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 TUN 16.0009X**

Certificate history:
Issue 1 (2017-01-13)
Issue 0 (2016-02-25)

Status: **Current**

Issue No: 2

Date of Issue: 2022-03-25

Applicant: **Hans Turck GmbH & Co. KG**
Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany

Equipment: **Temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**)**

Optional accessory:

Type of Protection: **Intrinsic safety "i"; Inceased Safety "ec" and Equipment protection by type of protection "nC"**

Marking:

IMX12-TI02-2TCURTDR-2I-C*/24VDC(/**) IMX12-TI01-2RTDR-2I-C*/24VDC(/**) IMX12 TI02 1TCURTDR-1I-*/24VDC(/**)	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex ec [ia Ga] IIC T4 Gc Ex ec [ia IIIC Da] IIC T4 Gc
IMX12-TI02-1TCURTDR-1I1R-C*/24VDC(/**)	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex ec [ia Ga] IIC T4 Gc Ex ec nC [ia Ga] IIC T4 Gc Ex ec [ia IIIC Da] IIC T4 Gc Ex ec nC [ia IIIC Da] IIC T4 Gc

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

Position: **Deputy Head of the IECEx Certification Body**

Signature: (for printed version)

Date: (for printed version)

Digital unterschrieben von Meyer Andreas
Datum: 2022.07.05 19:36:49 +02'00'

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Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany

IECEx Certificate of Conformity

Manufacturer: **Hans Turck GmbH & Co. KG**
Witzlebenstraße 7
45472 Mülheim
Germany
Germany

Manufacturing locations:

Hans Turck GmbH & Co. KG
Witzlebenstraße 7
45472 Mülheim
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Werner Turck GmbH & Co. KG
Goethestrasse 7
53533 Halver
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 60079-15:2017 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:5.0

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

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/TUN/ExTR15.0059/01

Quality Assessment Reports:

DE/PTB/QAR06.0012/05 DE/PTB/QAR06.0013/08

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

Description:

The temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) is used for measuring of temperature with thermocouples or resistance thermometers as well as for the safe galvanic separation between the intrinsically safe and the non-intrinsically safe circuits.

The device is executed with 1 or 2 channels.

The device has 1 or 2 measuring circuits and 2 current output circuits or 1 current output circuit and 1 relay output.

Electrical and thermal Data:

Refers to the Attachment to IECEx TUN 16.0009X issue No.2

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. For EPL Gc applications the temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) has to be installed in a suitable enclosure according to IEC 60079-7 in such a way that a degree of protection of at least IP54 according to IEC 60529 is achieved.

2. For EPL Gc applications the temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) has to be erected in such a way that a pollution degree 2 or less, according to IEC 60664-1, is achieved.

3. For EPL Gc applications, the use of the switches on the front panel and the connection and disconnection of the terminals of non-intrinsically safe circuits is only permitted if no explosive atmosphere is present.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Proof of conformity of the temperatre transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) to the current versions of the standards IEC 60079-0:2017; IEC 60079-7:2017; IEC 60079-11:2011 and IEC 60079-15: 2017.

An additional temperature transmitter IMX12 TI02 1TCURTDR-1I-*/24VDC(/**) variant is to be included in the approval. The variant has 8 rotary coding switches on the left side of the housing (housing half 1) and a new matching PCB.

Annex:

Attachment to IECEx TUN 16.0009X issue No.2 .pdf

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Description:
The temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) is used for measuring of temperature with thermocouples or resistance thermometers as well as for the safe galvanic separation between the intrinsically safe and the non-intrinsically safe circuits.

The device is executed with 1 or 2 channels.
The device has 1 or 2 measuring circuits and 2 current output circuits or 1 current output circuit and 1 relay output.

Type code and Marking:

IMX12-TI02-2TCURTDR-2I-C*/24VDC(/**) IMX12-TI01-2RTDR-2I-C*/24VDC(/**) IMX12 TI02 1TCURTDR-1I-*/24VDC(/**)	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
	Ex ec [ia IIIC Da] IIC T4 Gc

IMX12-TI02-1TCURTDR-1I1R-C*/24VDC(/**)	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
	Ex ec nC [ia Ga] IIC T4 Gc
	Ex ec [ia IIIC Da] IIC T4 Gc
	Ex ec nC [ia IIIC Da] IIC T4 Gc

Details of change:
Proof of conformity of the temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) to the current versions of the standards IEC 60079-0:2017; IEC 60079-7:2017; IEC 60079-11:2011 and IEC 60079-15:2017.
An additional temperature transmitter IMX12 TI02 1TCURTDR-1I-*/24VDC(/**) variant is to be included in the approval. The variant has 8 rotary coding switches on the left side of the housing (housing half 1) and a new matching PCB.

