



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX IBE 11.0007X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 6	Issue 5 (2019-05-02)
Date of Issue:	2022-08-04		Issue 4 (2017-09-20)
Applicant:	<b>BARTEC GmbH</b> Max-Eyth-Straße 16 97980 Bad Mergentheim Germany		Issue 3 (2015-06-22)
Equipment:	<b>Visual unit POLARIS type 17-71V*-</b>		Issue 2 (2013-12-10)
Optional accessory:	type 17-71VZ-A0**/**** ****, type 17-71VZ-B0**/**** ****, type 17-71VZ-****/**** ****		
Type of Protection:	<b>Flameproof enclosures "d"; Powder filling "q"; Increased safety "e"; Intrinsic safety "i"; Encapsulation "m"; Protection by enclosure "t" Optical radiation "op pr"</b>		
Marking:			
	visual unit	type 17-71V*-****/**** **** Ex db eb mb q [ib op pr] IIC T4 Gb Ex mb tb IIIC T120 °C Db -20 °C ≤ T <sub>amb</sub> ≤ +60 °C	type 17-71V6-****/**** **** Ex eb q [ib] IIC T4 Gb Ex tb IIIC T120 °C Db -20 °C ≤ T <sub>amb</sub> ≤ +60 °C
	intrinsically safe accessories:	type 17-71VZ-****/**** **** Ex ib IIC T4 Gb Ex ib IIIC T120 °C Db -20 °C ≤ T <sub>amb</sub> ≤ +60 °C (50 °C)	
	accessories	type 17-71VZ-A0**/**** **** Ex mb IIC T4 Gb Ex mb IIIC T120 °C Db -20 °C ≤ T <sub>amb</sub> ≤ +60 °C	type 17-71VZ-B0**/**** **** Ex eb mb IIC T4 Gb Ex tb IIIC T120 °C Db -20 °C ≤ T <sub>amb</sub> ≤ +55 °C

Approved for issue on behalf of the IECEx  
Certification Body:

Alexander Henker

Position:

Deputy Head of department Certification Body

Signature:  
(for printed version)

Date:  
(for printed version)

2022-08-04

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Certificate issued by:

**IBEXU Institut für Sicherheitstechnik GmbH**  
Fuchsmühlenweg 7  
09599 Freiberg  
Germany





# IECEX Certificate of Conformity

Certificate No.: **IECEX IBE 11.0007X**

Page 2 of 4

Date of issue: 2022-08-04

Issue No: 6

Manufacturer: **BARTEC GmbH**  
Max-Eyth-Straße 16  
97980 Bad Mergentheim  
**Germany**

Manufacturing  
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

[IEC 60079-18:2017](#) Explosive atmospheres - Part 18: Protection by encapsulation "m"  
Edition:4.1

[IEC 60079-28:2015](#) Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation  
Edition:2

[IEC 60079-31:2022-01](#) Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:3.0

[IEC 60079-5:2015](#) Explosive atmospheres –Part 5: Equipment protection by powder filling "q"  
Edition:4.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[DE/IBE/ExTR11.0001/04](#)  
[DE/IBE/ExTR22.0016/00](#)

[DE/IBE/ExTR11.0001/05](#)  
[DE/IBE/ExTR22.0018/00](#)

[DE/IBE/ExTR11.0001/06](#)

Quality Assessment Report:

[DE/TUN/QAR06.0017/13](#)



# IECEX Certificate of Conformity

Certificate No.: **IECEX IBE 11.0007X**

Page 3 of 4

Date of issue: 2022-08-04

Issue No: 6

## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The visual units are control board apparatus intended for the use in hazardous areas. The visual units illustrate control functions on the display. They have terminals for Ethernet, COM- and LWL-data transmission as well as intrinsically safe equipment. The equipment with different dimensions consist of metal enclosures filled with glass balls with shatterproof glass and they optionally contain LCD-display with touch screen, power supply, CPU, storage media as well as electronic control units and associated intrinsically safe apparatus. The visual units, USB Smart Device and intrinsically safe equipment like mouse, trackball, joystick, touch-pad and keyboard are inserted instruments for enclosures (IP code). The USB-sticks are part of the intrinsic safe accessory. The electrical connection is carried out via terminal compartments in accordance with the provided types of protection.

