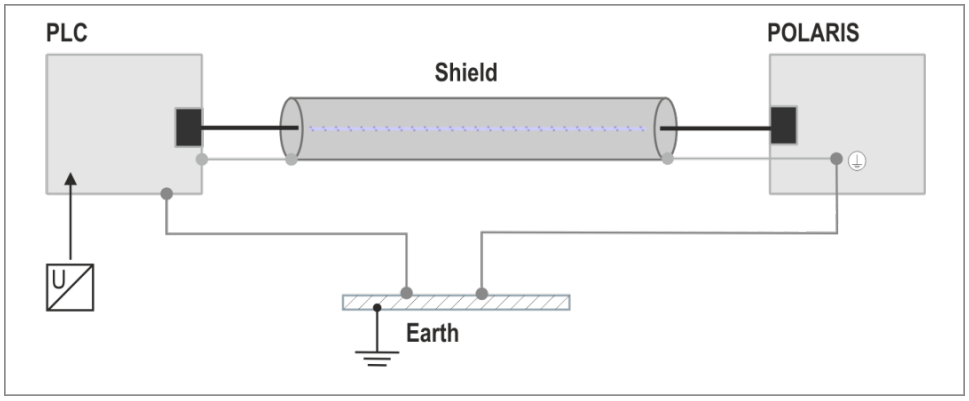


Illustration 12: Example of double-sided shield connection

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

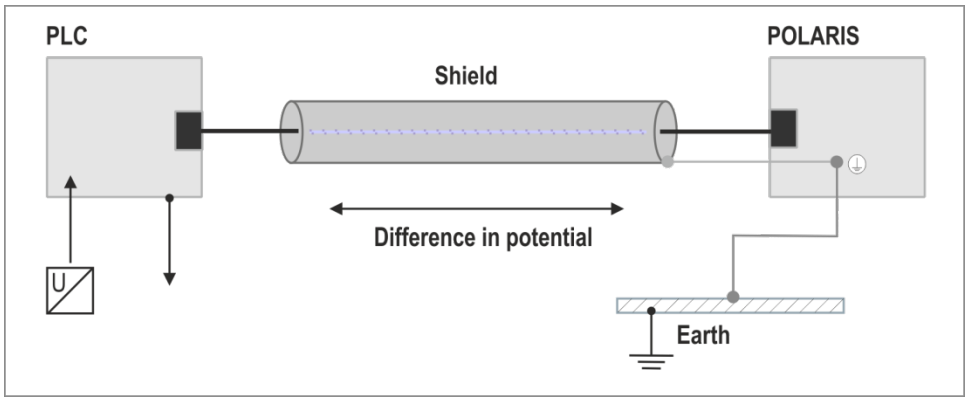


Illustration 13: Example of single-sided shield connection

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.

7. Commissioning

For electrical systems the relevant installation and operating specifications (e.g. Directives 2014/34/EU, 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.

7.1 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.

POLARIS BASIC

- 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?
- Is the PE connection correctly earthed?
- 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.

ATTENTION

POLARIS with CFL backlighting:

Damage to property resulting from failure to comply with ambient conditions!

Once the heating is switched on, the POLARIS can be used at ambient temperatures from -20 °C to +50°C.

- ▶ Observe the storage temperatures and protect POLARIS from moisture.
- ▶ If the ambient temperature is under 0 °C, the heating must be put on 24 hours before the POLARIS is put into operation.
- ▶ If the POLARIS is switched off at ambient temperatures under 0 °C, an advance heating time of 24 hours must be observed again.

8. Operation

The device can be put into operation after the final check has been made.

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

8.1 Operating system

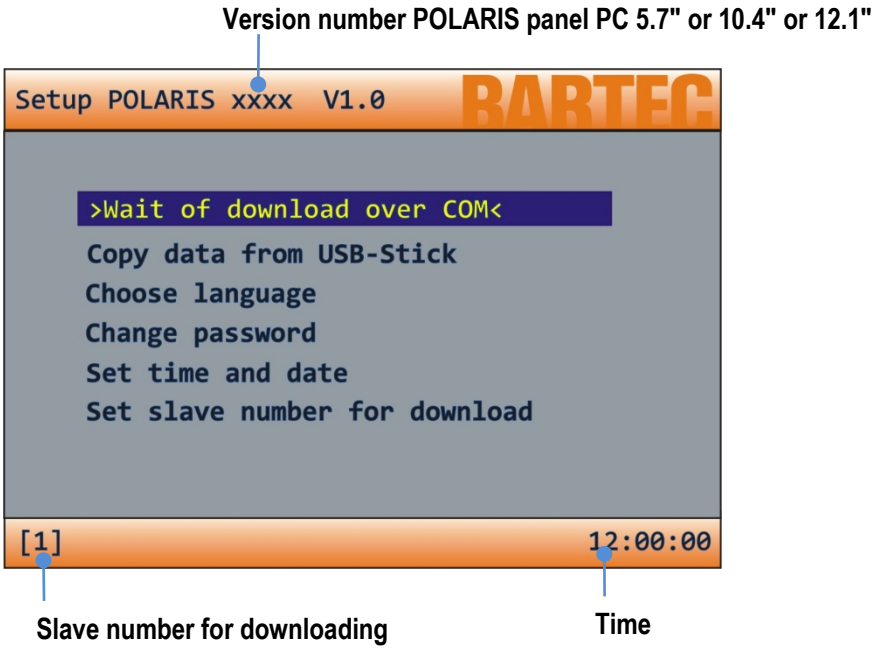
The MS-DOS operating system is preinstalled on devices from the POLARIS BASIC Series. The licence sticker can be found on the back of the POLARIS (Until 12/31/2015).

