

Description

The FOP-M is a fiber optic pressure sensor designed mainly for applications where high temperature conditions can be found such as in aerospace and automotive R&D. This is a useful tool for general industrial applications in harsh and hazardous environments. The FOP-M pressure sensor offers immunity to EMI / RFI /MW, a small size, reliable measurements under harsh conditions, high accuracy, and resistance to corrosive environments.

The FOP-M fiber optic pressure sensor is based on proven White-Light Fabry-Pérot Interferometry technology. The sensor's unique design is based on deflection measurement of a silicon diaphragm, as opposed to more conventional stress measurement techniques. Pressure creates a variation in the length of the Fabry-Pérot cavity and our optical signal conditioners can consistently measure the cavity length with high accuracy under all adverse conditions of temperature, EMI, humidity and vibration.

With a temperature range of up to 150°C, it is ideal for applications in any research and development field. For those extreme conditions, the fiber optic lead cable is available in different types and may be delivered up to several kilometers long.

Specification

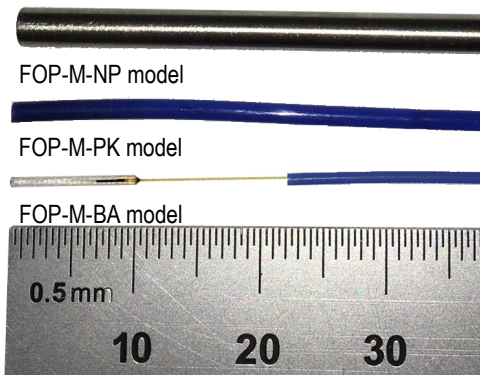
Pressure Range ¹	R0: 0 to 2 psi {0 to 14 kPa}	R1: 0 to 5 psi {0 to 34 kPa}	R2: 0 to 50 psi {0 to 345 kPa}	R3: 0 to 150 psi {0 to 1034 kPa}	R4: 0 to 1000 psi {0 to 6895 kPa}	R5: 0 to 3000 psi ² {0 to 20684 kPa}
Performance with EVOLUTION conditioners (FPI-HR and FPI-HS)						
Accuracy ³ (psi)	±0.05 {±0.34 kPa}	±0.06 {±0.41 kPa}	±0.25 {±1.72 kPa}	±1.00 {±7 kPa}	±2 {±14 kPa}	±15 {±103 kPa}
Resolution ⁴ (psi)	0.002 {0.014 kPa}	0.0025 {0.017 kPa}	0.025 {0.172 kPa}	0.075 {0.517 kPa}	0.5 {3.4 kPa}	1.5 {10.3 kPa}
Performance with CLASSIC conditioners (FTI, UMI, VELOCE⁵)						
Accuracy ³ (psi)	±0.20 {±1.4 kPa}	±0.20 {±1.4 kPa}	±0.5 {±3.4 kPa}	±1.5 {±10.3 kPa}	±8 {±55 kPa}	±60 {±414 kPa}
Resolution ⁴ (psi)	0.008 {0.055 kPa}	0.01 {0.07 kPa}	0.1 {0.7 kPa}	0.3 {2.1 kPa}	2 {14 kPa}	15 {103 kPa}
Proof pressure (psi)	10 {69 kPa}	90 {621 kPa}	250 {1724 kPa}	450 {3103 kPa}	2000 {13790 kPa}	5000 {34474 kPa}
Storage temperature	-30°C to 80°C					
Operating temperature ⁶	-20°C to +150°C (option for up to 300°C, ask for FOP-MH)					

Key Features

- Immune to EMI / RFI / MW
- Intrinsically safe (explosion proof)
- High accuracy and sensitivity
- Up to 150°C (option for up to 300°C)
- Ranges 0-2 psi to 0-3000 psi
- Miniature size
- Long distance interrogation

Applications

- Sealed environments
- Aerospace
- Defense and Security
- Metallurgy
- Industrial *in-situ* process monitoring
- High temperature
- Automotive R&D
- Harsh and hazardous environments
- Oil well and natural gas pumping station
- Plastic injection molding & extrusion monitoring
- Food packaging development



