



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 15.0031X** Page 1 of 4 **Certificate history:**
Status: **Current** Issue No: 4 **Issue 3 (2022-02-04)**
Date of Issue: 2022-11-21 **Issue 2 (2019-06-04)**
Issue 1 (2016-12-20)
Issue 0 (2015-08-28)
Applicant: **Hans Turck GmbH & Co. KG**
Witzlebenstrasse 7, 45472 Mülheim an der Ruhr
Germany
Equipment: **Isolating transducer type IMX(K)12-AI**_**_****_**/*****/****
Optional accessory:
Type of Protection: **Equipment protection by intrinsic safety "i", Equipment protection by increased safety "e" and Equipment protection by type of protection "n"**
Marking:

IMX12-AI**-1I-1IU-**/*****/** IMXK12-AI**-1I-1IU-**/*****/** IMX12-AI**-1I-2IU-**/*****/** IMX12-AI**-2I-2IU-**/*****/** Instead of the asterisks, letters and numbers are inserted in the full name to indicate the different versions.	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex ec [ia Ga] IIC T4 Gc Ex ec [ia IIIC Da] IIC T4 Gc
IMX12-AI**-1I-1IU1R-**/*****/** Instead of the asterisks, letters and numbers are inserted in the full name to indicate the different versions.	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex ec nC [ia Ga] 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
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Germany





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Date of issue: 2022-11-21

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Manufacturer: **Hans Turck GmbH & Co KG**
Witzlebenstrasse 7
45472 Mülheim Ruhr
Germany

Manufacturing locations: **Werner TURCK GmbH & Co. KG**
Goethestraße 7
58553 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/ExTR15.0041/04](#)

Quality Assessment Reports:

[DE/PTB/QAR06.0012/05](#)

[DE/PTB/QAR06.0013/09](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Subject and Type

Isolating transducer type IMX(K)12-AI**_**_*****_**/*****/**

Instead of the asterisks, letters and numbers are inserted in the full name to indicate the different versions

Description

The isolating transducer type IMX(K)12-AI**_**_*****_**/*****/** is used for the galvanically separated supply of two wire transmitters in the explosion hazardous area as well as for the safe galvanic separation between the intrinsically safe measuring circuits and the non-intrinsically safe output circuits and for transmission of the active intrinsically safe input signal into the non-explosion hazardous area.

The device

- IMX12-AI**-1I-1IU-**/*****/** resp.
- IMXK12-AI**-1I-1IU-**/*****/** resp.
- IMX12-AI**-1I-1IU1R-**/*****/**

is executed with 1 channel.

The device

- IMX12-AI**-1I-2IU-**/*****/** resp.
- IMX12-AI**-2I-2IU-**/*****/**

is executed with 2 channels.

Electrical data:

See attachment to IECEX TUN 15.0031X issue No.4

Thermal data:

The permissible ambient temperature range is -25°C ... +70°C.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. For EPL Gc applications the isolating transducer type IMX(K)12-AI**_**_*****_**/*****/** 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 isolating transducer type IMX(K)12-AI**_**_*****_**/*****/** 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 connecting and disconnecting of energized non-intrinsically safe circuits is only permitted, if no explosion hazardous atmosphere is available.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Proof of conformity of the new variant of the isolating transducer with relay output type IMX12-AI**-1I-1IU1R-**/*****/** to the current versions of the standards IEC 60079-0:2017; IEC 60079-7:2017; IEC 60079-11:2011 and IEC 60079-15:2017

The proof of conformity of the following variants to IEC 60079-0:2017; IEC 60079-7:2017 and IEC 60079-11:2011 have already been tested and confirmed in the last issue No.3:

IMX12-AI**-1I-1IU-**/*****/**

IMXK12-AI**-1I-1IU-**/*****/**

IMX12-AI**-1I-2IU-**/*****/**

IMX12-AI**-2I-2IU-**/*****/**

Annex:

[Attachment to IECEx TUN 15.0031X issue No.4.pdf](#)

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Attachment to IECEx TUN 15.0031X issue No.: 4

General product information:

Description:

The isolating transducer type IMX(K)12-AI**_**_*****_**/*****/** is used for the galvanically separated supply of two wire transmitters in the explosion hazardous area as well as for the safe galvanic separation between the intrinsically safe measuring circuits and the non-intrinsically safe output circuits and for transmission of the active intrinsically safe input signal into the non-explosion hazardous area.

