Sensor-Potentiometers
Series SP1600

Special features
- easy mounting
- protection class up to IP67 (mounted with O-ring)
- long life
- internal sealing
- return spring
- good price/performance ratio

Designed to convert rotary movement into a proportional voltage signal, these rotary sensors utilize proven conductive plastic technology.

The housing is made of a special high-grade temperature-resistant plastic material. The oval elongated bore fixing allows simplicity of mounting and an easy indexation of the sensor in use.

Effective design by making use of the customer-sided bearing of the insert shaft. Due to the insert shaft a fast and easy mounting is permitted. Despite of its compact and wear-free design the sensors are very robust against environmental influences like vibrations, temperature variations, dirt and humidity.

These sensors are suitable for use in all kinds of rough environment for example close to engines in automotive applications.

The 3-pin AMP Tyco- and the 3-pin Yazaki-connector offers two popular and reliable plug connections.

The use of a precious metal multifinger wiper ensures reliable contact even under most severe working conditions.

Special models with different electrical angles and contact versions are available upon request.

### Description
- **Housing**: high-grade, temperature-resistance plastic
- **Integrated shaft coupling**: high-grade plastic
- **Resistance element**: conductive plastic
- **Wiper**: precious metal multi-finger wiper
- **Electrical connections**: AMP Tyco Micro Quadlock System, document No. 114-18903-123 code A
- **Sealing**: O-ring, X-ring

Example with Tyco connector
Mechanical Data

- Dimensions: see drawing
- Mounting: with 1 cylinder head screw M5
- Mechanical angle: ca. 125 °
- Max. permissible torque at end stops: 0.6 Nm
- Torque: 0.8 ... 12 Nm
- Mounting torque of clamps at housing flange: 5 ±0.5 Nm
- Weight: ca. 15 g

Electrical Data

- Actual electrical angle: 105 ±3 °
- Nominal resistance: 5 kΩ
- Resistance tolerance: ±20 %
- Absolute linearity: ≤ ±2 % VDD
- Hysteresis: 1 %
- Protective wiper resistor: 0.8 kΩ
- Temperature coefficient of the output-to-applied voltage ratio: typisch 15 ppm/K
- Max. permissible applied voltage: 24 V
- Recommended operating wiper current: ≤ 1 µA
- Max. wiper current in case of malfunction: ≤ 37.5 mA
- Insulation resistance (500 VDC): > 10 MΩ
- Dielectric strength (500 VAC, 50 Hz): < 100 µA
- Life: 3 x 10⁶ movements
- Protection class: ISO 20653 / IEC 60529 up to IP 67 (mounted with O-ring)

Betriebsbedingungen

- Temperature range: -30...+120 °C
- Vibration: 50...500 Hz
- Amax = 0.75 m/s²
- amax = 25 g
- 8 h per RR

Order designations

<table>
<thead>
<tr>
<th>Type</th>
<th>Art.No.</th>
<th>Electr. angle</th>
<th>Outfit on</th>
<th>Resistance</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP 1601 105 001 001</td>
<td>018402</td>
<td>105°</td>
<td>Pin 3</td>
<td>5 kΩ</td>
<td>AMP Tyco</td>
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<tr>
<td>SP 1601 105 001 002</td>
<td>018403</td>
<td>105°</td>
<td>Pin 3</td>
<td>5 kΩ</td>
<td>Yazaki SSD</td>
</tr>
</tbody>
</table>

Other versions on request.