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 01 ATEX 2203 X

(4) Equipment: Optoelectronic sensors, type OCS2000-M1K-N2 and type OCT300-M1K-N2

(5) Manufacturer: VISOLUX, branch of Pepperl + Fuchs GmbH

(6) Address: Prinzenstrasse 85, D-10969 Berlin, 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 01-21164.

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

EN 50014:1997 + A1 + A2 **EN 50020:1994**

(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 ia IIC T6

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, April 03, 2002

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2203 X

(15) Description of equipment

The optoelectronic sensors, type OCT300- , operate as reflection light pushbuttons. They react to variations in light intensity within a range of up to 300 mm.

The optoelectronic sensor, type OCS2000-M1K-N2, is a reflection-type light barrier. The light emitted is reflected by a reflector and collected by the receiver of the optoelectronic sensor.

The sensor types mentioned above are designed for use in potentially explosive atmospheres.

The lowest permissible ambient temperature is –25 °C.

Electrical data

Evaluation and supply circuit (connection pins 1[+] & 2[-] or 1[+] & 4[-])

type of protection Intrinsic Safety EEx ia IIC/IIB
or EEx ib IIC/IIB
for connection to certified intrinsically safe circuits only.
Maximum values:

Type 1	Type 2
U_i = 15.5 V	U_i = 15.5 V
I_i = 20 mA	I_i = 52 mA
P_i = 64 mW	P_i = 169 mW

For the relationship between the type of the connected circuit, the maximum permissible ambient temperature and the temperature class as well as the effective internal reactance for the resprective types, reference is made to the table below.

Type designation	L_i	C_i	Type 1			Type 2		
			Max. permissible ambient temperature in °C when used in temperature class:					
	[µH]	[nF]	T6	T5	T4-T1	T6	T5	T4-T1
OCT300-M1K-N2	approx. 0	75	65	70	70	54	69	70
OCS2000-M1K-N2	approx. 0	75	65	70	70	54	69	70

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SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2203 X

(16) Test report PTB Ex 01-21164

(17) Special conditions for safe use

1. When using the optoelectronic sensors, types OCS2000-M1K-N2 and OCT300-M1K-N2, within the temperature range –25°C to –20 °C, the sensors shall be installed in an additional enclosure to protect them against impact effects.
2. The connectors of the optoelectronic sensors, types OCS2000-M1K-N2 and OCT300-M1K-N2, shall be installed in such a way that the degree of protection IP20 in accordance with IEC publication 60529:1989 will be achieved as a minimum.
3. For the relationship between the type of the connected circuit, the maximum permissible ambient temperature and the temperature class as well as the effective internal reactance, reference is made to the table under point (15) of this EC type-examination certificate.

(18) Essential health and safety requirements

Covered by the standards specified above.

Zertifizierungsstelle Explosionsschutz
By order:

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Braunschweig, April 03, 2002