



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.: Issue No.: Certificate history:

Status:

Date of issue: **2009-03-31** Page 1 of 4

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

Electrical Apparatus: **Rotation Speed Monitor IM21-4Ex-CDTRI**
 Optional accessory:

Type of Protection: **Intrinsic Safety; Type 'n'**

Marking: **[Ex ia] IIC/IIB**
[Ex iaD]
Ex nA nC [nL] IIC/IIB T4

Approved for issue on behalf of the IECEx Certification Body: Prof. Dr. Tammo Redeker

Position: Head of Certification Body

Signature: *(for printed version)*

Date: 2009-04-02

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:
IBExU Institut für Sicherheitstechnik GmbH
 Certification Body
 Fuchsmühlenweg 7
 09599 Freiberg
 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 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 : 2004** Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
Edition: 4.0
- IEC 60079-11 : 2006** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
Edition: 5
- 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: 3
- IEC 61241-0 : 2004** Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
Edition: 1
- IEC 61241-11 : 2005** Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'ID'
Edition: 1

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/IBE/ExTR09.0005/00

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 Rotation Speed Monitor IM21-*4Ex-CDTRi is used for the galvanically isolated monitoring and evaluation of frequencies, revolutions and impulse sequences. The equipment is provided for use in potentially hazardous areas of zone 2. It can supply into areas which require zone 0 or 20-operating supplies. The amplifiers are single- or double-channel types.

Type code:

IM21- * 4 Ex- C D T R i
a b c d e f g h i

- a Type designation for Rotation Speed Monitor
- b Number of channels (1 or 2)
- c Number of outputs (1 to 4)
- d Equipment with Ex-approval
- e PC-connection (C)
- f Digital outputs (D)
- g Transistor outputs (T)
- h Relay outputs (R)
- i Kind of analog output
(i for current and u for voltage output)

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use in zone 2:

At the installation within the hazardous area of zone 2, the Rotation Speed Monitors IM21-*4Ex-CDTRi must be built in into enclosures which meet the requirements of the IEC 60079-15 (at least IP54).

Using the switches at the front side as well as connecting and disconnecting of the connections of not energy-limited electrical circuits under voltage is only permitted at installation and for maintenance and repair purposes.



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EQUIPMENT(continued):

Technical data:

1. Power supply

Nominal voltage	U_N	20...250 V AC / 125 V DC
Rated power	P_N	≤ 4,5 W
Maximum r.m.s. AC or DC voltage	U_m	250 V AC / 125 V DC
2. Intrinsically safe sensor circuit (Terminal 1;2 6;7 or 9;10)		
Level of protection		ia resp. nL
Maximum output voltage	U_o	9,6 V
Maximum output current	I_o	10,7 mA
Maximum output power	P_o	25 mW
Internal capacitance, inductance	C_i, L_i	negligible
Characteristic		linear, $R_i = 900 \Omega$

The following maximum external values apply for the sensor circuit if there are capacitances and inductances:

Level of Protection	Ex ia IIC				Ex ia IIB			
C_o	510 nF	840 nF	1,2 µF	3,6 µF	2,7 µF	4,4 µF	6,3 µF	26 µF
L_o	100 mH	5 mH	1 mH	10 µH	100 mH	5 mH	1 mH	10 µH
Level of Protection	Ex nL IIC				Ex nL IIB			
C_o	765 nF	1,2 µF	1,8 µF	5,4 µF	4,0 µF	6,6 µF	9,4 µF	39 µF
L_o	100 mH	5 mH	1 mH	10 µH	100 mH	5 mH	1 mH	10 µH

3. Intrinsically safe digital output (passive, Terminal 6;7)

Level of protection		ia resp. nL
Maximum input voltage	U_i	20 V
Maximum input current	I_i	21,3 mA
Maximum input power	P_i	400 mW

4. Environmental data

Ambient temperature range	T_a	-25 °C ... +70 °C
Degree of protection of the enclosure		≥ IP 20

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