

**Original operating manual: M18 Glass Fibre Optics**
 0158

**M18-\*\*\*\*-02-T-GR-OP1 / M18-\*\*\*\*-02-T-GR-OP2 / M18-\*\*\*\*-02-T-GR**

IECEx BVS 14.0108X



- Yellow brass protection sheath, for reflective measurement method
- M18-\*\*\*\*-02-T-GR-OP1: Authorized for Ex zones 0, 1, 2, 20, 21, 22
- M18-\*\*\*\*-02-T-GR-OP2: Authorized for Ex zones 1, 2, 21, 22
- M18-\*\*\*\*-02-T-GR: Only for use out of Hazardous Locations


 Ex op is IIC T4 Ga / Ex op is IIIB T135°C Da  
 or  
 Ex op is IIB T4 Gb / Ex op is IIIB T135°C Db

| Technical data                               | Type | M18-****-02-T-GR-OP1  | M18-****-02-T-GR-OP2  | M18-****-02-T-GR   |
|--|------|---|-----------------------|--------------------|
| Standard length and designation              |      | ****=Length in mm, 200, 300, 500, 1000, 1500, 2000 (Overall length) |                       |                    |
| Ex Protection, Gas                           |      | II 1G IIC T4 Ga   | II 2G IIB T4 Gb       | none               |
| Ex Protection, Dust                          |      | II 1D IIIB T135°C Da  | II 2D IIIB T135°C Db  | none               |
| Applicable in Ex Zones                       |      | 0, 1, 2, 20, 21, 22   | 1, 2, 21, 22          | --                 |
| Requirement at connected sensors             |      | Ex op is Ga/Da  | Ex op is Gb/Db        | none               |
| Maximum optical input power                  |      | <=15mW  | <=35mW                | not limited        |
| Maximum potential radiant intensity          |      | <=5mW/mm <sup>2</sup>   | <=5mW/mm <sup>2</sup> | not limited        |
| Active fibre optic diameter                  |      | 2 mm  |                       |                    |
| Active cross-sectional area                  |      | 3.14mm <sup>2</sup>   |                       |                    |
| Transmission rate, average                   |      | 50-70%, at 870nm  |                       |                    |
| Optical aperture                             |      | appr. 65°, at 870nm   |                       |                    |
| Individual fibre diameter                    |      | 50um  |                       |                    |
| Minimum bending radius                       |      | 30mm (Single bend)  |                       |                    |
| Operating temperature range T <sub>amb</sub> |      | -20°C up to +120°C  |                       | -20°C up to +120°C |
| Enclosure rating, according to EN 60529      |      | IP 68   |                       |                    |
| Material, adaption probe tip                 |      | Special steel, 1.4305   |                       |                    |
| Material, probe tip                          |      | Special steel, 1.4305   |                       |                    |
| Material, protection sheath                  |      | Brass, chromium plated  |                       |                    |
| Accessories, included                        |      | 1 x Shrink-down plastic tubing                                      | --                    |                    |
| Accessories, not included                    |      | - Additional optics type OT-VA (Material: brass, Ni plated)         |                       |                    |
| Options                                      |      | --  |                       |                    |

**ATEX/IECEx RELATED MARKINGS**

 CE 0158 T<sub>amb</sub>= -20°C up to +120°C

Manufacturer with address

Date of production: Numerals 5 to 8 of the serial number (Year/Week)

Date of production: Numerals 5 to 8 of the serial number (Year/Week)

Type: M18-\*\*\*\*-02-T-GR-OP1



II 1G IIC T4 Ga, II 1D IIIB T135°C Da

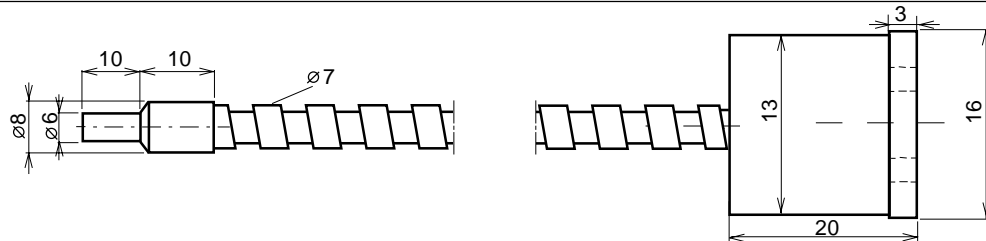
EC-Certification No. BVS 10 ATEX E 130 X. DEKRA