Optionally the USB SMART Device may be used as accessory. This is either a Bluetooth module or a wireless LAN module which is encapsulated.

The Smart Modules may be connected separately as further accessories. They are interface converters for different interfaces, e. g. USB, Profibus-DP, Ethernet, serial interfaces.

The technical data are provided in the annex.

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

- The intrinsically safe circuits and the enclosure are galvanically connected. In the whole course of the formation of intrinsically safe circuits equipotential bonding must be guaranteed.
- Intensive charging processes on the operating surface of the Visual units respectively of equipment from the display (for example. pneumatic particle transport) have to be excluded.
- When using the device in dust explosive atmospheres the devices of type 17-71V0-\*\*\*\*/\*\*\*\*\*, type 17-71V1-\*\*\*\*/\*\*\*\*\*, type 17-71V2-\*\*\*\*/\*\*\*\*\* and type 17-71V3-\*\*\*\*/\*\*\*\*\* have to be mounted in a suitable and separately certified enclosure.
- The supporting frame has to be used when the visual unit is mounted in separate enclosures.
- The USB flash drive (Stick) type 17-A1Z0-0007 may be operated in an ambient temperature range between -20 °C and +50 °C.



# IECEX Certificate of Conformity

Certificate No.: **IECEX IBE 11.0007X**

Page 4 of 4

Date of issue: 2022-08-04

Issue No: 6

## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

- A new type and new accessories have been added. Thus the type key has been extended.
- The device complies with the requirements of IEC 60079-31.
- New internal components, design changes without changing the intrinsically safe parameter have been assessed.

## **Annex:**

[Annex\\_IBE11.0007X\\_06\\_1.pdf](#)



# IECEX Certificate of Conformity - Annex



Certificate No: IECEX IBE 11.0007X

Issue No: 6

Date of Issue: 2022-08-04

Page 1 of 4

## Technical data:

Type designation:	POLARIS Control	Type 17-71V0-****/*****
	POLARIS Panel PC	Type 17-71V1-****/*****
	POLARIS Remote	Type 17-71V2-****/*****
	POLARIS Web-Client	Type 17-71V3-****/*****
	POLARIS SMART HMI	Type 17-71V6-****/*****
	Accessory USB Smart Device	Type 17-71VZ-A0**/*****
	Accessory Smart Module	Type 17-71VZ-B0**/*****

Type designation:	POLARIS Control Type 17-71V0-****/***** POLARIS Panel PC Type 17-71V1-****/***** POLARIS Remote Type 17-71V2-****/***** POLARIS Web-Client Type 17-71V3-****/*****	POLARIS SMART HMI Type 17-71V6-****/*****	POLARIS Smart Module Type 17-71VZ-B0**/*****
ambient temperature range:	-20 °C ... +60 °C	-20 °C ... +60 °C	-20 °C ... +55 °C
degree of protection:	≥ IP64 frontseitig IP54 rückseitig	≥ IP64	≥ IP64

## Electrical data

### Supply voltage (POLARIS Control / Panel PC / Remote / Web Client)

12 V, 24 V DC ± 10 %

1.6 A or 4 A

or 90...253 VAC

0.2...1.1 A

Maximum voltage  $U_m$  253 V

### Ethernet (10/100 Base T)

maximum 5 V AC/DC

### COM-Interface

maximum 30 V AC/DC

### USB

maximum 5.5 V AC/DC

### Intrinsically safe data- and supply circuits in type of protection Ex ib IIC

(terminals X1-X3)

Auxiliary module for handheld scanner

$U_o$	5.5 V
$I_o$	440 mA
$P_o$	1.25 W
$R_i$	25 $\Omega$
$C_o$	55.8 $\mu$ F
$L_o$	0.15 mH



# IECEX Certificate of Conformity - Annex



Certificate No: IECEX IBE 11.0007X

Issue No: 6

Date of Issue: 2022-08-04

Page 2 of 4

(terminals X4-X9 or X19-X24)

PS2-Ex i (connection for external input units)

U <sub>o</sub>	6.0 V
I <sub>o</sub>	2.25 A
I <sub>stationary</sub>	215 mA
P <sub>o</sub>	989 mW
C <sub>o</sub>	40 µF
L <sub>o</sub>	5 µH

