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 19.0001X

Issue No: 0

Certificate history:
Issue No. 0 (2019-04-08)

Status: **Current**

Date of Issue: **2019-04-08**

Applicant: **PHOENIX CONTACT GmbH & Co. KG**
Flachsmarktstraße 8
32825 Blomberg
Germany

Equipment: **Temperature Transducer type MACX MCR(-EX)-RTD-I(-SP)(-C)(-...) and MACX MCR(-EX)-TC-I(-SP)(-C)(-...)**

Optional accessory:

Type of Protection: **intrinsic safety "i" in combination with increased safety "e"**

Marking:

[Ex ia Ma] I
[Ex ia Ga] IIC
[Ex ia Da] IIIC

Ex ec ic [ia Ga] IIC T4 Gc

Ex ec ic IIC T4 Gc

Approved for issue on behalf of the IECEx Certification Body: Dipl.-Ing. Alexander Henker

Position: Head of Certification Body

Signature:
(for printed version)

A. Henker

Date: 2019-04-08

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.

Certificate issued by:

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

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Manufacturer: **PHOENIX CONTACT GmbH & Co. KG**
Flachsmarktstraße 8
32825 Blomberg
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 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 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
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/ExTR18.0047/00

Quality Assessment Report:

NL/DEK/QAR11.0009/06

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The modules MACX MCR(-EX)-[RTD,TC]-I(-SP)(-C)(-…) are isolating temperature transmitter with intrinsically safe inputs for the use with standard 4…20 mA output signal. The temperature transmitter are intended for mounting on 35 mm top hat rails.

Configuration may be done by means of an USB connection which fulfils the requirements of "ic" circuit.

The temperature signal may be provided either by means of resistance elements or thermocouple elements.

Technical Data:

ambient temperature range	T_{amb}	-40 °C...+70 °C
rated insulation voltage		375 V_{peak}
Terminal 1.1, 1.2		
maximum voltage	U_m	253 V AC / 125 V DC
nominal voltage	U_n	24 V DC
Terminal 3.1, 3.2		
as associated apparatus	U_m	253 V AC / 125 V DC
in Zone 2 / EPL Gc	U_m	30 V
Terminal 4.1, 4.2, 5.1, 5.2		intrinsically safe circuit ia IIC
maximum output voltage	U_o	6 V
maximum output current	I_o	16.8 mA
maximum output power	P_o	maximum 25.2 mW (linear)
maximum external capacitance	C_o	40 µF
maximum external inductance	L_o	100 mH
effective internal capacitance	C_i	44 nF
effective internal inductance	L_i	negligible
Terminal µUSB		intrinsically safe circuit ic IIC
maximum output voltage	U_o	3.5 V
maximum output current	I_o	400 mA

maximum output power	P_o	350 mW
maximum external capacitance	C_o	2 µF
maximum external inductance	L_o	20 µH
maximum input voltage	U_i	7 V
maximum input current	I_i	100 mA
maximum input power	P_i	550 mW
effective internal capacitance	C_i	47 µF
effective internal inductance	L_i	negligible

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 *Li* of the external circuit (excluding the cable) ≥ 1 % of the *Lo* value and
- the total *Ci* of the external circuit (excluding the cable) ≥ 1 % of the *Co* value.

	Ex ia IIC	Ex ia IIB/IIA, Ex ia IIIC
Co	600 nF	1µF
Lo	100 mH	100 mH

The reduced capacitance of the external circuit (including cable) shall not be greater than 1 µF for Groups I, IIA, and IIB and 600 nF for Group IIC.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The temperature transmitter has to be mounted in a suitable housing fulfilling the requirements of IEC 60079-7 with a degree of protection of at least IP54 according to IEC 60529 or another recognized type of protection according to IEC 60079-0, Clause 1, when installing the device in Zone 2.
- The permitted ambient temperature range is -40 °C…+70 °C.
- Detailed information for the intrinsically safe parameter are mentioned in the installation notes.
- Only auxiliaries authorized by the manufacturer are permitted to connect with the temperature transmitter.
- Connecting and disconnecting of non-intrinsically safe circuits are not permitted.