# 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 2052 X**

(4) Equipment: Fiberoptic coupler, type OC11 Ex / 3G...

(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 05-25061.

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

**EN 50014:1997 + A1 + A2**

**EN 50020:2002**

**EN 1127-1:1997, clause 5.3.10**

**IEC TC 31/571CDV (IEC 60079-28 Ed. 1.0 CDV)**

(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 [Ex ib or is] IIC**

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Gerlach
Regierungsrat

Braunschweig, August 2, 2005

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2052 X

(15) Description of equipment

The fiberoptic coupler, type OC11 Ex / 3G... is an associated apparatus. It is used for the data transmission between electrical and optical fieldbus circuits.

The maximum permissible ambient temperature is +70 °C.

Electrical data

| | |
|---|---|
| Supply circuit<br>(Plug connector J1: L+, L- and PE) | $U_n \leq$ 35 V DC<br>Maximum voltage $U_m$ = 60 V |
| RS485 circuit, remote<br>(Plug connector J2) | $U_n$ = 5 V<br>Maximum voltage $U_m$ = 60 V |
| RS485 circuit, local<br>(Plug connector J3) | $U_n$ = 5 V<br>Maximum voltage $U_m$ = 60 V |
| Optical interface | type of protection Ex ib or is IIC<br>$P_{opt\ max}$ = 2.3 mW<br>cf. notes for manufacture and operation |
| Housing/screen earthing | for alternative connection to the protective earth conductor of the electrical system |

(16) Test report PTB Ex 05-25061

(17) Special conditions for safe use

1. Resonance phenomena with radiated substances (explosive mixture) of hazardous extent (direct absorption of the radiation in the mixture with the effect of temperature rise or bond breakage (radicals)) shall not occur.
2. It shall be guaranteed that the irradiated surface does not fall below the value of $3x10^{-5}$ mm² due to focussing.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Gerlach
Regierungsrat

Braunschweig, August 2, 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 2052 X

## (Translation)

Equipment: Fiberoptic coupler, type OC11 Ex / 3G...

Marking: ⟨Ex⟩ **II (2) G [Ex ib or is] IIC**

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 / 3G... is adapted according to the requirements of IEC 60079-28 Ed. 1 / FDIS, protection of equipment and transmission systems operating with optical radiation.

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 ib op is] IIC**

Applied standards

IEC 60079-28 Ed.1.0 / FDIS

Test report: PTB Ex 06-26083

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, July 11, 2006

# Physikalisch-Technische Bundesanstalt

**Braunschweig und Berlin**

## 2. SUPPLEMENT

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

## to EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2052 X

## (Translation)

Equipment: Fiberoptic coupler, type OC11 Ex / 3G

Marking: Ⓔx **II (2) G [Ex ib op is] IIC**

Manufacturer: Hans Turck GmbH & Co. KG

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

Description of supplements and modifications

In the future the fiberoptic coupler, type OC11 Ex / 3G may also be manufactured according to the test documents listed in the test report.

The modifications concern the crowbar circuitry and non-safety relevant parts of the electronic system.

The electrical data, the special conditions and all other specifications of the EC-type examination certificate apply without changes also to this 2nd supplement.

Test report: PTB Ex 07-26310

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, March 5, 2007

**Physikalisch-Technische Bundesanstalt**
**Braunschweig und Berlin**
Nationales Metrologieinstitut

# 3. SUPPLEMENT

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

## to EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2052 X

## (Translation)

Equipment: Fiber-optic coupler type OC11Ex/3G...

Marking: **II (2) G [Ex ib op is] IIC**

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/3G... is intended for data exchange by Profibus participants between fiber-optic couplers using optical waveguides. The wire bound Profibus is splited in the fiber-optic coupler into two optical waveguides (input, output), and is re-converted in a wire bound Profibus by means of a second remote fiber-optic coupler. The optical radiation is limited by an internal intrinsically safe circuit with the category ib.

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 60079-11:2012 |
| EN 60079-15:2010 | EN 60079-28:2015 |

Due to the above standards, the marking will be in future to carry out as follows:

**II 3 (2) G Ex nA [op is Gb] IIC T4 Gc or**

**II 3 (2) G Ex nAc [op is Gb] IIC T4**

Electrical data

Supply circuit
(Terminal L+, L-)

Type of protection non-sparking low power apparatus Ex nA IIC

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

maximum safety related voltage $U_m$ = 60 V

ZSEx10101e b

# 3. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2052 X

| | |
|---|---|
| Profibus RS485<br>(D-Sub plug, 9-pin) | Type of protection non-sparking low power apparatus Ex nA IIC<br>$U_{max.}$ = 5 V<br><br>maximum safety related voltage $U_m$ = 60V |
| Communication interface RS485<br>(M8-round plug, 4-pin) | Type of protection non-sparking low power apparatus Ex nA IIC<br>$U_{max.}$ = 5 V<br><br>maximum safety related voltage $U_m$ = 60V<br><br>or<br><br>Interconnection with a second fiber-optic coupler type OC11Ex/3G... |
| Optical interface | Protection of equipment and transmission systems using optical radiation op is IIC Gb; maximum value:<br>$P_{opt.}$ = 2.3 mW<br><br>Only for connection to the optical interface of the fiber-optic coupler type OC11Ex/2G... or type OC11Ex/3G... |

Test report: PTB Ex 16-23279

Essential health and safety requirements

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

# 3. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 05 ATEX 2052 X

Special conditions for safe use

For installation and operation in hazardous areas the fiber-optic coupler type OC11Ex/3G... has to be installed in a separate enclosure with the degree of protection by enclosure IP54 in accordance with IEC 60529.

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

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, March 21, 2016

Dr.-Ing. T. Horn
Regierungsrat

# EU-Konformitätserklärung Nr. 5017-1M

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/3G... / Fiber-optic coupler type OC11Ex/3G...

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 60079-11:2012 | |
| EN 60079-15:2010 | EN 60079-28:2015 | |

Weitere Normen, Bemerkungen:
additional standards, remarks:

-

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 2052 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

Ulrike 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