Potentiometric Displacement Sensors
Models 8710, 8711

Application
Displacement sensors models 8710 and 8711 with resistance tracks made of conductive plastic material are designed for a direct and accurate measuring of mechanical displacements. A special ball joint coupling is mountable on both ends of the driving rod. Because of this the sensor may be used free of clearance or lateral forces also with angular or parallel misalignment between sensor and measuring device. A special multi-fingered slider provides a good electrical contact also at high adjustment speeds or vibrations.

Areas of application are:
- Electromagnets
- Switch and button deflections
- Pneumatic cylinders
- Press-fits (longitudinal press-fits)
- Hydraulic cylinders
- Measurements of deformation and bending
- Length tolerances
- Feeding paths

Description
Due to the technology employed in potentiometric displacement sensors, they always operate with a sliding contact system. Special processes are applied to give the resistance tracks low friction, low tendency to stick/slip, resistance to abrasion and long-term stability. The driving rods are guided in long-life, low-friction sliding bearings with close tolerances; this results in highly precise measurements. Lateral forces reduce the service life and can be avoided by using, for instance, ball joint couplings, included in the burster product range.

Due to the pump effect, the driving rod has double sliding bearings.

Mounting
The sensor is mounted at the left and right longitudinal slot by four mounting angles.

These slots (W = 2.2 mm, D = 1.6 mm) are closed at the side of the electrical connector.
### Technical Data

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Measuring Range [mm]</th>
<th>Non Linearity *</th>
<th>Dimensions [mm]</th>
<th>Dissipation at 40 °C (Ω at 120 °C)</th>
<th>Total Weight</th>
<th>Moveable Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8710 - 25</td>
<td>0 ... 25</td>
<td>± 0.2 % F.S.</td>
<td>A</td>
<td>B **</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>0 ... 50</td>
<td>± 0.1 % F.S.</td>
<td>83</td>
<td>30</td>
<td>107</td>
<td>0.6 W</td>
</tr>
<tr>
<td>100</td>
<td>0 ... 100</td>
<td>± 0.1 % F.S.</td>
<td>121</td>
<td>88</td>
<td>157</td>
<td>1.2 W</td>
</tr>
<tr>
<td>150</td>
<td>0 ... 150</td>
<td>± 0.1 % F.S.</td>
<td>140</td>
<td>138</td>
<td>257</td>
<td>2.5 W</td>
</tr>
<tr>
<td>25</td>
<td>0 ... 25</td>
<td>± 0.2 % F.S.</td>
<td>178</td>
<td>188</td>
<td>357</td>
<td>3.6 W</td>
</tr>
<tr>
<td>50</td>
<td>0 ... 50</td>
<td>± 0.1 % F.S.</td>
<td>172</td>
<td>88</td>
<td>155</td>
<td>3.6 W</td>
</tr>
<tr>
<td>100</td>
<td>0 ... 100</td>
<td>± 0.1 % F.S.</td>
<td>72</td>
<td>138</td>
<td>257</td>
<td>3.6 W</td>
</tr>
<tr>
<td>150</td>
<td>0 ... 150</td>
<td>± 0.05 % F.S.</td>
<td>72</td>
<td>188</td>
<td>357</td>
<td>3.6 W</td>
</tr>
</tbody>
</table>

**Electrical values**
- Resistance: measurement range 25 mm 1 kΩ, measurement ranges 50 ... 150 mm 5 kΩ
- Tolerance of resistance: ± 20 %
- Max. voltage: measurement range 25 mm 25 V DC, measurement ranges 50 ... 150 mm 60 V DC
- Operating current in slider circuit: recommended < 0.1 µA, maximum 10 mA
- Insulation resistance: > 100 MΩ
- Max. voltage: measurement range 25 mm 25 V DC
- Tolerance of resistance: ± 20 %
- Dissipation: refer to table
- Vibration resistance: 5 ... 2000 Hz, A max = 0.75 mm, amax = 20 g
- Shock resistance: 50 g, 11 ms
- Flexibility of ball joint coupling: parallel ± 0.5 mm, angle ± 10 °
- Protection class: acc. to EN 60529 IP40
- Electrical connection: model 8710 plug connection, 5 pin (Mating connector model 9991 refer to accessories), model 8711 integrated connection cable, length 1 m, cross section 4 mm

**Environmental conditions**
- Operation temperature range: - 30 °C ... 100 °C
- Storage temperature range: - 50 °C ... 120 °C
- Influence of temperature to resistance: - 200 ± 200 ppm/°C
- Influence of temperature to output voltage: < 1.5 ppm/°C

**Dimensions**
- Model 8710
- Model 8702
- Model 8711

**Order Information**
- Potentiometric displacement sensor measurement range 100 mm with cable 1 m
- Accessories
  - Ball joint coupling 1 unit is included in scope of delivery
  - Mounting set (4 angles + 4 M4 screws)

**Mounting**
- Mounting: with two 2 axial moveable clips, refer to diagram (in scope of delivery)

**Protection class**
- acc. to EN 60529 IP40

**Wiring code**
- Connector version model 8710
- Recommended wiring
- Brown (+)
- Yellow (-)
- Blue (+)

**Technical changes reserved. All data sheets at www.burster.com**