

**User Manual - TRANSLATION****POLARIS PROFESSIONAL****POLARIS II Panel PC 24" / 22" / Panel PC 19.1"**

Type 17-72V4-....

**ATEX Zone 2**

**ATEX Zone 21/Zone 22**

Document No. 11-71V4-7D0001

Revision 1 / December, 06<sup>th</sup>, 2018

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

Contents	Page
English	1 - 52



<b>1.</b>	<b>Basic Safety Instructions</b>	<b>1</b>
1.1	Notes on this manual	1
	Languages	2
	Changes to the document	2
1.2	Handling the product	2
1.3	Use in accordance with the intended purpose	2
1.3.1	Exclusive purpose	2
1.3.2	Improper Use	2
1.3.3	Owner's/Managing Operator's Obligations	3
1.4	Safety Instructions	3
1.4.1	General Safety Instructions	3
1.5	Safety Instructions for Operation	3
1.5.1	Upkeep	3
1.5.2	Maintenance	3
1.5.3	Inspection	4
1.5.4	Repairs	4
1.5.5	Commissioning	4
1.6	Ex Protection Type, Certification and Standards	4
1.7	Warranty	5
<b>2.</b>	<b>Product Description</b>	<b>6</b>
2.1	Definition	6
2.2	Schematic design	7
2.2.1	PLC connection	7
2.2.2	Connection with Bluetooth Scanner	7
2.2.3	HMI with mobile process monitoring (separate WLAN network)	7
<b>3.</b>	<b>Explosion protection and approvals</b>	<b>8</b>
3.1	Explosion protection	8
<b>4.</b>	<b>Technical Data</b>	<b>9</b>
4.1	General data	9
4.1.1	Characteristics POLARIS II Panel PC Professional PC 19,1"	10
4.1.2	Characteristics POLARIS II Panel PC Professional PC 22"	10
4.1.3	Characteristics POLARIS II Panel PC Professional PC 24"	11
4.1.4	Techn. Data for Keyboard	11
4.1.5	USB Smart Device	12
4.1.6	Heating (Optional) for Version up to -20°C	13
4.1.7	Speaker (optional)	13
4.2	Product Labeling	14
<b>5.</b>	<b>Transport and Assembly</b>	<b>15</b>
5.1	Transport	15
5.2	Intermediate Storage	15
5.3	Assembly	15
<b>6.</b>	<b>Installation</b>	<b>16</b>
6.1	Requirements	16
6.2	Mechanical installation	17
6.2.1	Floor mounting	18
6.2.2	Wall mounting	18
6.2.3	Table mounting	19
6.2.4	Rotating/ Inclining	19

6.3	Electrical Installation .....	20
6.3.1	Installation guidelines .....	20
6.3.2	PE conductor connection.....	21
6.3.3	Connection cables.....	21
6.4	Junction Box .....	22
6.4.1	POLARIS Junction Box .....	23
6.4.2	Terminal assignment X1.....	23
6.4.3	Terminal assignment X1 with Heating HCS (optional).....	24
6.4.4	Terminal assignment X2.....	24
6.4.5	Establishing the LAN connection .....	25
6.4.6	Terminal assignment in conformance to T568B .....	26
6.5	EMC (Electromagnetic Compatibility) .....	27
6.5.1	Note .....	27
6.5.2	Voltage supply (AC- and DC- variants).....	27
6.5.3	Back-up fuse .....	28
6.5.4	Interference suppression .....	28
6.5.5	Shielding.....	28
6.5.6	Connection of shielding .....	28
6.5.7	Examples of Shielding Connections .....	29
7.	<b>Commissioning.....</b>	<b>30</b>
7.1	Final Inspection.....	30
8.	<b>Operation.....</b>	<b>31</b>
8.1	Operating system.....	31
8.1.1	Windows 10 IOT .....	31
8.1.2	Windows 7 Ultimate.....	32
8.2	Onboard Bartec Recovery Solution .....	32
8.2.1	Bartec Recovery Solution .....	32
8.2.2	Start of the device in the Recovery mode.....	32
8.2.3	Recovery surroundings.....	33
8.2.4	4. Recovery application .....	34
8.2.5	Restoration in the work state .....	35
8.2.6	Finishing the recovery .....	37
8.3	Recovery Function.....	38
8.3.1	Backup .....	39
8.3.2	Reset with USB Stick.....	39
8.3.3	Switching Off and Shutting Down .....	39
8.4	Calibration of Touch Screen .....	39
8.4.1	Calibration of Touch Screen .....	39
9.	<b>Troubleshooting .....</b>	<b>40</b>
10.	<b>Maintenance, Inspection, Repair.....</b>	<b>41</b>
10.1	Maintenance intervals.....	41
10.2	Inspection .....	41
10.3	Maintenance and Repair Work .....	41
10.3.1	Instructions for Repairs.....	42
11.	<b>Disposal.....</b>	<b>42</b>
12.	<b>Dispatch and Packaging Instructions .....</b>	<b>42</b>
13.	<b>Accessories, Spare Parts .....</b>	<b>43</b>
14.	<b>Ersatzteile.....</b>	<b>43</b>
15.	<b>Order Numbers .....</b>	<b>44</b>

16.	Additional Information .....	45
17.	EU Declaration of Conformity .....	46









# 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 (2014/34/EU, EN 60079-17 and EN/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 close 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 from the actual construction of the device.

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 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 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.

### **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 and English. If you require any other languages, please ask BARTEC or request them when placing the order.

### **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 from the "Automation Technology" product page at [www.bartec.de](http://www.bartec.de) or ordered 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 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 II Panel PCs have been designed specially for use in hazardous (potentially explosive) areas in Zone 2 or Zones 21 and 22.

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.

### **1.3.3 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, 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

## **1.4 Safety Instructions**

### **1.4.1 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.

## **1.5 Safety Instructions for Operation**

### **1.5.1 Upkeep**

For electrical systems the relevant installation and operating regulations must be complied with (e.g. Directive 2014/34/EU and the national applicable ordinances EN 60079-14 and the DIN VDE 0100 series)!

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

### **1.5.2 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".

### **1.5.3 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.

### **1.5.4 Repairs**

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.

### **1.5.5 Commissioning**

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

## **1.6 Ex Protection Type, Certification and Standards**

Markings specifying Ex protection and certification are put on the device. For Ex protection markings, see chapter 4 "Technical Data".

The POLARIS II Panel PCs conform to Directive 2014/34/EU 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 "Explosion protection and approvals".

## 1.7 Warranty



### **WARNING**

**If components other than those specified are used, protection against explosion can no longer be assured.**

- ▶ Do not take any modifications or conversions on device.
- ▶ Use only original spare parts parts.



The manufacturer grants a complete guarantee 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, 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 from the BARTEC delivery date. 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

The POLARIS II Panel PCs are based on a fast Intel® TM Celeron® CPU.

The Ethernet interface enables individual computers or network devices such as for example a printer to be connected to an existing local network (LAN) (optionally through WLAN also) or local networks to be set up completely wirelessly.

High-performance visualising and operation of the processes directly on site.

State-of-the-art display technology provides optimum contrast even with a large viewing angle. A touchscreen is available as an optional extra. It offers the utmost in operating convenience.

To allow the greatest ease in utilisation, a supporting system is available for mounting the POLARIS II Panel PCs on the wall, floor or ceiling.

As standard, the POLARIS II Panel PCs has pre-installed Windows® 10 IoT Enterprise or Windows 7® Ultimate. This means that the PCs are open for many different software packages, for example customized software or various types of commercially available standard visualisation software.



*Illustration 1: POLARIS II Panel PC in the stainless-steel enclosure, rotatable/inclinable with touchscreen, keyboard with integrated touchpad*

## 2.2 Schematic design

### 2.2.1 PLC connection

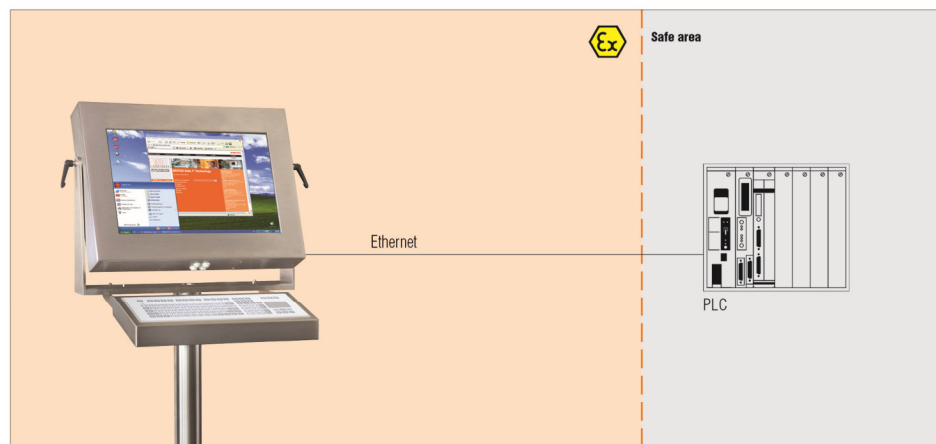
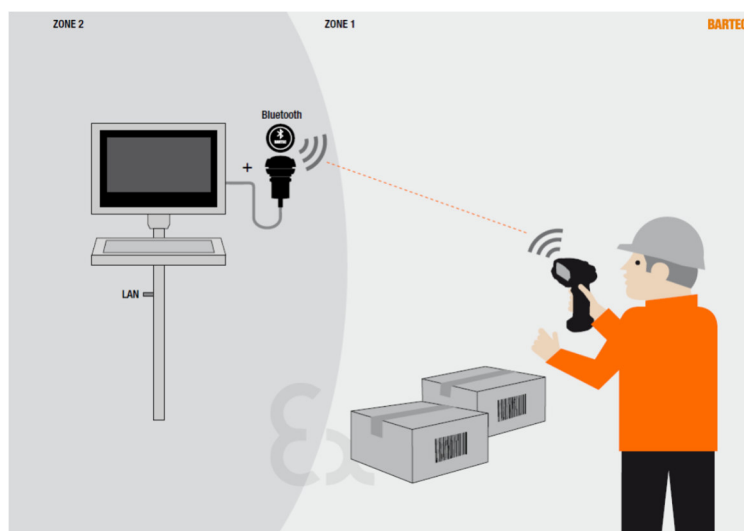


