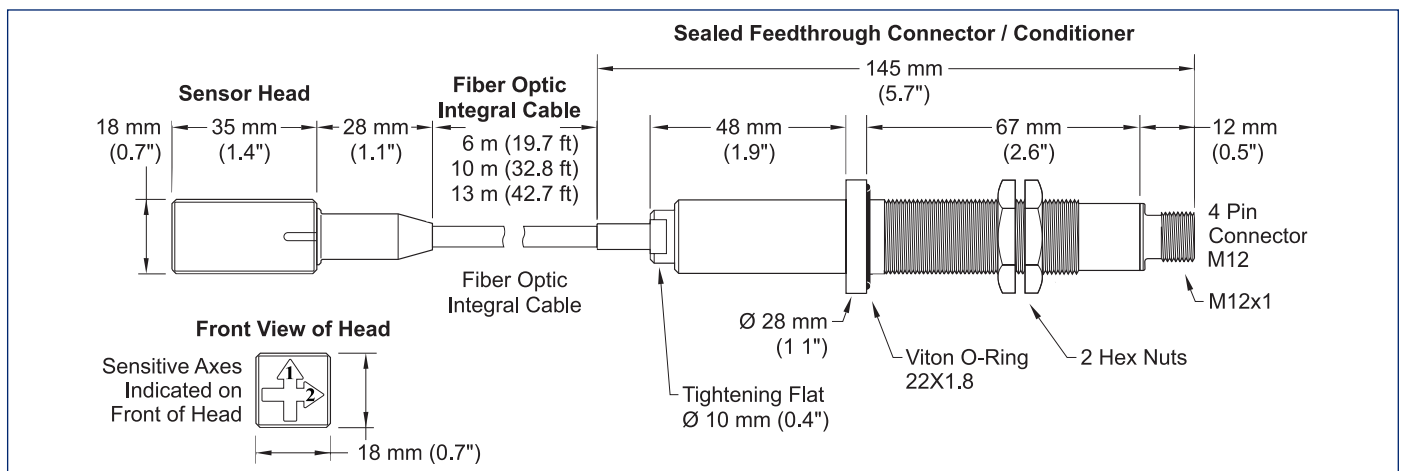




## DESCRIPTION

The FOA-200 Optical Accelerometer measures acceleration in two axes. Its design and optical technology make it immune to electromagnetic interferences and ensure an excellent electrical insulation between the sensor and the instrumentation. Its passive technology makes it ideal for vibration measurements in areas where conventional piezo-electric, piezo-resistive accelerometers or any accelerometers with metallic parts may create hazards to machine and personnel, and impair reliable operation. It represents a rugged solution for industrial applications. The optical sensor body is made of a high performance material with no metallic elements. The optical fibers of the cable are embedded and protected by an integral tubing. The sealed feedthrough connector houses the opto-electronic and conditioning circuitry. External power supply is required.

## DIMENSIONS



## FOA-200

DUAL AXIS OPTICAL ACCELEROMETER



## APPLICATIONS

- On-line vibration monitoring in hazardous environments:
  - high voltage, severe electromagnetic interferences, and highly explosive gas.
- Electrical machine applications up to class H
  - end-windings, windings, and in-slots bars,
  - electrical motor brushes,
  - isolated turbo-generator bearings,
  - high voltage circuit breakers and transformers.
- On-line vibration monitoring in fluids:
  - fuel systems
  - oils
  - water

## FEATURES

- Insulation: 3 kVAC/mm @ 25°C/77°F, 25 % of relative humidity
- Light weight sensor head made of non-metallic parts;
- Sealed feedthrough connector / conditioner
- Unsentive to magnetic and electrical fields
- Low transversal sensitivity; Very good thermal stability
- Frequency range: 10 to 1000 Hz (-3 dB)
- Dynamic range: 0 to 40g /2 mm pk-pk @ 100 Hz or 1.4 mm pk-pk @ 120 Hz
- Bias voltage output: +6 VDC
- Sensitivity: 100 mV/g
- Integral optical cable length: 10 m/32' 8" (Standard) *(Other lengths also available upon request)*
- Contains no chemical or rare earth elements, no strain or pressure constraints. Does not use fiber Bragg grating (FBG) technique.
- Calibration is traceable to National Institute of Standard and Technology (NIST)
- **ATEX certified**



