



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx PTB 15.0043	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 1	Issue 0 (2017-03-20)
Date of Issue:	2020-07-20		
Applicant:	Hans Turck GmbH & Co.KG Witzlebenstraße 7 45472 Mülheim Germany		
Equipment:	Excom module, type DI401Ex		
Optional accessory:			
Type of Protection:	Intrinsic Safety		
Marking:	Ex ib [ia Ga] IIC T4 Gb or Ex ib [ia] IIC T4 [Ex ia Da] IIIC or [Ex ia] IIIC		


Approved for issue on behalf of the IECEx
Certification Body:

Dr.-Ing. F. Lienesch

Position:

**Head of Department "Explosion Protection in Sensor Technology
and Instrumentation"**

Signature:
(for printed version)


20.07.20

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany





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Date of issue: 2020-07-20

Issue No: 1

Manufacturer: **Hans Turck GmbH & Co.KG**
Witzlebenstraße 7
45472 Mülheim
Germany

Additional
manufacturing
locations: **Werner Turck GmbH & Co. KG**
Goethestrasse 7
58553 Halver
Germany

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

DE/PTB/ExTR15.0007/00

DE/PTB/ExTR15.0007/01

Quality Assessment Reports:

DE/PTB/QAR06.0012/04

DE/PTB/QAR06.0013/05



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

see the attachment to this certificate.

SPECIFIC CONDITIONS OF USE: NO



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Additional manufacturing location (no technical modification)

Annex:

COCA150043-01.pdf



Applicant: Hans Turck GmbH & Co. KG
Witzlebenstraße 7, 45472 Mülheim, Germany

Electrical Apparatus: Excom module, type DI401Ex

Description of equipment

The excom module, type DI401Ex is used for the communication as digital input module, type DI401Ex 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. The subrack is certified under IECEx PTB 13.0040U.

The digital input module type DI401Ex, 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/IIC as corresponding circuit parts with possible connection in each Zone. The operation of the digital input module, type DI401Ex inside of an enclosure with a degree of protection of at least IP54 is ensured by the application within the I/O Fieldbus system type ex-com® in potentially explosive atmospheres.

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

Electrical Data:

- I) AC-supply circuit** type of protection Intrinsic Safety Ex ib IIC
(terminal posts J2:15,16) (system internal circuit without external connection facilities)
only for connection to the certified intrinsically safe circuit according to IECEx PTB 13.0040U

Maximum values:

U = 20 V AC (amplitude)
f = 300...314 kHz
P ≤ 2 W (power input)
P ≤ 1 W (power consumption in the module)
C_i negligibly low
L_i 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).....type of protection Intrinsic Safety Ex ib IIC
(Terminals CAN-Bus A: J2:9,10 (system internal circuit without external connection facilities)
CAN-Bus B: J2:11,12)

Maximum values:

$U_o = 6 \text{ V}$
 $I_o = 124 \text{ mA}$
 $P_o = 270 \text{ mW}$
 $C_i = 2 \text{ }\mu\text{F}$
 L_i negligibly low

III) Module addressing.....type of protection Intrinsic Safety Ex ib IIC
(Terminals J2:1...6) (system internal circuit without external connection facilities).

Maximum values:

$U_o = 6 \text{ V}$
 $I_o = 202 \text{ mA}$
 $P_o = 665 \text{ mW}$

IV) Field circuits.....type of protection Intrinsic Safety
(terminals on the system-module [Ex ia Ga] IIC/IIB or [Ex ia Da] IIIC
Rack plug connector J3
channel 1: 1,2
channel 2: 5,6
channel 3: 9,10
channel 4: 13,14

Maximum values per channel:

$U_o = 8.7 \text{ V}$
 $I_o = 9.3 \text{ mA}$
 $P_o = 21 \text{ mW}$

linear characteristic

$C_i \leq 2 \text{ nF}$

L_i negligibly low

maximum values per channel for common external reactance

(the values below correspond to the ISpark program)

$L_o \text{ (mH)}$	IIC	IIB
	$C_o \text{ (}\mu\text{F)}$	$C_o \text{ (}\mu\text{F)}$
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.