**USB Ex-i**

intrinsically safe USB Interfaces (alternate to the existing USB interface)

U <sub>o</sub>	5.89 V
I <sub>o</sub>	2.845 A
I <sub>stationary</sub>	483 mA
P <sub>o</sub> *	1.94 W
C <sub>o</sub>	40 µF
L <sub>o</sub>	5 µH

\* consideration for thermal ignition

Linear characteristic

**USB Ex-i on J5**

intrinsically safe USB Interfaces (alternate to the existing USB interface)

U <sub>o</sub>	5.89 V
I <sub>o</sub>	1.376 A
I <sub>stationary</sub>	219 mA
P <sub>o</sub> *	905 mW
C <sub>i</sub>	1.1 µF
L <sub>i</sub>	negligible
C <sub>o</sub>	38.9 µF
L <sub>o</sub>	5 µH

\* consideration for thermal ignition

Linear characteristic



# IECEX Certificate of Conformity - Annex



Certificate No: IECEX IBE 11.0007X

Issue No: 6

Date of Issue: 2022-08-04

Page 3 of 4

**Supply Voltage POLARIS SMART HMI** 20...30 V DC  
(terminals X1-X3) up to 2.5 A  
Maximum voltage  $U_m$  253 V

**USB** maximum 5.5 V AC/DC  
(terminals X8-15)

**Ethernet (10/100 Base T)** maximum 5 V AC/DC  
(terminals 4-7)

**USB1 Ex-i and USB 2 Ex i** intrinsically safe USB Interfaces at Polaris SMART HMI

$U_o$	5.89 V
$I_o$	2.845 A
$I_{stationary}$	483 mA
$P_o^*$	1.94 W
$C_o$	40 $\mu$ F
$L_o$	5 $\mu$ H

\* consideration for thermal ignition

Linear characteristic

For circuits including inductances and capacitances the following has to be observed:

The values for  $L_o$  and  $C_o$ , mentioned in the Tables above are allowed for:

- distributed inductance and capacitance e.g. as in a cable or,
- if the total  $L_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $L_o$  value or
- if the total  $C_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $C_o$  value.

The values of  $L_o$  and  $C_o$  determined in the certificate shall be reduced to 50 % or taken from the following table if both of the following conditions are met:

- the total  $L_i$  of the external circuit (excluding the cable)  $\geq 1\%$  of the  $L_o$  value and
- the total  $C_i$  of the external circuit (excluding the cable)  $\geq 1\%$  of the  $C_o$  value.

Auxiliary module for handheld scanner	Ex ib IIC		
$C_o$ [nF]	600	600	600
$L_o$ [ $\mu$ H]	1	2	5
PS2 Ex i	Ex ib IIC		
$C_o$ [nF]	600	600	600
$L_o$ [ $\mu$ H]	1	2	5
USB Ex i	Ex ib IIC		
$C_o$ [nF]	600	600	600
$L_o$ [ $\mu$ H]	1	2	5



# IECEX Certificate of Conformity - Annex



Certificate No: IECEX IBE 11.0007X

Issue No: 6

Date of Issue: 2022-08-04

Page 4 of 4

**Nominal voltage USB SMART Device** 5 V (USB standard)  
Interface USB 2.0

### **Polaris Smart Module**

Power / Input Interface (Connection cable)  $U_{\max}$  6 V (Standard USB Interface 5 V)

Output Interfaces:

- **Polaris Smart Modul USB to Ethernet and USB**  
Standard USB 2.0 maximum 5.5 V Short circuit protection  
Ethernet (10/100 Base T) maximum 5 V AC/DC
- **Polaris Smart Module USB to Profibus DP**  
Profibus -DP
- **Polaris Smart Module USB to Serial**  
TTY, RS422/485, 2x RS232
- **Polaris Smart Module USB to USB Hub**  
Supply Voltage 20...30 V DC (Connection cable)  
Input Interface (Connection cable)  $U_{\max}$  6 V (Standard USB Interface 5 V)  
Output Interface  
3x Standard USB 2.0 maximum 5.5 V / Short circuit protection