Type: M18-\*\*\*\*-02-T-GR-OP2

II 2G IIB T4 Gb, II 2D IIIB T135°C Db

IECEx-Certification No. IECEx 14.0108X

(X designation of the certification number: Fibre optics must only be applied with sensors with certificated limited optical power)

**Dimensions:**

**Operating Manual / EU - Declaration of Conformity:**
**Ex mounting prescriptions**
**Type M18-\*\*\*\*-02-T-GR-OP1(-S247): Applicable in Ex zones 0, 1, 2, 20, 21, 22.**
**Type M18-\*\*\*\*-02-T-GR-OP2: Only applicable in Ex zones 1, 2, 21, 22.**
**General regulations for all types:**

The maximum rated optical input power must not be exceeded. The local equipotential bonding have to be done by grounding the fixed sensor. It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). Other than original manufacturer, additional optical lenses are not allowed in hazardous locations. The fibre optics have to be installed in a manner to avoid tensile stress and frictional heat. If fibre optics and associated sensors are not mounted in the same hazardous location, the change over of the different areas must be realized in accordance with the valid regulations. With the additional shrink-down plastic tubings (only type M18-\*\*\*\*-02-T-GR-OP1) a required change over can be realized.

**Function**

The fibre optics series M18 are designed for the construction of proximity switch measurement method arrangements in hazardous locations and for high ambient temperatures. The fibre optics can be operated with certificated Matrix sensors, with an optical wave length from 500nm to 900nm. The fibre optics must not be buckled or laid with a small radius. Buckled or bad laid fibre optics results to a strong decrease of performance. Avoid performance decreasing and failures caused by wear, by a functional mounting of the fibre optics.

**Maintenance**

The fibre optics are maintenance-free. Protect the fibre optics against pollution. If they are contaminated, clean with alcohol. Do not use aggressive solvents. Equipment must only be repaired or serviced by the manufacturer.

**Safety Informations**

When installing and operating, it is necessary to take into consideration the relevant international and other national regulations. EN 60079-14, ATEX 118a, single directive 1999/92/EC.

**Standards met:**

EN 60079-0:2012 + A11:2013, EN 60079-28:2007, EN 13463-1:2009, EN 60529:2014

ATEX directive: 2014/34/EU, Machine directive: 2006/42/EC,

RoHS directive: 2011/65/EU

**General Notes, disposal**

We reserve the right to modify our equipment. Our equipment is designed such way, that it has the least possible adverse effect on the environment. No longer usable or irreparable units must be disposed of in accordance with local waste disposal regulations.

**EU-Declaration of Conformity**

IECEx certification No. BVS 14.0108X.

ATEX certification No. BVS 10 ATEX E 130 X.

<http://iecex.iec.ch/iecexweb.nsf/0/FE79714C0BAEF6F5C1257D7E0044F6A9?opendocument>

ATEX certification: Certification No. BVS 10 ATEX E 130 X, DEKRA EXAM GmbH, Zertifizierungsstelle, Carl-Beyling-Haus, Dinendahlstrasse 9, D-44809 Bochum, Ident No. 0158.

ATEX certification of quality type production of Ex devices in accordance to the ATEX directive 2014/34/EU, CE 0158. Certification No: BVS 15 ATEX ZQS / E118, QAR No. DE/BVS/QAR13.0004/01. The conformity of the devices with the EC standards and directives and the EC-type examination certificate and the observation of the Quality Safety System ISO 9001:2008 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG

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