The FOD is a fiber optic linear position and displacement sensor that provides high accuracy, absolute measurements of position and displacement. The FOD is well suited for difficult to reach locations and hazardous environments such as those containing explosive materials. Engineers may now improve process and product technology by monitoring the performance of specific properties over time that will provide accurate information on changes in displacement during the operation, the manufacturing process or throughout the lifetime of a product. The use of the FOD linear position and displacement sensor allows a complete analysis in the most challenging environments.

The FOD is an absolute position sensor and it is the fiber optic version of the well known Linear Variable Differential Transformer (LVDT). However, unlike its electrically activated counterpart, the FOD requires no energizing AC voltage or driving signal with the associated wiring. Thus, the FOD is completely immune to EMI and RFI and carries no risk of current leakage or ignition. The FOD can be packaged in a very compact form and can be located up to 5 km away from the signal conditioner.

**Specifications**

**Performance with CLASSIC conditioners (FTI-10, UMI)**

**EVOLUTION conditioners (FPI-HR-2X)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear stroke 1</td>
<td>20 mm (spring loaded shaft)</td>
</tr>
<tr>
<td></td>
<td>(40 mm stroke available on request)</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Accuracy 2</td>
<td>± 0.02 mm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20°C to 85°C 2</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-30°C to 80°C</td>
</tr>
<tr>
<td>Fiber optic cable minimum bend radius</td>
<td>2.5 cm (1”)</td>
</tr>
</tbody>
</table>

1. Signal conditioner dependent
2. Lower or higher temperature available upon request
### FOD Linear Position and Displacement Sensor

**Dimensions**

![Diagram of FOD sensor dimensions]

**Possible anchors**

- Model FOD-F
- Model FOD-J

**Ordering information**

Example: FOD - AL - C5 - F1 - M2 - R1 - ST

- **Housing**
  - AL: Aluminium housing
  - NS: Composite housing or Stainless Steel, custom sensor

- **Cable**
  - C5: 3.8 mm O.D. armoured cable
  - C6: 3 mm O.D. Polyurethane cable

- **Fiber**
  - F1: 50µm classic CY (FTI, UMI, DMI)
  - F2: 62.5µm, EVOLUTION (FPI-HR-2X)

- **Range**
  - R1: 20mm
  - M2: 2 meters total length
  - M5: 5 meters total length
  - M10: 10 meters total length

- **Connector**
  - SCAI: for EVOLUTION (FPI-HR-2X)
  - ST: for CLASSIC (FTI, UMI)

Note 1. Other configurations may be possible, call FISO for availability.

Note 2. SCAI is a SCA connector with smart chip communicating calibration data to the signal conditioner module.

FOD-NS (stainless steel)