



1 UNITED KINGDOM CONFORMITY ASSESSMENT
UK TYPE EXAMINATION CERTIFICATE
2 Product or Protective System Intended for use in Potentially Explosive Atmospheres

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Type Examination Certificate No.: **TÜV 21 UKEX 7057** Issue: **00**
4 Product: **Potentiometer Module AI43Ex**
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 TÜV Rheinland UK Ltd, Approved Body number 2571, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential report 557 / UKEx 7057.00 / 21.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012**

Except in respect of those requirements listed at section 18 of the schedule to this certificate.

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

11 This TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall include the following:

 **II 2 (1) G Ex ib [ia Ga] IIC T4 Gb**

 **II (1) D [Ex ia Da] IIIC**

This certificate and its schedules may only be reproduced in its entirety and without change.

TÜV Rheinland UK Ltd

Solihull, 2022-04-14


Dipl.-Ing. Klauspeter Graffi

This Type Examination Certificate without signature shall not be valid. Alterations are subject to approval by
TÜV Rheinland UK Ltd, 1011 Stratford Road, Shirley, Solihull, B90 4BN, Tel. +44 (0) 121 7969400
A UKAS accredited certification body, No. 8400

13 SCHEDULE TO UK TYPE EXAMINATION CERTIFICATE

14 CERTIFICATE NUMBER TÜV 21 UKEX 7057

15 Description of Product

The excom module, type AI43Ex is an input module for the connection of potentiometers.

General product information

The excom module, type AI43EX serves as an input module with four electrically isolated field circuits for interrogating three-wire or four-wire potentiometers for the output of digital intrinsically safe signals in intrinsically safe signal circuits (CAN bus). It is designed with type of protection Intrinsic Safety "i" and is intended to be used within the 1/O fieldbus system type excom[®] with the module rack, type MT.

The excom module, type AI43EX ensures separation points for the various circuits. These separate the external measuring circuits from the internal data buses and the internal supply voltage.

The degree of protection of minimum IP54 is ensured by the application of the module, type AI43Ex within the 1/O-fieldbus system, type excom[®].

The permissible ambient temperature range is: -20°C up to + 70°C.

Technical Data

I.) AC-supply circuit

type of protection Intrinsic Safety Ex ib IIC;

only for connection to the module subrack,

type MT.

P = 1.5 W (power consumption)

The intrinsically safe AC-supply circuit is safely electrically isolated from ground and up to a peak value of the nominal voltage of 60 V from all other intrinsically safe circuits.

II.) Signal circuit (CAN-BUS)

type of protection Intrinsic Safety Ex ib IIC;

only for connection to the module subrack type MT

III.) Address encoding

type of protection Intrinsic Safety Ex ib IIC;

only for connection to the module subrack type MT

IV.) Field circuits

Terminals on the module rack,

type MT:

Channel 1: 11 - 14

Channel 2: 21 - 24

Channel 3: 31 - 34

Channel 4: 41 - 44

type of protection Intrinsic Safety

[Ex ia Ga] IIC/IIIB or [Ex ia Da] IIIC

maximum values per channel:

$U_o = 6.6 \text{ V}$

$I_o = 25 \text{ mA}$

$P_o = 42 \text{ mW}$

linear characteristic

$C_i \leq 150 \text{ nF}$

L_i negligibly low

maximum values for commonly existing external reactances (C_i is considered):

(the values below correspond to the ISpark program 6.2)

| Lo (mH) | IIC | IIB |
|---------|---------|---------|
| | Co (µF) | Co (µF) |
| 5 | 1.45 | 8.35 |
| 2 | 1.75 | 9.85 |
| 1 | 2.05 | 11.85 |
| 0.5 | 2.45 | 14.85 |
| 0.2 | 3.15 | 18.85 |

The intrinsically safe field circuits are electrically isolated from ground and up to a peak value of the rated voltage of 60 V from each other and from the intrinsically safe signal circuits (CAN-BUS) and the address coding.

The intrinsically safe signal circuits (CAN-BUS) and the address coding are electrically isolated from earth and electrically interconnected.

Modifications

The modifications concern the adaptation to the standards. The internal structure has been adapted. The changes concern also the use of alternative components in the electronic circuitry.

16 Test report No. (associated with this certificate issue): 557 / UKEx 7057.00 / 21

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements (Regulations Schedule 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

19 Drawings and Documents

| Reg. no. | Document title: | Document no.: | Rev.: | Date: |
|----------|---------------------------------------|--|-------|------------|
| | Approval documentation AI43EX (79 p.) | Approval documentation AI43EX signed.pdf | 01 | 06.01.2022 |