Illustration 2: Example for possible connection

### 2.2.2 Connection with Bluetooth Scanner








### 2.2.3 HMI with mobile process monitoring (separate WLAN network)



### 3. Explosion protection and approvals

#### 3.1 Explosion protection

POLARIS II Panel PC Typ 17-72V4-****	
ATEX	
<b>Ex protection</b> (maximum marking)	 II 3G Ex nA ic IIC T5 Gc  II 3(2)G (1)G Ex nA ic [ic] [ib Gb] [op is Ga] IIC T4/5 Gc  II 2D Ex ib tb IIIC T100°C Db -20 °C ≤ Ta ≤ 60 °C
<b>Standards</b> in accordance with EMC Directive 2014/34/EU	EN 60079-0:2012 +A11:2013 EN 60079-11:2012 EN 60079-15:2010 EN 60079-28:2015 EN 60079-31 :2014
<b>Certification</b>	IBExU 09 ATEX 1113 X
 <b>Special conditions</b>	High charging mechanisms at the operation surface of the Visual units respectively accessories (for example pneumatic particle transport) must be excluded at the application.
EU-Konformität	
<b>RoHS-Directive</b>	2011/65/EU
<b>Standards</b> in accordance with EMC Directive 2014/30/EU	EN 61000-6-2:2005 EN 61000-6-4:2007 + A1:2011
<b>Safety (IP Code)</b>	EN 60529:1991 + A1:2000 + A2:2013
<b>Produktkennzeichnung</b>	 0044



## 4. Technical Data

### 4.1 General data

<b>Construction</b>	Stainless steel enclosure
<b>Computer capacity</b>	Intel® Celeron® J1900 (quad-core up to 2.42.GHz) 4 GB RAM bei 32 Bit OS 8 GB RAM bei 64 Bit OS
<b>Hard drive</b>	SSD 128 GByte (MLC-Type)
<b>Operating system</b>	Windows 7® Ultimate (32 Bit) oder Windows 10® IoT Enterprise (32 Bit) oder Windows 10® IoT Enterprise (64 Bit)
<b>Interface (basic version)</b>	2 x Ethernet 1000/100 BaseT 4 x USB  (Version with keyboard and mouse , 1 x on terminals)
<b>Interface (optional)</b> <b>Serial interface</b> <b>Audio</b> <b>Bluetooth</b> <b>WLAN</b>	RS 232/422/485 Internal PC cabinet speaker Smart Device Bluetooth ( 1 x USB occupied ) Smart Device WLAN ( 1 x USB occupied )
<b>Rated voltage</b>	AC 110 to 230 V, 47 to 63 Hz DC 24 V
<b>Input voltage range</b>	AC 90 V to 253 V optional DC 24 V ± 10 %
<b>Max. power consumption</b>	P <sub>max.</sub> < 75 W
<b>Admissible ambient temperature</b>	Storage -25 °C to +60 °C Operation 0 °C to +50 °C
<b>Relative air humidity</b>	5 to 95 % non-condensing
<b>Material</b>	Stainless steel
<b>Protection class</b>	IP65
<b>Optional accessories</b>	Keyboard with integrated trackball 38 mm Keyboard with integrated trackball 50 mm Keyboard with integrated touchpad
<b>Optional</b>	Touchscreen

#### 4.1.1 Characteristics POLARIS II Panel PC Professional PC 19,1"



<b>Display</b>	19.1" graphics-capable TFT display SXGA resolution 1.280 x 1.024 pixels 16.7 million colours Brightness 300 cd/m <sup>2</sup> Visible surface approx. 376 x 301 mm Contrast 1300:1
<b>Backlight</b>	LED technology, Service life approx... 50.000 hours at +25 °
<b>Dimensions</b> (width x height x depth)	Display unit 610 mm x 450 mm x ca. 100 mm With Mounting adapter and keyboard 730 mm x 520 mm x 400 mm
<b>Masse</b>	ca. 17 kg

#### 4.1.2 Characteristics POLARIS II Panel PC Professional PC 22"



<b>Display</b>	22" graphics-capable TFT display WXGA resolution 1.680 x 1.050 pixels 16.7 million colours Brightness 300 cd/m <sup>2</sup> Visible surface approx. 474 x 296 mm Contrast 1000:1
<b>Backlight</b>	LED technology, Service life approx... 50.000 hours at +25 °C
<b>Dimensions</b> (width x height x depth)	Display unit 610 mm x 450 mm x ca. 100 mm With Mounting adapter and keyboard 730 mm x 520 mm x 400 mm
<b>Masse</b>	ca. 17 kg

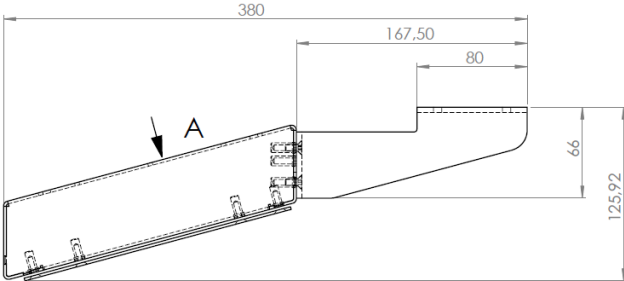
#### 4.1.3 Characteristics POLARIS II Panel PC Professional PC 24"



<b>Display</b>	24" graphics-capable TFT display Full HD resolution 1.920 x 1.080 pixels 16.7 million colours Brightness 300 cd/m <sup>2</sup> Visible surface approx. 531 x 299 mm Contrast 5000:1
<b>Backlight</b>	LED technology, Service life approx... 50.000 hours at +25 °C
<b>Dimensions</b> (width x height x depth)	Display unit 660 mm x 450 mm x ca. 100 mm With Mounting adapter and keyboard 785 mm x 610 mm x 400 mm
<b>Masse</b>	ca. 17 kg

#### 4.1.4 Techn. Data for Keyboard



<b>Variants</b>	Keyboard with integrated Touchpad Keyboard with Trackball 38 mm Keyboard with Trackball 50 mm
<b>Material (conditionally UV-resistant)</b>	Polyester foil of Aluminium plate mounted in stainless steel enclosure
<b>Protection class</b>	IP65 (static)
<b>Wight</b>	ca. 2 kg
<b>Other features</b>	Keyboard available in various languages
<b>Dimensions (mm)</b>  width: 500 mm	

#### 4.1.5 USB Smart Device

##### 4.1.5.1 Explosion

<b>Type</b>	17-71VZ-A0x0/0000
<b>Ex protection type ATEX</b>	<div> <div>Ex</div> <div>II 2G Ex eb mb IIC T4 Gb</div> </div> <div> <div>Ex</div> <div>II 2D Ex tb IIIC T120 °C Db</div> </div>
<b>Certification</b>	IBExU 05 ATEX 1117 X

##### Technical Data

<b>Fastening</b>	M30 x 1,5 (suitable for fixing holes 30,3mm)
<b>Torque of panel nut</b>	2,8 to 3,4 Nm
<b>Material</b>	Enclosure thermoplastic

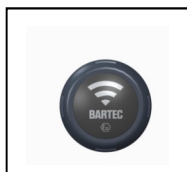
Internal connected to a free USB port

##### 4.1.5.2 Technical data (Bluetooth)



<b>Bluetooth</b>	M30 x 1,5 (suitable for fixing holes 30,3mm)
<b>Downward compatible</b>	Wandstärke 1mm bis 6mm Schlagfestigkeit: 7Nm
<b>Range</b>	2,8 bis 3,4 Nm
For more technical data see description of the Bluetooth-stick manufacturer.	

##### 4.1.5.3 Technical data (WLAN)



<b>Wifi - standard</b>	IEEE802.11n IEEE802.11g IEEE802.11b
<b>Transfer rate</b>	max. 150 Mbit/s
<b>WLAN - frequency</b>	2.4 GHz
For more technical data see description of the W-LAN-stick manufacturer.	

#### 4.1.6 Heating (Optional) for Version up to -20°C



Type	HCS 40
Ex protection type	II 2G Ex db IIC T4
	II 2D td IIIC T135°C
Product marking	CE
Certification	PTB 03 ATEX 1139 X
Material	Black aluminium
Power	AC 230 V
Power	50 W
Dimensions (width x height x depth)	52 mm x 50 mm x 155 mm
Switching	Via external thermostat Switch on +10°C Switch of +18°C



Is factory installed,



The Ex marking of the POLARIS II Panel PC changes with the built-in heater.  
The temperature class changes from T5 to T4.

