Fibre Optic Sensing Cables

BRUsens Temperature 85°C heatable

Small fiber optic temperature sensing cable with central loose tube, 0.83 mm² copper conductor for active sensing, stainless steel strength members and double layer PA outer sheath, fast thermal response, for up to 4 fibers

**Construction:**
- 1) Double layer PA outer sheath
- 2) Copper wires, total 0.83 mm² cross section
- 3) Stainless steel 316L wires
- 4) Gel-filled, stainless steel 316L, metal loose tube
- 5) Optical fibers with dual layer acrylate coating for increased micro bending performance

**Description:**
- Central metal loose tube with up to 4 fibers, hermetically sealed
- High tensile strength
- Longitudinally and laterally watertight
- Excellent rodent protection
- Compact design, high flexibility, small bending radius
- Abrasion resistant, double layer outer sheath for electrical insulation and protection
- Halogen-free cable sheath
- Insulation of outer sheath monitored with spark test, operating voltage max. 600/1000 V

**Applications:**
- Temperature monitoring, acoustic monitoring
- Sensing applications, Raman, Brillouin
- Active sensing applications with heated cables
- Harsh environment, outdoors
- Deployment in conduits or directly in the ground

**Standard optical fiber:**
- Multimode fiber: ITU-T G.651, 50µm
- Other fiber types and fiber quality available upon request

**Technical data:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. no. of fibers</th>
<th>Cable Ø</th>
<th>Weight</th>
<th>Max. tensile strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>units</td>
<td>mm</td>
<td>kg/km</td>
<td>installation N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>operation N</td>
</tr>
<tr>
<td>4F (2F MM/ 2F SM)</td>
<td>4</td>
<td>4.0</td>
<td>28</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Min. bending radius</th>
<th>Max. crush resistance</th>
<th>Continuous operation current</th>
<th>Electrical resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with tensile mm</td>
<td>without tensile mm</td>
<td>N/cm</td>
<td>Ω/km</td>
</tr>
<tr>
<td>4F (2F MM/ 2F SM)</td>
<td>20xD</td>
<td>15xD</td>
<td>300</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

**Temperature range:**
- Operating temperature: -40° C … +85° C
- Storage temperature: -40° C … +85° C
- Installation temperature: -10° C … +50° C
- Short term temperature (3 min) +150° C

**Cable sheath color:**
- Red, similar RAL 3000
- Other colors upon request

**Standards:**
- Cable tests complying with IEC 60794-1-2

**Remarks:**
- Fiber color: 1 red, 2 green, 3 yellow, 4 blue
- Other cable designs and temperature ranges available
- Standard cable marking with meter marks, special labeling of outer sheath upon request
- Accessories such as loops, fan-outs, connectors, mounting brackets etc. available
- Deployment training upon request
- For improved UV resistance, black cable sheath available upon request

**Optical fiber data (cabled) at 20°C**

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>Attenuation, dB/km</th>
<th>Modal Bandwidth, MHz·km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>850 nm</td>
<td>1064 nm</td>
</tr>
<tr>
<td>MMF 50/125</td>
<td>≤3.0</td>
<td>≤2.6</td>
</tr>
<tr>
<td>SMF</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>