Electrical data:

Supply circuit (X11-Terminals 15[+], 16[-]) or X2-Terminals 4[+], 5[-])	For connection to non-intrinsically safe circuits with the following maximum values: U = 10 ... 30 V d.c; P ≤ 2 W U_m = 253 V a.c / d.c
Output circuits (X14- Terminals 9[+], 10[-]) resp. (X13- Terminals 11[+], 12[-])	For connection to non-intrinsically safe circuits with the following maximum values: U = 24 … 30 V d.c; I = 4 … 20 mA U_m = 253 V a.c / d.c
Relay output circuit for the variant IMX12-TI02-1TCURTDR-1I1R-C*/24VDC(/**) (Make contacts X12- Terminals 13, 14 Break contacts X12- Terminal 13, X13- Terminal 12)	For connection to non-intrinsically safe circuits with the following maximum values: U = 250 V a.c; I = 2 A; S = 500 VA; P = 60 W U = 125 V d.c; I = 0.5 A resp. U = 30 V d.c; I = 2 A
Failure signal output (X30- Terminals 1, 2)	For connection to non-intrinsically safe circuits with the following maximum values: U = 30 V d. c.; 100 mA; potential free contact U_m = 253 V a. c. / d. c.

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Measuring circuits
(X21- Terminals 1, 2
X22- Terminals 3, 4
X23- Terminals 5, 6
X24- Terminals 7, 8)

In type of protection intrinsic safety Ex ia IIC/IIIC with following maximum values per channel:

IMX12-TI02-2TCURTDR-2I-C*/24VDC(/)**
U_o = 5 V
I_o = 2.8 mA
P_o = 3.5 mW
Characteristic line: linear
Effective internal capacitance C_i negligibly small
Effective internal inductance L_i = 226 µH

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following tables:

Ex ia IIC	L_o [mH]	1.7	4.7	9.7
	C_o [µF]	3.4	2.9	2.7

Ex ia IIIC (IIB)	L_o [mH]	1.7	9.7	19.7
	C_o [µF]	18	13	12

IMX12-TI01-2RTDR-2I-C*/24VDC(/)**
U_o = 5 V
I_o = 2.4 mA
P_o = 3 mW
Characteristic line: linear
Effective internal capacitance C_i negligibly small
Effective internal inductance L_i = 226 µH

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following tables:

Ex ia IIC	L_o [mH]	1.7	4.7	9.7
	C_o [µF]	3.4	2.9	2.7

Ex ia IIIC (IIB)	L_o [mH]	1.7	9.7	19.7
	C_o [µF]	18	13	12

IMX12-TI02-1TCURTDR-1I1R-C*/24VDC(/)**
U_o = 5 V
I_o = 2.4 mA
P_o = 3 mW
Characteristic line: linear
Effective internal capacitance C_i negligibly small
Effective internal inductance L_i = 338 µH

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following tables:

Ex ia IIC	L_o [mH]	1.6	4.6	9.6
	C_o [µF]	3.4	2.9	2.7

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Ex ia IIIC (IIB)	L_o [mH]	1.6	9.6	19.6
	C_o [µF]	18	13	12

IMX12 TI02 1TCURTDR-1I-*/24VDC(/)**
U_o = 5 V
I_o = 2.4 mA
P_o = 3 mW
Characteristic line: linear
Effective internal capacitance C_i negligibly small
Effective internal inductance L_i = 338 µH

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following tables:

Ex ia IIC	L_o [mH]	1.6	4.6	9.6
	C_o [µF]	3.4	2.9	2.7

Ex ia IIIC (IIB)	L_o [mH]	1.6	9.6	19.6
	C_o [µF]	18	13	12

For all variants the maximum values of the following table are only allowed to be used up to the permissible limits as cable reactances.

Ex ia	IIC	IIIC (IIB)
Max. permissible external inductance	100 mH	100 mH
Max. permissible external capacitance	100 µF	1000 µF

The intrinsically safe measuring circuits are galvanically connected to each another. The intrinsically safe measuring circuits are safely galvanically separated from the non-intrinsically safe circuits up to the peak value of the voltage of 375 V.

Thermal data:
Permissible ambient temperature range during operation: -25 °C ≤ Ta ≤ +70 °C

Specific Conditions of Use:
1. For EPL Gc applications the temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) has to be installed in a suitable enclosure according to IEC 60079-7 in such a way that a degree of protection of at least IP54 according to IEC 60529 is achieved.

2. For EPL Gc applications the temperature transmitter type IMX12-TI0*-*(***)RTDR-*I(*R)-**/24VDC(/**) has to be erected in such a way that a pollution degree 2 or less, according to IEC 60664-1, is achieved.

3. For EPL Gc applications, the use of the switches on the front panel and the connection and disconnection of the terminals of non-intrinsically safe circuits is only permitted if no explosive atmosphere is present.