



## (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 03 ATEX 2023**



(4) Equipment: Analog input module, type AI41Ex...

(5) Manufacturer: Hans Turck GmbH & Co KG

(6) Address: 45472 Mülheim a. d. 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 03-23074.

(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 (1G/D) G EEx ib [ia] IIC/IIB T4**

Zertifizierungsstelle Explosionsschutz

Braunschweig, October 13, 2003

By order:

(signature)

Dr.-Ing. U. Johannsmeyer  
Regierungsdirektor

**3 pages, correct and complete as regards content.**

By order:

Dr.-Ing. Johannsmeyer  
Direktor und Professor

Braunschweig, July 2005



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EC-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.

## SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2023**

(15) Description of equipment

The analog input module, type AI41Ex... forms part of the fieldbus system excom for the module subracks of type MT... according to PTB 00 ATEX 2194 U. The analog input module shall be operated in combination with this module subrack only within the excom-system.

The module is used for the conversion of analog input signals from active sensors of intrinsically safe (ia) field circuits into binary signals for the processing in fieldbus systems. The intrinsically safe field circuits of category "ia" are safely electrically isolated from each other and from the intrinsically safe bus and supply circuits of category "ib". The intrinsically safe field circuits may be conducted into potentially explosive gas/air-atmospheres of zone 1 or into potentially explosive dust/air-atmospheres of zone 20

The range of the ambient temperature is -20 °C up to +60 °C.

### Electrical data

I.) AC-supply circuit

Plug connector J2, pins 15, 16

Only for connection to the certified intrinsically safe circuit according to PTB 00 ATEX 2194 U in type of protection Intrinsic Safety EEx ib IIC with the following maximum values:

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

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

$P = 2.0 \text{ W (power consumption)}$

$C_i$  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 60 V.

II.) Signal circuit (CAN-bus)

(exclusively system-internal circuit, no external connection facilities)

III.) Address encoding circuit

(exclusively system-internal circuits, no external connection facilities)

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IV) Field circuit (terminal clamps at the system module subrack for channel 1 : 1, 2 channel 2 : 5, 6 channel 3 : 9, 10 channel 4 : 13, 14)	type of protection Intrinsic Safety EEx ia IIC/IIB (specifications per channel)  voltage: $U_0 \leq 6.6 \text{ V}$ current: $I_0 \leq 2.1 \text{ mA}$ internal capacitance: $C_i$ negligible internal inductance: $L_i$ negligible characteristic linear
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For matched values of the maximum permissible external reactances, reference is made to the following table:

$L_o$ (mH)	IIC	IIB
	$C_o$ ( $\mu\text{F}$ )	$C_o$ ( $\mu\text{F}$ )
2	2	11
1	2.3	12
0.5	2.7	15
0.2	3.3	19

The four field circuits are electrically isolated from each other up to a peak value of the nominal voltage of 60 V.

(16) Test report PTB Ex 03-23074

(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:

Braunschweig, October 13, 2003

(signature)

Dr.-Ing. U. Johannsmeyer  
Regierungsdirektor

Wir/ We **HANS TURCK GMBH & CO KG**  
**WITZLEBENSTR. 7, D – 45472 MÜLHEIM A.D. RUHR**

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

**Remote – I/O – System excom® Modul / module**  
**Type: AI41EX**

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	2014 / 34 / EU	26. Feb. 2014

Weitere Normen, Bemerkungen  
additional standards, remarks

Das Produkt stimmt mit den Anforderungen der Richtlinie 2014/34/EU überein. Eine oder mehrere in  
der zugehörigen EG-Baumusterprüfbescheinigung genannten Normen wurden bereits durch neue  
Ausgaben ersetzt. Der Hersteller erklärt für das Produkt auch die Übereinstimmung mit den neuen  
Normenausgaben, da die veränderten Anforderungen der neuen Normenausgaben für dieses Produkt  
nicht relevant sind.

The product complies with the directive 2014/34/EU. One or more standards mentioned in the respective EC type examination  
certificate were already replaced by new ones. The manufacturer declares that the product complies with the new standards, as  
the changed requirements mentioned there are not relevant for the product.

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 03 ATEX 2023 / EC-type examination certificate (module B):

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

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, D-38116 Braunschweig

Mülheim, den 20.04.2016

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