ISO 9001:2008 / ATEX

CE 0158

IECEx BVS 14.0108X

# Original Operating Manual:
# Glass Fibre Optics VAM-****-05-L-GR(-OP1/-OP2)

- Stainless steel protection sheath, for light barrier measurement method
- VAM-****-05-L-GR-OP1: For using in Ex Zones 0, 1, 2, 20, 21, 22
- VAM-****-05-L-GR-OP2: For using in Ex Zones 1, 2, 21, 22
- VAM-****-05-L-GR: Only for use in Non-Hazardous Locations

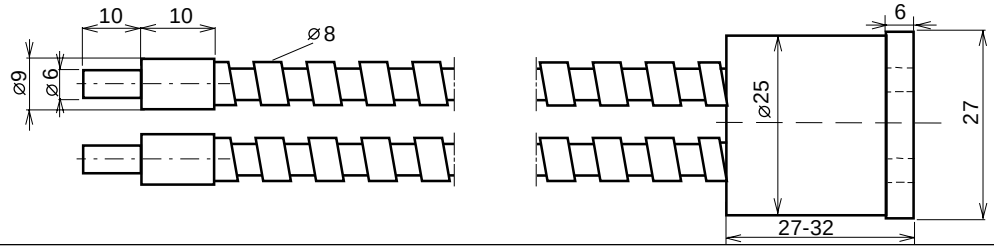
**Ex op is IIC T4 Ga / Ex op is IIIB T135°C Da**

| Technical data / Type | VAM-****-05-L-GR-OP1 | VAM-****-05-L-GR-OP2 | VAM-****-05-L-GR |
|---|---|---|---|
| Standard length (overall length) | ****=Length in mm, 500, 1000, 2000 | | |
| Type of Ex Protection, Gas | Ex op is IIC T4 Ga | Ex op is IIB T4 Gb | none |
| Type of Ex Protection, Dust | Ex op is IIIB T135°C Da | Ex op is IIIB T135°C Db | none |
| For using in Ex Zones | 0, 1, 2, 20, 21, 22 | 1, 2, 21, 22 | -- |
| Maximum optical input power | <=15mW | <=35mW | Not limited |
| Maximum potential radiant intensity | <= 5mW/mm² | <= 5mW/mm² | Not limited |
| Active fibre optic diameter | 4.7mm | | |
| Active cross-sectional area | 17.34mm² | | |
| Transmission rate, average | 50-70%, at 870nm | | |
| Optical aperture | appr. 65°, at 870nm | | |
| Individual fibre diameter | 50um | | |
| Minimum bending radius | 50mm (Single bend) | | |
| Operating temperature range $T_{amb}$ | 0°C < $T_{amb}$ < +120°C | 0°C <$T_{amb}$< +120°C | -20°C <$T_{amb}$< +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 | Special steel, 1.4301 | | |
| Accessories, included | 2 x Shrink-down plastic tubing | -- | |
| Options | -- | | |

EX Designation of the fibre optics

CE 0158 Manufacturer with address
Type marking: VAM-****-05-L-GR-OP1 Ex op is IIC T4 Ga, Ex op is IIIB T135°C Da
Type marking: VAM-****-05-L-GR-OP2 Ex op is IIB T4 Gb, Ex op is IIIB T135°C Db
EC-Certification No: BVS 10 ATEX E130X. IECEx Certification No: IECEx BVS 14.0108X
Ta: 0°C < $T_{amb}$ < +120°C, Production date: Numerals 5 to 8 of the serial number(Y/W)
(X designation of the certification number: Fibre optics must only be applicated with sensors with certificated limited optical power)

Dimensions:




## Operating Manual / EU - Declaration of Conformity:

**Ex mounting prescriptions**
**Type VAM-****-05-L-GR-OP1:**
**For using in Ex zones 0, 1, 2, 20, 21, 22.**
**Type VAM-****-05-L-GR-OP2:**
**Only for using in Ex zones 1, 2, 21, 22.**
**General regulations for all types:**
The fibre optics must only be operated with the ATEX certificated sensor with limited optical output power. The local equipotential bonding have to be done by grounding the fixed ATEX sensor. It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The maximum rated optical input power must not be exceeded. Other then 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 VAM-****-05-L-GR-OP1 a required change over can be realized.

**Function**
The fibre optics series VAM-****-05-L-GR-OP1/OP2 are designed for the construction of light barrier 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.

**General Notes**
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. 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, single directive 1999/92/EC.
Standards met:
- EN 13463-1:2009, EN 60079-0:2012 + A11:2013, EN 60079-28:2007, EN 60079-31:2010, EN 60529:2014
- ATEX directive: 2014/34/EU, Machine directive: 2006/42/EC RoHS directive: 2011/65/EU

**EU-Declaration of Conformity**
IECEx certification No. BVS 14.0108X.
http://iecex.iec.ch/iecex/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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