The device

- IMX12-AI**-1I-1IU-**/*****/** resp.
- IMXK12-AI**-1I-1IU-**/*****/** resp.
- IMX12-AI**-1I-1IU1R-**/*****/**

is executed with 1 channel.

The device

- IMX12-AI**-1I-2IU-**/*****/** resp.
- IMX12-AI**-2I-2IU-**/*****/**

is executed with 2 channels.

Type code:

IMX12-AI**-1I-1IU-**/*****/** IMXK12-AI**-1I-1IU-**/*****/** IMX12-AI**-1I-2IU-**/*****/** IMX12-AI**-2I-2IU-**/*****/** Instead of the asterisks, letters and numbers are inserted in the full name to indicate the different versions.	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex ec [ia Ga] IIC T4 Gc Ex ec [ia IIIC Da] IIC T4 Gc
IMX12-AI**-1I-1IU1R-**/*****/** Instead of the asterisks, letters and numbers are inserted in the full name to indicate the different versions.	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex ec nC [ia Ga] IIC T4 Gc Ex ec nC [ia IIIC Da] IIC T4 Gc

Electrical data:

IMX12-AI_**_**_**/*****/****

Supply circuit (X11-Terminals 15[+], 16[-] or X30-Terminals 4[+], 5[-])	For connection to non-intrinsically safe circuits with the following maximum values: $U_N = 10 \dots 30 \text{ V d. c.}$, $P \text{ ca. } 4 \text{ W}$ $U_m = 253 \text{ V a. c. / d. c.}$
Output circuits (X14-Terminals 9, 10 X13-Terminals 11, 12 X12-Terminals 13, 14)	For connection to non-intrinsically safe circuits with the following maximum values: Voltage source: $1 \dots 5 \text{ V d. c.}$ Current source/current sink: $4 \dots 20 \text{ mA}$ $U_m = 253 \text{ V a. c. / d. c.}$
Failure signal output (X30-Terminals 1, 2)	For connection to non-intrinsically safe circuits with the following maximum values: $U_N = 30 \text{ V d. c.}$, 100 mA ; potential free contact $U_m = 253 \text{ V a. c. / d. c.}$

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Input circuits
(Channel 1:
X23-Terminals 5[+], 6[-]
X24-Terminals 7[+], 8[-]
Channel 2:
X21-Terminals 1[+], 2[-]
X22-Terminals 3[+], 4[-])

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

$U_o = 26.1 \text{ V}$
 $I_o = 97 \text{ mA}$
 $P_o = 632 \text{ mW}$
Characteristic line: linear
The effective internal capacitance is negligibly small.
The effective internal inductance: $110 \mu\text{H}$

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]	1.5	0.9	0.4
	C_o [μF]	0.047	0.058	0.074

Ex ia IIB/IIIB/IIIC	L_o [mH]	9.9	1.9	0.9
	C_o [μF]	0.32	0.34	0.4

The values of the table below are only applicable, if the internal inductance L_i (without the cable) or the internal capacitance C_i (without the cable) of the connected equipment is $\leq 1 \%$ of the below specified values.

If L_i (without the cable) and C_i (without the cable) of the connected equipment are $> 1 \%$ of the specified values, the specified values of L_o shall be reduced to 50 %.