#### 4.1.7 Speaker (optional)

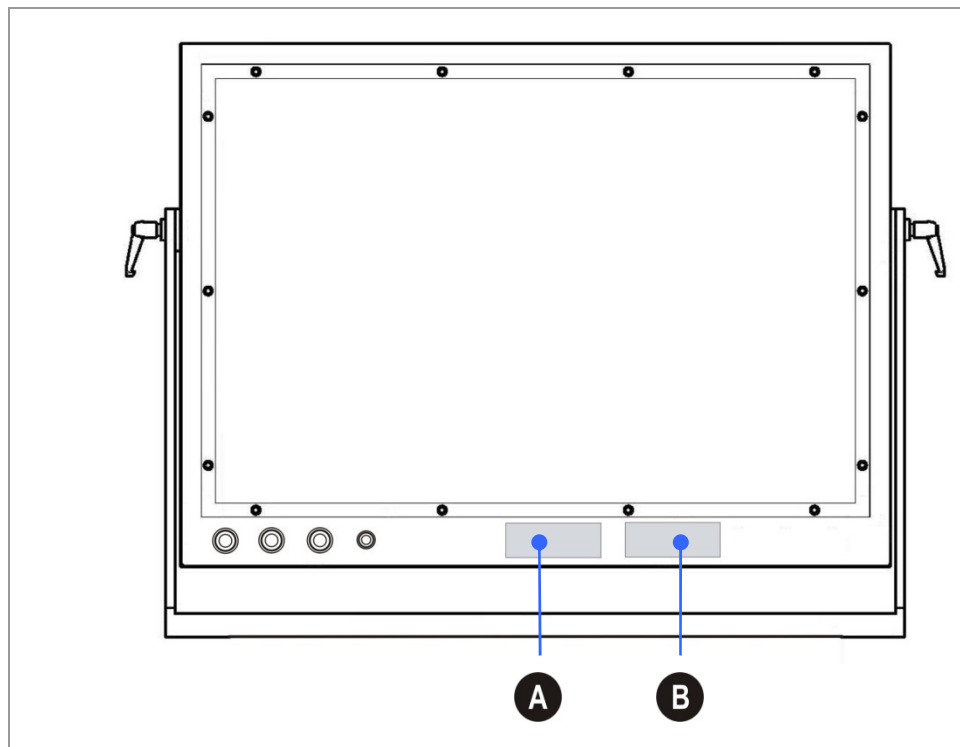
##### Technical Details:

Type	Internal cabinet speaker
connect	Internal Audio
Mounting	Internal cabinet plate



Factory built in


## 4.2 Product Labeling




**A**

Type label  
example

**POLARIS II Panel PC 19"**  
**Typ 17-72V4-52F20000**

 II 2D Ex ib tb IIIC T100°C Db  
C €0044

 II 3G Ex nA ic IIC T5 Gc  
C €

IBExU09ATEX1113X

elektrische Daten siehe Baumusterprüfbescheinigung  
electrical data see EC-type examination certificate

**BARTEC**

97980 Bad Mergentheim  
Germany

DC 24V +/-10%

0°C ≤ Ta ≤ +50°C

S/N: 520 /18

Built: 00D



TC RU C-DE, 1506.B.00334

**B**

License sticker

Depending on operating system

## 5. Transport and Assembly

### 5.1 Transport

#### CAUTION

This device is heavy (approx. 17 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

Incorrect storage can cause damage!

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

### 5.3 Assembly

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

<b>Scope:</b>	1 x POLARIS II Panel PC
	2 x RJ45-plug (Phoenix)
	1 x Driver CD for touchscreen
	1 x User Manual POLARIS II Panel PC
<b>Optional:</b>	Supporting system for floor, wall or table mounting

<b>Not enclosed:</b>	Assembly material
	Cable for voltage supply and data line



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.

BARTEC GmbH's warranty conditions do not cover damage caused by incorrect storage.

<b>Required Tools:</b>	1 x Allen key 5 mm
	(to fix the supporting system in place)
	1 x Allen key 2,5 mm
	(to open back plate, junction box)
	1 x Allen key 4 mm
	(Grounding screw, enclosure)
	1 x Allen key 3 mm
	(to mounting keyboard)

## 6. Installation



We recommend setting up the complete system under laboratory conditions and testing it before it is permanently installed. 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.

### 6.1 Requirements

- ▶ The surface underneath and the fastening means for the supporting system must be designed to support the weight of the POLARIS (approx. 17 kg).
- ▶ 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.
- ▶ Do not install the device in the stream of particles.
- ▶ The POLARIS must be integrated in the equipotential bonding.
- ▶ At ambient temperatures below 0 °C, the POLARIS has to be heated (Heating on request).
- ▶ The supply and data line(s) are laid in the supporting system.
- ▶ The supporting system is fastened by means of the flange plate (see the following illustrations).



## 6.2 Mechanical installation

### CAUTION

**This device is heavy (approx .17 kg). Risk of injury if lifted or moved incorrectly.**

**Movable enclosure parts on the swivel-mounted enclosure.**

**There is a risk of injury by hands being crushed.**

- ▶ 3 people are required to set up the POLARIS.
- ▶ Hold up the POLARIS on both sides (two people), so that the third person can lay the supply and data line(s) in the supporting system.
- ▶ When lifting the POLARIS, always pick up the swivel-mounted adapter and enclosure together.
- ▶ Make sure that your fingers do not get caught between the swivel adapter and the enclosure as you set up the POLARIS.
- ▶ Install the POLARIS on a load-bearing and stable base and use suitable mounting material to fix it in place.



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.

#### Work steps:

- Have the supply and data line(s) ready.
- Refer to the drilling patterns to prepare to assemble the selected supporting system (see Chapter 5.2.1 Illustrations 5 - 7)
- Lay the supply and data line(s) in the supporting system.
- Fasten the supporting system.
- Set up the POLARIS.

### 6.2.1 Floor mounting

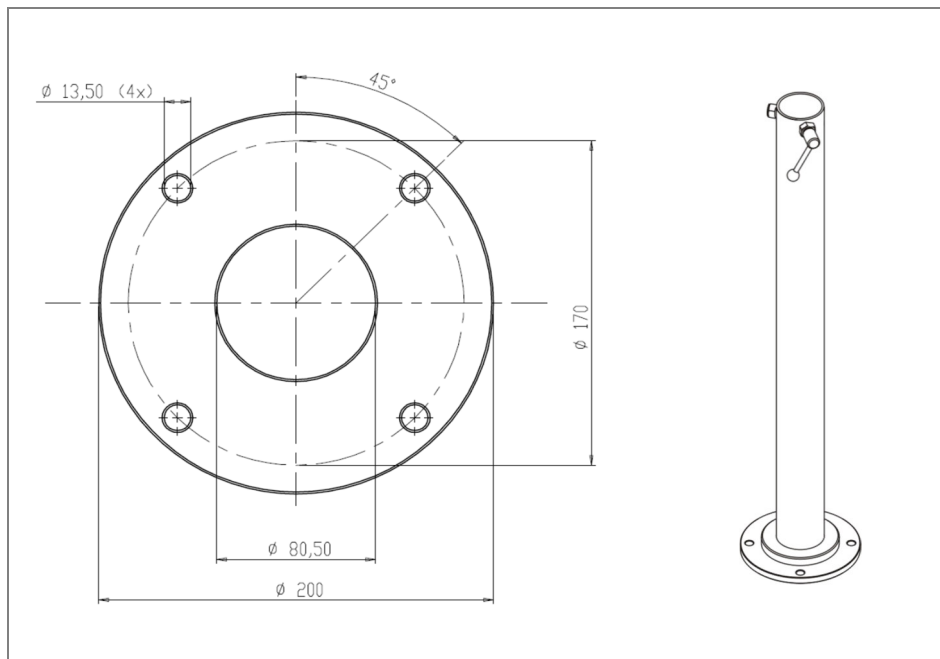
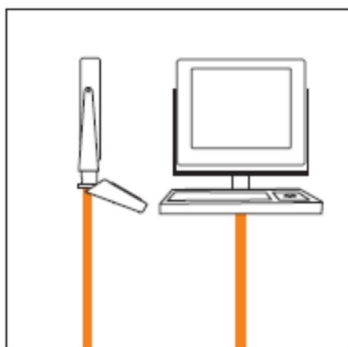


Illustration 3: Drilling pattern - supporting system for floor mounting

### 6.2.2 Wall mounting

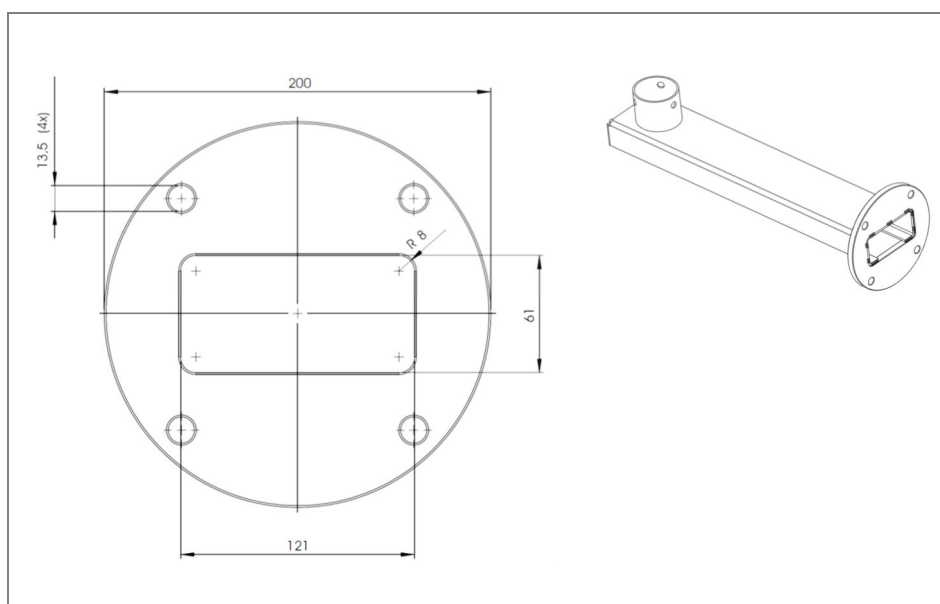
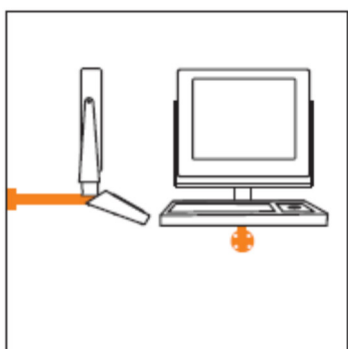