## FOA-200 GENERAL SPECIFICATION

### Operating

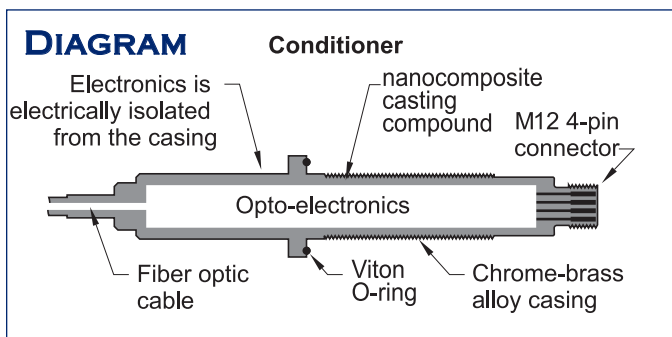
- Sensitivity 100 mV/g  $\pm$  5% at 120 Hz  
optional 10 mV/g & 25 mV/g
- Measuring Range 0 to 40g [100 mV/g]  
2 mm [79 mils] pk-pk at 100 Hz  
1.4 mm [55 mils] pk-pk at 120 Hz  
or  
0 to 150g [25 mV/g]
- Frequency Range 10 to 1000 Hz (-3 dB)
- Output Single ended DC coupling,  
bias voltage  
+ 6 VDC  $\pm$  5%
- Max. Shock Acceleration 1000g half sine,  
duration 1 ms
- Resonance Frequency >2 kHz
- Transverse Sensitivity < 5% with respect to  
sensitive axis
- Residual Noise < 6 mVRMS overall noise
- Resolution <2  $\mu$ m peak-peak at 100 Hz
- Insulation Voltage between 3 kVAC/mm @ 25°C/77°F,  
Sensor Head and 25 % of relative humidity  
Electronics
- Operating Pressure 700 kPa/101.5 PSI hydrogen  
(withstanding pressure  
test up to 1050 kPa/  
52.25 PSI helium)
- Power Supply External  
+ 24 VDC non-stabilized  
 $\pm$  20%, approx. 60 mA

### Environmental

- Temperature Range
- Operation
  - Standard** -40° to 90°C  
(-40° to 194°F)
  - Class F** -40° to 155°C  
(-40° to 311°F)
  - Class H** -40° to 180°C  
(-40° to 356°F)
  - Electronics 0° to 70°C  
(32° to 158°F)
- Non-destructive
  - Sensor -50° to 200°C  
(-58° to 392°F)
  - Electronics -20° to 85°C  
(-4° to 185°F)
- Magnetic Field No effect (head only)
- Electrical Field No effect (head only)

### Physical Characteristics

- Sensor Head High Temperature Polymer
  - Length 35 mm (1.38 in.)
  - Width 18 mm (0.71 in.)
  - Thickness 18 mm (0.71 in.)
  - Weight 25 g (0.88 oz.)
- Sealed Feedthrough Chromed Brass alloy,  
M12 4-Pin connector on  
outside end with mating  
shielded connector,  
Viton O-ring 21.95 x 1.78,  
2 hex nuts M18x1
  - Length 145 mm (5.71 in.)
  - Max. Diameter 28 mm (1.10 in.)
  - Thread Length 49 mm (1.93 in.)
  - Thread Diameter 18 mm (0.71 in.)
  - Weight 200 g (7.05 oz.)
- Integral Cable Optical fibers with  
PTFE protection tubing
  - **Standard Length** 10 m (32.80 ft)  
**Other lengths also available upon request**
  - Diameter 5 mm (0.20 in.)
  - Min. Bending Radius 80 mm (3.15 in.)



VibroSystM reserves the right to change specifications to improve products without notification. Protected by patents around the world: US patents 7,064,559; 6,307,385; 6,552,667; 6,075,464; 5,990,807; 5,182,612; and other patents pending.

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[www.vibrosystm.com](http://www.vibrosystm.com)

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