



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx TUN 06.0007X Issue No: 2 Certificate history:
Status: **Current** Page 1 of 4 Issue No. 2 (2011-07-22)
Date of Issue: **2011-07-22** Issue No. 1 (2008-08-21)
Applicant: **Hans Turck GmbH & Co. KG** Issue No. 0 (2006-07-25)
Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany
Equipment: **Isolating Switch Amplifier type IM1-4/3/2**Ex-***
Optional accessory:
Type of Protection: **Intrinsic safety and type of protection "n" electrical apparatus**
Marking: [Ex ia Ga] IIC
[Ex ia Da] IIIC
Ex nA [ic Gc] IIC T4 Gc
Ex nA nC [ic Gc] IIC T4 Gc

*Approved for issue on behalf of the IECEx
Certification Body:*

Karl-Heinz Schwedt

Position:

Head of the IECEx Certification Body

*Signature:
(for printed version)*

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

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





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Manufacturer: **Hans Turck GmbH & Co. KG**
Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany

Additional Manufacturing location(s):

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 electrical apparatus 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 : 2007-10 Edition:5	Explosive atmospheres - Part 0:Equipment - General requirements
IEC 60079-11 : 2006 Edition:5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 61241-11 : 2005 Edition:1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'iD'

*This Certificate **does not** indicate compliance with electrical 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/ExTR08.0029/01](#)

Quality Assessment Report:

[DE/PTB/QAR06.0012/01](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

See annexe

CONDITIONS OF CERTIFICATION: YES as shown below:

If the isolating switch amplifier type IM1-4/3/2**Ex-* is mounted in explosion hazardous areas of zone 2 the following special conditions are to be followed:

1. The isolating switch amplifier type IM1-4/3/2**Ex-* has to be installed in a suitable housing according to EN 60079-15 in such a way, that a degree of protection of at least IP 54 according to EN 60529 is reached.
2. The operation of the front switches as well as the connecting and disconnecting of energised non intrinsically safe circuits is only permitted if no explosion hazardous atmosphere exists.
3. For the supply circuit arrangements have to be taken externally, that the rated voltage is exceeded not more than 40% by transient disturbances.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

See annexe

Annex:

[Annexe_COC_issue 2_IM1-4_3_2_IECEX TUN06.0007X_.pdf](#)

IECEX TR:	File reference:
DE/TUN/ExTR08.0029/01	11 217 080467
IECEX QAR:	
DE/PTB/QAR/06.0013/01	

In future, the isolating switch amplifier type IM1-4/3/2**-Ex* is manufactured according to the documents listed in the test report.

The changes refer to the internal construction, the electrical data, the special conditions for safe use and the marking.

This reads as follows:

[Ex ia Ga] IIC resp. [Ex ia Da] IIIC resp.

Ex nA [ic Gc] IIC T4 Gc resp. Ex nA nC [ic Gc] IIC T4 Gc

Electrical data:

Supply circuit
(Terminals 19 and 20)

$U = 20 \dots 250 \text{ V a. c. resp. } 20 \dots 125 \text{ V d. c.};$

$P \leq 3 \text{ W}$

$U_m = 250 \text{ V a. c. resp. } 125 \text{ V d. c.}$

Input circuits
(Terminals 1, 2; 4, 5; 6, 7 and 9, 10)

in type of protection Intrinsic Safety

Ex ia IIC resp. Ex ia IIIC resp. Ex ic IIC

Maximum values per channel:

$U_o = 11.3 \text{ V}$

$I_o = 13 \text{ mA}$

$P_o = 36 \text{ mW}$

Characteristic line: linear

Effective internal capacitance: 1.1 nF

Effective internal inductance: 100 µH

For applications with marking [Ex ia Ga] IIC/IIB resp. [Ex ia Da] IIIC:

Ex ia	IIC			IIB		
max. permissible external inductance	1 mH	5 mH	10 mH	2 mH	10 mH	20 mH
max. permissible external capacitance	0.84 µF	0.62 µF	0.55 µF	4 µF	2.8 µF	2.5 µF

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

The values of the tables for IIB and for IIC are also permissible for explosive dust atmospheres.

For applications with marking Ex nA [ic Gc] IIC T4 Gc resp. Ex nA nC [ic Gc] IIC T4 Gc

Ex ic	IIC			IIB		
max. permissible external inductance	10 mH	5 mH	1 mH	20 mH	10 mH	2 mH
max. permissible external capacitance	0.91 µF	1.0 µF	1.5 µF	4.3 µF	4.9 µF	6.8 µF

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

Type IM1-4Ex-T, IM1-3**Ex-T, IM1-2**Ex-T**

Output circuits Electrical data of each transistor output:
(Terminals 11 to 18) $U \leq 30 \text{ V d. c.}, I \leq 50 \text{ mA}, P \leq 1.5 \text{ W}$
 $U_m = 250 \text{ V}$

Type IM1-4Ex-R, IM1-3**Ex-R, IM1-2**Ex-R**

Output circuits Electrical data of each relay output:
(Terminals 11 to 18) $U = 250 \text{ V a. c.}, I = 2 \text{ A}, S = 500 \text{ VA}, P = 60 \text{ W}$
 $U = 125 \text{ V d. c.}, I = 0.25 \text{ A resp.}$
 $U = 30 \text{ V d. c.}, I = 2 \text{ A}$

The intrinsically safe circuits are safely galvanically separated from all non intrinsically safe circuits up to the peak crest value of the voltage of 375 V.

The intrinsically safe circuits are galvanically connected with each other.

Special conditions for safe use" (only for zone 2 applications)

1. The isolating switch amplifier type IM1-4/3/2**Ex* has to be installed in a suitable housing according to EN 60079-15 in such a way, that a degree of protection of at least IP 54 according to EN 60529 is reached.
2. The operation of the front switches as well as the connecting and disconnecting of energised non intrinsically safe circuits is only permitted if no explosion hazardous atmosphere exists.
3. For the supply circuit arrangements have to be taken externally, that the rated voltage is exceeded not more than 40% by transient disturbances.