Ex ia	IIC	IIB/IIIB/IIIC
Maximum permissible external inductance	1.5 mH	13.9 mH
Maximum permissible external capacitance	98 nF	760 nF

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

Input circuits
(Channel 1:
X23-Terminals 5[+], 6[-]
X24-Terminals 7[+], 8[-]
Channel 2:
X21-Terminals 1[+], 2[-]
X22-Terminals 3[+], 4[-])

In type of protection Intrinsic Safety Ex ia IIC/IIIC
For connection to active intrinsically safe circuits
Maximum values per channel:

$U_i = 25 \text{ V}$
 $I_i = 85 \text{ mA}$
 $P_i = 2.125 \text{ W}$
The effective internal capacitance is negligibly small.
The effective internal inductance: $110 \mu\text{H}$

The rules for interconnection of intrinsically safe circuits have to be observed.

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IMXK12-AI_**_**_**/****/****

Supply circuit
(X11-Terminals 7[+], 8[-])

For connection to non-intrinsically safe circuits with the following maximum values:
 $U_N = 10 \dots 30 \text{ V d. c.}$, $P \text{ ca. } 2 \text{ W}$
 $U_m = 253 \text{ V a. c. / d. c.}$

Output circuits
(X12-Terminals 5, 6)

For connection to non-intrinsically safe circuits with the following maximum values:
Voltage source: $1 \dots 5 \text{ V d. c.}$
Current source/current sink: $4 \dots 20 \text{ mA}$
 $U_m = 253 \text{ V a. c. / d. c.}$

Input circuit
(X21-Terminals 1[+], 2[-]
X22-Terminals 3[+], 4[-])

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

$U_o = 26.1 \text{ V}$
 $I_o = 97 \text{ mA}$
 $P_o = 632 \text{ mW}$
Characteristic line: linear
The effective internal capacitance is negligibly small.
The effective internal inductance: $110 \mu\text{H}$

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]	1.5	0.9	0.4
	C_o [μF]	0.047	0.058	0.074

Ex ia IIB/IIIB/IIIC	L_o [mH]	9.9	1.9	0.9
	C_o [μF]	0.32	0.34	0.4

The values of the table below are only applicable, if the internal inductance L_i (without the cable) or the internal capacitance C_i (without the cable) of the connected equipment is $\leq 1 \%$ of the below specified values.

If L_i (without the cable) and C_i (without the cable) of the connected equipment are $> 1 \%$ of the specified values, the specified values of L_o shall be reduced to 50 %.

Ex ia	IIC	IIB/IIIB/IIIC
Maximum permissible external inductance	1.5 mH	13.9 mH
Maximum permissible external capacitance	98 nF	760 nF

The intrinsically safe input circuit is safely galvanically separated from the non-intrinsically safe circuits up to the peak value of the voltage of 375 V.

Input circuit
(X21-Terminals 1[+], 2[-]
X22-Terminals 3[+], 4[-])

In type of protection Intrinsic Safety Ex ia IIC/IIIC
For connection to active intrinsically safe circuits
Maximum values:

$U_i = 25 \text{ V}$
 $I_i = 85 \text{ mA}$
 $P_i = 2.125 \text{ W}$
The effective internal capacitance is negligibly small.
The effective internal inductance: $110 \mu\text{H}$

The rules for interconnection of intrinsically safe circuits have to be observed.

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IMX12-AI-1I-1IU1R-**/*****/****

