



(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 10 ATEX 2024**

**Issue: 1**

(4) Product: Excom module, type DO401EX

(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 17-26239.

(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.

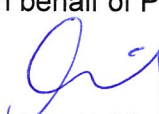
(12) The marking of the product shall include the following:

 **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, May 8, 2017

On behalf of PTB:

  
Dr.-Ing. F. Lienesch  
Regierungsdirektor



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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 10 ATEX 2024, Issue: 1**

(15) Description of Product

The Excom module, type DO401EX is used to output digital intrinsically safe signals from the fieldbus system to intrinsically safe field circuits. It is designed in type of protection Intrinsic Safety "i" and is 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, type DO401EX ensure the electrical isolation for the various circuits. These isolate the external field circuits from the internal data buses and the internal supply voltage.

The operation of the excom module, type DO401EX inside of an enclosure with a degree protection of at least IP54 is ensured by the application within the I/O Fieldbus system type excom® in potentially explosive atmospheres.

The permissible ambient temperature range is: -20°C bis +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 = 4,5 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 with the module subrack  
type MT according PTB 00 ATEX 2194 U

**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

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**SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 10 ATEX 2024, Issue: 1**

**IV.) Field circuits**

**24V-output**

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:

$U_o = 25 \text{ V}$   
 $I_o = 80 \text{ mA}$   
 $P_o = 750 \text{ mW}$   
 $C_i$  negligibly low  
 $L_i$  negligibly low

maximum values for common external reactances:  
(the values below correspond to the ISpark program)

$L_o$ (mH)	IIC	IIB
	$C_o$ ( $\mu\text{F}$ )	$C_o$ ( $\mu\text{F}$ )
2	--	0,35
1	--	0,41
0,5	--	0,5
0,2	--	0,66
0,1	0,11	0,82

**18V-output**

Channel 1: 13+ , 14-  
Channel 2: 23+ , 24-  
Channel 3: 33+ , 34-  
Channel 4: 43+ , 44-

maximum values per channel:

$U_o = 19 \text{ V}$   
 $I_o = 100 \text{ mA}$   
 $P_o = 710 \text{ mW}$   
 $C_i$  negligibly low  
 $L_i$  negligibly low

maximum values for common external reactances:  
(the values below correspond to the ISpark program)

$L_o$ (mH)	IIC	IIB
	$C_o$ ( $\mu\text{F}$ )	$C_o$ ( $\mu\text{F}$ )
2	--	1
1	--	1
0,5	0,14	1
0,2	0,17	1,1
0,1	0,23	1,3

Only passive intrinsically safe circuits may be connected to all 4 channels - to the 24V outputs and the 18V outputs. Only one 24V output or the 18V output can be used for each channel.

The intrinsically safe channels of the field circuits are safely galvanically isolated from ground and among themselves and up to a peak value of the nominal voltage of 60V from all other intrinsically safe circuits. In each channel the 24V output and the 18V output are galvanically connected.

## SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 10 ATEX 2024, Issue: 1

### Modifications

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

(16) Test Report PTB Ex 17-26239

(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, May 8, 2017

  
Dr.-Ing. F. Lienesch  
Regierungsdirektor





## (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 10 ATEX 2024**



(4) Equipment: Excom module, type DO401Ex

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

(6) Address: Witzlebenstraße 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 assessment and test report PTB Ex 11-20150.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 60079-0:2009                      EN 60079-11:2007                      EN 61241-11:2006**

(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 Ex ib [ia Ga] IIC T4 Gb and II (1) D [Ex ia IIIC Da] or  
II 2 (1) G Ex ib [ia] IIC T4 and II (1) D [Ex ia IIIC]**

Zertifizierungssektor Explosionsschutz  
On behalf of PTB:

Braunschweig, August 1, 2011

Dr.-Ing. U. Johannsmeyer  
Direktor und Professor



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## SCHEDULE

(14)

### EC-TYPE-EXAMINATION CERTIFICATE PTB 10 ATEX 2024

(15)

#### Description of equipment

The Excom module, type DO401Ex is used for the transmission of digital signals from the Excom fieldbus system to field circuits. The module shall be operated exclusively in combination with the module rack, type MT... .

The equipment is intended for installation inside of hazardous areas.

The permissible range of the ambient temperature is  $-20\text{ °C}$  up to  $+70\text{ °C}$ .

