For surface mounting on metallic structures.
Ideal for long-term structural deformation monitoring.

Description

The SMARTprofile strain sensors are transducers that transform a strain variation into a change in reflected wavelength of a FBG encapsulated into a surface mountable patch. These sensors are compatible with SMARTec MuST Reading Units. Small cross-section (width ~8 mm; thickness ~3 mm) and composite packaging properties make it ideal for its application in harsh on-site conditions. It features high mechanical, chemical and temperature resistance.

It can be effectively used in the following applications:

- Structural monitoring of naval structures
- Sub-sea applications; e.g. monitoring of shallow and deep-water risers, off-shore platforms, and other oil & gas structures
- Industrial and military structures etc.

The SMARTprofile can be simply bonded or clamped to any kind of surface such as steel, composite, concrete, etc.

Key Features

- High resolution
- Insensitive to temperature variations
- Insensitive to corrosion, vibrations and EM fields
- No calibration required
- Ideal for harsh on-site conditions
- Suitable for extreme pressure conditions
- Extended temperature range
- High chemical resistance
- Applicable in deep water
- Long lifetime

Applications

- Ship-hull monitoring
- Riser monitoring

www.smartec.ch
Technical Characteristics

| Sensing profile dimensions: | Width = 7.8 mm  
Thickness = 2.9 mm  
Length = 680 mm |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Connection cable dimensions:</td>
<td>In flexible stainless steel reinforced cable with external plastic sheath Ø 3 mm</td>
</tr>
<tr>
<td>Conditions of use:</td>
<td>Exposed to extreme hydrostatic pressure, seawater and some chemicals as well as high and low temperatures</td>
</tr>
<tr>
<td>Number of measurement FBGs:</td>
<td>1</td>
</tr>
<tr>
<td>Number of Temperature FBGs:</td>
<td>0 or 1 (only in the last sensor of an array)</td>
</tr>
<tr>
<td>Max. number of MuST SMARTprofile sensors on same chain:</td>
<td>5</td>
</tr>
<tr>
<td>Measurement range:</td>
<td>±0.5 % (±1mm)</td>
</tr>
</tbody>
</table>
| Resolution / Accuracy: | Strain sensor: 2 me (0.002 mm/m) / <0.2%  
Temperature sensor: 0.2 °C / 1°C |
| Operating temperature: | Sensing profile: -55 °C to +200 °C  
Connector: -40 °C to +80 °C |
| Operating hydrostatic pressure: | Sensing profile: 0 to 30 MPa (0 to 300 bar) |
| Temperature compensation: | Using optional temperature sensing FBG |
| Calibration: | Individual calibration is not required |

Sensor Drawings

Ordering information

- **12.1061**  MuST FBG Multiplex SMARTProfile Deformation Sensor double-ended
- **12.1062**  MuST FBG Multiplex SMARTProfile Deformation Sensor single-ended