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

The 3-pin Delphi Metri-Pack connector offers a popular and reliable plug connection.

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.

**Special features**
- easy mounting
- protection class up to IP 67 (mounted with o-ring), IP 40 shaft side
- long life
- 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. Fixings with brass bushings allow simplicity of mounting.

Effective design 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.

**Description**

<table>
<thead>
<tr>
<th>Housing</th>
<th>high-grade, temperature-resistant plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated shaft coupling</td>
<td>high-grade plastic</td>
</tr>
<tr>
<td>Resistance element</td>
<td>conductive plastic</td>
</tr>
<tr>
<td>Wiper assembly</td>
<td>precious metal multi-finger wiper</td>
</tr>
<tr>
<td>Electrical connections</td>
<td>connector (male) with 3 pins Delphi Metri-Pack 150, document No. 12059265</td>
</tr>
<tr>
<td>Sealing</td>
<td>O-ring</td>
</tr>
</tbody>
</table>
Mechanical Data

Dimensions: see drawing
Mounting: with 2 cylinder head screws M4
Mechanical angle: ca. 108°
Max. permissible torque at end stops: 0.6 Nm
Torque: 2...12 Ncm
Mounting torque of clamps at housing flange: 2.5 ±0.5 Nm
Weight: ca. 20 g

Electrical Data

Actual electrical angle: ca. 101 ±3°
Nominal resistance: 1.2 kΩ
Resistance tolerance: ± 30%
Absolute linearity: ± ±2 % VDD
Repeatability: 1.0 ±
Protective wiper resistor: 0.75 kΩ
Effective temperature coefficient of the output-to-applied voltage ratio: typical 15 ppm/K
Max. permissible applied voltage: 16 V
Recommended operating wiper current: < 1 µA
Max. wiper current in case of malfunction: 10 mA
Insulation resistance (500 VDC): > 10 mΩ
Dielectric strength (500 VAC, 50 Hz): < 100 µA

Environmental Data

Temperature range: -40 ... +125 °C
Vibration: 5...2000 Hz
A max < 5.75 m/s²
F max = 20 g
10 cycles
Life: 4 x 10^6 move-
mants
Operating speed: 100 min^{-1}
Protection class: ISO 20653 / IEC 60529 up to IP 67 (mounted with O-ring)

Order designations

<table>
<thead>
<tr>
<th>Type</th>
<th>Art.no.</th>
<th>Elect. angle</th>
<th>Output on</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP4001 101 003 000</td>
<td>018400 101°</td>
<td>pin 3</td>
<td>1.2 kΩ</td>
<td></td>
</tr>
</tbody>
</table>

Necessary accessories
Delivery via Delphi:
Socket plug (female) Delphi
Metri-Pack 150 connector
No. 12047909 rev. B,
tinned contacts

Recommended accessories
Process-controlled indicators
MAP... with display
Signal conditioner MUW.../MUK... for standardized output signals.