(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 14 ATEX 147004 X**	**Issue:**	01
(4)	for the product:	Isolating Switch Amplifier type IMX(K)12(18)-DI**-**-*****-***/24VDC/**		
(5)	of the manufacturer:	**Hans Turck GmbH & Co. KG**		
(6)	Address:	Witzlebenstraße 7 45472 Mülheim an der Ruhr Germany		
	Order number:	8003031817		
	Date of issue:	2022-02-09		

(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. 21 203 295542 .

(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:

⟨Ex⟩ **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 deputy of the head of the notified body

Heinen   *TÜV NORD*

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(13) **S C H E D U L E**

(14) **EU-Type Examination Certificate No. TÜV 14 ATEX 147004 X**   **Issue 01**

(15) **Description of product:**

The Isolating Switch Amplifier type IMX(K)12(18)-DI**-**-*****-***/24VDC/** is used for the transmission of binary signals out of the explosion hazardous area into the non-explosion hazardous area as well as for the safe galvanic separation between the   intrinsically safe and the non-intrinsically safe circuits.

The device IMX12-DI**-**-*****-***/24VDC/** is executed with 1 or 2 channels.

The device IMXK12-DI**-**-*****-***/24VDC/** is executed with 1 channel.

The device IMX18-DI**-**-*****-***/24VDC/** is executed with 4 channels.

Type code and Marking:

IMX12-DI**-**-*****-***/24VDC/** IMXK12-DI**-**-*****-***/24VDC/** IMX18-DI**-**-*****-***/24VDC/**	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 (1) G Ex ec nC [ia Ga] IIC T4 Gc
	II 3 G (1) D Ex ec [ia IIIC Da] IIC T4 Gc II 3 G (1) D Ex ec nC [ia IIIC Da] IIC T4 Gc

Electrical data:

All versions of IMX12-DI**-**-*****-***/24VDC/**:

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

Transistor version IMX12-DI**-**-****T-***/24VDC/**:

Output circuits (X14- Terminals 9[+], 10[-]) resp. (X13- Terminals 11[+], 12[-])	For connection to non-intrinsically safe circuits with the following maximum values: U = 30 V d.c; I = 100 mA U_m = 253 V a.c / d.c
Failure signal output (X2- 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.

Relay version IMX12-DI**-**-****R-***/24VDC/**:

Output circuits (Make contacts X14- Terminals 9, 10 X12- Terminals 13, 14 Break contacts X14- Terminal 9, X13- Terminal 12 X12- Terminal 13, X13- Terminal 11)	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

IMX12-DI01-2S-2PP

Failure signal output (X2- 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.
Transistor output circuits (X14- Terminals 9[+], 10[-] X13- Terminals 11[+], 12[-])	For connection to non-intrinsically safe circuits with the following maximum values: U = 30 V d. c., 10 mA U_m = 253 V a. c. / d. c.

IMX12-DI03-1S-1NAM1T(R)

Failure signal output (X2- 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.
Transistor output circuit (X14-Terminals 9[+], 10[-])	For connection to non-intrinsically safe circuits with the following maximum values: NAMUR, U = 8.2 V d. c., 4 mA U_m = 253 V a. c. / d. c.

Transistor version IMX12-DI03-1S-1NAM1T

Transistor output circuit (X13- Terminals 11[+], 12[-])	For connection to non-intrinsically safe circuits with the following maximum values: U = 30 V d. c., 100 mA U_m = 253 V a. c. / d. c.

Relay version IMX12-DI03-1S-1NAM1R

Output circuits (Make contacts X12-Terminals 13, 14 Break contacts X12-Terminal 13, X13- Terminal 11)	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

IMX12-DI03-1S-2T(R)

Failure signal output (X2-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.

Transistor version IMX12-DI03-1S-2T

Transistor output circuits (X14-Terminals 9[+], 10[-] X13-Terminals 11[+], 12[-])	For connection to non-intrinsically safe circuits with the following maximum values: U = 30 V d. c., 100 mA U_m = 253 V a. c. / d. c.

Relay version IMX12-DI03-1S-2R

Output circuits	For connection to non-intrinsically safe circuits with
(Make contacts	the following maximum values:
X14-Terminals 9, 10	U = 250 V a.c; I = 2 A; S = 500 VA; P = 60 W
X12-Terminals 13, 14	U = 125 V d.c; I = 0.5 A resp.
Break contacts	U = 30 V d.c; I = 2 A
X14- Terminal 9, X13- Terminal 12	
X12- Terminal 13, X13- Terminal 11)	

All versions of IMX12-DI**-**-*****-***/24VDC/**

Input circuits	In type of protection intrinsic safety Ex ia IIC/IIIC
(X24-Terminals 7[+], 8[-]	with following maximum values per channel:
X23-Terminals 5[+], 6[-]	
X23 Terminals not for the versions	
IMX12-DI03-1S-1NAM1T(R) and	
IMX12-DI03-1S-2T(R))	

U_o = 9.3 V
I_o = 9.6 mA
P_o = 22 mW
Characteristic line: linear
Effective internal capacitance C_i negligibly small
Effective internal inductance L_i = 76.5 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	5	10
	C_o [µF]	1.2	0.89	0.8