Illustration 4: Drilling pattern - supporting system for wall mounting

### 6.2.3 Table mounting

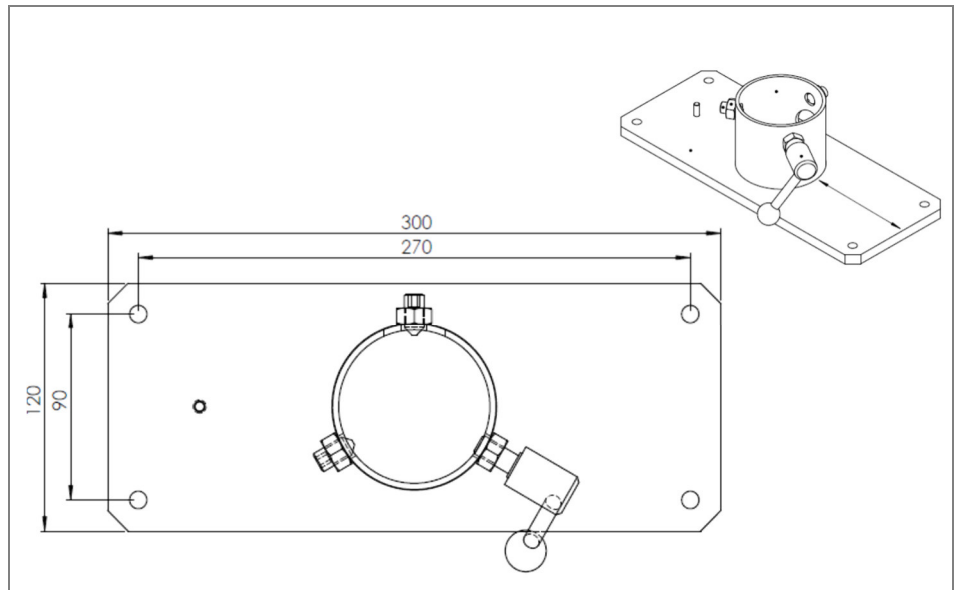
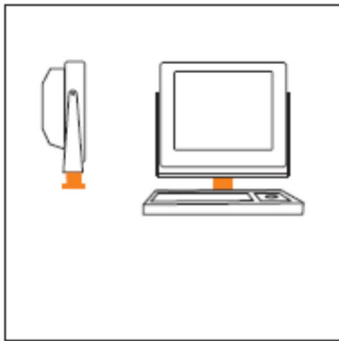
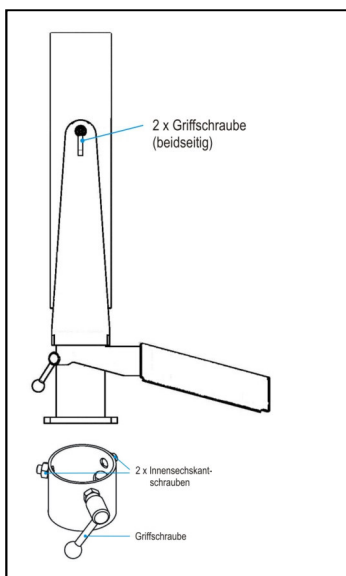


Illustration 5: Drilling pattern - supporting system for table mounting

### 6.2.4 Rotating/ Inclining



#### Rotating

The POLARIS is fixed using two side T screws.

The angle of rotation can be changed once the screws have been loosened

#### Inclining

The POLARIS is fixed on the carrier system using two hexagon socket screws M10 and a T screw.

The angle of rotation can be changed once the screws have been loosened.

Tools: hex key 5 mm

## 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.

- (1) The user may do only the wiring at the terminals that are accessible to him/her.
- (2) 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!
- (3) The equipotential bonding connection point must be connected to the equipotential bonding conductor in the hazardous area.
- (4) The safety and accident prevention regulations applicable to the respective individual case must be observed.
- (5) 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).
- (6) It must be ensured that the supply voltage agrees with the specifications in the manual and the tolerances must be observed.
- (7) Malfunctioning cannot be ruled out if levels exceed or drop below the specified tolerances.
- (8) 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.
- (9) EMERGENCY STOP mechanisms must remain effective throughout all modes and states of operation.
- (10) 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.
- (11) Wherever malfunctioning can cause material damage or personal injuries, additional external safety circuits must be provided (e.g. limit switch, mechanical interlocking devices etc.).

### 6.3.2 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 mm<sup>2</sup> is to be set up for the POLARIS (see Figure).
- ▶ Secure PE conductor connections against self-loosening.
- ▶ Attach equipotential bonding to the enclosure.
- ▶ All moving parts must be earthed..

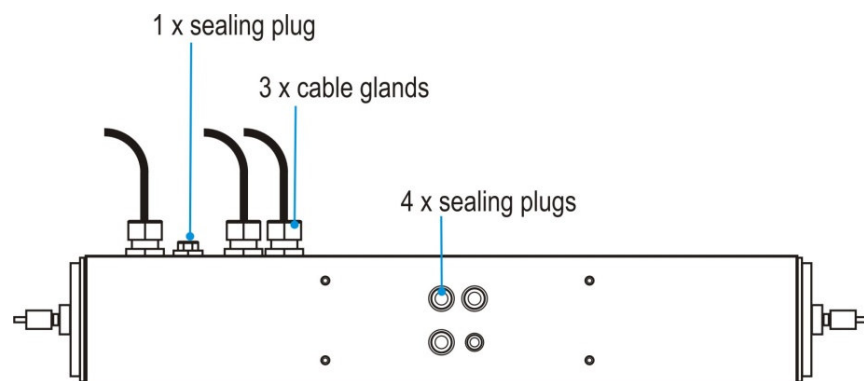
#### **ATTENTION**

**Device can be damaged by differences in potential!**

- ▶ Avoid differences in potential (see Chapter 6.8.5)

### 6.3.3 Connection cables

- ▶ The connection cables to the POLARIS are laid in the supporting system.
- ▶ The connection cable must be laid protected.
- ▶ To facilitate the wiring of the supply and data line(s), there are three cable glands on the back of the enclosure on the POLARIS II Panel PC and a sealing plug (the variant without keyboard has two cable glands and two sealing plugs). If necessary, the sealing plugs can be replaced by certified M20x1.5 cable glands
- ▶ In addition, the POLARIS II Panel PC has four further cable glands on the underside of the enclosure. Cable glands that are not used are closed with a certified sealing plug .



*Illustration 6: Cable entries with sealing plugs on the underside of the enclosure*

## 6.4 Junction Box

### 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.

### DANGER

When the enclosure or junction box is open.

Risk of a fatal injury by an electric shock

- ▶ Turn off the voltage supply before connecting the POLARIS and accessories.

#### Work steps

- Loosen all Allen-socket countersunk screws (4 x 10) at the back of the enclosure.  
(Connection terminal compartment for supply and data line(s)).

Required tools hex key 2,5 mm.

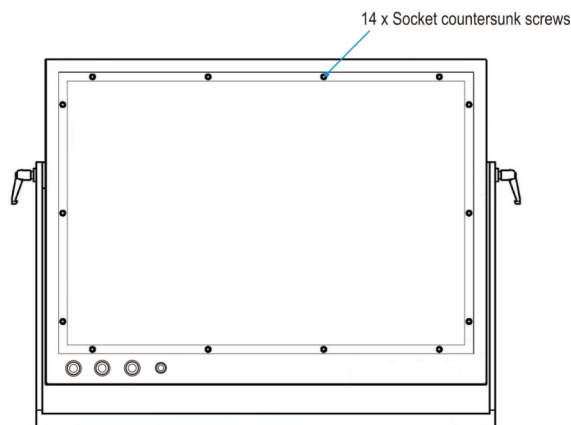


Illustration 7: Back wall of the POLARIS II Panel PC rear wall

- Remove the back of the enclosure without damaging the seals (Careful, the back of the enclosure is connected to the enclosure's equipotential bonding!)
- Run the supply and data line(s) through the cable glands into the enclosure.
- Select a sufficient length of cable so that the cables will not be damaged when the enclosure is rotated or tilted. It is also possible to mount the cable glands onto the underside of the POLARIS (see Chapter 5.2.2, illustration 8).
- Connect the supply and data line(s) (see Chapter 5.4).
- Close the back of the POLARIS enclosure after installation.

