



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx IBE 11.0007X

Issue No: 4

Certificate history:

Issue No. 4 (2017-09-20)

Issue No. 3 (2015-06-22)

Issue No. 2 (2013-12-10)

Issue No. 1 (2012-07-27)

Issue No. 0 (2011-08-29)

Status: **Current**

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Date of Issue: **2017-09-20**

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

Equipment: **Visual unit POLARIS type 17-71V*-**

Optional accessory:

Type of Protection: **Flameproof enclosures "d"; Powder filling "q"; Increased safety "e"; Intrinsic safety "i"; Encapsulation "m"; Protection by enclosure "t" Optical radiation "op pr"**

Marking:

visual unit:
Ex db eb mb q [ib op pr] IIC T4 Gb
Ex mb tb IIIC T120 °C Db

intrinsically safe accessories:
Ex ib IIC T4 Gb
Ex ib IIIC T120 °C Db

Accessory:
Ex mb IIC T4 Gb
Ex mb IIIC T120 °C Db

$-20\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$ (maximum values, depending on type)

*Approved for issue on behalf of the IECEx
Certification Body:*

Dipl.-Ing. Alexander Henker

Position:

Deputy Head of Certification Body

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:



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IBExU Institut für Sicherheitstechnik GmbH
Certification Body
Fuchsmühlenweg 7
09599 Freiberg
Germany





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

Additional Manufacturing location(s):

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 electrical apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-18 : 2014 Edition:4.0	Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"
IEC 60079-28 : 2015 Edition:2	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-5 : 2015 Edition:4.0	Explosive atmospheres –Part 5: Equipment protection by powder filling "q"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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 Report:

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

Quality Assessment Report:

[DE/TUN/QAR06.0017/09](#)



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Schedule

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 controller 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 contain LCD-display with touch screen, power supply, CPU, hard disc as well as electronic control units and associated intrinsically safe apparatus. The intrinsically safe equipment like mouse, trackball, touch-pad, keyboard and USB-stick are inserted instruments for enclosures (IP code). 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 and suitable for mounting in a wall and connected in the Ex-e termination compartment.

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 have to be mounted in a suitable and separately certified enclosure.
- The supporting frame has to be used when the device is mounted in separate enclosures.
- The USB flash drive type 17-A1Z0-0007 may be operated in an ambient temperature range of -20 °C and +50 °C.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The device complies with the requirements of the current standards.

A new type SMART HMI has been added.

It may be assembled radio modules in type of protection encapsulation using bluetooth or wireless LAN. Thus the marking has been changed.

The input voltage range is extended to 12 V.

The device may be manufactured according to the updated documents. The changes concern the use of alternate displays, graphics card, processor boards, KVM-extender-boxes, touch-screen-controllers and storage media.

Annex:

[Annex2IBE11.0007X_04.pdf](#)



IECEX Certificate of Conformity - Annex



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Technical data:

Ambient temperature range -20 °C up to +60 °C
 Degree of protection: at least IP 64 at the front,
 IP 54 at the back

Type designation: POLARIS Control Typ 17-71V0-****/****
 POLARIS Panel PC Typ 17-71V1-****/*****
 POLARIS Remote Typ 17-71V2-****/*****
 POLARIS Web-Client Typ 17-71V3-****/****
 POLARIS SMART HMI Typ 17-71V6-****/**** 1)
 Accessories Typ 17-71VZ-****/****

Electrical data

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

12V, 24 V DC ± 10 %
 1.6 A ... 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

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 Ω
C_o	55.8 μ F
L_o	0.15 mH

(terminals X4-X9 or X19-X24) PS2-Ex i (connection for external input units)

U_o	6.0 V
I_o	2.25 A
$I_{stationary}$	215 mA
P_o	989 mW

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C_o	40 μ F
L_o	5 μ H

Supply Voltage POLARIS SMART HMI 20...30 V DC
(terminals X1-X3) up to 1 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 und 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 μ F
L_o	5 μ 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 EC-Type Examination 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 [μ H]	1	2	5
PS2 Ex i	Ex ib IIC		
C_o [nF]	600	600	600
L_o [μ H]	1	2	5
USB Ex i	Ex ib IIC		
C_o [nF]	600	600	600
L_o [μ H]	1	2	5