Precision potentiometer for measuring, control and instrumentation applications.

The distinguishing features of the SP 2500 include plastic housing, ball-bearings, a conductive resistance element and elastomer-damped wipers. Fixings are in the form of elongated slots which allow simplicity in mounting together with ease of mechanical adjustment.

Reliability, long life, linearity, resolution and corrosion resistance further differentiate the SP25.

**Description**

<table>
<thead>
<tr>
<th>Description</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>servo size 11</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td>two-part; housing and cover high-grade, temperature-resistant plastic</td>
</tr>
<tr>
<td><strong>Shaft</strong></td>
<td>stainless steel</td>
</tr>
<tr>
<td><strong>Bearings</strong></td>
<td>stainless steel</td>
</tr>
<tr>
<td><strong>Resistance element</strong></td>
<td>conductive plastic</td>
</tr>
<tr>
<td><strong>Wiper assembly</strong></td>
<td>precious metal multi-finger wiper</td>
</tr>
<tr>
<td><strong>Electrical connections</strong></td>
<td>3-pin snap connection</td>
</tr>
</tbody>
</table>

**Special features**

- Precision despite small dimensions for an inexpensive price
- Very long life $50 \times 10^6$ movements
- Very good linearity - standard $\pm 0.3\%$
- Very high resolution - better than $0.01^\circ$
- Unrestricted continuous rotation
- Easy assembly by a synchroflange with 3 mounting plates
- Optimal connection by an integrated snap-connector
**Mechanical Data**

- Dimensions: see dimension drawing
- Mounting: with 3 cylinder screws M 2.5 and washers
- Mechanical travel: 360° continuous
- Permitted shaft loading (axial and radial): static or dynamic force 15 N
- Torque: ≤ 0.1 Ncm
- Max. allowed rotational velocity: 10^4 rad/s
- Weight: 15 g

**Electrical Data**

- Actual electrical travel: 335 ± 2°, 120 ± 2°
- Nominal resistance: 5.0, 1.8 kΩ
- Resistance tolerance: 0 ... ± 40 %
- Repeatability: 0.003 (± 0.01°) %
- Effective temperature coefficient of the output-to-applied voltage ratio typical 5 ppm/K
- Independent linearity: ± 0.3, ± 0.6 %
- Max. permissible applied voltage: 42 V
- Recommended operating wiper current: ≤ 1 μA
- Insulation resistance: ≥ 10 MΩ
- Dielectric strength: (50 Hz, 2 s, 1 bar, 500 VAC) ≤ 100 μA

**Environmental Data**

- Temperature range: -40 ... +85 °C
- Vibration: 5 ... 2000 Hz, A_max = 0.157 Hz, A_max = 20 mm
- Shock: 50 g, 11 ms
- Life: 50 x 10^6 movements
- Protection class: IP 40 (DIN 400 50 / IEC 529)

**Order Designations**

<table>
<thead>
<tr>
<th>Type Designations</th>
<th>Art.no.</th>
<th>R in kΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPK2501 A0033</td>
<td>038001</td>
<td>5</td>
</tr>
<tr>
<td>SPK2501 A1812</td>
<td>038002</td>
<td>1.8</td>
</tr>
<tr>
<td>Cable set ZK1-500</td>
<td>039013</td>
<td></td>
</tr>
</tbody>
</table>

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**Important**

All the values given in this data sheet for linearity, lifetime and temperature coefficient in the voltage dividing mode are quoted for the device operating with the wiper voltage driving on operational amplifier working as a voltage follower, where virtually no load is applied to the wiper (I_0 ≤ 1 μA).