#### Electrical data

I.) **AC-supply circuit**.....type of protection Intrinsic Safety Ex ib IIC  
only for connection to the intrinsically safe  
circuit specified in PTB 00 ATEX 2194 U

Maximum values:

$U = 20\text{ V AC}$  (amplitude)

$f = 300\text{ kHz} \dots 314\text{ kHz}$

$P = 5\text{ W}$  (power consumption)

$C_i$  negligibly low

$L_i$  negligibly low

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

II.) **Signal circuit (CAN-bus)** .....system-internal circuit  
without external connection facilities

III.) **Module addressing** .....system-internal circuit  
without external connection facilities

IV.) **Field circuits** .....type of protection Intrinsic Safety Ex ia IIC  
(external terminals on the system-module-rack) or Ex ia IIIC

24 V-output.....Maximum values per channel:

channel 1: 1,2

$U_o = 25\text{ V}$

or channel 2: 5,6

$I_o \leq 80\text{ mA}$

or channel 3: 9,10

$P_o \leq 750\text{ mW}$

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or channel 4: 13,14

angular characteristic

$U_e = 18.2 \text{ V}$  knee-point voltage  
 $I_e = 41.2 \text{ mA}$  knee-point current

$L_i$  negligibly low

$C_i$  negligibly low

For relationship between explosion group and external reactances, reference is made to the table:

$L_o$ [mH]	IIC	IIB
	$C_o$ [nF]	$C_o$ [nF]
2	-	350
1	-	410
0.5	-	500
0.2	-	660
0.1	110	820

18 V-output.....Maximum values per channel:

channel 1: 3,4  
 or channel 2: 7,8  
 or channel 3: 11,12  
 or channel 4: 15,16)

$U_o = 19 \text{ V}$   
 $I_o \leq 100 \text{ mA}$   
 $P_o \leq 710 \text{ mW}$   
 angular characteristic

$U_e = 13 \text{ V}$  knee-point voltage  
 $I_e = 53.4 \text{ mA}$  knee-point current

$L_i$  negligibly low

$C_i$  negligibly low

For relationship between explosion group and external reactances, reference is made to the table:

$L_o$ [mH]	IIC	IIB
	$C_o$ [nF]	$C_o$ [nF]
2	-	1000
1	130	1000
0.5	140	1000
0.2	170	1100

All functional blocks of the module are safely electrically isolated from earth and from each other up to a peak value of the nominal voltage of 60 V.

# Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 10 ATEX 2024

- (16) Assessment and test report PTB Ex 11-20150
- (17) Special conditions for safe use  
none
- (18) Essential health and safety requirements  
met by compliance with the standards mentioned above

Zertifizierungssektor Explosionsschutz  
On behalf of PTB:

Braunschweig, August 1, 2011

  
Dr.-Ing. U. Johannsmeyer  
Direktor und Professor





Wir/We

HANS TURCK GMBH & CO KG  
Witzlebenstr. 7, 45472 Mülheim an der Ruhr, Germany

erklären in alleiniger Verantwortung, dass die Produkte  
declare under our sole responsibility that the products

**Remote – I/O – System excom® Module / modules**Type: **DO401EX**

Ex-Kennzeichnung / Ex-marking:

Gas / gas	⊕ II 2 (1) G	Ex ib [ja Ga] IIC T4
Staub / dust	⊕ II (1) D	[Ex ia] IIIC

auf die sich die Erklärung bezieht, den Anforderungen der folgenden EU-Richtlinien durch Einhaltung der  
folgenden harmonisierten Normen genügen:

to which this declaration relates are in conformity with the requirements of the following EU-directives by compliance with the following  
harmonised standards:

EMV – Richtlinie / EMC Directive EN 61326-1:2013	2014 / 30 / EU	26. Feb. 2014
Richtlinie / Directive ATEX EN 60079-0:2012      EN 60079-11:2012 +A11:2013	2014 / 34 / EU	26. Feb. 2014
Richtlinie / Directive RoHS II	2011 / 65 / EU	8. Jun. 2011

Weitere Normen, Bemerkungen  
additional standards, remarks

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Zusätzliche Informationen:

Supplementary information:

Angewandtes ATEX-Konformitätsbewertungsverfahren / ATEX - conformity assessment procedure applied:

Modul B + Modul E (enthalten in Modul D) / module B + module E (part of module D)

EU-Baumusterprüfbescheinigung (Modul B) PTB 10 ATEX 2024 / EU-type examination certificate (module B):

ausgestellt von / issued by: Physikalisch Technische Bundesanstalt, Kenn-Nr. / number 0102,  
Bundesallee 100, 38116 Braunschweig, Germany

Zertifizierung des QS-Systems gemäß Modul D durch:

certification of the QS-system in accordance with module D by :

Physikalisch Technische Bundesanstalt, Kenn-Nr. / number 0102,  
Bundesallee 100, 38116 Braunschweig, Germany

Mülheim, den 26.06.2017

i.V. U. Vix, CE-Koordinatorin / CE Coordinator

Ort und Datum der Ausstellung /  
Place and date of issue

Name, Funktion und Unterschrift des Befugten /  
Name, function and signature of authorized person