[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 **IBExU09ATEX1049 X** | Issue 1

[4] Product: **Temperature Measuring Amplifier**
Type: IM34-14 Ex-CDRi

[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-21-3-0085/3.

[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:

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

$-25\ °C \leq T_a \leq +70\ °C$

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

Seal
(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 IBExU09ATEX1049 X** | Issue 1

[15] **Description of product**

The Temperature Measuring Amplifier IM34-14 Ex-CDRi is designed for galvanic isolation between intrinsically safe measuring signals and non-intrinsically safe output signals. The device is intended for use in hazardous areas requiring category 3G equipment. It can feed into areas requiring category 1G or 1D equipment. The amplifier has 3 additional relay outputs.

Ambient temperature range:	-25 °C to +70 °C
Degree of protection of the enclosure:	≥ IP20

Electrical data:

Supply current circuit
(Terminal 19+, 20-)

Nominal voltage:	U_N 20 … 250 V AC or 20 … 125 V DC
Nominal power:	P_N ≤ 3 W
Max. effective value of AC voltage or max. DC voltage:	U_m 253 V AC / 125 V DC

Measuring circuit
(Terminal 4 … 10)

in type of protection Intrinsic safety Ex ia IIC/IIIC

U_o	5 V
I_o	2.09 mA
P_o	2.61 mW
L_i	negligible
C_i	negligible

Linear characteristic: R_i 2391 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			Ex ia IIA		
C_o	2.3 µF	3.0 µF	4.5 µF	11 µF	15 µF	25 µF	16 µF	21 µF	35 µF
L_o	50 mH	5 mH	0.5 mH	50 mH	5 mH	0.5 mH	50 mH	5 mH	0.5 mH

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

Output circuit
(Terminal 11+, 16-)

type of protection increased safety Ex ec

U	≤ 35 V
I	25 mA

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

Contact circuit
(Terminal 12,13 and 14,15 and 17,18)

type of protection increased safety & protection type "n" Ex ec nC

U	I	P
250 V AC	2 A	500 VA / 60 W
120 V DC	0.5 A	
30 V DC	2 A	

Configuration interface RS 232
(front side stereo jack)

type of protection increased safety & protection type "n" Ex ec nC

U ≤ 5 V

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

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

Variation 1
The device meets the requirements of the current standards 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}

Variation 4
Add the alternative PCBs 2325/4 and 2328/4.

[16] **Test report**
The test results are recorded in the confidential test report IB-21-3-0085/3 of 2023-06-05.
The test documents are part of the test report and they are listed there.

Summary of the test results
The Temperature Measuring Amplifier type IM34-14Ex-CDRi 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/IIB 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.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order

Dr.-Ing. P. Cimalla

Freiberg, 2023-06-09