### 6.4.1 POLARIS Junction Box

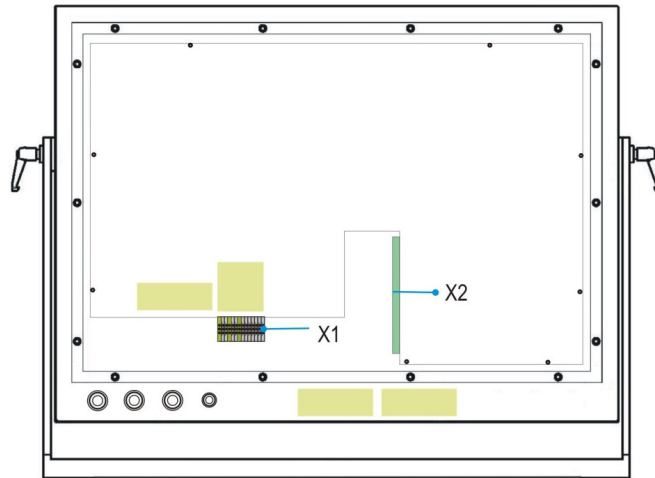


Illustration 8: POLARIS II Panel PC junction box

### 6.4.2 Terminal assignment X1

3	Interface	AC/DC Signal	Description
X1-1	Supply	PE	Internal protective, protective earth
X1-2	Supply	L1/+	AC 230 V $\pm$ 10 %/ DC 24 V $\pm$ 10 %
X1-3	Supply	N	Neutral conductor
X1-4	Supply	PE	Protective earth
X1-5	Optional		Optional available, depending on the interface version, see internal connection diagram, number of the terminal variable.
X1-6	Optional		
X1-7	Optional		
X1-8	Optional		
X1-9	Optional		
X1-10	Optional		
X1-11	Optional		

Terminal										
X1-1	X1-2	X1-3	X1-4	X1-5	X1-6	X1-7	X1-8	X1-9	X1-10	X1-11

Illustration 9: Terminal assignment X1

#### 6.4.3 Terminal assignment X1 with Heating HCS (optional)

Terminal	Interface	AC/DC Signal	Description
X1-1	Supply	PE	Internal protective, protective earth
X1-2	Supply	L1/+	AC 230 V $\pm$ 10 % or DC 24 V $\pm$ 10 %
X1-3	Supply	N	Neutral conductor
X1-4	Supply	PE	Protective earth
X1-5	Heating	L1/+	AC 230 V $\pm$ 10 %
X1-6	Heating	N	Neutral conductor
X1-7	Heating	PE	Protective earth
X1-8	Optional		Optional available, depending on the interface version, see internal connection diagram, number of the terminal variable.
X1-9	Optional		
X1-10	Optional		
X1-11	Optional		
X1-12	Optional		
X1-13	Optional		
X1-14	Optional		

Illustration 10: Terminal assignment X1 for POLARIS with heating

#### 6.4.4 Terminal assignment X2



Illustration 11: Terminal assignment X2

Amount	Interface	Connector	description
4	USB	Type A	USB 3.0/2.0
2	LAN	RJ 45	10/100/1000 Base-Tx GbE compatible

More Details sieh User Manuel „EMX-BYT2 oder unter:

[https://www.avalue.com.tw/Product/Industrial-PC/Industrial-Motherboard/Thin-Mini-ITX/EMX-BYT2\\_2497#](https://www.avalue.com.tw/Product/Industrial-PC/Industrial-Motherboard/Thin-Mini-ITX/EMX-BYT2_2497#)



#### 6.4.5 Establishing the LAN connection

Two RJ45 connectors for customer assembly are enclosed for the connection.



Illustration 12: RJ 45-plug



For an Ethernet connection, observe the instructions in Chapter 4.5 "EMC".

##### Assembly

The plug connector can be used for cables with an external diameter of 4.5...8.0 mm (suitable for LAN STP cables, CAT.7 4x2x23 AWG; part number 129543). The diameter of the core insulation may not exceed 1.6 mm! The plug connector can be rewired up to 20 times (only with the same core cross-section).

- (1) Slide the pressure nut and the connector housing over the cable (Fig 1).  
Optional: colour coding can be put on the pressure nut.



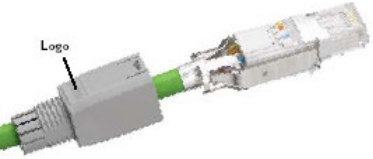


- (2) Strip 30 mm of cable sheath length.
- (3) Fold the braided shielding back over the cable sheath.
- (4) Shorten the braided shielding to a length of approx. 8 mm and fix it in place with the enclosed adhesive shielding film (fig. 2).
- (5) Unravel the twisting and arrange the cores in accordance with wiring diagram.



- (6) Lift up the actuating flap and separate the shielding lugs slightly (see illustration).  
Do not open any actuating flap that is not necessary for the wiring.
- (7) Run the individual core wires into the chambers in the actuating flap.
- (8) Press the shielding lugs together so that they come into contact with the braided sheath (see illustration).  
Prevents the plug connector slipping away when the cores are being connected.

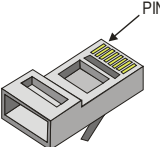










(9) Use a small diagonal cutter to cut the core wires (see illustration).	
(10) Establish core contact by pressing the terminal blocks together (see fig.)  It is also possible to use standard pliers as an aid. The actuating flap can spring back somewhat after the wiring procedure.	
(11) Now slide the connector housing over the connector insert until it noticeably snaps into place at the latching lugs (see illustration). (12) Then turn the pressure nut to finger tightness. (see illustration).	

You will find an animated presentation of this at:

[http://www.phoenixcontact.de/industriestecker/25791\\_27381.htm](http://www.phoenixcontact.de/industriestecker/25791_27381.htm)

#### 6.4.6 Terminal assignment in conformance to T568B

Assembly					
RJ45	PIN	Color		Interface	Signal
	1	OG/WH		Transmit positive	TxD+
	2	OG		Transmit negative	TxD-
	3	GN/WH		Receive positive	RxD+
	4	BU			
	5	BU/WH			
	6	GN		Receive negative	RxD-
	7	BN/WH			
	8	BN			

## 6.5 EMC (Electromagnetic Compatibility)

### 6.5.1 Note



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 4 x 2 x 0.75 mm<sup>2</sup> LIYCY TP.

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

### 6.5.2 Voltage supply (AC- and DC- variants)

To supply voltage to the DC variant, it is necessary to use a regulated power supply unit with a power level of at least 5 A. The voltage supply at the place of installation may neither exceed nor drop below DC 24 V ± 10 %. Observe the voltage drop on the supply cable and correct if necessary.

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

$\Delta U$	Voltage drop on the supply line at power supply voltage of DC 24 V	Max. 2.4 V
$\Delta U$	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 4 A
$A$	Cable cross-section of the supply line	
$\kappa$	Specific conductance of copper	$56 \frac{m}{\Omega \cdot mm^2}$
$l$	Length of the supply line (consider both the outgoing and return line)	

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

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.

### 6.5.3 Back-up fuse



We recommend protecting the POLARIS with an upstream fuse to prevent blowing the fuse inside the device. Only BARTEC can change the internal fuse.

Upstream fuse for    AC: 5 AT  
                                 DC: 5 AT

### 6.5.4 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.

### 6.5.5 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.

### 6.5.6 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 ( $0.75 \text{ mm}^2 \dots 1.5 \text{ mm}^2$ ).

### 6.5.7 Examples of Shielding Connections

#### ATTENTION

**POLARIS can be damaged in case of potential differences!**

► Avoid potential difference.

#### Double-sided shield connection on the connecting cables:

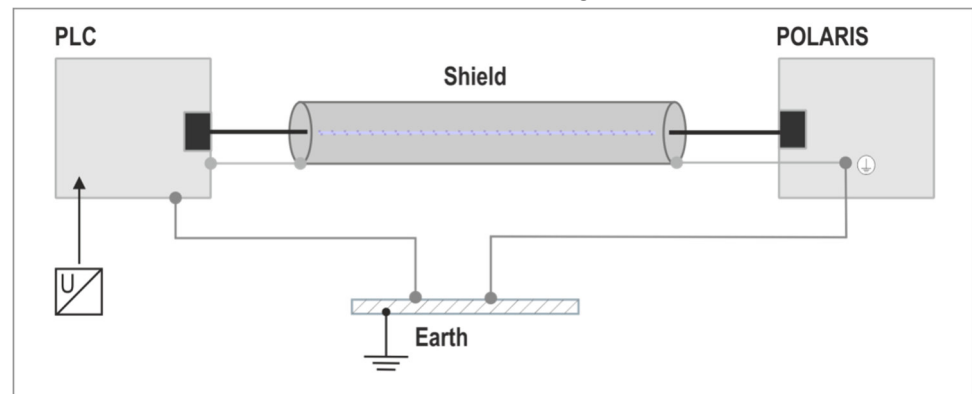


Illustration 13: Example of double-sided shield connection

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

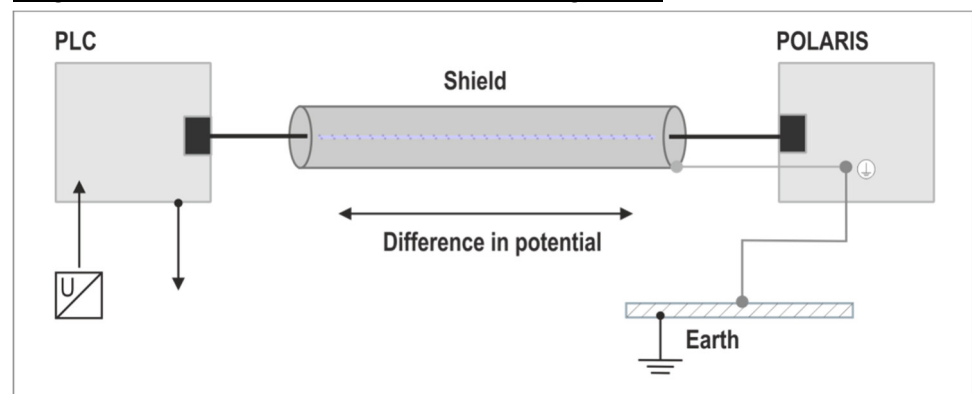


Illustration 14: Example of single-sided shield connection

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 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.

### 7.1 Final Inspection

**The following conditions must be met before the device may be commissioned:**

- Check the POLARIS for damage at sealing, cable connections or glass panel.
- Check the supply and data line(s).
- Check all cable glands to ensure that they have been tightened securely and that all open cable entries have been closed with a sealing plug.

#### DANGER

**An open enclosure will render the IP65 protection ineffective.**

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

- ▶ Make sure that the back wall of the POLARIS is closed and all screws have been tightened correctly.

#### ATTENTION

- ▶ If the ambient temperature is under 0 °C, the heating must be put into operation 24 hours before the POLARIS is switched on.
- ▶ If the POLARIS is switched off at ambient temperatures under 0 °C, an advance heating time of 24 hours must be observed again.
- ▶ Once the heating is switched on, the POLARIS can be used at ambient temperatures from -20 °C to +50°C.