Supply circuit (X11-Terminals 15[+], 16[-] or X30-Terminals 4[+], 5[-])	For connection to non-intrinsically safe circuits with the following maximum values: $U_N = 10 \dots 30 \text{ V d. c.}$, $P \text{ ca. } 4 \text{ W}$ $U_m = 253 \text{ V a. c. / d. c.}$
Output circuits (X14-Terminals 9, 10 X13-Terminals 11, 12)	For connection to non-intrinsically safe circuits with the following maximum values: Voltage source: $1 \dots 5 \text{ V d. c.}$ Current source/current sink: $4 \dots 20 \text{ mA}$ $U_m = 253 \text{ V a. c. / d. c.}$
(X12-Terminals 13, 14 - Relay with NO contact)	Relay output: $U = 250 \text{ V a.c.}; I = 2 \text{ A}, S = 500 \text{ VA}$ $U = 125 \text{ V d.c.}; I = 0.5 \text{ A resp.}$ $U = 30 \text{ V d.c.}; I = 2 \text{ A}; P = 60 \text{ W}$
Failure signal output (X30-Terminals 1, 2)	For connection to non-intrinsically safe circuits with the following maximum values: $U_N = 30 \text{ V d. c.}$, 100 mA ; potential free contact $U_m = 253 \text{ V a. c. / d. c.}$
Input circuit (X23-Terminals 5[+], 6[-] X24-Terminals 7[+], 8[-])	In type of protection intrinsic safety Ex ia IIC/IIB/IIIC with following maximum values: $U_o = 26.1 \text{ V}$ $I_o = 97 \text{ mA}$ $P_o = 632 \text{ mW}$ Characteristic line: linear The effective internal capacitance is negligibly small. The effective internal inductance: $110 \mu\text{H}$

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]	1.5	0.9	0.4
	C_o [μF]	0.047	0.058	0.074
Ex ia IIB/IIIB/IIIC	L_o [mH]	9.9	1.9	0.9
	C_o [μF]	0.32	0.34	0.4

The values of the table below are only applicable, if the internal inductance L_i (without the cable) or the internal capacitance C_i (without the cable) of the connected equipment is $\leq 1 \%$ of the below specified values.

If L_i (without the cable) and C_i (without the cable) of the connected equipment are $> 1 \%$ of the specified values, the specified values of L_o shall be reduced to 50 %.

Ex ia	IIC	IIB/IIIB/IIIC
Maximum permissible external inductance	1.5 mH	13.9 mH
Maximum permissible external capacitance	98 nF	760 nF

The intrinsically safe input circuit is safely galvanically separated from the non-intrinsically safe circuits up to the peak value of the voltage of 375 V.

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Input circuit
(X23-Terminals 5[+], 6[-]
X24-Terminals 7[+], 8[-])

In type of protection Intrinsic Safety Ex ia IIC/IIIC
For connection to active intrinsically safe circuits
Maximum values

$U_i = 25 \text{ V}$

$I_i = 85 \text{ mA}$

$P_i = 2.125 \text{ W}$

The effective internal capacitance is negligibly small.

The effective internal inductance: $110 \mu\text{H}$

The rules for interconnection of intrinsically safe circuits have to be observed.

Thermal data:

Permissible ambient temperature range during operation: $-25 \text{ °C} \leq T_a \leq +70 \text{ °C}$

Details of Change:

Proof of conformity of the new variant of the isolating transducer with relay output type IMX12-AI**-1I-1IU1R-*/*****/** to the current versions of the standards IEC 60079-0:2017; IEC 60079-7:2017; IEC 60079-11:2011 and IEC 60079-15:2017

The proof of conformity of the following variants to IEC 60079-0:2017; IEC 60079-7:2017; IEC 60079-11:2011 have already been tested and confirmed in the last issue No.3:

- IMX12-AI**-1I-1IU-*/*****/**
- IMXK12-AI**-1I-1IU-*/*****/**
- IMX12-AI**-1I-2IU-*/*****/**
- IMX12-AI**-2I-2IU-*/*****/**

Special Conditions for Safe Use:

1. For EPL Gc applications the isolating transducer type IMX(K)12-AI**-**_*****_*/*****/** 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 is achieved.
2. For EPL Gc applications the isolating transducer type IMX(K)12-AI**-**_*****_*/*****/** 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 connecting and disconnecting of energized non-intrinsically safe circuits is only permitted, if no explosion hazardous atmosphere is available.