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 7060**	Issue: **00**
4	Product:	**Digital Input Module DI401Ex**	
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 TUV 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 7060.00 / 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.

TUV 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 TUV Rheinland UK Ltd, 1011 Stratford Road, Shirley, Solihull, B90 4BN, Tel. +44 (0) 121 7969400
A UKAS accredited certification body, No. 8400

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13 SCHEDULE TO UK TYPE EXAMINATION CERTIFICATE

14 CERTIFICATE NUMBER TÜV 21 UKEX 7060

15 Description of Product

The excom module, type DI401 Ex is used for the communication as digital input module, type DI401 Ex between external sensors in field circuits and field bus systems. The digital input module is part of the excom® field bus system. It is operated in the subrack with backplane.

General product information

The digital input module type DI401 Ex, including the supply circuit, is designed for use and installation in zone 1 to type of protection type Ex ib IIC T4. The electrically isolated intrinsically safe circuits CAN bus and the intrinsically safe digital signal processing circuit are designed to type of protection Ex ib IIC as corresponding circuit parts with connection in zone 1. The galvanically separated intrinsically safe field circuits are designed to type of protection Ex ia IIC/IIIC as corresponding circuit parts with possible connection in each Zone. The operation of the digital input module, type DI401 Ex inside of an enclosure with a degree of protection of at least IP54 is ensured by the application within the 1/0 Fieldbus system type ex-com® in potentially explosive atmospheres.

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;

(system internal circuit without external connection facilities)

only for connection to the module subrack, type MT.

Maximum values:

U = 20 V AC (amplitude)

f = 300 ... 314 kHz

P ≤ 2 W (power input)

P ≤ 1 W (power consumption in the module)

Ci negligibly low

Li negligibly low

The intrinsically safe AC-supply circuit is safely electrically isolated from ground and from all other intrinsically safe circuits up to a peak value of the nominal voltage of 100 V.

II.) Signal circuit (CAN-BUS)
(terminal posts
CAN-Bus A J2:9, 10
CAN-Bus B J2: 11, 12)

type of protection Intrinsic Safety Ex ib IIC;

(system internal circuit without external connection facilities)

Maximum values:

Uo = 6 V

Io = 124 mA

Po = 270 mW

Ci = 2 µF

Li negligibly low

III.) Module addressing
(terminal posts J2:1 ... 6)

type of protection Intrinsic Safety Ex ib IIC

(system internal circuit without external connection facilities)

Maximum values:

Uo = 6 V

Io = 202 mA

Ci = 665 mW

IV.) Field circuits
(terminals on the system-module rack plug connector J3
channel 1: 1,2
channel 2: 5,6
channel 3: 9, 10
channel 4: 13, 14)

type of protection Intrinsic Safety

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

Maximum values per channel:

Uo = 6 V

Io = 124 mA

Po = 270 mW

linear characteristic

Ci ≤ 2 nF

Li negligibly low

maximum values per channel for common external reactance

(the values below correspond to the !Spark program)

	IIC	IIB
Lo (mH)	Co (µF)	Co (µF)
1	1.4	7.4
2	1.2	6.3
5	1	5.2

All channels of the field circuits are safely electrically isolated from each other and up to a peak value of the nominal voltage of 100 V from all other intrinsically safe circuits.

Environmental data:
The range of the ambient temperature Ta is: -20 °C up to +70 °C.

16 Test report No. (associated with this certificate issue): 557 / UKEx 7060.00 / 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 DI401EX (221 p.)	Approval documentation DI401Ex signed.pdf	01	20.01.2022