Since 01.01.2016, all devices of the POLARIS BASIC series are delivered with an operating system: "Free DOS". "Free DOS" is an MSDOS compatible operating system, which falls under GNU (General Public License) and is thus freely available. No license sticker is required.

8.2 Configuration/Setup

The set-up languages are exclusively German, English and French.

The SETUP menu starts approx. 5 sec. after connecting the POLARIS to the power supply.



The SETUP supports the basic configuration of the POLARIS BASIC Series and enables own programs to be downloaded for example.

- Select the menu item using the " ⬆" and "⬇" buttons.
- Confirm with the "Enter" button.

```
>Wait of download over COM<
```

Download via PROFIBUS is not possible.

Transfering a project with BMS-Graf pro to the POLARIS

- Select the menu item with the “Enter” button.
- Enter the password.
- Download starts.
- Exit download with the “ESC” button.

```
>Copy data from USB-Stick<
```

- Create project in BMS-Graf-pro and transfer to the POLARIS using a USB stick.
- Select menu item with the “Enter” button.
- Enter the password.
- Insert USB stick (with project in the created folder **BGXP2005**).
- Start transfer by pressing the “Enter” button.

```
>Choose language<
```

- Select menu item with the “Enter” button.
- Displays all available languages.
- Change to selected language using the “Enter” button.

```
>Change password<
```

- Select menu item with the “Enter” button.
- Enter the password.
- Optionally create new password.
- Confirm change.
- Return to the SETUP menu.

```
>Set time and date<
```

- Select menu item with the “Enter” button.
- Enter the password.
- Change the time/date using the cursor buttons.
- Adopt the new values using the “Enter” button.

```
>Set slave number for download<
```

- Select menu item with the “Enter” button.
- Enter the password.
- Enter new slave number using keypad.
- Adopt the new values using the “Enter” button.

9. Faults and troubleshooting

Fault	Possible cause	Remedy
Nothing is shown on the display	No power supply present	Check connection of the power supply
	External back-up fuse has tripped	Check fuse
	Internal fuse has tripped	Return to the manufacturer
	Backlighting faulty	Return to the manufacturer Replace the backlighting
	Device malfunction	Return to the manufacturer
No current consumption	No power supply present	Check connection of the power supply
	External back-up fuse has tripped	Check the fuse
	Internal fuse has tripped	Return to the manufacturer
	Device malfunction	Return to the manufacturer
Display turns on and off constantly	Power supply is too low.	Check diameter and length of cable. see Chapter 6.8
Display always has stripes.	Display is defective or the device doesn't boot up.	Return to the manufacturer
Dark background	The backlighting is coming to the end of its service life.	Return to the manufacturer Replace the backlighting
No transfer of project possible using the USB stick	The wrong USB stick has been used.	Check that the BARTEC Ex i memory stick is being used.
	Incorrect format (FAT32 or NTFS)	Format the USB stick in FAT 16
	No directory created on the USB stick.	See Add-On user manual for BMS-Graf pro V6.x.x.x http://automation.bartec.de/

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 EN/IEC 60079-17 and EN/IEC 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 EN/IEC 60079-17 and EN/IEC 60079-19 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

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.

Our devices are intended as professional electric devices for business use only, referred to as B2B devices under the WEEE-Directive. The WEEE directive sets the framework for waste electric and electronic equipment handling procedures which are to apply throughout the EU. This means that you are not permitted to dispose of this equipment in normal household refuse. It should not be given to the collection sites set up by the public waste management authorities either but instead it should be disposed of in a separate collection in an environmentally sound manner.

Any product we supply can be returned by our customers to us when the time has come to dispose of it. We will ensure that it is disposed of in accordance with the respective applicable statutory regulations.

The sender pays the costs of the dispatch/packaging.

