



# 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](http://www.iecex.com)

Certificate No.: IECEx TUN 07.0010X Issue No.: 0 [Certificate history](#)

Status: **Current**

Date of Issue: 2007-09-05 Page 1 of 5


Applicant: Hans Turck GmbH & Co. KG  
Witzlebenstraße 7  
D-45472 Mülheim an der Ruhr  
Germany

Electrical Apparatus: Isolating amplifier without auxiliary energy type IMC-AO-11Ex-IL  
Optional accessory:

Type of Protection: Intrinsic safety "I", type of protection "n" electrical apparatus, protection by enclosures "ID"

Marking: [Ex ia] IIB/IIC  
Ex nA [nL] IIB/IIC T4  
Ex ID A22 IP67 T80°C

Approved for issue on behalf of the IECEx  
Certification Body: Karl-Heinz Schwedt  
Position: Head of ExCB

Signature:   
(for printed version)

Date: 2007-09-05

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.

Certificate issued by:

TÜV NORD CERT GmbH  
Hanover Office  
Am TÜV 1  
30619 Hannover  
Germany



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Manufacturer: Werner Turck GmbH & Co. KG  
Goethestraße 7  
D-58553 Halver  
Germany

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 manufacture'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 : 2004<br>Edition: 4.0      | Electrical apparatus for explosive gas atmospheres - Part 0: General requirements   |
| IEC 60079-11 : 1999<br>Edition: 4       | Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'  |
| IEC 60079-15 : 2005-03<br>Edition: Ed 3 | Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus |
| IEC 61241-0 : 2004<br>Edition: 1        | Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements   |
| IEC 61241-1 : 2004<br>Edition: 1        | Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "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/ExTR07.0014/00

Quality Assessment Report:  
DE/PTB/QAR06.0012/00



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### Schedule

#### EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The isolating amplifier without auxiliary energy type IMC-AO-11Ex-i/L is an associated electrical apparatus for installation outside of the explosion hazardous area according to IEC 60 079-11 resp. an apparatus for use in zone 2 explosion hazardous areas according to IEC 60 079-15.

It is also an apparatus according to IEC 61241-1 for use in zone 22 explosion hazardous areas.

It is used for the safe galvanic separation of the non intrinsically safe resp. non energy limited input circuit (measuring signal 0 ... 20mA) and the intrinsically safe resp. energy limited output circuit.

The marking as associated intrinsically safe apparatus outside the explosion hazardous area is [Ex ia] IIC/IIB.

The marking for mounting in explosion hazardous areas of zone 2 is

Ex nA [nL] IIC/IIB T4.

The marking for mounting in explosion hazardous areas of zone 22 is

Ex tD A22 IP67 T80°C.

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

#### CONDITIONS OF CERTIFICATION: YES as shown below:

1. For zone 2 and zone 22 applications: The connecting and disconnecting of energised non energy limited circuits is not permitted (see warning label).
2. Zone 2 and zone 22 applications: The protective housing has to be safely screwed to a solid basement with the provided screws resp. with screws according to the manufacturer's manual.
3. Zone 22 applications: The value for the surface temperature was measured without dust layer.
4. Zone 22 applications: The dust is only allowed to be non conductive.



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#### EQUIPMENT(continued):

##### Electrical Data

###### Input circuit

(Connections X1;pins 1[+] and 3[-])

U = 24 V d. c. (max. 30 V d. c.)

For applications of the isolating amplifier without auxiliary energy with marking

[Ex ia] IIC/IIB:U<sub>m</sub> = 250 V

###### Output circuit

(Connections X2;bushings 1 [+], 3 [-])

Maximum values:

U<sub>o</sub> = 13.3 V

I<sub>o</sub> = 97 mA

P<sub>o</sub> = 322 mW

Characteristic line: linear

The effective internal capacitances and inductances are negligibly small.



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## Additional Information:

For applications with marking [Ex ia] IIC/IIB:

| Ex ia                                 | IIC    |        | IIB     |         |
|---------------------------------------|--------|--------|---------|---------|
| max. permissible external inductance  | 2 mH   | 0.2 mH | 2 mH    | 0.2 mH  |
| max. permissible external capacitance | 420 nF | 910 nF | 2700 nF | 5500 nF |

For applications with marking Ex nA [nL] IIC/IIB T4:

| Ex nL                                 | IIC    |         | IIB     |         |
|---------------------------------------|--------|---------|---------|---------|
| max. permissible external inductance  | 5 mH   | 0.5mH   | 10 mH   | 1 mH    |
| max. permissible external capacitance | 510 nF | 1200 nF | 2900 nF | 5800 nF |

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