



# 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 06.0001X** Issue No.: **0**  
Status: **Current**  
Date of issue: **2006-07-19** Page **1** of **5**  
Applicant: **Hans Turck GmbH & Co. KG**  
Witzlebenstr. 7  
45472 Mülheim  
Germany  
Electrical Apparatus: **Transmitter supply type IM33-\*\*\*Ex-HI**  
Optional accessory:  
Type of Protection: **Intrinsic safety and type of Protection "n" electrical apparatus**  
Marking: **[Ex Ia] IIC/IIB and Ex nA [nL] IIC/IIB T4**

Approved for issue on behalf of the IECEx  
Certification Body:

Karl-Heinz Schwedt

Position:

Head of IECEx CB

Signature:  
(for printed version)

Date:

19.08.2006

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 & Co.**  
**KG**  
Am TÜV1  
D-30519 Hannover  
Germany



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Manufacturer: **Werner Turck GmbH & Co. KG**  
Goethestraße, 7  
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 listed 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 : 2004** Electrical apparatus for explosive gas atmospheres - Part 0: General requirements  
Edition: 4.0  
**IEC 60079-11 : 1999** Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'  
Edition: 4  
**IEC 60079-15 : 2005-03** Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus  
Edition: Ed 3

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/ExTR06.0002/00  
DE/TUN/ExTR06.0025/00

#### Quality Assessment Report:

DE/PTB/QAR05.0012/00



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## Schedule

### EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter supply type IM33-\*\*\*Ex-Hi is used for the supply of passive two-pole or multipolar apparatus (e. g. two wire transmitters) as well as for the safe galvanic separation of the intrinsically safe resp. energy limited circuits and the non intrinsically safe circuits. The device is executed with 1 or 2 channels. The marking for the transmitter supply type IM33-\*\*\*Ex-Hi as associated intrinsically safe apparatus outside the explosion hazardous area is [Ex ia] IIC/IIB. It is also allowed to be operated in explosion hazardous areas of zone 2. The marking for the transmitter supply type IM33-\*\*\*Ex-Hi for mounting in explosion hazardous areas of zone 2 is Ex nA [nL] IIC/IIB T4.

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

### Electrical Data

Supply circuit  
(Connections 19, 20)

U = 20...250 V a. c. resp. 20...125 V d. c., P ca. 5 W  
For applications of the transmitter supply with marking [Ex ia] IIC/IIB:  
U<sub>m</sub> = 250 V a. c. resp. 125 V d. c.

Output circuits

(Connections 11[+], 12[-],  
16[+], 17[-])

Electrical data per circuit:  
U ≤ 30 V, 30 mA  
For applications of the transmitter supply with marking [Ex ia] IIC/IIB:  
U<sub>m</sub> = 250 V a. c. resp. 125 V d. c.

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

1. The transmitter supply type IM33-\*\*\*Ex-Hi has to be installed in such a way, that a degree of protection of at least IP 54 according to EN 60529 is reached.

2. The connecting and disconnecting of energised non energy limited circuits is only permitted during installation, for maintenance or for repair purposes.

Note: The temporal coincidence of explosion hazardous atmosphere and installation, maintenance resp. repair purposes is assessed as unlikely.



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### EQUIPMENT(continued):

For applications of the transmitter supply with marking [Ex ia] IIC/IIB:

#### IM33-\*\*\*Ex-Hi

Supply and measuring circuits  
(Connections 1, 2, 3 resp. 6, 7, 8)

in type of protection Intrinsic Safety Ex ia IIC/IIB

Maximum values per circuit:

U<sub>o</sub> = 21.3 V

I<sub>o</sub> = 92 mA

P<sub>o</sub> = 722 mW

R = 341.2 Ω

Characteristic line: trapezoidal  
effective internal capacitance: see below  
effective internal inductance: 30 µH

Ex ia	IIC	IIB
max. permissible external inductance	0.09 mH	10 mH
max. permissible external capacitance	0.157 µF	0.43 µF

#### IM33-\*\*\*Ex-Hi

Supply and measuring circuits  
(Connections 1, 2, 3 resp. 6, 7, 8)

in type of protection Intrinsic Safety Ex ia IIC/IIB

Maximum values per circuit:

U<sub>o</sub> = 21.9 V

I<sub>o</sub> = 86 mA

P<sub>o</sub> = 675 mW

R = 365 Ω

Characteristic line: trapezoidal  
effective internal capacitance: see below  
effective internal inductance: 30 µH

Ex ia	IIC	IIB
max. permissible external inductance	0.47 mH	10 mH
max. permissible external capacitance	0.093 µF	0.45 µF



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### Additional information:

For applications of the transmitter supply with marking Ex nL IIC/IIB T4:

#### IM33-\*\*1Ex-HI

Supply and measuring circuits  
(Connections 1, 2, 3 resp. 6, 7, 8)

energy limited circuits Ex nL IIC/IIB

Maximum values per circuit:

$$U_o = 21.3 \text{ V}$$

$$I_o = 92 \text{ mA}$$

$$P_o = 722 \text{ mW}$$

$$R = 341.2 \text{ } \Omega$$

Characteristic line: trapezoidal

effective internal capacitance: see below

effective internal inductance: 30  $\mu$ H

Ex nL	IIC	IIB
max. permissible external inductance	3.6 mH	5 mH
max. permissible external capacitance	0.147 $\mu$ F	1.1 $\mu$ F

#### M33-\*\*Ex-HI

Supply and measuring circuits  
(Connections 1, 2, 3 resp. 6, 7, 8)

energy limited circuits Ex nL IIC/IIB

Maximum values per circuit:

$$U_o = 21.9 \text{ V}$$

$$I_o = 86 \text{ mA}$$

$$P_o = 675 \text{ mW}$$

$$R = 365 \text{ } \Omega$$

Characteristic line: trapezoidal

effective internal capacitance: see below

effective internal inductance: 30  $\mu$ H

Ex nL	IIC	IIB
max. permissible external inductance	4.5 mH	10 mH
max. permissible external capacitance	0.157 $\mu$ F	0.89 $\mu$ F

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 connection to intrinsically safe resp. energy limited circuits with the following maximum values at the connections 2, 3 resp. 7, 8 is permissible:

$$P_i = 650 \text{ mW}$$

$$U_i = 40 \text{ V}$$

The rules for the interconnection of intrinsically safe resp. energy limited circuits have to be observed; the voltage of internal capacitances (80nF) is limited safely to 3.8V.

The intrinsically safe resp. energy limited supply and measuring 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.

IM33-2\*\*Ex-HI: The intrinsically safe resp. energy limited supply and measuring circuit of channel 1 is safely galvanically separated from the intrinsically safe resp. energy limited supply and measuring circuit of channel 2.