Potentiometric Displacement Sensors
Models 8712, 8713

Application
These displacement sensors are potentiometric displacement sensors used for direct measurement, testing and monitoring of mechanical displacements. The spring-loaded control rod eliminates the need of coupling with the measurement object.

A prerequisite for a very long life duration of the devices is a parallel alignment of the motion direction of the measurement object and the rod.

Areas of application are:
Displacement on
► Electromagnets
► Hydraulic cylinders
► Switches and buttons
Measurements of
► Deformation
► Bending
► Press-fits
► Feed strokes

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 a long-term stability.

The rods are guided in long-life, low friction sliding bearings with close tolerances which provide high durability and measuring quality. The pre-stressed spring presses the sensor tip against the measurement object. This spring is double-guided and disappears in the probe head, if the rod is in its end position.

The probe tip consists of a ball made of stainless steel. The bore at rod end serves for coupling retraction units. The rod is protected against twist for measurement ranges up to 50 mm. The probe tip (hexagonal) must not be turned by any tool, otherwise its anti-twist protection will be destroyed.

- Measurement ranges: 0 ... 10 mm to 0 ... 150 mm
- Non-linearity from 0.05 % F.S.
- Durability 10⁸ operations
- Resolution 0.01 mm
- Follower roll on request
- Optional with internal spring

Model 8712
Model 8713
Model 8713-5xxx-V302
Internal spring

Code: 8712 EN
Delivery: ex stock
Warranty: 24 months
**Technical Data**

### Electrical values

<table>
<thead>
<tr>
<th>Measuring Range (+1/0) [mm]</th>
<th>A*</th>
<th>B**</th>
<th>C</th>
<th>D</th>
<th>A*</th>
<th>B**</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>8712 - 10</td>
<td>10</td>
<td>48</td>
<td>16</td>
<td>32</td>
<td>108</td>
<td>60.8</td>
<td>6.5</td>
<td>15</td>
</tr>
<tr>
<td>8712 - 25</td>
<td>25</td>
<td>63</td>
<td>31</td>
<td>32</td>
<td>138</td>
<td>75.8</td>
<td>19.7</td>
<td>30</td>
</tr>
<tr>
<td>8712 - 50</td>
<td>50</td>
<td>88</td>
<td>56</td>
<td>40</td>
<td>196</td>
<td>112.7</td>
<td>14.2</td>
<td>55</td>
</tr>
<tr>
<td>8712 - 100</td>
<td>100</td>
<td>139</td>
<td>106</td>
<td>40</td>
<td>307</td>
<td>185.1</td>
<td>13.4</td>
<td>105</td>
</tr>
<tr>
<td>8712 - 125</td>
<td>125</td>
<td>163</td>
<td>148</td>
<td>40</td>
<td>364</td>
<td>221.6</td>
<td>13.4</td>
<td>130</td>
</tr>
<tr>
<td>8712 - 150</td>
<td>150</td>
<td>188</td>
<td>186</td>
<td>40</td>
<td>427</td>
<td>270.1</td>
<td>13.4</td>
<td>155</td>
</tr>
<tr>
<td>8713 - 10</td>
<td>10</td>
<td>48</td>
<td>15</td>
<td>32</td>
<td>108</td>
<td>60.8</td>
<td>6.5</td>
<td>15</td>
</tr>
<tr>
<td>8713 - 25</td>
<td>25</td>
<td>63</td>
<td>30</td>
<td>32</td>
<td>138</td>
<td>75.8</td>
<td>19.7</td>
<td>30</td>
</tr>
<tr>
<td>8713 - 50</td>
<td>50</td>
<td>88</td>
<td>55</td>
<td>40</td>
<td>196</td>
<td>112.7</td>
<td>14.2</td>
<td>55</td>
</tr>
<tr>
<td>8713 - 100</td>
<td>100</td>
<td>138</td>
<td>115</td>
<td>40</td>
<td>298</td>
<td>185.1</td>
<td>13.4</td>
<td>105</td>
</tr>
<tr>
<td>8713 - 125</td>
<td>125</td>
<td>163</td>
<td>148</td>
<td>40</td>
<td>364</td>
<td>221.6</td>
<td>13.4</td>
<td>130</td>
</tr>
<tr>
<td>8713 - 150</td>
<td>150</td>
<td>188</td>
<td>186</td>
<td>40</td>
<td>427</td>
<td>270.1</td>
<td>13.4</td>
<td>155</td>
</tr>
</tbody>
</table>

**Environmental conditions**

- **Storage temperature range:** - 50 °C ... 120 °C
- **Nominal temperature range:** - 30 °C ... 100 °C
- **Temperature coefficient:** Ω at 500 Veff at 50 Hz

**Mechanical values**

- **Non-linearity:** refer to table
- **Resolution (mechanically from slider):** ± 0.1 μA
- **Displacement force, horizontal:** A* B** C D
  - A* B** C D
  - A* B** C D
  - A* B** C D
  - A* B** C D

**Important:** The excellent characteristics of these sensors are only evident when the slider current is < 0.1 μA. If the measuring chain requires higher currents, it is recommended to use an operational amplifier connected as a voltage follower (I < 0.1 µA).

### Scope of delivery:

- **Sensor 8712:** mating connector 9991, probe tip 8707, Mounting set 8710-Z001, test and calibration certificate.
- **Sensor 8713:** probe tip 8707, mounting set 8710-Z001, test and calibration certificate.

### Accessories

- **Probe tip (Ball ø = 3):** Model 8707
- **Mounting set (4 angle + 4 M4 screws):** Model 8710-2001
- **Tip with roller bearing for displacement sensor:** Model 8708
- **Further probe tip:** on request

### Important:

The excellent characteristics of these sensors are only evident when the slider current is < 0.1 μA. If the measuring chain requires higher currents, it is recommended to use an operational amplifier connected as a voltage follower (I < 0.1 µA).

### Manufacturers Calibration Certificate (WKS)

Calibration of a displacement sensor with or without evaluation electronics in 20% increment of the measurement range (6 points).