



# 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 06.0011X** Issue No.: **0**

Status: **Current**

Date of Issue: **2006-10-05** Page 1 of 5

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

Electrical Apparatus: **Analogue Data Transmitter type IM31-Ex\***  
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:

Mr. Schwedt

Position:

Head of the certification body

Signature:  
(for printed version)

Date:

20.10.2006

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

Certificate issued by:

**TÜV NORD CERT GmbH & Co.**  
**KG**  
Am TÜV1  
D-30519 Hannover  
Germany



# IECEx Certificate of Conformity

Certificate No.: **IECEx TUN 06.0011X**

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

<b>IEC 60079-0 : 2004</b> Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
<b>IEC 60079-11 : 1999</b> Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'I'
<b>IEC 60079-15 : 2005-03</b> Edition: Ed 3	Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus

*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/ExTR06.0037/00  
DE/TUN/ExTR06.0038/00

#### Quality Assessment Report:

DE/PTB/QAR06.0013/00



# IECEX Certificate of Conformity

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Date of Issue: **2006-10-05**

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## Schedule

### EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Analogue Data Transmitter type IM31-\*\*Ex-\* is used for the transmission of normalised analogue signals from the explosion hazardous area into the non explosion hazardous area as well as for the safe galvanic separation of the intrinsically safe circuits and the non intrinsically safe circuits.

The device is executed with max. 2 channels.

The transmitter is an associated electrical apparatus for installation outside of the explosion hazardous area (according IEC 60 079-11) resp. an apparatus for use in Zone 2 explosion hazardous areas (according IEC 60 079-15).

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

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

If the Analogue Data Transmitter type IM31-\*\*Ex-\* is mounted in explosion hazardous areas of zone 2 the following special conditions are to be followed.

- The Analogue Data Transmitter type IM31-\*\*Ex-\* has to be installed in a suitable housing according to IEC 60079-15 in such a way, that a degree of protection of at least IP 54 according to IEC 60529 is reached.
- Using the switches on the front side as well as the connecting and disconnecting of energised non energy limited circuits is only permitted if no explosion hazardous atmosphere exists.
- 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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### EQUIPMENT(continued):

#### Electrical Data

For applications of the Analogue Data Transmitter with marking [Ex ia] IIC/IIB:

Supply circuits (Terminals 11 and 12)  $U = 20...250$  V a.c. resp.  $20...125$  V d.c.,  $P \leq 2,2$  W  
 $U_m = 250$  V a.c. resp.  $125$  V d.c.

Input circuits (Terminals 1, 2, 3 and 4, 5, 6) in type of protection Intrinsic Safety Ex ia IIC/IIB  
Maximum values per channel:

$U_o = 7,2$  V

$I_o = 1$  mA

$P_o = 2$  mW

Characteristic line: linear

The effective internal capacitance is negligibly small.

Effective internal inductance:  $480 \mu$ H

	Ex ia			IIC		IIB	
max. permissible external inductance	0.5 mH	4.5 mH	9.5 mH	1.5 mH	9.5 mH	20 mH	
max. permissible external capacitance	2 $\mu$ F	1.5 $\mu$ F	1.3 $\mu$ F	9 $\mu$ F	6.7 $\mu$ F	6.1 $\mu$ 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 circuits with the following maximum values is permissible:

**IM31-22Ex-i, IM31-22Ex-U (with 2 channels)**

$U_i = 20$  V

$P_i = 650$  mW

resp.

**IM31-1\*Ex-i, IM31-1\*Ex-U (with 1 channel)**

$U_i = 40$  V

$P_i = 650$  mW

The rules for the interconnection of intrinsically safe circuits have to be observed.

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

electrical data per circuit:

$U \leq 10$  V,  $I \leq 20$  mA

$U_m = 250$  V

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

The intrinsically safe input circuits are safely galvanic separated up to sum of the voltage of the intrinsically safe circuits of  $60$  V.



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Certificate No.: **IECEX TUN 06.0011X**  
 Date of Issue: **2006-10-05** Issue No.: **0**  
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### Additional information:

#### Electrical Data (continuation)

For applications of the Analogue Data Transmitter with marking Ex nA [nL] IIC/IIB T4:

Supply circuits (Terminals 11 and 12)  $U = 20...250$  V a.c. resp.  $20...125$  V d.c.,  $P \leq 2,2$  W

Input circuits (Terminals 1, 2, 3 and 4, 5, 6)) energy limited circuits Ex nL IIC/IIB  
 Maximum values per channel:  
 $U_o = 7.2$  V  
 $I_o = 1$  mA  
 $P_o = 2$  mW  
 Characteristic line: linear  
 The effective internal capacitance is negligibly small.  
 Effective internal inductance: 480  $\mu$ H

	Ex nL			IIC			IIB		
	max. permissible external inductance	0.5 mH	4.5 mH	9.5 mH	1.5 mH	9.5 mH	20 mH		
max. permissible external capacitance	3.9 $\mu$ F	2.5 $\mu$ F	2.2 $\mu$ F	17 $\mu$ F	12 $\mu$ F	10 $\mu$ 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 energy limited circuits with the following maximum values is permissible:

**IM31-22Ex-i, IM31-22Ex-U (with 2 channels)**  
 $U_i = 20$  V  
 $P_i = 650$  mW  
 resp.  
**IM31-1\*Ex-i, IM31-1\*Ex-U (with 1 channel)**  
 $U_i = 40$  V  
 $P_i = 650$  mW

The rules for the interconnection of energy limited circuits have to be observed.

Output circuits (Terminals 8, 9 and 7, 10) electrical data per circuit:  
 $U \leq 10$  V,  $I \leq 20$  mA

The energy limited input circuits are safely separated from the non energy limited circuits up to a peak crest value of the voltage of 375 V.  
 The energy limited input circuits are safely galvanic separated up to sum of the voltage of the energy limited circuits of 60 V.



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Certificate No.: **IECEX TUN 06.0011X** Issue No.: **1** Certificate history:  
 Issue No. 1 (2010-6-29)  
 Issue No. 0 (2006-10-5)

Status: **Current**  
 Date of Issue: **2010-06-29** Page 1 of 4

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

Electrical Apparatus: **Analogue Data Transmitter type IM31-Ex\***  
 Optional accessory:

Type of Protection: **Intrinsic Safety and type of protection "n" electrical apparatus**

Marking: **[Ex ia Ga] IIC/IIB, [Ex ia Da] IIC, Ex nA [ic Gc] IIC/IIB T4 Gc**

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

Position: **Head of the certification body**

Signature: *(Handwritten signature)*  
(for printed version)

Date: **2010-06-29**

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Certificate issued by:

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





# IECEx Certificate of Conformity

Certificate No.: IECEx TUN 06.0011X

Date of Issue: 2010-06-29

Issue No.: 1

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

Manufacturing location(s):  
Werner Turck GmbH & Co. KG  
Goethestraße 7  
58553 Halver  
Germany

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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 : 2005-03 Edition: 3	Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus
IEC 61241-11 : 2005 Edition: 1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'ID'

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DE/TUN/EXTR06.0037/01

#### Quality Assessment Report:

DE/PTB/QAR06.0012/01



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

See annex

Annexe: 1st supplement\_IM31-xxEX-x\_IECEX\_TUN 06.0011 X.pdf