[1] **EU-TYPE EXAMINATION CERTIFICATE** - Translation

[2] Equipment or protective systems
intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU05ATEX1117 X** | Issue 1

[4] Product: **Visual Unit POLARIS**
Type: 17-71V*-****/****

[5] Manufacturer: BARTEC GmbH

[6] Address: Max-Eyth-Strasse 16
97980 Bad Mergentheim
GERMANY

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-16-3-110.

[9] Compliance with the essential health and safety requirements has been assured by compliance with:
EN 60079-0:2012+A11:2013, EN 60079-1:2014, EN 60079-5:2015, EN 60079-7:2015, EN 60079-11:2012, EN 60079-18:2015, EN 60079-28:2015 and EN 60079-31:2014
except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

Visual Unit:

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-****/****

Ⓔx II 2G Ex db eb mb q [ib op pr] IIC T4 Gb
Ⓔx II 2D Ex mb tb IIIC T120° C Db
-20 °C ≤ T_{amb} ≤ +60 °C

The marking is variable and depends on type and components used.

Intrinsically safe accessories: Type 17-71VZ-****/****

Ⓔx II 2G Ex ib IIC T4 Gb
Ⓔx II 2D Ex ib IIIC T120° C Db
-20 °C ≤ T_{amb} ≤ +60 °C (50 °C)

Accessory: Type USB Smart Device

Ⓔx II 2G Ex mb IIC T4 Gb
Ⓔx II 2D Ex mb IIIC T120° C Db

$-20\ °C \leq T_{amb} \leq +60\ °C$

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- Seal -
(notified body number 0637)

Freiberg, 2017-09-11

[13] **Schedule**

[14] **Certificate number IBExU05ATEX1117 X** | Issue 1

[15] **Description of product**

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 the mounting in a wall and connected in the Ex e termination compartment.

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-****/****
	Accessories	Typ 17-71VZ-****/****

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

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 µF
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
C_o	40 µF
L_o	5 µH

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 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 µF
L_o	5 µH

* 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 EU-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) ≥1 % of the L_o value and
- the total C_i of the external circuit (excluding the cable) ≥1 % of the C_o value.

Auxiliary module for handheld scanner	**Ex ib IIC**		
C_o [nF]	600	600	600
L_o [µH]	1	2	5
PS2 Ex i	**Ex ib IIC**		
C_o [nF]	600	600	600
L_o [µH]	1	2	5
USB Ex i	**Ex ib IIC**		
C_o [nF]	600	600	600
L_o [µH]	1	2	5

Variations compared to EC-type examination certificate and its amendments:

Variation 1
The device complies with the requirements of the current standards.

Variation 2
A new type SMART HMI has been added.

Variation 3
It may be assembled radio modules in type of protection encapsulation using bluetooth or wireless LAN. Thus the marking has been changed.

Variation 4
The input voltage range is extended to 12 V.

Variation 5
The device mentioned under [4] may be manufactured according to the updated documents. The changes concern the use of alternate displays, graphic cards,, processor boards, KVM-extender-boxes, touch-screen-controllers and storage media.

[16] **Test report**
The test results are recorded in the confidential test report IB-16-3-110 of 2017-09-11.

The test documents are part of the test report and they are listed there.

Summary of the test results
The Visual unit POLARIS type 17-71V*-****/**** with accessories fulfils the requirements of the explosion protection for the Equipment Group II and Category 2G or 2D in type of protection powder filling in combination with increased safety or flameproof enclosure, intrinsic safety and encapsulation for gases of the Explosion Group IIC and Temperature Class T4 as well as protection by enclosure for dusts of the Explosion Group IIIC and a maximum surface temperature of 120 °C.

[17] **Specific conditions of use**
- 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 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.

[18] **Essential health and safety requirements**
In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:
None

[19] **Drawings and Documents**
The documents are listed in the test report.

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