Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(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 2236

(4) Equipment: Junction box Typ JBBS-...-...-..

(5) Manufacturer: Hans Turck GmbH & Co KG

(6) Address: Witzlebenstr. 7, 45472 Mülheim, 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 03-23314.

(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 G EEx ib IIC/IIB T4 or

II 2 (1) G EEx ia IIC/IIB T4

Zertifizierungsstelle Explosionsschutz
By order:

(signature)

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, December 3, 2003

4 pages, correct and complete as regards content.
By order:

Dr.-Ing. Johannsmeyer
Direktor und Professor

Braunschweig, July 1, 2005

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2236

(15) Description of equipment

The junction box type JBBS-...-...-.. is used for the distribution of energy and data for fieldbus systems (Profibus PA or Foundation Fieldbus) in hazardous areas. All circuits which can be connected externally (data and supply) are exclusively designed to be intrinsically safe (ia or ib).

Depending on the variant the connection is carried out by means of plug connectors or internal clamps. On a p.c.b. inside the housing of variant JBBS...SC... , an electronic short-circuit monitoring is provided for each output for functional reasons to maintain the overall function of the fieldbus in case of failure.
Outgoing circuits are not provided with safety-relevant limitations.
The fieldbus and the output circuits of field devices are electrically interconnected.
An internal (bus-) terminator can be connected to the circuitry by a slide switch.

The permissible range of the ambient temperature is: -25 °C up to +70 °C.

The type of protection of the signal isolator is:

⟨Ex⟩ II 2 G EEx ib IIC/IIB T4 or ⟨Ex⟩ II 2 (1) G EEx ia IIC/IIB T4

Electrical data

Supply: (Segment In / Segment Out):

internal clamp: X01, 1 through 4 and X02, 1 through 4:

type of protection Intrinsic Safety EEx ia/ib IIC/IIB
with the following maximum values depending on the fieldbus system used:

Entity - parameters:

U_i = 24 V DC
I_i = 250 mA
P_i = 2.56 W

C_i < 5 nF
L_i negligible

U_O = 24 V DC
I_O = 250 mA
P_O = 2.56 W

The permissible values for C_O and L_O comply with the permissible values of the intrinsically safe power supply, considering C_i and L_i of the junction box.

FISCO – parameters acc. to IEC TS 60079-27:

U_i	= 17.5	V DC
I_i	= 380	mA
P_i	= 5.32	W
C_i	< 5 nF	
L_i	negligible	
U_O	= 17.5	V DC
I_O	= 380	mA
P_O	= 5.32	W

The supply lines - including the shield – are connected to PA through a capacitor, whereas the shield can also be connected directly to PA (by means of a switch).

Field device circuits: (spur 1 ... n):

internal clamp: X1 through X6, each 1 through 4

type of protection Intrinsic Safety EEx ia/ib IIC/IIB with the following maximum values depending on the fieldbus system used:

Entity - parameters:

U_O	= 24	V DC
I_O	= 250	mA
P_O	= 2.56	W

FISCO – parameters acc. to IEC TS 60079-27:

U_O	= 17.5	V DC
I_O	= 380	mA
P_O	= 5.32	W

To be applied for **each single output**:

C_i	< 0.82 nF
L_i	negligible

To be applied for **all field device outputs** in total:

C_i	< 5 nF
L_i	negligible

The permissible values for C_O and L_O comply with the permissible values of the intrinsically safe power supply, considering C_i and L_i of the junction box.

(16) Test report PTB Ex 03-23314

(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, December 3, 2003

(signature)

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2236

(Translation)

Equipment: Junction Box, type JBBS-..-...-..

Marking:  **II 2 G EEx ib IIC/IIB T4 or II 2(1) G EEx ia IIC/IIB T4**
or II 2 G (2D) [Ex ibD] EEx ib IIB T4
or II 2 (1) G (1D) [Ex iaD] EEx ia IIB T4

Manufacturer: HANS TURCK GMBH & CO KG

Address: Witzlebenstraße 7, 45472 Mülheim, Germany

Description of supplements and modifications

In the future the junction box, type JBBS-..-...-.. may also be manufactured according to the test documents listed in the test report.

