Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 18 ATEX 2003 **Issue: 0**

(4) Product: Excom Module, type Axx4x1Ex

(5) Manufacturer: Hans Turck GmbH & Co.KG

(6) Address: Witzlebenstraße 7, 45472 Mülheim, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 18-27066.

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

EN 60079-0:2012 + A11:2013 **EN 60079-11:2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

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

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

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, August 3, 2018
On behalf of PTB:

Dr.-Ing. F. Lienesch
Direktor und Professor

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 18 ATEX 2003, Issue: 0**

(15) Description of Product

The excom module, type Axx4x1Ex is an analog 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 assembled 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 PTB 00 ATEX 2194 U.

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 PTB 00 ATEX 2194 U
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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III.) Address encoding

type of protection Intrinsic Safety Ex ib IIC;
only for connection with the module subrack type MT according PTB 00 ATEX 2194 U

IV.) Field circuits

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

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-

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.

(16) Test Report PTB Ex 18-27066

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(17) Specific conditions of use

none

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, August 3, 2018

Dr.-Ing. F. Lienesch
Direktor und Professor