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 16 ATEX 192124 X**	**issue:** 03
(4)	for the product:	Frequency transducer type IMX12-FI**-*SF-**(**)-(C)*(*)/24VDC(/**)	
(5)	of the manufacturer:	Hans Turck GmbH & Co. KG	
(6)	Address:	Witzlebenstraße 7 45472 Mülheim an der Ruhr Germany	
	Order number:	8000485969	
	Date of issue:	2019-01-21	

(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. 19 203 224808.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012+A11:2013 EN 60079-11:2012 EN 60079-7:2015
EN 60079-15:2010
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:

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
See also schedule

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 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

Roder

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(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 16 ATEX 192124 X issue 03**

(15) Description of product

The frequency transducer type IMX12-FI**-*SF-**(**)-(C)*(*)/24VDC(/**) is used for monitoring and evaluation of frequencies, rotation speeds and pulse trains as well as for the safe galvanic separation between the intrinsically safe measuring circuits and all non intrinsically safe circuits.

The device is executed with 1 or 2 channels.
1 channel version: IMX12-FI**-1SF-(1I)1R-(C)*(*)/24VDC(/**)
2 channel version: IMX12-FI**-2SF-2I-C*(*)/24VDC(/**)

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

Additional permissible marking:

II (1) G [Ex ia] IIC
II (1) D [Ex ia] IIIC
II 3 (1) G Ex ec [ia] IIC T4
II 3 (1) G Ex ec nCc [ia] IIC T4

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

II 3 G (1) D Ex ec [ia IIIC] IIC T4
II 3 G (1) D Ex ec nCc [ia IIIC] IIC T4

Electrical Data

All types

Supply circuit	U = 10 ... 30 V d. c., ca. 3 W
(X11-contacts 15[+], 16[-]	U_m = 253 V a. c. / d. c.
or X30-contacts 4[+], 5[-])	

If available

Failure signal output	U = 30 V d. c., 100 mA; potential free contact
(X30-contacts 1, 2)	U_m = 253 V a. c. / d. c.

IMX12-FI-2SF-2I-C*(*)/24VDC(/**)**

Front side jack socket	for connection to a serial interface RS232
	U_m = 253 V a. c. / d. c.

IMX12-FI-*SF-2I-C*(*)/24VDC(/**)**

Current output circuits	U_ = 22 V (max. 30 V)
(X13-contacts 11[+], 12[-]	4...20 mA
(X14-contacts 9[+], 10[-])	U_m = 253 V a. c. / d. c.

IMX12-FI-1SF-1I1R-C*(*)/24VDC(/**)**

Current output circuit	U_ = 22 V (max. 30 V)
(X14-contacts 9[+], 10[-])	4...20 mA
	U_m = 253 V a. c. / d. c.

Relay output	U = 250 V a. c., I = 2 A; S = 500 VA
(X12-contacts 13, 14)	U = 125 V d. c., I = 0.5 A resp.
	U = 30 V d. c., I = 2 A; P = 60 W

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IMX12-FI-1SF-1R-(C)*(*)/24VDC(/**)**

Relay output	U = 250 V a. c., I = 2 A; S = 500 VA
(X13 N/O contacts 11, 12	U = 125 V d. c., I = 0.5 A resp.
X13 N/C contact 12	U = 30 V d. c., I = 2 A; P = 60 W
X14 N/C contact 10)	

IMX12-FI-1SF-1I1R-C*(*)/24VDC(/**)**

SUD (Start Up Delay) signal input	High >10 V, Low <3 V
(X13-contacts 11[+], 12[-])	U_m = 253 V a. c. / d. c.

IMX12-FI-1SF-1R-(C)*(*)/24VDC(/**)**

SUD (Start Up Delay) signal input	High >10 V, Low <3 V
(X12-contacts 13[+], 14[-])	U_m = 253 V a. c. / d. c.

All versions

Measuring circuits	in type of protection
(Channel 1:	Intrinsic Safety Ex ia IIC/IIB resp. Ex ia IIIC
X23-contacts 5[+], 6[-]	Maximum values:
Channel 2:	U_o = 9.3 V
X24-contacts7[+], 8[-])	I_o = 21.1 mA (cummulative value at X23/X24)
	P_o = 49 mW (cummulative value at X23/X24)
	Characteristic line: linear
	The effective internal capacitance is negligibly small.
	Effective internal inductance: 0.3 mH

Table 1a

Ex ia	IIC			IIB / IIIC		
max. permissible external inductance	0.7 mH	4.7 mH	9.7 mH	0.7 mH	9.7 mH	19.7 mH
max. permissible external capacitance	1.2 µF	0.84 µF	0.73 µF	6.6 µF	3.9 µF	3.4 µF

The maximum values of the table 1 are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.

Table 2a

Ex ia	IIC	IIB
max. permissible external inductance	80 mH	80 mH
max. permissible external capacitance	4.1 µF	31 µF

The maximum values of the table 2a are only allowed to be used up to the permissible limits as cable reactances.

Tables 1a and 2a:
The values for IIC are also permissible for explosive dust atmospheres.
The values for IIB and for IIC are the cumulative values at the connectors X23 and X24.

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All versions

Measuring circuits	in type of protection
(Channel 1:	Intrinsic Safety Ex ia IIC/IIB resp. Ex ia IIIC
X23-contacts 5[+], 6[-]	Maximum values for each of the measuring circuits:
Channel 2:	U_o = 9.3 V
X24-contacts7[+], 8[-])	I_o = 10.5 mA
	P_o = 24.5 mW
	Characteristic line: linear
	The effective internal capacitance is negligibly small.
	Effective internal inductance: 0.15 mH

Table 1b

Ex ia	IIC			IIB / IIIC		
max. permissible external inductance	1.85 mH	4.8 mH	9.8 mH	9.8 mH	19.8 mH	48.8 mH
max. permissible external capacitance	1 µF	0.89 µF	0.79 µF	4 µF	3.6 µF	3.1 µF

The maximum values of the table 1b are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.

Table 2b

Ex ia	IIC	IIB / IIIC
max. permissible external inductance	100 mH	100 mH
max. permissible external capacitance	4.1 µF	31 µF

The maximum values of the table 2b are only allowed to be used up to the permissible limits as cable reactances.

Tables 1b and 2b:
The values for IIB and for IIC are also permissible for explosive dust atmospheres.

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.

Changes:

-New type of the frequency transducer with 8 rotary coding switches for parametrizing (not via computer).
-New type designation for this type with only 1 channel: **IMX12-FI**-1SF-(1I)1R-(C)*(*)/24VDC(/**)**
-New pc board
-New housing with holes for operating the switches for parametrizing
-Change of "Special Conditions for safe use": The connecting and disconnecting of energized non intrinsically safe circuits and the operation of the switches for parametrizing is only permitted, if no explosion hazardous atmosphere is available.

Schedule to EU-Type Examination Certificate No. TÜV 16 ATEX 192124 X issue 03

(16) Drawings and documents are listed in the ATEX Assessment Report No. 19 203 224808

(17) Specific Conditions for Use (only for zone 2 applications)

1. According to EN/IEC 60079-7:2015, section 4.10.1, the following is valid for this apparatus:

   The apparatus has to be mounted in a housing tested according to IEC 60079-0, that meets the requirements of degree of protection IP54.

   The apparatus may be installed in an area of not more than pollution degree 2.

2. The connecting and disconnecting of energized non intrinsically safe circuits and the operation of the switches for parametrizing is only permitted, if no explosion hazardous atmosphere is available.

(18) Essential Health and Safety Requirements

no additional ones

- End of Certificate -