

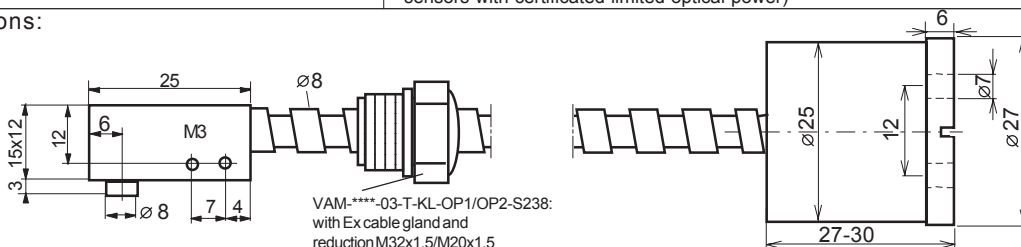
## Original Operating Manual: Glass Fibre Optics VAM-\*\*\*\*-03-T-KL(-OP1/-OP2)

- Stainless steel protection sheath, for reflective measurement method
- VAM-\*\*\*\*-03-T-KL-OP1: For using in Ex Zones 0, 1, 2, 20, 21, 22
- VAM-\*\*\*\*-03-T-KL-OP2: For using in Ex Zones 1, 2, 21, 22
- VAM-\*\*\*\*-03-T-KL: Only for use in Non-Hazardous Locations

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

Technical data	Type	VAM-****-03-T-KL-OP1	VAM-****-03-T-KL-OP2	VAM-****-03-T-KL
Standard length (overall length)		****=Length in mm, 500, 1000, 2000		
Type of Ex Protection, Gas		Ex op is IIC T4 Ga	Ex op is IIIB 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/mm <sup>2</sup>	<=5mW/mm <sup>2</sup>	Not limited
Active fibre optic diameter		2.5mm		
Active cross-sectional area		4.9mm <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>		0°C < T <sub>amb</sub> < +120°C	0°C < T <sub>amb</sub> < +120°C	-20°C < T <sub>amb</sub> < +120°C
Enclosure rating, according to EN 60529		IP68		
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		- VAM-****-03-T-KL-OP1/OP2-S238: With Ex cable gland, brass, M20x1.5, type: AGRO EX1000.20.080 and Ex reduction fitting, M32x1.5/M20x1.5, type: AGRO EX3500.32.20 - Type VAM-****-03-T-KL-OP1-S247: Without shrink-down plastic tubing		
EX Designation of the fibre optics		CE 1258 Manufacturer with address Type marking: VAM-****-03-T-KL-OP1  Ex op is IIC T4 Ga, Ex op is IIIB T135°C Da Type marking: VAM-****-03-T-KL-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 <sub>amb</sub> < +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 applied with sensors with certificated limited optical power)		

Dimensions:



### Operating Manual / EU - Declaration of Conformity:

**Ex mounting prescriptions**
**Type VAM-\*\*\*\*-03-T-KL-OP1:**
**For using in Ex zones 0, 1, 2, 20, 21, 22.**
**Type VAM-\*\*\*\*-03-T-KL-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 certified 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 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 VAM-\*\*\*\*-03-T-KL-OP1, not included for the type VAM-\*\*\*\*-03-T-KL-OP1-S247 ) a required change over can be realized.

**Function**

The fibre optics series VAM-\*\*\*\*-03-T-KL-OP1/OP2 are designed for the construction of reflective 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 60079-0:2018, EN 60079-28:2015, 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.

ATEX certification: Certification No. BVS 10ATEX E 130X, 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 1258, Eurofins. Certification No: SEV 21 ATEX 4580, QARN No. CH/SEV/QAR21.0009/00. 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 9001:2015 with the ATEX module "Production", declares:

Pablo Ledergerber, Matrix Elektronik AG