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

Certificate No.:	**IECEx PTB 24.0001X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2024-01-22		
Applicant:	**BARTEC BENKE GmbH** Borsigstraße 10, 21465 Reinbek **Germany**		
Equipment:	**Humidity Sensor type L16...**		
Optional accessory:	None		
Type of Protection:	**Intrinsic Safety 'ia'**		
Marking:	Ex ia IIC T6...T3 Ga/Gb		

Approved for issue on behalf of the IECEx Certification Body: **Dr.-Ing. Martin Thedens**

Position: **Head of Department "Explosion Protection in Sensor Technology and Instrumentation"**

Signature: (for printed version)

Date: (for printed version) 24.1.

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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 www.iecex.com or use of this QR Code.

Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany

Physikalisch-Technische Bundesanstalt Braunschweig und Berlin

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Manufacturer: **BARTEC BENKE GmbH**
Borsigstraße 10, 21465 Reinbek
Germany

Manufacturing locations: **BARTEC BENKE GmbH**
Borsigstraße 10, 21465 Reinbek
Germany

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 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-26:2014 Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

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 Report:

DE/PTB/ExTR24.0001/00

Quality Assessment Report:

DE/TUN/QAR12.0009/10

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

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

For details refer to the annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:
The operating instructions must refer to the risk of electrostatic discharge and the resulting restrictions on use.

In particular, strongly charge-generating processes shall be avoided.

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Additional information:
For thermal and electrical specifications reference is made to the annex.

Annex:

Annex to IECEx PTB 24.0001X issue 0_1.pdf

Applicant: BARTEC Benke GmbH

Electrical Apparatus: Humidity Sensor type L16..

Description of equipment

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 sensors 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 15mW

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.

U_i = 10 V

I_i = 1 A

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

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internal capacitance C_i negligibly low
internal inductance L_i negligibly low

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-..“

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.

U_i = 10 V

I_i = 1 A

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:

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

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

For permissible operating temperatures and pressures reference is made to the manufacturer´s specifications.

Category 1/2- and 2-equipment

Types L1661, Series C additionally: Intrinsically safe 0/4-20 mA 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 Ci negligibly low internal inductance Li negligibly low The terminals (6, 7) and (8, 9) are directly connected to each other and have no further wiring.
Shield connection (terminal 5)	For connecting a cable shield

Special conditions for safe use

Types L1661, Series B:
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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