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 05 ATEX 2051 X

(4) Equipment: Fiberoptic coupler, type OC11 Ex/2G...

(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 report PTB Ex 05-25059.

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

EN 50014:1997 + A1 A2	**EN 50020:2002**	**EN 60079-18:2004**
EN 50019:2000	**IEC 60079-28 Ed.1.0 CDV**	**EN 1127-1:1997**

(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:

Ex II 2 G EEx e mb ib [ib or is] IIC T4

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, July 4, 2005

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2051 X

(15) Description of equipment

The fiberoptic couplers of type series OC11Ex form the connection unit for the data interchange between wired and optical Profibus by optical waveguides. Two fiberoptic couplers of type series OC11Ex, interconnected by two optical fibres, form a data transmission system between the hazardous area of zone 1 (type OC11Ex/2G) and the hazardous area of zone 2 or the safe area (type OC11Ex/3G). The fiberoptic couplers of type series OC11Ex are supplied with auxiliary power and couple each one wired and two optical terminals (input and output) for the profibus via electrical isolating points.

The intrinsically safe circuits (EEx ib) are safely electrically isolated from the non-intrinsically safe circuits up to a peak voltage of 60 V.

The permissible range of the ambient temperature is -20 °C ... +70 °C.

The type of protection is ⟨Ex⟩ **II 2G EEx e mb ib [ib or is] IIC T4**

Electrical data

Applicable to all circuits:	U_m = 60 VDC
I. Supply circuit (L+; L-) :	type of protection Increased Safety EEx e with the following maximum values: U_{max} = 35 VDC I_{max} = 100 mA P_{max} = 2 W (total power consumption)
II. Ex-Profibus RS485-IS : (D-Sub plug connector) (Pin 1 – 9)	type of protection Intrinsic Safety EEx ib IIC with the following maximum values: U_0 ≤ 3.64 V I_0 ≤ 127 mA P_0 ≤ 116 mW characteristic linear internal capacitance: C_i negligibly low internal inductance: L_i negligibly low U_I ≤ 4.2 V

III. Internal fiberoptic communication with Ex i – data transmission line (M8 –circular connector)

(Note: This connector is only used for the communication of two fiberoptic couplers of type OC11 Ex/2G... inside the hazardous area)

type of protection Intrinsic Safety EEx ib IIC

with the following maximum values:

$U_0 \leq 3.64$ V

$I_0 \leq 3.6$ mA

$P_0 \leq 3$ mW

characteristic linear

Only for connection to certified intrinsically safe equipment with the following maximum value (cf. note above):

$U_i \leq 3.7$ V

(16) Test report PTB Ex 05-25059

(17) Special conditions for safe use

For application in hazardous areas, the fiberoptic coupler, type OC11 Ex/2G shall be mounted into a housing which meets the requirements of EN 50014, EN 50019 and EN 50020.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, July 4, 2005

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2051 X

(Translation)

Equipment: Fiberoptic coupler, type OC11 Ex / 2G...

Marking: ⟨Ex⟩ **II 2 G EEx e mb ib [ib or is] IIC T4**

Manufacturer: Hans Turck GmbH & Co. KG

Address: Witzlebenstr. 7, 45472 Mülheim an der Ruhr, Germany

Description of supplements and modifications

The marking of the fiberoptic coupler, type OC11 Ex / 2G... is adapted according to the requirements of IEC 60079-28 Ed. 1 / FDIS. Further modifications were not performed.

The electrical data, the special conditions and all other specifications of the EC-type examination certificate apply without changes also for this 1st supplement.

In the future the type of protection is: ⟨Ex⟩ **II 2 G Ex e mb ib [ib op is] IIC T4**

Applied standards

IEC 60079-28 Ed.1.0 / FDIS

Test report: PTB Ex 06-26082

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, July 11, 2006

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

2. SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2051 X

(Translation)

Equipment: Fiber-optic coupler type OC11Ex/2G...

Marking: **II 2 G EEx e mb ib [ib or is] IIC T4**

Manufacturer: Hans Turck GmbH & Co. KG

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

Description of supplements and modifications

The fiber-optic coupler type OC11Ex/2G... is intended for data exchange by Profibus participants between fiber-optic couplers using optical waveguides. The wire bound Profibus is splitted in the fiber-optic coupler into two optical waveguides (input, output), and is re-converted into a wire bound Profibus by means of a second remote fiber-optic coupler.

The permissible ambient temperature range is: -20 °C to +70 °C

The standard basis has changed and will be in future as follows:

EN 60079-0:2012+A11:2013	EN 60079-7:2015
EN 60079-11:2012	EN 60079-18:2015
EN 60079-28:2015	

Due to the above standards, the marking will read in future as follows:

II 2 G Ex e mb [ib op is] IIC T4 Gb or

II 2 G Ex eb mb [ib op is Gb] IIC T4

Electrical data

Supply circuit
(Terminal L+, L-)

Type of protection Increased Safety Ex eb IIC

U_{max} = 32 VDC
I_{max} = 100 mA
P_{max} = 2 W

maximum safety related voltage U_m = 60 V

ZSEx10101e b

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2051 X

Ex-Profibus RS485-IS (D-Sub plug, 9-pin)	Type of protection Intrinsic Safety Ex ib IIC; maximum values: U_o = 3.64 V I_o = 127 mA P_o = 116 mW C_i negligibly small L_i negligibly small linear characteristic in connection with an active intrinsically safe Profibus the following max. value applies: U_i = 4.2 V
Communication interface RS485 (M8-round plug, 4-pin)	Type of protection Intrinsic Safety Ex ib IIC; maximum values: U_o = 3.64 V I_o = 3.6 mA P_o = 3 mW C_i negligibly small L_i negligibly small linear characteristic or Interconnection with a second intrinsically safe fiber-optic coupler type OC11Ex/2G...
Optical interface	Protection of equipment and transmission systems using optical radiation op is IIC Gb; maximum value: $P_{opt.}$ = 2.3 mW only for connection to the optical interface of the fiber-optic coupler type OC11Ex/2G... or type OC11Ex/3G...

The intrinsically safe circuits are electrically isolated from the non-intrinsically safe circuits and from earth up to a peak voltage of 60 V.

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2051 X

Test report: PTB Ex 16-23277

Special conditions for safe use

For installation and operation in hazardous areas the fiber-optic coupler type OC11Ex/2G... has to be installed in a separately certified enclosure that meets the requirements of the type of protection "Increased Safety" and provides at least a degree of protection of IP54.

The optical waveguide has to be electrically insulated and used without screening and shall not be armoured.

Essential health and safety requirements

The standards EN 60079-7:2015 and EN 60079-28:2015 are not listed at the time of issue of this certificate as harmonized European standards in the EU Official Journal. Compliance with the essential health and safety requirements of Directive 94/9/EC has been ensured, as these standards from the harmonized predecessor standards include a minimum uniform level of safety and reflect the current state of the art.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, March 21, 2016

Dr.-Ing. T. Horn
Regierungsrat

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 56

EU-Konformitätserklärung Nr. 5016-1M

EU Declaration of Conformity No.:

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

Lichtwellenleiterkoppler Koppler Typ OC11Ex/2G... / Fiber-optic coupler type OC11Ex/2G...

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	2014 / 30 / EU	26. Feb. 2014
EN 61326-1:2013		
Richtlinie / Directive ATEX	2014 / 34 / EU	26. Feb. 2014
EN 60079-0:2012+A11:2013	EN 60079-7:2015	EN 60079-11:2012
EN 60079-18:2015	EN 60079-28:2015	

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 05 ATEX 2051 X / EC-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 08.07.2016

Ulrika Vix

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