



(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 06 ATEX 2026

Issue: 1

(4) Product: Excom module, type AI43Ex

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

(6) Address: Witzlebenstr. 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) 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 18-27136.

(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.

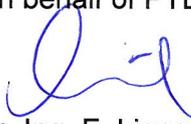
(12) The marking of the product shall include the following:

 **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, February 5, 2018

On behalf of PTB:


Dr.-Ing. F. Lienesch
Direktor und Professor



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EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

(13)

SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 06 ATEX 2026, Issue: 1**

(15) Description of Product

The Excom module, type AI43EX serves as an input module with four electrically isolated field circuits for interrogating three-wire or four-wire potentiometers for the output of digital intrinsically safe signals in intrinsically safe signal circuits (CAN bus). It is designed with type of protection Intrinsic Safety "i" and is intended to be used within the I/O fieldbus system type excom® with the module rack, type MT according to PTB 00 ATEX 2194 U.

The Excom module, type AI43EX ensures separation points for the various circuits. These separate the external measuring circuits from the internal data buses and the internal supply voltage.

The degree of protection of minimum IP54 is ensured by the application of the module, type AI43Ex within the I/O-fieldbus system, type excom®.

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 to the module rack,
type MT according to PTB 00 ATEX 2194 U
P =1.5 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 60V 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 rack,
type MT according to PTB 00 ATEX 2194 U

III.) Address encoding circuit

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

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 06 ATEX 2026, Issue: 1

IV.) Field circuit

Terminals on the module rack, type MT:

- Channel 1: 11 - 14
- Channel 2: 21 - 24
- Channel 3: 31 - 34
- Channel 4: 41 - 44

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

Maximum values per channel:

$$U_o = 6.6 \text{ V}$$

$$I_o = 25 \text{ mA}$$

$$P_o = 42 \text{ mW}$$

linear characteristic

$$C_i \leq 150\text{nF}$$

L_i negligibly low

Maximum values for commonly existing external reactances (C_i is considered):

(the values below correspond to the ISpark program 6.2.)

L_o (mH)	IIC	IIB
	C_o (μF)	C_o (μF)
5	1.45	8.35
2	1.75	9.85
1	2.05	11.85
0.5	2.45	14.85
0.2	3.15	18.85

The intrinsically safe field circuits are electrically isolated from ground and up to a peak value of the rated voltage of 60 V from each other and from the intrinsically safe signal circuits (CAN-BUS) and the address coding.

The intrinsically safe signal circuits (CAN-BUS) and the address coding are electrically isolated from earth and electrically interconnected.

Modifications:

The modifications concern the adaptation to the standards. The internal structure has been adapted. The changes concern also the use of alternative components in the electronic circuitry.

(16) Test Report PTB Ex 18-27136



SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 06 ATEX 2026, Issue: 1

(17) Specific conditions of use

none

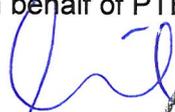
(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, February 5, 2018


Dr.-Ing. F. Lienesch
Direktor und Professor





(1) EC-TYPE-EXAMINATION CERTIFICATE (Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**



(3) EC-type-examination Certificate Number:

PTB 06 ATEX 2026

(4) Equipment: Excom module, type AI43Ex...
(5) Manufacturer: Hans Turck GmbH & Co. KG
(6) Address: Witzlebenstr. 7, 45472 Mülheim an der Ruhr, Germany

(7) This equipment and any acceptable variation thereto are 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 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 06-26084 .

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

EN 50014:1997 + A1 + A2

EN 50020:2002

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

II 2 (1 G/D) G EEx ib [ia] IIC T4

Zertifizierungsstelle Explosionsschutz

Braunschweig, July 18, 2006

By order:

Dr.-Ing. U. Gerlach
Oberregierungsrat



SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2026**

(15) Description of equipment

The Excom module, type AI43Ex... is an analog input module using four electrically isolated field circuits to determine the position of three-wire or four-wire potentiometers.

The apparatus is intended as a plug-in module for application in the fieldbus system "excom" of the company Hans Turck.

The apparatus is installed inside the hazardous area.

The permissible range of the ambient temperature is -20 °C ... 60 °C.

Electrical data

- I.) AC-supply circuit..... type of protection Intrinsic Safety EEx ib IIC/IIB
(system-internal circuit without only for connection to a certified intrinsically
external connection facilities, safe circuit according to PTB 00 ATEX 2194 U
terminal posts J2:15,16)

Maximum values:

$U_i = 20$ V AC (amplitude), 300...314 kHz

$P_i = 2$ W (power consumption)

C_i negligibly low

L_i negligibly low

The intrinsically safe AC-supply circuit is safely electrically isolated from earth and – up to a peak value of the nominal voltage of 60 V – from all other intrinsically safe circuits.

- II.) Signal circuit (CAN-Bus) type of protection Intrinsic Safety EEx ib IIC/IIB
(system-internal circuit without
external connection facilities)
terminal posts CAN-Bus A J2:9,10
or CAN-Bus B J2:11,12

- III.) Address encoding circuit..... type of protection Intrinsic Safety EEx ib IIC/IIB
(system-internal circuit without
external connection facilities)
terminal posts J2:1 ... 6

IV.) Field circuit, detector supply..... type of protection Intrinsic Safety EEx ia IIC/IIB
(terminal clamps at the system-module rack for

channel 1: 1 ... 4
channel 2: 5 ... 8
channel 3: 9 ... 12
channel 4: 13 ... 16)

Maximum values:
 $U_o = 6.6 \text{ V}$
 $I_o = 25 \text{ mA}$
 $P_o = 42 \text{ mW}$

linear characteristic

L_i negligibly low
 $C_i = 150 \text{ nF}$

For relationship between type of protection, explosion group and the permissible maximum values for lumped external inductances and capacitances, reference is made to the following tables:

	EEx ia IIC	EEx ia IIB
L_o	5 mH	5 mH
C_o	1.6 μF	8.5 μF

or

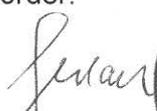
	EEx ia IIC	EEx ia IIB
L_o	1 mH	1 mH
C_o	2.2 μF	12 μF

(16) Test report PTB Ex 06-26084

(17) Special conditions for safe use
none

(18) Essential health and safety requirements
met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:


Dr.-Ing. U. Gerlach
Oberregierungsrat



Braunschweig, July 18, 2006