Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(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:

PTB 04 ATEX 2075 X **Issue: 1**

(4) Product: Humidity Sensor Type L16..

(5) Manufacturer: Bartec Benke GmbH

(6) Address: Borsigstraße 10, 21465 Reinbek, Germany

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

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the 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 PTB Ex 22-22025.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018+AC:2020 EN 60079-11:2012 EN 60079-26: 2015

(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 in accordance to the Directive 2014/34/EU. 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:

II 1/2 G Ex ia IIC T6 Ga/Gb

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, March 6, 2023
On behalf of PTB:

Dr.-Ing. M. Thedens
Direktor und Professor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 56

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 04 ATEX 2075 X, Issue: 1**

(15) Description of Product

The humidity sensor type L16... is part of a system for the humidity measurement of gases in pipings, containers or tanks in hazardous areas.

Category 1/2-equipment

The connection facilities are installed in hazardous areas, where an apparatus of category 2 is required. The glands are mounted into the partition which separates areas from each other where apparatus of category 2 or 1 are required. The sensor is installed in hazardous areas for category-1-equipment.

Category 2-equipment

The humidity measuring probes are installed in hazardous areas, where apparatus of category 2 are required.

Category 1/2-equipment

Electrical data

Optical waveguide for all types
(terminal 1 or 2)

Only for connection to an optical interface with the following specifications.
Maximum radiated optical power 15 mW

Types L1661
Intrinsically safe Pt100-circuit
(terminals 1, 2, 3, 4)

type of protection Intrinsic Safety Ex ia IIC
For connection to a certified intrinsically safe circuit.

For relationship between temperature class and permissible maximum input power, reference is made to the following table:

temperature class	maximum input power P_i
T6	62 mW
T5	246 mW
T4	677 mW
T3	1.48 W

internal capacitance C_i negligibly low
internal inductance L_i negligibly low

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Permissible ambient temperature T_a (atmospheric conditions) -20 bis +60 °C

For applications requiring category-1-equipment, the process pressure of the media shall range from 0.8 bar to 1.1 bar.

For operating conditions without explosive mixtures reference is made to the manufacturer´s specifications.

Category 2-equipment

Electrical data

Optical waveguide for all types (terminal 1 or 2)

Only for connection to an optical interface with the following specifications.
Maximum radiated optical power 15mW
e.g. terminal 1 or 2 of the analyzing and monitoring unit „Hygrophil F, type 5672-..“

Intrinsically safe Pt100-circuit (terminals 1, 2, 3, 4)

type of protection Intrinsic Safety Ex ia IIC
For connection to a certified intrinsically safe circuit.

For relationship between temperature class and permissible maximum input power, reference is made to the following table:

temperature class	maximum input power P_i
T6	308 mW
T5	538 mW
T4	1.08 W
T3	2.08 W

internal capacitance C_i negligibly low
internal inductance L_i negligibly low

These values apply for a maximum ambient temperature of +60°C. For other ambient temperatures the maximum input power shall be calculated using the equation:

$P_i = (T_{\text{temperature class}} - 5K - T_{a,max}) / 65\ K/W$

Permissible range of the ambient temperature T_a -50 up to +100 °C

Shield connection (terminal 5)

For connecting a cable shield

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Types L1661, C-series additionally:

Intrinsically circuit (terminals 6, 7, 8, 9)	For connection to an intrinsically safe circuit with type of protection Ex ia IIC only U_i = 30 V I_i = 1 A internal capacitance C_i negligibly low internal inductance L_i negligibly low The terminals (6, 7) and (8, 9) are directly connected to each other and have no further wiring.

- Adaptation of the test specification to the current state of standards
- Addition of the specification of a maximum input current at the connection of the PT100
- Modification of the housing
- Replacement of a circuit board
- Addition of an adhesive insert
- Cancellation of the L1660 version
- New: Specific conditions of use
- Change of the description language from German to English
- Change of manufacturer:
  Old: BARTEC BENKE GmbH, Schulstraße 30, 94239 Gotteszell
  New: BARTEC BENKE GmbH, Borsigstraße 10, 21465 Reinbek

(16) Test Report PTB Ex22-22025

(17) Specific conditions of use

The operating instructions must refer to the risk of electrostatic discharge and the resulting restrictions on use.

In particular, strongly charge-generating processes on the surface should be avoided.

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(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.
According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, March 6, 2023

Dr.-Ing. M. Thedens
Direktor und Professor

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