



[1] **EU-TYPE EXAMINATION CERTIFICATE - Translation**

[2] Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU07ATEX1132 X** | Issue 1

[4] Product: **Rotation Speed Monitor**
Type: IM21-*4Ex-CDTRi

[5] Manufacturer: Hans Turck GmbH & Co. KG

[6] Address: Witzlebenstraße 7
45472 Mülheim an der Ruhr
GERMANY

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.





The examination and test results are recorded in the confidential test report IB-21-3-0085/2.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018 EN IEC 60079-7:2015/A1:2018 EN 60079-11:2012 EN IEC 60079-15:2019 except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

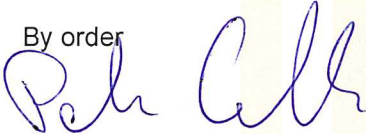
[12] The marking of the product shall include the following:

 **II (1)G [Ex ia Ga] IIC**
 **II (1)D [Ex ia Da] IIIC**
 **II (1) 3G Ex ec nC [ia Ga] IIC T4 Gc**
 **II (1D) 3G Ex ec nC [ia Da IIIC] IIC T4 Gc**

-25 °C ≤ T_a ≤ +70 °C

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

Tel: + 49 (0) 37 31 / 38 05 0
Fax: + 49 (0) 37 31 / 38 05 10

By order

Dr.-Ing. P. Cimalla



(notified body number 0637)

Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2023-06-09

[13]

Schedule

[14]

Certificate number IBExU07ATEX1132 X | Issue 1

[15]

Description of product

The Rotation Speed Monitor IM21-*4Ex-CDTRi is used for the galvanically isolated monitoring and evaluation of frequencies, revolutions and impulse sequences. The equipment can supply into areas which require Category 1G or 1D-operating supplies. The amplifiers are single- or double-channel types. Furthermore, the apparatus is for use in potentially hazardous areas, which require category 3G equipment.

Type code:

IM21- 1 4 Ex- C D T R i
 a b c d e f g h i

- a Type designation for Rotation Speed Monitor (IM21)
- b Number of channels (1)
- c Number of outputs (4, free programmable)
- d Equipment with Ex-approval (Ex)
- e PC-connection (C)
- f Digital Display (D)
- g Transistor Outputs (T)
- h Relay Outputs (R)
- i Sort of analogue output (i or u for current or voltage output)

Ambient temperature range: -25 °C to +70 °C

Degree of protection of the enclosure: ≥ IP20

Electrical data:

Supply current circuit

Rated voltage: U_B 20 ... 250 V AC or
20 ... 125 V DC

Max. effective value of AC voltage or max. DC voltage: U_m 253 V AC / 125 V DC

Sensor current circuit

(Terminal 1, 2, 6, 7 or 9, 10)

in type of protection Intrinsic safety Ex ia IIC/IIIC

U_o 9.6 V
 I_o 10.7 mA
 P_o 25 mW
 L_i negligible
 C_i negligible

Linear characteristic: R_i 900 Ω

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

	Ex ia IIC				Ex ia IIB/IIIC			
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

Digital Output circuit

(Terminal 6, 7)

passive, type of protection Intrinsic safety Ex ia IIC/IIIC

U_i 20 V
 I_i 21.3 mA
 P_i 400 mW

Variations compared to the EC-Type Examination Certificate and its additions:

Variation 1

The device meets the requirements of the current standard EN IEC 60079-0:2018.

Variation 2

The device can also be installed in areas requiring equipment category 3G. For this purpose, the device also meets the requirements of ignition protection type "ec" according to EN IEC 60079-7:2015/A1:2018 and "nC" according to EN IEC 60079-15:2019.

Variation 3

U_m changed from 250 V_{rms} to 253 V_{rms} .

[16] Test report

The test results are recorded in the confidential test report IB-21-3-0085/2 of 2023-06-05.

The test documents are part of the test report and they are listed there.

Summary of the test results

The Rotation Speed Monitor IM21-*4Ex-CDTRi fulfils the requirements of explosion protection on an associated apparatus for the Equipment Group II and Category 1G respectively 1D in type of protection Intrinsic safety for gases of the Explosion Group IIC and dusts. Additionally they fulfil the requirements of explosion protection for electrical equipment of Category 3G in type of protection increased safety "ec" and protection by type of protection "nC".

[17] Specific conditions of use

- For applications that require equipment category 3G the device has to be installed in a suitable enclosure according to EN IEC 60079-0:2018 and EN IEC 60079-7:2015/A1:2018 a way that a degree of protection of at least IP54 is achieved.
- In addition, the device has to be erected in such a way that a pollution degree 2 or less, according to IEC 60664-1, is achieved.
- Connecting and disconnecting of the connections of non-intrinsically safe electrical circuits under voltage is only permitted if no explosion hazardous atmosphere is available.

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

None

[19] Drawings and Documents

The documents are listed in the test report.

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