



Translation

EC-Type Examination Certificate

(1)

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(2)

**- Directive 94/9/EC -
Equipment and protective systems intended for use
in potentially explosive atmospheres**

(3)

DMT 03 ATEX E 089 X

(4)

Equipment: Fibre optic receiver Type OPTV-02-Ex

(5)

Manufacturer: KEM Küppers Elektromechanik GmbH

(6)

Address: D 85757 Karlsfeld

(7)

The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8)

The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council 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 test and assessment report BVS PP 03.2052 EG.

(9)

The Essential Health and Safety Requirements are assured by compliance with:

EN 50014:1997+A1-A2 General requirements
EN 50020:2002 Intrinsic safety 'i'

(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 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 2G EEx ia IIC T5 / T6

Deutsche Montan Technologie GmbH

Essen, dated 20. March 2003

Signed: Jockers

DMT-Certification body

Signed: Eickhoff

Head of special services unit

(13) Appendix to

(14) **EC-Type Examination Certificate**

DMT 03 ATEX E 089 X

(15) 15.1 Subject and type

Fibre optic receiver type OPTV-02-Ex

15.2 Description

The fibre optic receiver type OPTV-02-Ex provides a printed-circuit-board (PCB) packaged in a plastic enclosure suitable for installation on DIN Rails.

Terminals for the intrinsically safe circuits and a fibre optic connector are arranged on the front side of the enclosure.

The fibre optic receiver is designated for installation within the enclosure of category 2G apparatus.

15.3 Parameters

15.3.1 Supply and signal circuit

2-wire Namur operating mode: terminals no. 7 and no. 8 interconnected

terminal no. 4 = +Ub and signal; no. 2 = 0 V or GND respectively;

terminals no. 5 and no. 6: open;

Mode: broken wire detection off

terminals no. 5 and no. 6: interconnected

Mode: broken wire detection on

Voltage	U_i	DC	30	V
Current	I_i		185	mA
Effective internal capacitance	C_i	≤	30	nF
Effective internal inductance	L_i	≤	265	μH

15.3.2 Supply and signal circuit

3-wire operating mode, active mode (voltage output): terminals no. 7 and no. 8 interconnected

terminals no. 4 = +Ub; no. 2 = 0 V or GND respectively; no. 1 = signal

terminals no. 5 and no. 6: not used

Voltage	U_i	DC	30	V
Current	I_i		185	mA
Effective internal capacitance	C_i	≤	30	nF
Effective internal inductance t	L_i	≤	265	μH
Signal output	$U_o = U_i$		30	V
Signal current	I_o		11,5	mA
Effective internal capacitance	C_i	≤	30	nF
Effective internal inductance	L_i	≤	265	μH

15.3.3 Supply and signal circuit

3-wire operating mode, passive mode (current output): terminals no. 7 and no. 8 not used
 terminal no. 4 = +Ub; no. 2 = 0 V or GND respectively; no. 1 = signal
 terminals no. 5 and no. 6: not used

Voltage	U_i	DC	30	V
Current	I_i		185	mA
Effective internal capacitance	C_i	\leq	30	nF
Effective internal inductance	L_i	\leq	265	μ H
Signal output (open collector)				
Internal resistance	R_i	\geq	1,3	k Ω
Effective internal capacitance	C_i	\leq	30	nF
Effective internal inductance	L_i	\leq	265	μ H

15.3.4 Ambient temperature range:

$-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ temperature class T5
 $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$ temperature class T6

(16) Test and assessment report

BVS PP 03.2052 EG as of 20.03.2003

(17) Special conditions for safe use


- 17.1 The fibre optic receiver shall be installed within an enclosure providing degree of protection \geq IP20.
- 17.2 In case of installation of the fibre optic receiver within an enclosure made of plastics material or light alloy, the material of the enclosure shall comply with clause 7.3.2 or clause 8 of EN 50014:1997 respectively.
- 17.3 Internal wiring within this enclosure shall comply with clauses 6.4.11 and 7.6.e of EN 50020:2002.
- 17.4 Terminals or connectors for the intrinsically safe circuits shall be arranged according to clauses 6.3.1 or 6.3.2 of EN 50020:2002 respectively.
- 17.5 Interconnection of other apparatus to terminals no. 5 - 6 and no. 7 - 8 is not permitted.

We confirm the correctness of the translation from the German original.
 In the case of arbitration only the German wording shall be valid and binding.

45307 Essen, 20.03.2003
 BVS-Scha/Mi A 20030002

Deutsche Montan Technologie GmbH


 DMT-Certification body


 Head of special services unit