



Fiberoptic Acceleration Sensor

FAS-1xx M2

The FAS-1xx M2 is a Fiberoptic Acceleration Sensor engineered for harsh industrial environments, delivering precise vibration and displacement measurements with complete immunity to electromagnetic interference.

KEY FEATURES

- Immunity to magnetic and electrical fields
- Excellent sensor head to feedthrough electrical insulation
- Dual output: acceleration and displacement
- Acceleration output sensitivity: 100mV/g
- Displacement output sensitivity: 10 mV/ μ m
- Available standard cable length: 10m
- Dual axis available with special assembly of two sensors



MONITORING SOLUTIONS



Endwinding

TYPICAL APPLICATIONS



Hydrogenerators



Gearless millsdrives



Turbogenerators



DESCRIPTION

The FAS-1xx M2 Fiberoptic Acceleration Sensor is designed to be non conductive and immune to electromagnetic interferences. Its optical link ensures an excellent electrical insulation between the sensor and the instrumentation.

Its passive technology makes it ideal for shock and vibration measurements in areas where conventional piezo-electric and piezoresistive accelerometers may create hazards to machine and personnel and impair reliable operation.

The optical sensor body does not contain any metallic parts. The optical fibers are embedded and protected by an integral 5mm thick PTFE tube. The standard available optical cable lengths is 10m. The sealed feedthrough connector houses the optoelectronic and conditioning circuitry.

The sensor provides dual output, acceleration and displacement, simultaneously.

GLOBAL SPECIFICATIONS

OPERATION

Outputs	Acceleration	Displacement
Sensitivity at 100Hz	100 mV/g $\pm 5\%$	10 mV/ μm $\pm 5\%$
Bias voltage	+6 V _{DC}	+7.5 V _{DC}
Frequency response (-3dB)	10 to 400 Hz	20 to 400 Hz
Output resistance	100 Ω $\pm 1\%$	
Measuring range	0 to 40g (1 mm peak-peak at 100 Hz)	
Resonance frequency	> 600 Hz	
Transverse sensitivity	< 5% with respect to sensitive axis	
Residual noise	< 3 mVrms overall noise between 20 and 400 Hz	
Resolution	< 1 μm peak-peak at 100 Hz	
Power supply		
• Voltage	+24 V _{DC} $\pm 20\%$	
• Current consumption	< 30 mA	

ENVIRONMENTAL

Temperature range – part	Sensor	Electronic
Operation	+20° to +155°C	0° to +70°C
Non-destructive	-40° (*) to +155°C	-20° to +85°C

* +20 °C to -40 °C: Keep cool rates below 0.4 °C / min

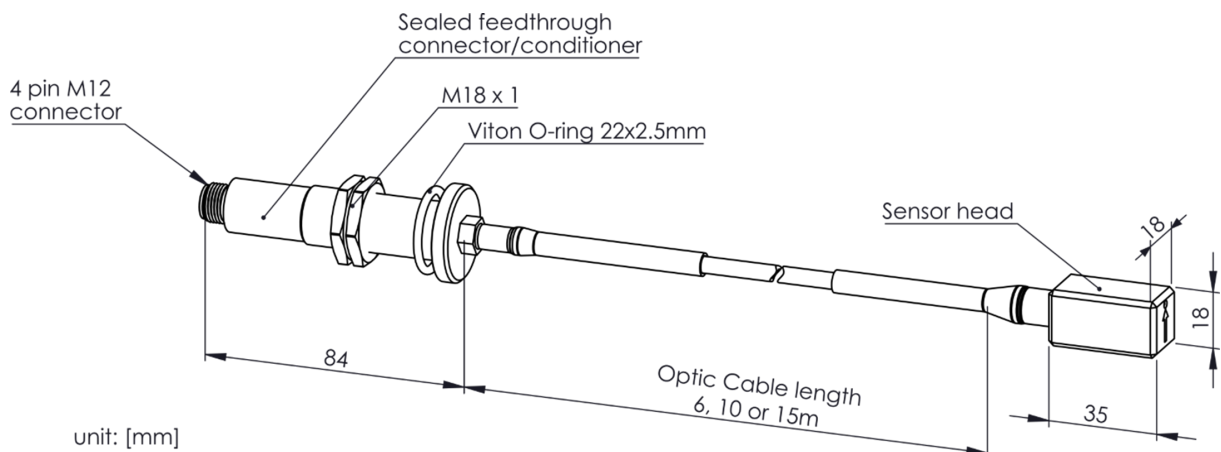
-40 °C to +20 °C: Keep heat rates below 0.5 °C / min

Resistance against surge voltage	5 MV/m
Resistance against withstand voltage	65 kV for 1 minute (50/60 Hz)
Operating pressure	800 kPa hydrogen
Max. shock acceleration	600g half sine, duration 1 ms
Magnetic field	Max 1 Tesla RMS at 50(60) Hz
Electrical field	Max 5 MV/m RMS at 50(60) Hz
CE certification	In conformance with EN 61000-6-2 and EN 61000-6-3

PHYSICAL

Sensor head dimensions [mm]	35 × 18 × 18 (L×W×H)
Sensor head weight [g]	30
Sealed feed-through dimensions [mm]	75 L × Ø30 ; Thread: 45 L × M18×1
Sealed feed-through weight [g]	130
Recommended max. tightening torque	20 Nm
Integral cable dimensions	10 m × Ø5 mm ; minimum bending: 80 mm radius

MECHANICAL DRAWING



ORDERING INFORMATION

Part type	Fiberoptic Acceleration Sensor
Ordering code	02.110.000 M2
Description	FAS-110 M2 Sensor head composed of polymer & ceramic, mounted on 2 fibre glass strands with PTFE protection tubing of 10m, terminated by a stainless steel sealed feed-through with a M12 4-pin connector. Delivered with Viton O-ring 22x2.5mm and 2 hex nuts M18 x 1

OTHER AVAILABLE LENGTH (ON REQUEST)

Ordering code	02.106.000 M2	02.115.000 M2
Description	FAS-106 M2 6m length	FAS-115 M2 15m length

ACCESSORIES

Ordering code	Description
02.902.005	Ext. cable, WA, 4x0.34mm ² for FAS /1 & M2 - 5m
02.902.010	Ext. cable, WA, 4x0.34mm ² for FAS /1 & M2 - 10m

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Quality certification



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