## 8. 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. An external power switch is used to turn the device on and off.

### 8.1 Operating system

The POLARIS series are fully pre-installed with the Windows® 7 Ultimate or Windows 10 IoT operating systems. The license sticker is affixed on the back of the POLARIS, next to the type plate.

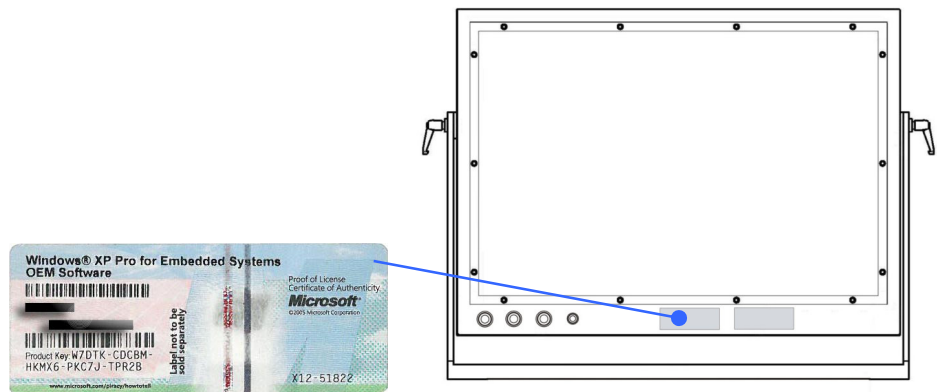
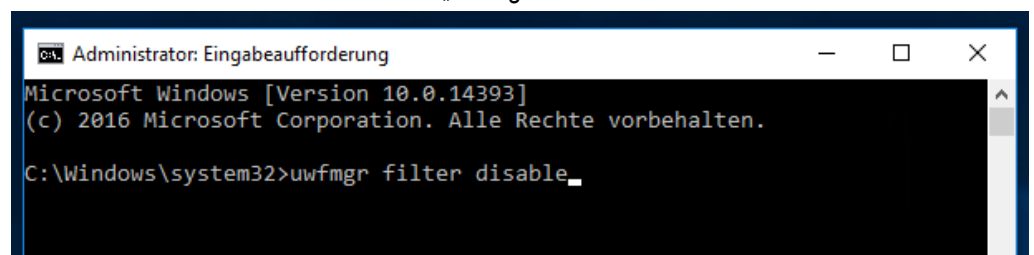


Illustration 15: License sticker

#### 8.1.1 Windows 10 IOT

The devices are delivered with active writing filter (UWF). This UWF prevents that changes in the disk drive C: can be made.

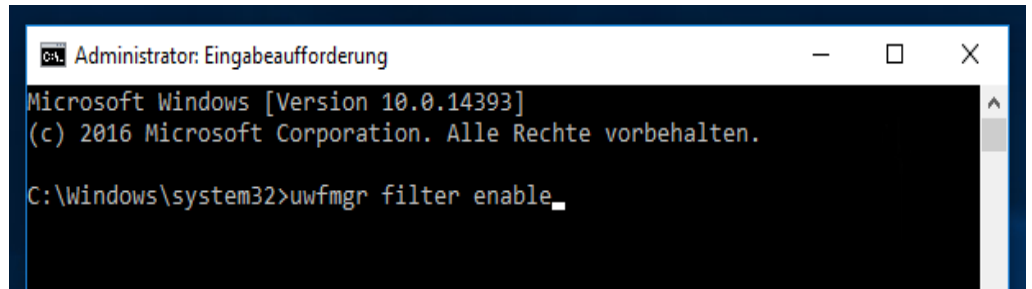
To carry out changes the UWF must be deactivated. Moreover Command Prompt (CMD) must be started as an administrator and „uwfmgr filter disable“ executed.



After a reboot the UFW is deactivated and changes in the system can be protected.

The turn on the UWF's is proceed as follows:

Start the Command Prompt (CMD) as an administrator. After the reboot of the device the command „uwfmgr filter enable“ activates the writing filter.



After the reboot the device is protected again.

Important:

- 1) To install a windows update, update a virus data bank and for changing other settings the UWF must be switched off. It can also cause problems if an applications package want to be saved on disk drive C:.. In the worst case the RAM-Overlay (buffer of the changes of disk drive C:.) can overrun which hinders the implementation of the applications.
- 2) Ist he UWF not activated switching off can lead to destruction of parts of the operating system up to the impossibility of another starting of the device.

### 8.1.2 Windows 7 Ultimate

By first introduction the operating system must be installed for the user, please follow the instructions on the screen.



The Windows 7 Ultimate operating systems do not support EWF!

## 8.2 Onboard Bartec Recovery Solution

### 8.2.1 Bartec Recovery Solution

The Bartec HMI Polaris Smart devices are equipped with an On-Board-Recovery solution. The Bartec Recovery is a software package preloaded on the devices which serves the disregard of the device in the work state. In case of a mistake every device can be booted up in the Recovery mode to move afterwards the operating system into the work state.

No other software is necessary for the restoration. The Recovery service already disposes of all necessary program routines or the Recovery-Wizard to play in the operating system anew. The process can be carried out any time if necessary also on site. The duration of the process amounts approx. 25 minutes.

### 8.2.2 Start of the device in the Recovery mode

To change in the Recovery mode, one must press the F6 key while booting up the device. This possibility is available for approx. 10 sec. During this time the announcement **"Press F6 key to start Bartec Recovery"** appears on the screen.



**ATTENTION**

**All data on Windows partition are definitely extinguished during the recovery of process!**

► All self-provided data or use data should be protected from starting the recovery.

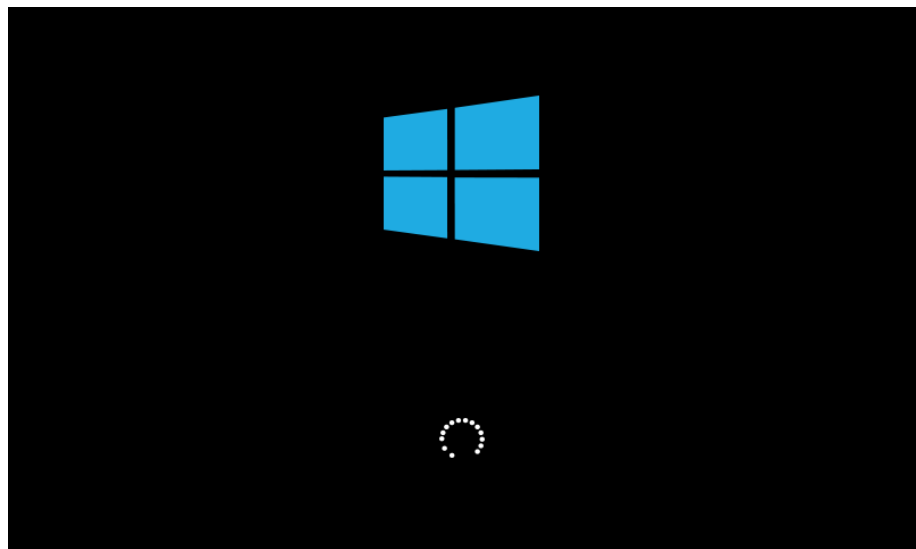
For the Recovery mode the hard disk contains a hidden partition to the storage of the Recover engine and the image file (effigy of the operating system). If the Recovery partition exists not any more or is damaged, the device can be restored only from an external medium or USB Flash drive.



The hidden partition is approx. 10 GB. That's why the available storage space on the hard disk is lower than the given capacity.

### 8.2.3 Recovery surroundings

The Recovery mode bases on a slender Windows operating system or so-called PE surroundings (Windows Preinstallation Environment). Besides, Windows starts only with a basic equipment of services and drivers.



*Illustration 16: Start Windows PE.*

As soon as the surroundings are completely loaded and are ready for use, the Recovery engine will check in the background whether the applications necessary for the device, tools and drivers exist. All information about internal expiries is indicated in the window CMD.

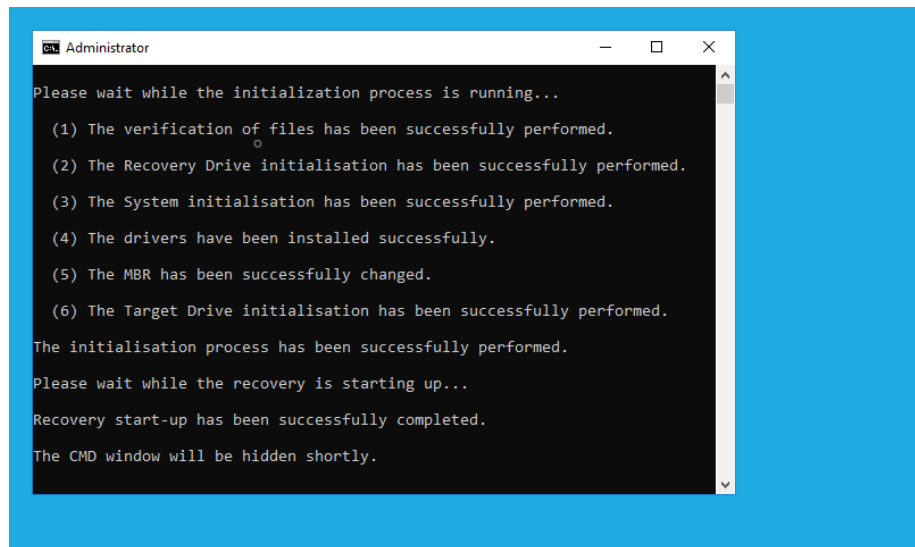


Illustration 17: CMD window with information

#### 8.2.4 4. Recovery application

Should the check be concluded successfully, the Recovery application is begun (besides, the window CMD is automatically closed). Before the restoration of the device in the work state must be agreed Microsoft software Licence terms interactively.

