



[1] **TYPE EXAMINATION CERTIFICATE**
(Translation)

[2] for electrical equipment of Equipment Group II, Equipment Category 3

[3] Type Examination Certificate Number: **IBExU08ATEXB020 X**

[4] Equipment: **Isolating amplifier**
type IM 35-** Ex-*****

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

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

[7] The design of the equipment mentioned under [4] and any acceptable variations thereto are specified in the schedule to this Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH certifies that the equipment mentioned under [4] has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive 94/9/EC.
The test results are recorded in the test report IB-08-3-224 of 23rd February 2009.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2006 and EN 60079-15:2005.

[10] If the sign „X“ is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this Type Examination Certificate.

[11] This Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned under [4] shall include the following:

 **II 3 G Ex nA [nL] IIC/IIB T4 X**
-25 °C ≤ T_a ≤ +70 °C

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Freiberg, 24th February 2009

By Order

(Dr. Wagner)

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- Stamp -

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Schedule

[13]

Schedule

[14]

to the TYPE EXAMINATION CERTIFICATE IBExU08ATEXB020 X

[15]

Description of equipment

The isolating amplifiers type IM 35-** Ex***** are used for the galvanic separation between the non energy-limited measurement signals and the energy-limited output signals. The apparatus is for use in potentially hazardous areas which require category 3 G equipment.

Types

IM 35- Ex-*i******* module with single- or double-channel, current output in type of protection energy limitation Ex nL IIC/IIB

IM 35- Ex-u******* module with single- or double-channel, voltage output in type of protection energy limitation Ex nL IIC/IIB

Ambient temperature range: -25 °C to +70 °C
Degree of protection: ≥ IP20 acc. EN 60529

Electrical data

Supply current circuit

(terminal 19+;20-)

Nominal voltage: U_N 20...250 V a.c. or 20...125 V d.c.

Nominal power: P_N ≤ 3 W

max. effective value of a.c. voltage
or max. d.c. voltage: U_m 250 V a.c. / 125 V d.c.

Type **IM 35-** Ex-*i******* Output circuit (per channel) in type of protection Ex nL IIC/IIB (terminal 1+, 2- or 6+, 7-)

U_o	15.9 V
I_o	59.5 mA
P_o	467 mW
C_i	5.2 nF
L_i	negligible

Trapezoid characteristic: $R_i = 528 \Omega$

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

	Ex nL IIC		Ex nL IIB	
C_o	285 nF	515 nF	2.1 μ F	3.2 μ F
L_o	5 mH	1 mH	5 mH	1 mH

Type **IM 35-** Ex-u******* Output circuit (per channel) in type of protection Ex nL IIC/IIB (terminal 1+, 2- or 6+, 7-)

U_o	15.9 V
I_o	48.2 mA
P_o	378 mW
C_i	5.2 nF
L_i	negligible

Trapezoid characteristic: $R_i = 625 \Omega$

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

	Ex nL IIC		Ex nL IIB	
C _o	325 nF	535 nF	2.2 µF	3.3 µF
L _o	5 mH	1 mH	5 mH	1 mH

Input circuit(s)
(terminal 11+, 12- and 16+, 17-)

Ex nA II
U ≤ 15 V
I 50 mA

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

[16] Test report

The Test results are recorded in the Test Report IB-08-3-224. The test documents are part of the test report and listed there.

Summary

The isolating amplifiers type IM 35-** Ex-***** fulfills the requirements of explosion protection for associated apparatus for Equipment Group II and Category 3 G in type of protection non-sparking and energy-limited apparatus for gases of Explosion Group IIC/IIB.

[17] Special conditions for safe use

- For installation in hazarded areas of zone 2 (equipment of category 3G), the isolating amplifier type IM 35-** Ex-***** must be built in into enclosures to meet the requirements of the EN 60079-15 (at least IP54).
- The operation of front side push-buttons as well as connecting and disconnecting of energised non energy limited circuits is only permitted for reasons of installation, maintenance and repair.

[18] Essential Health and Safety Requirements

Confirmed by compliance with standards (see [9])

By Order



(Dr. Wagner)

Freiberg, 24th February 2009

[1] **1st Addition to
TYPE EXAMINATION CERTIFICATE IBExU08ATEXB020 X
(Translation)**



- [2] Equipment: **Isolating amplifier**
type IM 35-** Ex-*****
- [3] Manufacturer: Hans Turck GmbH & Co. KG
- [4] Address: Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany

[5] **Additions/Modifications**

The additions / alterations of the equipment mentioned under [2] compared to the equipment already certified comprise the application of the current standard and consequently the changing marking.

The technical parameters remain unchanged.

[6] **Test report**

The proof of the explosion protection of the equipment mentioned under [2] is documented in the test report IB-13-3-179/3 of 11 March 2014. The test documents are part of the test report.

[7] **Test result**

IBExU certifies that the equipment mentioned under [2] fulfils the Essential Health and Safety Requirements given in Annex II to the Directive 94/9/EC by compliance with EN 60079-0:2012, EN 60079-11:2012 and EN 60079-15:2010.

The Isolating amplifier mentioned under [2] fulfils the requirements of explosion protection on an associated apparatus for the Equipment Group II and Category 3G in type of protection non-sparking "nA" and intrinsic safety "ic" for gases of the Explosion Group IIC.

The Ex marking must include the following:

 II 3G Ex nA [ic Gc] IIC T4 Gc
-25 °C ≤ T_a ≤ +70 °C

This Addition is only valid in combination with the Type Examination Certificate IBExU08ATEXB020 X of 24 February 2009.

The special conditions mentioned in the Type Examination Certificate have to be taken into account furthermore.

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Freiberg, 11 March 2014

Authorised for certifications
-Explosion protection-

By order

(Dr. Wagner)

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