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

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>R0: 0 to 2 psi</th>
<th>R1: 0 to 5 psi</th>
<th>R2: 0 to 50 psi</th>
<th>R3: 0 to 150 psi</th>
<th>R4: 0 to 1000 psi</th>
<th>R5: 0 to 3000 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0 to 14 kPa)</td>
<td>(0 to 34 kPa)</td>
<td>(0 to 345 kPa)</td>
<td>(0 to 1034 kPa)</td>
<td>(0 to 6895 kPa)</td>
<td>(0 to 20684 kPa)</td>
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</table>

Performance with EVOLUTION conditioners (FPI-HR and FPI-HS)

- **Accuracy** (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** (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, VELOCE3)

- **Accuracy** (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** (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 −20°C to +150°C (option for up to 300°C, ask for FOP-MH)
**Dimensions**

**FOP-M-BA bare model**

- Sensitive area: 10mm
- Glass tube: 800µm O.D.

**FOP-M-PK packaged model**

- Sensitive area: 10mm
- Glass tube: 800µm O.D.

**FOP-M-NP in SS 304 tube model**

- Sensitive area
- 3.18 mm O.D. stainless steel tube
- 152.4mm

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**Ordering information**

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

- 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
- C1: 1 mm O.D. PTFE cable for BA model
- C2: 1.7 mm O.D. PTFE cable for PK model
- C5: 3.8 mm O.D. armoured cable for NP model
- F1: 50µm CLASSIC (FTI, UMI, VELOCE®)
- F2: 62.5µm, EVOLUTION (FPI-HR, FPH-HS)

Other configurations may be possible. Call FISO for availability.

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**Warning:** To avoid damage to the glass tube, do not apply force or bend the first 15mm from tip.

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**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:** SCAI is a SCA connector with smart chip communicating calibration data to the signal conditioner module.