



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 21.0020X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2021-12-21

Applicant: **Hans Turck GmbH & CO KG**
Witzlebenstrasse 7
DE 45472
Mulheim an der Ruhr
Germany

Equipment: **Isolating Switch Amplifier type IM1*-***-Ex****

Optional accessory:

Type of Protection: **Intrinsic safety; Increased safety; Non sparking apparatus**

Marking: IM1*-***-Ex-T and IM1*-***-Ex-MT: Ex ec [ia Ga] IIC T4 Gc
IM1*-***-Ex-R: Ex ec nC [ia Ga] IIC T4 Gc
IM1*-***-Ex**: [Ex ia Ga] IIC or [Ex ia Da] IIIC

Approved for issue on behalf of the IECEx
Certification Body:

Andreas Meyer

Position:

Deputy Head of the IECEx Certification Body

Signature:
(for printed version)



Digital unterschrieben von Meyer
Andreas
Datum: 2021.12.21 20:29:36 +01'00'

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany





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Page 2 of 3

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Manufacturer: **Hans Turck GmbH & CO KG**
Witzlebenstrasse 7
DE 45472
Mulheim an der Ruhr
Germany

Additional 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/ExTR21.0025/00](#)

Quality Assessment Reports:

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

[DE/PTB/QAR06.0013/08](#)



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Certificate No.: **IECEX TUN 21.0020X**

Page 3 of 3

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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Description:

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 resp. electrical and thermal data:

Refers to the Attachment to IECEx TUN 21.0020X issue No.0

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. For EPL Gc applications the isolating Switch Amplifier type IM1*-*-Ex** has to be installed in a suitable enclosure according to IEC 60079-7 resp. IEC 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 IEC 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 %.

Annex:

[Attachment to IECEx TUN 21.0020X issue No. 0.pdf](#)

General product information:

Description:

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	Ex ec [ia Ga] IIC T4 Gc
IM1*-***-Ex-R	Ex ec nC [ia Ga] IIC T4 Gc
IM1*-***-Ex**	[Ex ia Ga] IIC [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 $L_i = 65 \mu\text{H}$

Page 2 of 2
Attachment to IECEx TUN 21.0020 X/ issue No.: 0

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 [μ F]	1.1	0.83	0.74

Ex ia IIIC	L_o [mH]	2	10	20
	C_o [μ F]	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 $-25\text{ °C} \leq T_a \leq +70\text{ °C}$

Specific Conditions of Use:

1. For EPL Gc applications the Isolating Switch Amplifier type IM1*-***-Ex** has to be installed in a suitable enclosure according to IEC 60079-7 resp. IEC 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 IEC 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 %.