IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx PTB 18.0034

Issue No: 0

Certificate history:
Issue No. 0 (2018-08-03)

Status: **Current**

Date of Issue: **2018-08-03**

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

Equipment: **Excom Module, type Axx4x1Ex**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking:
Ex ib [ia Ga] IIC T4 Gb or Ex ib [ia Ga] 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 Intrumentation"

Signature:
(for printed version)

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 the Official IECEx Website.

Certificate issued by:

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

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

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

Additional Manufacturing location(s):

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 apparatus 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 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical 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 Report:

DE/PTB/ExTR18.0029/00

Quality Assessment Report:

DE/PTB/QAR06.0013/05

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

see the attached file to this certificate.

SPECIFIC CONDITIONS OF USE: NO

Annex:

CoCA180034-00.pdf

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

Electrical Apparatus: Excom module, type Axx4x1Ex

Description of equipment

The excom module, type Axx4x1Ex is an analogue input and output module for transducers and actuators in “ia” field circuits. The excom module can be designed in four variants.

In the output variant, type AOH401Ex, analog current signals are generated from binary signals of fieldbus systems in "ia" field circuits.

In the input variant, type AIH401Ex, the ia-current signals of the transducers are digitized and converted into binary signals for further processing in fieldbus systems.

In the input variant, type AI411Ex, the ia-voltage signals of the transducers are digitized and converted into binary signals for further processing in fieldbus systems.

In the universal variant type AMH401Ex, the input variant or output variant are equipped separately, channel by channel.

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 according to IECEx PTB 13.0040U.

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 Axx4x1Ex 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

Electrical data

I.) AC-supply circuit

type of protection Intrinsic Safety Ex ib IIC;
only for connection with the module subrack, type MT according IECEx PTB 13.0040U
P = 3 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 100V from all other intrinsically safe circuits.

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Postfach 33 45, 38023 Braunschweig, Germany
Telephone +49 531 592-0, Telefax +49 531 592-3605

II.) Signal circuit (CAN-BUS)

type of protection Intrinsic Safety Ex ib IIC;
only for connection with the module sub-rack type MT according IECEx PTB 13.0040U

III.) Address encoding

type of protection Intrinsic Safety Ex ib IIC;
only for connection with the module sub-rack type MT according IECEx PTB 13.0040U

IV.) Field circuits

Inputs for active sensors for type AIH401Ex and type AMH401Ex
(Current input)
Channel 1: 13+ , 14-
Channel 2: 23+ , 24-
Channel 3: 33+ , 34-
Channel 4: 43+ , 44-

or

Inputs for active sensors for type AI411Ex
(Voltage input)
Channel 1: 12+ , 14-
Channel 2: 22+ , 24-
Channel 3: 32+ , 34-
Channel 4: 42+ , 44-

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

maximum values per channel:

U_o = 6 V

I_o = 1 mA

P_o = 2 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)

	IIC	**IIB**
L_o (mH)	C_o (µF)	C_o (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 input values per channel:

U_i = 30 V

I_i = 107 mA

P_i = 644 mW

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V.) Field circuits

Inputs or outputs for passive sensors for type Axx401Ex
Channel 1: 11+ , 12-
Channel 2: 21+ , 22-
Channel 3: 31+ , 32-
Channel 4: 41+ , 42-

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

maximum values per channel:

U_o = 19.7 V

I_o = 90 mA

P_o = 633 mW

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)

	IIC	**IIB**
L_o (mH)	C_o (µF)	C_o (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 or outputs to **V) field circuits**.

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

Only one input may be assigned to each channel for active encoders, either for "current input" or for "voltage input".

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 60V - from all other intrinsically safe circuits. In each channel, the field circuits for passive and active sensors are electrically interconnected.