**FOP-M Pressure Sensor**

**Industrial, Laboratories, Process, R&D**

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**Specification**

- **Pressure Range**
  - 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

- **Performance with EVOLUTION conditioners (FPI-HR and FPI-HS)**
  - **Accuracy** (psi): ±0.05, ±0.06, ±0.25, ±1.00, ±2, ±15
  - **Resolution** (psi): 0.002, 0.0025, 0.025, 0.075, 0.5, 1.5

- **Performance with CLASSIC conditioners (FTI, UMI, VELOCE)**
  - **Accuracy** (psi): ±0.20, ±0.20, ±0.5, ±1.5, ±8, ±60
  - **Resolution** (psi): 0.008, 0.01, 0.1, 0.3, 2, 15

- **Proof pressure (psi)**
  - 10, 90, 250, 450, 2000, 5000

- **Storage temperature**
  - −30°C to 80°C

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

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**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

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**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.
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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.
- 800µm O.D.

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

- Sensitive area: 10mm
- Glass tube: 800µm O.D.
- 3.18mm O.D.

Ordering information

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

<table>
<thead>
<tr>
<th>M</th>
<th>Op Range</th>
<th>Cable</th>
<th>Range</th>
<th>Connector</th>
<th>Note 1</th>
<th>Note 2</th>
<th>Note 3</th>
<th>Note 4</th>
<th>Note 5</th>
<th>Note 6</th>
<th>Note 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA</td>
<td>-20°C to +150°C</td>
<td>PTFE cable</td>
<td>R0</td>
<td>0 to 2 psi</td>
<td>ST</td>
<td>Relative to atmospheric pressure, at room temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PK</td>
<td>-20°C to +300°C</td>
<td>PTFE cable</td>
<td>R1</td>
<td>0 to 5 psi</td>
<td>SCAI 7</td>
<td>Calibration up to 1000 psi, extrapolation and verification up to 3000 psi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>-20°C to +300°C</td>
<td>Armoured cable</td>
<td>R2</td>
<td>0 to 50 psi</td>
<td>SCAI 7</td>
<td>Accuracy of the system (conditioner and sensor together)</td>
<td></td>
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<tr>
<td>C1</td>
<td>1 mm O.D.</td>
<td>Armoured cable</td>
<td>R3</td>
<td>0 to 150 psi</td>
<td>SCAI 7</td>
<td>Signal conditioner dependent</td>
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<tr>
<td>C2</td>
<td>1.7 mm O.D.</td>
<td>Armoured cable</td>
<td>R4</td>
<td>0 to 1000 psi</td>
<td>SCAI 7</td>
<td>This system is obsolete</td>
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<tr>
<td>C5</td>
<td>3.8 mm O.D.</td>
<td>Armoured cable</td>
<td>R5</td>
<td>0 to 3000 psi²</td>
<td>SCAI 7</td>
<td>Temperature at which the sensing tip can be exposed</td>
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<tr>
<td>F1</td>
<td>50µm CLASSIC (FTI, UMI, VELOCE)</td>
<td>ST</td>
<td>M2</td>
<td>2 meters total length</td>
<td>SCAI 7</td>
<td>SCAl is a SCA connector with smart chip communicating calibration data to the signal conditioner module</td>
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<tr>
<td>F2</td>
<td>62.5µm, EVOLUTION (FPI-HR, FPI-HS)</td>
<td>SCAI 7</td>
<td>M5</td>
<td>5 meters total length</td>
<td>SCAI 7</td>
<td></td>
<td></td>
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Other configurations may be possible. Call FISO for availability.