Ex ia IIIC (IIB)	L_o [mH]	1	10	20
	C_o [µF]	6.6	4.1	3.6

The maximum values of the following table are allowed to be used up to the permissible limits as cable reactances:

Ex ia IIC	L_o [mH]	100
	C_o [µF]	4.1

Ex ia IIIC (IIB)	L_o [mH]	100
	C_o [µF]	31

All versions of IMX**K**12-DI**-**-*****-***/24VDC/**

| Supply circuit (X11-Terminals 7[+], 8[-]) | For connection to non-intrinsically safe circuits with the following maximum values: U = 20 ... 30 V d.c.; P ≤ 2 W U_m = 253 V a.c / d.c |

Transistor version IMX**K**12-DI01-1S-1T-0/24VDC/**

| Output circuit (X12-Terminals 5[+], 6[-]) | For connection to non-intrinsically safe circuits with the following maximum values: U = 30 V d.c, I = 100 mA, U_m = 253 V a.c / d.c |

| Failure signal output (X2-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. |

Relay version IMX**K**12-DI01-1S-1R-0/24VDC/**

| Output circuit (Make contacts X12-Terminals 5, 6) (Break contacts, not applicable) | 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 |

Version IMX**K**12-DI01-1S-1PP-0/24VDC/**

| Transistor output circuit (X12-Terminals 5[+], 6[-]) | For connection to non-intrinsically safe circuits with the following maximum values: U = 30 V d.c, I = 10 mA, U_m = 253 V a.c / d.c |

All versions of IMX**K**12-DI**-**-*****-***/24VDC/**

| Input circuits (X22-Terminals 3[+], 4[-]) | In type of protection intrinsic safety Ex ia IIC/IIIC with following maximum values per circuit: U_o = 9.3 V I_o = 9.6 mA P_o = 22 mW Characteristic line: linear Effective internal capacitance C_i negligibly small Effective internal inductance L_i = 76.5 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	5	10
	C_o [µF]	1.2	0.89	0.8

Ex ia IIIC (IIB)	L_o [mH]	1	10	20
	C_o [µF]	6.6	4.1	3.6

The maximum values of the following table are allowed to be used up to the permissible limits as cable reactances:

Ex ia IIC	L_o [mH]	100
	C_o [µF]	4.1

Ex ia IIIC (IIB)	L_o [mH]	100
	C_o [µF]	31

All version of IMX18-DI**-**-*****-***/24VDC/**

Supply circuit (X11-Terminals 2[+], 3[-]) or (X30- Terminals 1[+], 2[-])	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

Transistor version IMX18-DI**-**-****T-***/24VDC/**:

Output circuits (Channel 1:X14-Terminals 13[+], 14[-]) (Channel 2:X13-Terminals 16[+], 17[-]) (Channel 3:X14-Terminals 15[+], 18[-]) (Channel 4:X12-Terminals 20[+], 21[-])	For connection to non-intrinsically safe circuits with the following maximum values: $U = 30$ V d.c; $I = 100$ mA $U_m = 253$ V a.c / d.c
Failure signal output (X30-Terminals 5[+], 4[-])	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

Relais version IMX18-DI**-**-****R-***/24VDC/**:

Output circuits (Make contacts) (Channel 1:X14-Terminals 13[+], 14[-]) (Channel 2:X13-Terminals 16[+], 17[-]) (Channel 3:X14-Terminals 15[+], 18[-]) (Channel 4:X12-Terminals 20[+], 21[-])	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
Input circuits (Channel 1:X24-Terminals 10[+], 11[-]) (Channel 2:X23-Terminals 7[+], 8[-]) (Channel 3:X22-Terminals 4[+], 5[-]) (Channel 4:X21-Terminals 1[+], 2[-])	In type of protection intrinsic safety Ex ia IIC/IIIC with following maximum values per circuit:
	$U_o = 10.1$ V $I_o = 11.2$ mA $P_o = 28.3$ mW Characteristic line: linear Effective internal capacitance C_i negligibly small Effective internal inductance $L_i = 76.5$ 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	5	10
	C_o [µF]	1.1	0.83	0.75

Ex ia IIIC (IIB)	L_o [mH]	1	10	20
	C_o [µF]	7.7	5.1	4.6

The maximum values of the following table are allowed to be used up to the permissible limits as cable reactances:

Ex ia IIC	L_o [mH]	100
	C_o [µF]	2.8

Ex ia IIIC (IIB)	L_o [mH]	100
	C_o [µF]	19.4

The intrinsically safe signal circuit is safely galvanically isolated from the non-intrinsically safe circuits up to a peak voltage value of 375 V.
The intrinsically safe input circuits are galvanically connected to each other.

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

(16)   Drawings and documents are listed in the ATEX Assessment Report No. 21 203 295542

(17)   **Specific Conditions for Use:**
1.   For EPL Gc applications the Isolating Switch Amplifier type IMX(K)12(18)-DI**-**-*****-***/24VDC/** has to be installed in a suitable enclosure according to EN 60079-7 resp. EN 60079-15 in such a way that a degree of protection of at least IP54 is achieved.

2.   For EPL Gc applications the Isolating Switch Amplifier type IMX(K)12(18)-DI**-**-*****-***/24VDC/** 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 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.

(18)   **Essential Health and Safety Requirements:**
No additional ones.

- End of EU-Type Examination Certificate -