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.
Mounting clamps	6 pieces	05-0091-0112
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 Panel PCs:

Name		Order no.
Visualization software „BMS-Graf-pro V6.x.x.x“	Full version	17-28TF-0071/0x00
	Upgrade	17-28TF-0071/0x01
Ex i memory stick		17-71VZ-5000
Mounting clamps	4 pieces	05-0091-0111
	6 pieces	05-0091-0112
Stainless steel enclosure for floor mounting including stand		
	POLARIS 5.7"	07-56D7-9011/9002
	POLARIS 10.4"	07-56D7-9611/9002
	POLARIS 12.1"	07-56D7-9711/9002
Stainless steel enclosure for wall mounting including mounting straps		
	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	03-8900-0224
Hand-held scanner BCS 160[ex]		17-21BA-M3.S.-……
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

Panel PC 5.7"

Selection chart

Version	Interfaces	Code no.
Panel PC 5.7"	RS422/485	00
	PROFIBUS-DP*	02
	RS232	09
	TTY	11

* Download only via USB Ex i-memory stick.

Complete order no. 17-71V1-10 ☐☐

Panel PC 10.4"

Selection chart

Version	Interfaces	Code no.
Panel PC 10.4"	RS422/RS485	00
	PROFIBUS-DP*	02
	RS422/RS485, supply module for hand-held scanner	04
	PROFIBUS-DP, supply module for hand-held scanner*	06
	RS232	09
	TTY	11
	RS232, supply module for hand-held scanner	13
	TTY, supply module for hand-held scanner	15

* Download only via USB Ex i-memory stick.

Complete order no. 17-71V1-20 ☐☐

Panel PC 12.1"

Selection chart

Version	Interfaces	Code no.
Panel PC 12.1"	RS422/RS485	00
	PROFIBUS-DP*	02
	RS422/RS485, supply module for hand-held scanner	04
	PROFIBUS-DP, supply module for hand-held scanner*	06
	RS232	09
	TTY	11
	RS232, supply module for hand-held scanner	13
	TTY, supply module for hand-held scanner	15

* Download only via USB Ex i-memory stick.

Complete order no. 17-71V1-30 ☐☐

15. Additional information

Resistance list – polyester front foil
POLARIS series

BARTEC

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

16. Declaration of conformity

EU Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de conformité

N° 11-71V0-7C0001_B

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

Wir	We	Nous
BARTEC GmbH,		
erklären in alleiniger Verantwortung, dass das Produkt	declare under our sole responsibility that the product	attestons sous notre seule responsabilité que le produit
POLARIS Serie	**POLARIS serie**	**POLARIS sèrie**

Typ 17-71V0-**/******
Typ 17-71V1-**/******
Typ 17-71V2-**/******
Typ 17-71V3-**/******
Typ 17-71VZ-**/******

auf das sich diese Erklärung bezieht den Anforderungen der folgenden **Richtlinien (RL)** entspricht	to which this declaration relates is in accordance with the provision of the following **directives (D)**	se référant à cette attestation correspond aux dispositions des **directives (D)** suivantes
ATEX-Richtlinie 2014/34/EU	**ATEX-Directive 2014/34/EU**	**Directive-ATEX 2014/34/UE**
EMV-Richtlinie 2014/30/EU	**EMC-Directive 2014/30/EU**	**Directive-CEM 2014/30/UE**
RoHS-Richtlinie 2011/65/EU	**RoHS-Directive 2011/65/EU**	**Directive-RoHS 2011/65/UE**

und mit folgenden Normen oder normativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents	et est conforme aux normes ou documents normatifs ci-dessous

EN 60079-0:2012+A11 :2013
EN 60079-1:2007
EN 60079-5:2007
EN 60079-7:2007
EN 60079-11:2012
EN 60079-28:2007
EN 60079-31:2014

EN 61000-6-2:2005
EN 61000-6-4:2007
+A1 :2011
EN 60529 :1991
+A1 :2000 +A2 :2013
EN61010-1 :2010

Kennzeichnung	Marking	Marquage

Visualisierungsgerät
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° C

Zubehör
II 2G Ex ib IIC T4
II 2D Ex ib IIIC T120° C

03-0383-0362

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EU Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de conformité

BARTEC

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

Nº 11-71V0-7C0001_B

Verfahren der EU-Baumuster-prüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
	IBExU 05 ATEX 1117 X 0637 IBExU, Fuchsmühlenweg 7, 09599 Freiberg, D	

CE 0044

Bad Mergentheim, den 20.01.2017

i.V. Nader Halmuschi
BU Leiter

i.V. Michael Schulte
Leiter GW PZ

03-0383-0362

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All certificates see www.bartec.de

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for safety
technology.
Challenge us!

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