



- 1 UNITED KINGDOM CONFORMITY ASSESSMENT
- 2 **UK TYPE EXAMINATION CERTIFICATE**
- 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 7061** Issue: **00**
- 4 Product: **Analog Input Module AIH401Ex**
Analog Output Module AOH401Ex
- 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 7061.00 / 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, 2022-05-12


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 7061****15 Description of Product**

The excom module, type Axx4x1 Ex is an analog input and output module for transducers and actuators in "ia" field circuits. The excom module can be designed in four variants.

General product information

In the output variant, type AOH401 Ex, analog current signals are generated from binary signals of fieldbus systems in "ia" field circuits.

In the input variant, type AIH401 Ex, the ia-current signals of the transducers are digitized and converted into binary signals for further processing in fieldbus systems.

The excom module is designed in type of protection Intrinsic Safety "i" and intended to be used within the I/O fieldbus system type excom® with the module subrack type MT.

The excom module ensures isolation points for the various circuits. These isolate the external measuring circuits from the internal data buses and the internal supply voltage.

The application of the excom module, type Axx4x1 Ex within the I/O fieldbus system type excom® ensures a degree of protection of at least IP54.

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.

$P = 3 \text{ W}$ (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 100 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

Inputs for active sensors for
 type AIH401Ex
 (Current input)

Channel 1: 13+, 14-
 Channel 2: 23+, 24-
 Channel 3: 33+, 34-
 Channel 4: 43+, 44-

type of protection Intrinsic Safety

[Ex ia Ga] IIC/1IIB or [Ex ia Da] IIIC

maximum values per channel:

$U_o = 6 \text{ V}$

$I_o = 1 \text{ mA}$

$P_o = 2 \text{ mW}$

linear characteristic

C_i negligibly low

L_i negligibly low

maximum values for commonly existing external
 reactances:

(the values below correspond to the ISpark program 6.2)

Lo (mH)	IIC	IIB
	Co (μF)	Co (μF)
5	2	10
2	2.3	12
1	2.6	14
0.5	3	17
0.2	3.7	22

or

for interconnection of the field
 circuits with active sensors

type of protection Intrinsic Safety Ex ia IIC/IIB

or Ex ia IIIC according to separate certificate

maximum values per channel:

$U_i = 30 \text{ V}$

$I_i = 107 \text{ mA}$

$P_i = 644 \text{ mW}$

V.) Field circuits

Inputs or outputs for passive sensors for type Axx401Ex

Channel 1: 11+, 12-
 Channel 2: 23+, 24-
 Channel 3: 33+, 34-
 Channel 4: 43+, 44-

type of protection Intrinsic Safety
 [Ex ia Ga] IIC/IIB or [Ex ia Da] IIIC

maximum values per channel:

$U_o = 19.7 \text{ V}$

$I_o = 90 \text{ mA}$

$P_a = 633 \text{ mW}$

C_i negligibly low

L_i negligibly low

maximum values for commonly existing external reactances:

(the values below correspond to the! Spark program 6.2)

Lo (mH)	IIC	IIB
	Co (μF)	Co (μF)
2	---	0.84
1	---	0.84
0.4	0.11	0.88
0.2	0.14	1
0.1	0.18	1.2

All four channels may also be connected to the inputs to **IV) field circuits** with active intrinsically safe circuits whose intrinsically safe values do not exceed the aforementioned parameters. Only passive intrinsically safe circuits may be connected to the inputs to **V) field circuits**.

Either one passive sensor or one active sensor shall be assigned to each channel.

The intrinsically safe channels of the field circuits are safely electrically isolated from ground and from each other and - up to a peak value of the nominal voltage of 60 V - from all other intrinsically safe circuits. In each channel, the inputs for passive and active sensors are electrically interconnected.

16 Test report No. (associated with this certificate issue): 557 / UKEx 7061.00 / 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:
1.	Approval documentation AIH401EX & AOH401EX (219 p.)	Approval documentation AIH401EX & AOH401EX signed.pdf	01	06.01.2022