



Translation

(1) **EU-Type Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**

(3) **Certificate Number** TÜV 15 ATEX 158337 X **Issue:** 04
 (4) for the product: Isolating transducer type IMX(K)12-AI**_**_****_**/****/**
 (5) of the manufacturer: **Hans Turck GmbH & Co. KG**
 (6) Address: Witzlebenstraße 7
 45472 Mülheim an der Ruhr
 Germany
 Order number: 8003044120
 Date of issue: See date of signature

(7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 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 ATEX Assessment Report No. 23 203 341440.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN IEC 60079-0:2018/AC:2020-02 EN IEC 60079-7:2015/A1:2018 EN 60079-11:2012
EN IEC 60079-15:2019

except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for 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. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the product shall include the following:

 **See "Type code and Marking"**

TÜV NORD CERT GmbH, Am TÜV 1, 45307 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body

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 Excerpts or changes shall be allowed by the TÜV NORD CERT GmbH**

(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 15 ATEX 158337 X**

Issue 04

(15) **Description of product:**

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_1I*_**/****/** resp.
- IMXK12-AI**_1I_1I*_**/****/** resp.
- IMX12-AI**_1I_1IU1R_**/****/**

is executed with 1 channel.

The device

- IMX12-AI**_1I_2IU_**/****/** bzw.
- IMX12-AI**_2I_2IU_**/****/**

is executed with 2 channels.

Type code ans Marking:

<p>IMX12-AI**_1I_1I*_**/****/** IMXK12-AI**_1I_1I*_**/****/** 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.</p>	<p>II (1) G [Ex ia Ga] IIC II (1) D [Ex ia Da] IIIC II 3 (1) G Ex ec [ia Ga] IIC T4 Gc II 3 G (1) D Ex ec [ia IIIC Da] IIC T4 Gc</p>
<p>IMX12-AI**_1I_1IU1R_**/****/** Instead of the asterisks, letters and numbers are inserted in the full name to indicate the different versions.</p>	<p>II (1) G [Ex ia Ga] IIC II (1) D [Ex ia Da] IIIC II 3 (1) G Ex ec nC [ia Ga] IIC T4 Gc II 3 G (1) D Ex ec nC [ia IIIC Da] IIC T4 Gc</p>

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:

$U_N = 30 \text{ V d.c.}, 100 \text{ mA};$ potential free contact
 $U_m = 253 \text{ V a.c. / d.c.}$

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Issue 04

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/IIIB/IIIC
with following maximum values per channel:

$$U_o = 26.4 \text{ V}$$

$$I_o = 98 \text{ mA}$$

$$P_o = 646 \text{ mW}$$

Characteristic line: linear

The effective internal capacitance is negligibly small.

The effective internal inductance: 110 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]	1.49	1	0.5
	C_o [μF]	0.048	0.058	0.073

Ex ia IIB/IIIB/IIIC	L_o [mH]	10	2	1
	C_o [μF]	0.42	0.46	0.54

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	96 nF	740 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.

Channel 1 and channel 2 are galvanically connected to each other.

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 μH

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Issue 04

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

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

<p>Supply circuit (X11-Terminals 7[+], 8[-])</p>	<p>For connection to non-intrinsically safe circuits with the following maximum values: $U_N = 10 \dots 30 \text{ V d.c.}$, $P \text{ ca. } 2 \text{ W}$ $U_m = 253 \text{ V a.c. / d.c.}$</p>
<p>Output circuits (X12-Terminals 5, 6)</p>	<p>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: $4 \dots 20 \text{ mA}$ $U_m = 253 \text{ V a.c. / d.c.}$</p>
<p>Input circuit (X21-Terminals 1[+], 2[-] X22-Terminals 3[+], 4[-])</p>	<p>In type of protection intrinsic safety Ex ia IIC/IIB/IIIB/IIIC with following maximum values:</p> <p>$U_o = 26.4 \text{ V}$ $I_o = 98 \text{ mA}$ $P_o = 646 \text{ mW}$ Characteristic line: linear The effective internal capacitance is negligibly small. The effective internal inductance: $110 \mu\text{H}$</p>

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]	1.49	1	0.5
	C_o [μF]	0.048	0.058	0.073

Ex ia IIB/IIIB/IIIC	L_o [mH]	10	2	1
	C_o [μF]	0.42	0.46	0.54

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	96 nF	740 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
(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.

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:
 $U_N = 30 \text{ V d.c.}, 100 \text{ mA};$ 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/IIIB/IIIC with following maximum values:

$U_o = 26.4 \text{ V}$
 $I_o = 98 \text{ mA}$
 $P_o = 646 \text{ mW}$
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]	1.49	1	0.5
	C_o [μF]	0.048	0.058	0.073

Ex ia IIB/IIIB/IIIC	L_o [mH]	10	2	1
	C_o [μF]	0.42	0.46	0.54

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.

Schedule to EU-Type Examination Certificate No. TÜV 15 ATEX 158337 X Issue 04

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	96 nF	740 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
(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 μH

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

Thermal data:

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

(16) Drawings and documents are listed in the ATEX Assessment Report No. 23 203 341440

(17) **Specific Conditions for Use:**

1. For EPL Gc applications the isolating transducer type IMX(K)12-AI**_**_****_**/*****/** has to be installed in a suitable enclosure according to EN 60079-7 in such a way that a degree of protection of at least IP54 according to EN 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 EN 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.
4. The electrical output data of the intrinsically safe input circuits are incorrectly given in the previous issues 00 to 03 of the EU Type Examination Certificate TÜV 15 ATEX 158337 X. Therefore, these data are no longer valid and are to be replaced by the values in this issue 04 of the EU-Type Examination Certificate.

(18) **Essential Health and Safety Requirements:**

No additional ones.

- End of EU-Type Examination Certificate -