



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 21 ATEX 303590 X **Issue:** 00

(4) for the product: Isolating Switch Amplifier type IM1*-***-Ex**

(5) of the manufacturer: **Hans Turck GmbH & Co. KG**

(6) Address: Witzlebenstraße 7, 45472 Mülheim an der Ruhr, Germany

Order number: 8003035992

Date of issue: 2021-12-21

(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. 21 203 303590.

(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 deputy of the head of the notified body



Digital
unterscriben von
Meyer Andreas
Datum: 2021.12.21
20:01:22 +01'00'

Meyer

Hanover office, Am TÜV 1, 30519 Hannover, Tel. +49 511 998-61455, Fax +49 511 998-61590

(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 21 ATEX 303590 X**

Issue 00

(15) **Description of product:**

The Isolating Switch Amplifier type IM1*-***-Ex** is used for the transmission of binary signals from the hazardous area to the non-hazardous area and for the safe galvanic isolation of the intrinsically safe circuits from the non-intrinsically safe circuits.

The unit is designed for max. 2 channels.

Type code and Marking:

IM1*-***-Ex-T and IM1*-***-Ex-MT	II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
IM1*-***-Ex-R	II 3 (1) G Ex ec nC [ia Ga] IIC T4 Gc
IM1*-***-Ex**	II (1) G [Ex ia Ga] IIC II (1) D [Ex ia Da] IIIC

Electrical data:

Supply circuit
(Terminals 11/12)

For connection to non-intrinsically safe circuits with the following maximum values:

$U = 20 \dots 250 \text{ V a.c. resp. } 20 \dots 125 \text{ V d.c.}; P \leq 3 \text{ W}$
 $U_m = 253 \text{ V a.c. resp. } 125 \text{ V d.c.}$

Type IM1*-* Ex-T**

Output circuits
(Terminals 8/9 and 7/10)

Electrical data of each transistor output:

$U \leq 30 \text{ V d.c.}, I \leq 200 \text{ mA}, P \leq 6 \text{ W}$
 $U_m = 253 \text{ V}$

Type IM1*-* Ex-R**

Output circuits
(Terminals 8/9 and 7/10)

Electrical data of each relay output:

$U = 250 \text{ V a.c.}, I = 2 \text{ A}, S = 500 \text{ VA}, P = 60 \text{ W}$
 $U = 125 \text{ V d.c.}, I = 0.5 \text{ A resp.}$
 $U = 30 \text{ V d.c.}, I = 2 \text{ A}$

Type IM1*-* Ex-MT**

Output circuits
(Terminals 8/9 and 7/10)

Electrical data of each photorelays output::

$U \leq 250 \text{ V a.c.}, I \leq 100 \text{ mA}, P \leq 30 \text{ W}$
 $U_m = 253 \text{ V}$

Input circuits
(Terminals 2/5 and 1/4)

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

$U_o = 9.6 \text{ V}$
 $I_o = 11 \text{ mA}$
 $P_o = 26 \text{ mW}$
 Characteristic line: linear
 Effective internal capacitance C_i negligibly small
 Effective internal inductance $L_i = 65 \mu\text{H}$

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	10
	C _o [µF]	1.1	0.83	0.74
Ex ia IIIC	L _o [mH]	2	10	20
	C _o [µF]	5.2	3.8	3.4

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: $-25\text{ °C} \leq T_a \leq +70\text{ °C}$

(16) Drawings and documents are listed in the ATEX Assessment Report No. 21 203 303590

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

1. For EPL Gc applications the Isolating Switch Amplifier type IM1*-***-Ex** 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 IM1*-***-Ex** 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.
4. For EPL Gc applications measures have to be taken, external to the Isolating Switch Amplifier type IM1*-***-Ex**, to provide a transient protection that ensures that the rated voltage, connected to the power supply terminals, is not exceeded by more than 40 %.

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

No additional ones.

- End of EU-Type Examination Certificate -