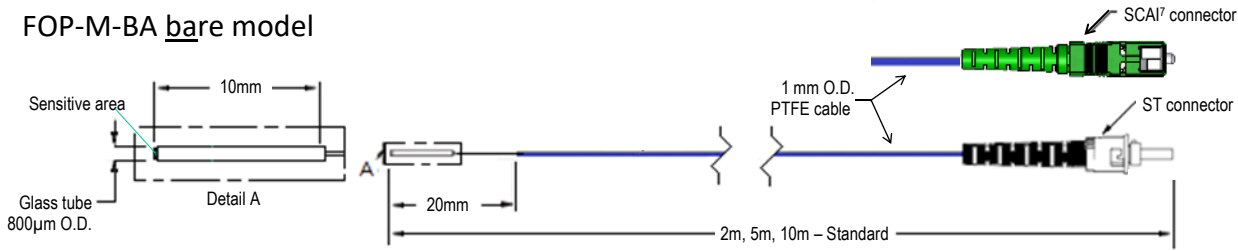


FOP-M Pressure Sensor

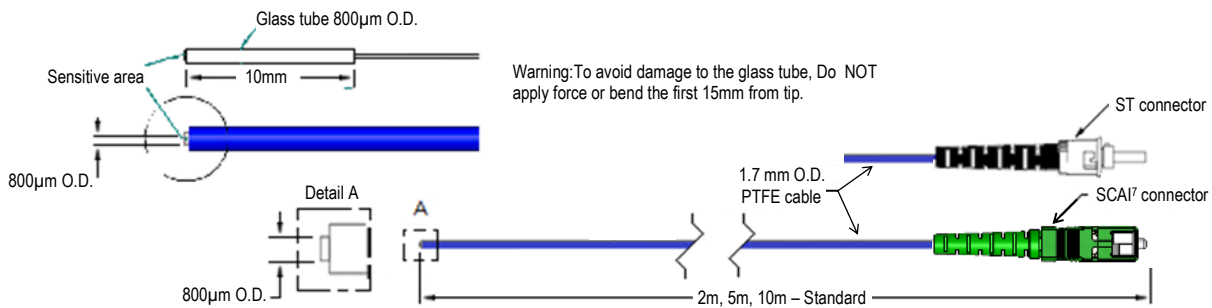
Industrial, Laboratories, Process, R&D

Dimensions

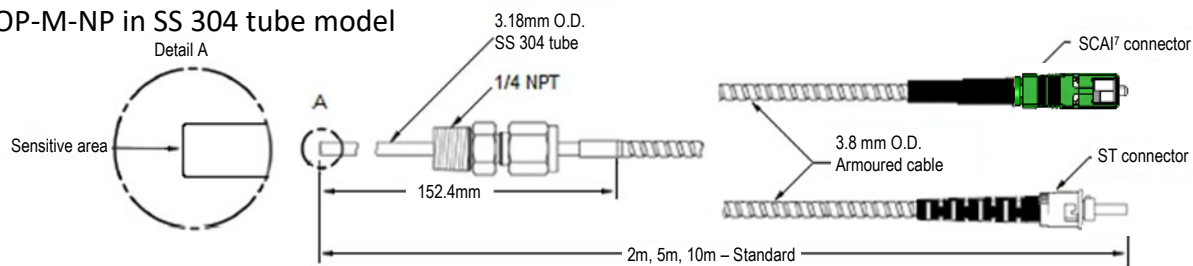
FOP-M-BA bare model



FOP-M-PK packaged model



FOP-M-NP in SS 304 tube model



Ordering information

Example: FOP - M - BA - C1 - F1 - M2 - R0 - ST

Op. Range	Distal tip	Cable	Fiber	Sensor overall length	Range	Connector
M- -20°C to +150°C MH- -20°C to +300°C		BA- 20 mm sensor and bare fiber exposed PK- Packaged 1.7 mm O.D. PTFE tube NP- Packaged 3.18 mm O.D. stainless steel	F1- 50µm CLASSIC (FTI, UMI, VELOCE ⁵) F2- 62.5µm, EVOLUTION (FPI-HR, FPI-HS)	M2 - 2 meters total length M5 - 5 meters total length M10- 10 meters total length	R0 0 to 2 psi R1 0 to 5 psi R2 0 to 50 psi R3 0 to 150 psi R4 0 to 1000 psi R5 0 to 3000 psi ²	ST- for CLASSIC (FTI, UMI, VELOCE ⁵) SCAI ⁷ - for EVOLUTION (FPI-HR, FPI-HS)

Other configurations may be possible. Call FISO for availability.

- Note 1. Relative to atmospheric pressure, at room temperature
- Note 2. Calibration up to 1000 psi, extrapolation and verification up to 3000 psi
- Note 3. Accuracy of the system (conditioner and sensor together)
- Note 4. Signal conditioner dependent
- Note 5. This system is obsolete
- Note 6. Temperature at which the sensing tip can be exposed
- Note 7. SCAI⁷ is a SCA connector with smart chip communicating calibration data to the signal conditioner module