The modifications concern the internal and external construction.

The type code is extended for the types JBBS - ..E-..../ Ex and JBBS - ..SE..../ Ex .

In the future the circuits of the junction box may also be installed into hazardous areas due to combustible dust of zone 20 and 21. The marking of the equipment is supplemented.

The electrical data, the constructional features and all other specifications apply without changes also to this 1st supplement.

Applied standards

IEC 61241-11:2005

Test report: PTB Ex 07-26194

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, February 5, 2007

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2. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2236

(Translation)

Equipment: Junction Box, type JBBS-...

Marking: Ex **see description of supplements and modifications**

Manufacturer: Hans Turck GmbH & Co. KG

Address: Witzlebenstraße 7, 45472 Mülheim an der Ruhr, Germany

Description of supplements and modifications

Subject matter of this 2nd supplement is the adaption to the current state of the claimed standards EN 60079-0:2009 and EN 60079-11:2012 for organizational reasons.

The circuit board has been modified.

The permissible ambient temperature range is extended for the variants listed below:

JBBS-...-T... with cable gland:	-40 °C ... 70 °C
JBBS-...-E... with connector M12	-30 °C ... 70 °C
JBBS-...-M... with connector 7/8"	-30 °C ... 70 °C

In the future the junction box, type JBBS... may also be manufactured according to the test documents listed in the test report.

Marking:

Ex **II 2 G Ex ib IIC T4 Gb** **or**

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

II 2 (1D) G Ex ia [ia IIIC Da] IIB T4 Gb **or**

II 2 (2D) G Ex ib [ib IIIC Db] IIB T4 Gb

alternatively

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2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2236

⟨Ex⟩	**II 2 G Ex ib IIC T4**	**or**
	II 2 (1) G Ex ia IIC T4	**or**
	II 2 (1D) G Ex ia [ia IIIC] IIB T4	**or**
	II 2 (2D) G Ex ib [ib IIIC] IIB T4	

Electrical data

Supply: (segment in / segment out, terminals X01, 1 through 4 and X02, 1 through 4) ..... type of protection Intrinsic Safety Ex ia/ib IIC/IIB or Ex ia/ib IIIC

only for connection to a certified intrinsically safe circuit

Maximum values:

Entity - parameter

U_i = 24 V DC
I_i = 250 mA
P_i = 2.56 W

C_i < 5 nF
L_i negligibly low

U_o = 24 V DC
I_o = 250 mA
P_o = 2.56 W

The permissible values of C_o and L_o correspond to the permissible values of the intrinsically safe power supply, considering C_i and L_i of the junction box.

or

FISCO – parameters according to EN 60079-11

U_i = 17.5 V DC
I_i = 380 mA
P_i = 5.32 W

C_i < 5 nF
L_i negligibly low

U_o = 17.5 V DC
I_o = 380 mA
P_o = 5.32 W

The supply cables including the shield are connected to the equipotential bonding system via capacitive connection where the shield can also be connected directly to the equipotential bonding system (by means of a switch).

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2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2236

Field device circuits ..... (spur 1 ...n, terminals X1 through X6, each 1 through 4)	type of protection Intrinsic Safety	Ex ia/ib IIC/IIB or Ex ia/ib IIIC
	Maximum values:	
	Entity - parameters	
	U_o = 24 V DC	
	I_o = 250 mA	
	P_o = 2.56 W	
	or	
	FISCO – parameters according to EN 60079-11	
	U_o = 17.5 V DC	
	I_o = 380 mA	
	P_o = 5.32 W	
applies to each output:	C_i < 0.82 nF	
	L_i negligibly low	
∑ of all field device outputs:	C_i < 5 nF	
	L_i negligibly low	

The permissible values of C_o and L_o correspond to the permissible values of the intrinsically safe power supply, considering C_i and L_i of the junction box.

All specifications of the EC-type examination certificate including its 1st supplement as well as the notes for manufacture and operation apply without changes.

Applied standards

EN 60079-0:2009 **EN 60079-11:2012**

Test report: PTB Ex 13-22370

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, June 27, 2013

Dr.-Ing. U. Johannsmeyer
Direktor und Professor