In case of Windows 7 Embedded of operating system (Ultimate or standard) the licence terms on Windows 7 Embedded family are indicated in the window. In case of Windows 10 IoT of operating system the licence terms on Windows 10 IoT family are to be seen.

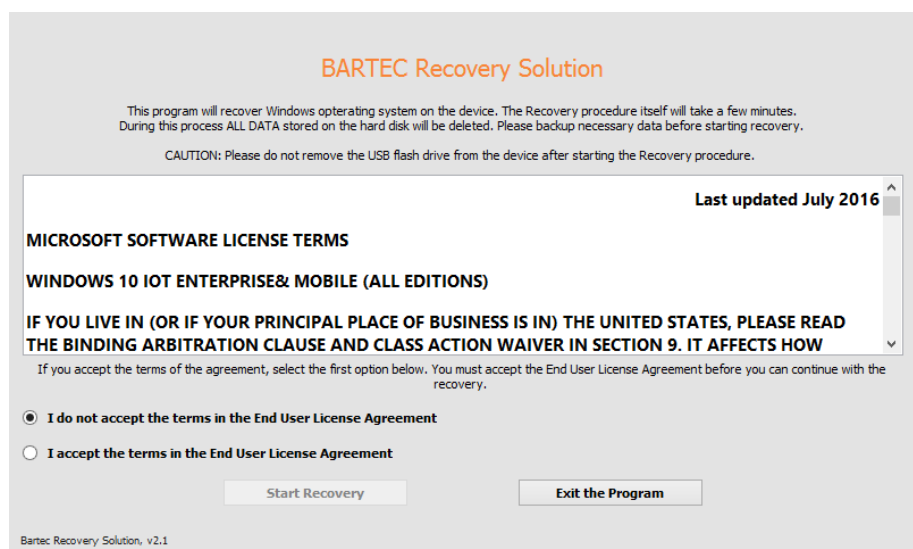


Illustration 18: Licence terms

To accept the licence terms, the option **"I accept the terms in the End User License Agreement"** must be activated or be selected. The button "Start Recovery" is released enclosed. With confirming the Recovery process is begun.



All other pictures in the instructions refer to Recovery of Windows 10 IoT Enterprise of operating system. In case of the restoration of Windows 7 Embedded Ultimate or standard of operating system the pictures look similar. Besides, all background expiries are identical, with the differences it is only about inscriptions.



The operation (navigating over window, selecting and activation of tax elements etc. ) takes place via keyboard input and mouse or Track ball-Clicks as well as by Touch.

In the next window all available Recovery functions are listed. In the upper area of the window there is information about the operating system which is played in by the Recovery programme. In the middle area there are the Recovery functions. Should all conditions be given, the function is active. Otherwise the function remains inactive.

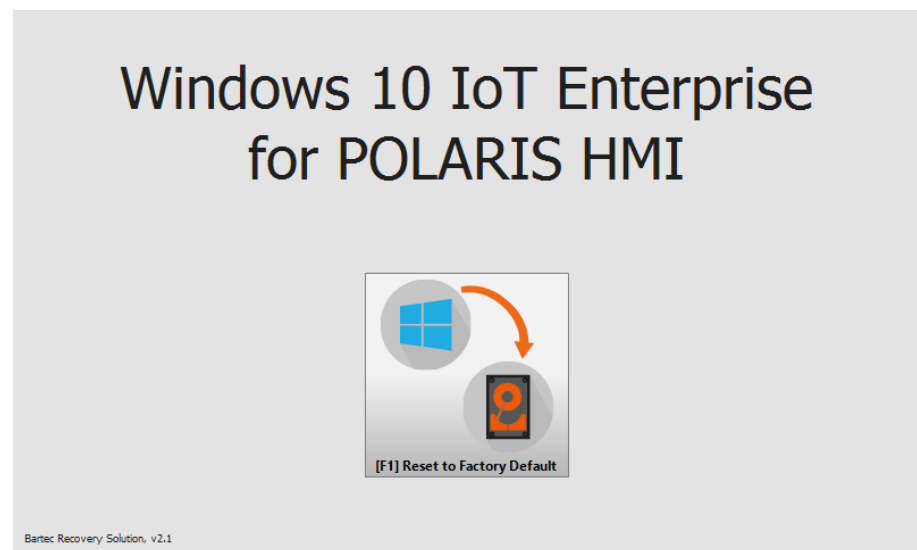


Illustration 19: Choice of function

### 8.2.5 Restoration in the work state

With confirming the function with all matching background processes is begun immediately or without following security queries.

#### **ATTENTION**

**With starting the restoration of the operating system in the work state all data on the operating system partition get lost!**

- Contents and format of all other partitions on the hard disk are preserved consistently.

In the upper area of the window the inscription of the well-chosen function is indicated. In the next line – the inscription of the already running background process. Should a process be computable, the proportional issue appears in the next line how far the process is already concluded. As a rule all time-luxurious processes are computable. The progress beam in the middle of the window returns the graphic picture of the percent value. For the processes without percent issue the progress beam is indicated in the uncertain form.

**ATTENTION**

**All background processes are automated completely, therefore no intervention is necessary. In addition, some background processes run in s. g. Single fashion or they are sensitive to the other parallel processes and to Interrupts of external periphery devices!**

- To avoid the interruptions of all kind, should take place during the process no keyboard input, mouse, track ball-Clicks as well as no touching of the screen.

The Recovery begins with verifying (Calculate and comparisons of the test sum) to the available effigy file.

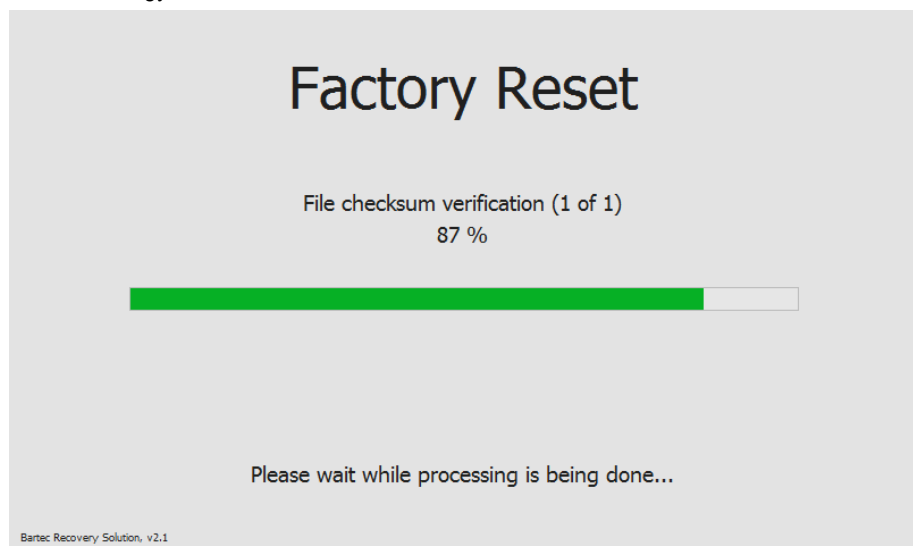
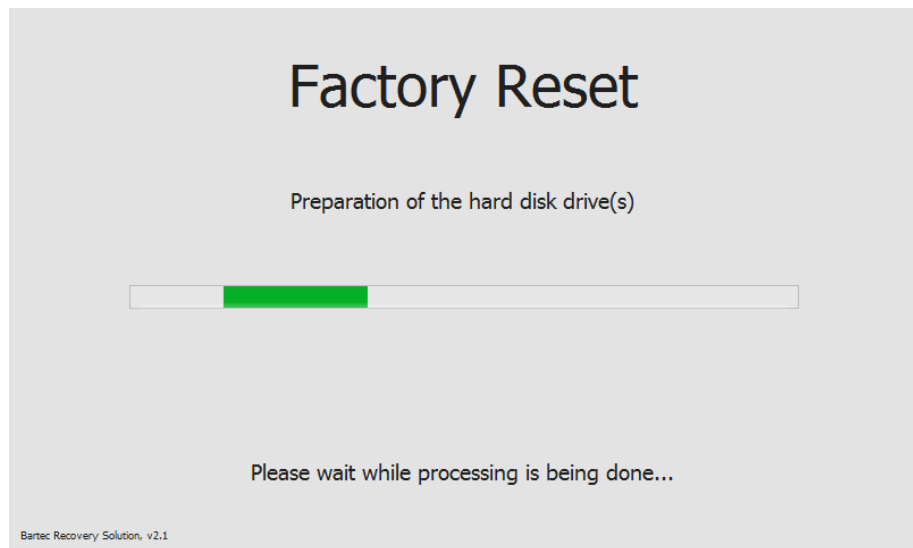


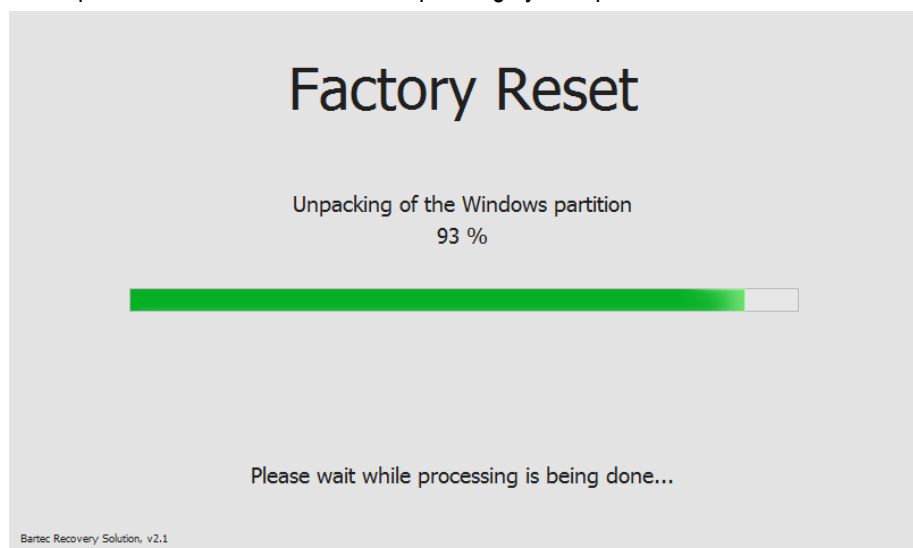
Illustration 20: Verify to the effigy file

After the successful check, the formatting of the operating system partition is begun.



*Illustration 21: Prepare the partition*

After preparing the partition all files from the effigy image stored on the Recovery partition are unpacked and transferred on the operating system partition.



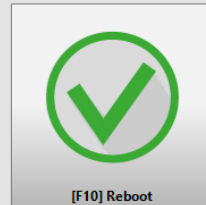
*Illustration 22: Transferred by system files on operating system partition*

Transferring of system files is the last process with the Wiederherstellung of the operating system in the work state.

### **8.2.6 Finishing the recovery**

After the Recovery process is completely concluded, it is indicated suitable information in the window. A button in the middle of the window closes the Recovery surroundings and the device restart.

Factory Reset has been  
completed successfully



Bartec Recovery Solution, v2.1

Illustration 23: Successful closure of the recovery process

After the new start of the device the operating system partition is active again and this restored operating system is begun.



The first start (so called: Ridge time boat) of the put back operating system can last some minutes. On this occasion, it is about two phases. During the first phase components of the device are recognised the hardware and are integrated into the operating system. During the second phase the final settings are put. Between the phases or within the phase the device is automatically restarted several times.

## 8.3 Recovery 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 [www.bartec.de](http://www.bartec.de)

The recovery flash drive contains the functions:

- image recovery (factory reset)

### 8.3.1 Backup



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

We expressly recommend that such a Backup of the POLARIS be saved onto an external storage medium (USB stick (recovery, CD, DVD or suchlike) and/or in the company network!

For Backup please use your favourite 3<sup>rd</sup> party software from the free market.

### 8.3.2 Reset with USB Stick

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

### 8.3.3 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).

## 8.4 Calibration of 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/>

### 8.4.1 Calibration of Touch Screen

The calibration of the touch screen must be carried out with the corresponding touch tool.  
Touch Controller: EETI Controller USB MER4050UEBG:

Press the Windows Start button and select eGalaxTouch - "Configure Utility" in the program menu (or launch it via the corresponding icon on the desktop if available). Click on the "Tools" tab and carry out the 4-point calibration: Confirm OK after calibration:

## 9. Troubleshooting

<b>No image</b>	<ul style="list-style-type: none"><li>– Check voltage connection.</li></ul>
<b>No network recognised</b>	<ul style="list-style-type: none"><li>– Check Ethernet connection to the POLARIS.</li><li>– Check connection cable to the network; it might not be connected.</li></ul>
<b>No remote access</b>	<ul style="list-style-type: none"><li>– Check the host computer's IP address.</li><li>– The host computer must be set up to allow remote access.</li><li>– The host computer and the POLARIS must both be in the same subnet mask - particularly in a point-to-point connection.</li><li>– Even without a network connection a log-in name and a password must be set up on the host computer.</li></ul>



## 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!

### 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](mailto: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](mailto: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 !

- Take the device's maximum weight into account when selecting the packaging and mode of transport.

## 13. Accessories, Spare Parts

## 14. Ersatzteile

Bezeichnung	Tastatur inklusive Edelstahlgehäuse	Bestell-Nummer
<b>Eingabegeräte</b>		
	Keyboard with integrated trackball 38 mm	On request
	Keyboard with integrated trackball 50 mm	On request
	Keyboard with integrated Touchpad	On request
<b>Smart USB Device</b>		
	Bluetooth	17-71VZ-A020/0000
	W-LAN	17-71VZ-A010/0000
<b>BARTEC Recovery Stick</b>		
	<b>Windows 10 lot</b>	On request
	<b>Windows 7 Ultimate</b>	On request
<b>Tragarmsystem</b>		
	<b>Stand for floor mounting</b> Material: Stainless steel DIN 1.4301, Rotatable Height approx. 1 m,	05-0005-0078
	<b>Supporting arm for wall mounting</b> Material: Stainless steel DIN 1.4301, Rotatable, Length 580 mm	05-0005-0058
	<b>Desk mounting for stainless steel enclosure</b> Material: Stainless steel DIN 1.4301, Rotatable, Height 140 mm	05-0005-0070

## 15. Order Numbers

## Version 19,1"

## Ordering information

Description	Code no.	Input voltage	Code no.	Operating system	Code no.	Keyboard language	Code no.	Insert unit	Code no.
POLARIS II Panel PC 19,1" without touchscreen	6	AC 90 to 253 V	1	Windows 7® Ultimate (32 Bit)	U	German	1	Trackball 50 mm	1
				Windows 10 IoT Enterprise (32 Bit)	K	English	2	Trackball 38 mm	2
POLARIS II Panel PC 19,1" with touchscreen	5	DC 24 V	2	in preparation: Windows 10 IoT Enterprise (64 Bit)	L	French	3	Touchpad	3

Complete order no. 17-72V4-□□□4/□□□00

Please insert correct code. Technical data subject to change without notice. Other versions on request.

## Version 22"

## Ordering information

Description	Code no.	Input voltage	Code no.	Operating system	Code no.	Keyboard language	Code no.	Insert unit	Code no.
POLARIS II Panel PC 22" W without touchscreen	4	AC 90 to 253 V	1	Windows 7® Ultimate (32 Bit)	U	German	1	Trackball 50 mm	1
				Windows 10 IoT Enterprise (32 Bit)	K	English	2	Trackball 38 mm	2
POLARIS II Panel PC 22" W with touchscreen	3	DC 24 V	2	in preparation: Windows 10 IoT Enterprise (64 Bit)	L	French	3	Touchpad	3

Complete order no. 17-72V4-□□□4/□□□00

Please insert correct code. Technical data subject to change without notice. Other versions on request.

## Version 24"

## Ordering information

Description	Code no.	Input voltage	Code no.	Operating system	Code no.	Keyboard language	Code no.	Insert unit	Code no.
POLARIS II Panel PC 24" W without touchscreen	8	AC 90 to 253 V	1	Windows 7® Ultimate (32 Bit)	U	German	1	Trackball 50 mm	1
				Windows 10 IoT Enterprise (32 Bit)	K	English	2	Trackball 38 mm	2
POLARIS II Panel PC 24" W with touchscreen	7	DC 24 V	2	in preparation: Windows 10 IoT Enterprise (64 Bit)	L	French	3	Touchpad	3

Complete order no. 17-72V4-□□□4/□□□00

Please insert correct code. Technical data subject to change without notice. Other versions on request.

## 16. 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 alcohol  
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 cresolphene 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, 18\*2006 • Technical data subject to change




# 17. EU Declaration of Conformity

EU Konformitätserklärung  
EU Declaration of Conformity  
Déclaration UE de conformité

**BARTEC**

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

Nº 11-72V4-7C0001\_B

Wir	We	Nous
<b>BARTEC GmbH,</b>		
erklären in alleiniger Verantwortung, dass das Produkt	declare under our sole responsibility that the product	attestons sous notre seule responsabilité que le produit
<b>POLARIS II</b>	<b>POLARIS II</b>	<b>POLARIS II</b>
<b>Typ 17-72V4-****/****</b> <b>Typ 17-72V5-****/****</b>		
auf das sich diese Erklärung bezieht den Anforderungen der folgenden <b>Richtlinien (RL)</b> entspricht	to which this declaration relates is in accordance with the provision of the following <b>directives (D)</b>	se référant à cette attestation correspond aux dispositions des <b>directives (D)</b> suivantes
<b>ATEX-Richtlinie 2014/34/EU</b> <b>EMV-Richtlinie 2014/30/EU</b> <b>RoHS-Richtlinie 2011/65/EU</b>	<b>ATEX-Directive 2014/34/EU</b> <b>EMC-Directive 2014/30/EU</b> <b>RoHS-Directive 2011/65/EU</b>	<b>Directive ATEX 2014/34/UE</b> <b>Directive CEM 2014/30/UE</b> <b>Directive RoHS 2011/65/UE</b>
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
<b>EN 60079-0:2012 + A11:2013</b> <b>EN 60079-11:2012</b> <b>EN 60079-15:2010</b> <b>EN 60079-28:2015</b>	<b>EN 60079-31:2014</b> <b>EN 61000-6-2:2005</b> <b>EN 61000-6-4:2007 + A1:2011</b> <b>EN 60529 :1991 +A1 :2000+A2 :2013</b>	
<b>Kennzeichnung</b>	<b>Marking</b>	<b>Marquage</b>
 II 2D	Ex ib tb IIIC T100°C Db	
 II 3 G	Ex nA ic IIC T5 Gc	
 II 3(2)G(1)G	Ex ic nA [ic Gc] [ib Gb] [op is Ga] IIC T4/T5 Gc	
The marking is variable on type and components used		

EU Konformitätserklärung  
EU Declaration of Conformity  
Déclaration UE de conformité

**BARTEC**

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

Nº 11-72V4-7C0001\_B

Verfahren der EU-Baumusterprüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
<b>IBExU 09 ATEX 1113 X</b> <b>0637, IBExU, Fuchsmühlenweg 7, 09599 Freiberg, D</b>		
 <b>0044</b>		
<b>Bad Mergentheim, den 23.07.2018</b>		
 i.V. Nader Hama VP Automation and Communication System	 i.V. Gitta Kugler Director Global Test, Certification & IP Management	