Industrial-Grade Potentiometers
Series IPS6000

Special features
- excellent linearity standard ± 0.1 %
- long life 100 x 10⁶ movements typ.
- mechanical continuous rotation
- extremely robust industrial-grade construction
- protection class IP 67

Using this potentiometer a maximum angular rotation of 355° can be converted into a voltage proportional to the angle of rotation, through the medium of a conductive plastic potentiometer.

This special „heavy-duty“ version of our industrial potentiometers can be used successfully in the most demanding applications or environmental conditions. Simply yet robustly built, these units are suitable for use in all manner of industrial applications and machinery manufacturing. The cast housing is watertight; sealing is achieved through the use of a stepped bush whilst electrical connections are made via a plug and socket mounted on the side of the unit.

Special versions with different electrical travels and shaft dimensions are available.

<table>
<thead>
<tr>
<th>Description</th>
<th>Case</th>
<th>Shaft</th>
<th>Bearings</th>
<th>Resistance element</th>
<th>Wiper assembly</th>
<th>Mounting</th>
<th>Electrical connections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>aluminium varnished, entry sealed using special stepped bush</td>
<td>stainless steel</td>
<td>stainless steel ball bearings</td>
<td>conductive plastic</td>
<td>precious metal multi-finger wiper</td>
<td>any optional position</td>
<td>7-pin all-metal plug and socket, freely rotatable, 90° right-angled, protection class IP67, bayonet catch</td>
</tr>
</tbody>
</table>
**Mechanical Data**

Dimensions  
see drawing

Mounting  
with 4 clamps Z 4-1

Mechanical travel  
360, continuous °

Permitted shaft loading (axial and radial)  
static or dynamic force 300 N

Starting torque  
<10 Nm

Maximum operational speed  
2 000 min⁻¹

Weight  
approx. 1200 g

**Electrical Data**

Actual electrical travel  
355 ±2 °

Nominal resistance  
5 kΩ

Resistance tolerance  
±20 %

Independent linearity  
±0.1 % (0.05 on request)

Repeatability  
0.002 % (±0.007°)

Effective temperature coefficient of the output-to-applied voltage ratio  
typical 5 ppm/K

Max. permissible applied voltage  
42 V

Max. wiper current in case of malfunction  
10 mA

Recommended operating wiper current  
≤ 1 μA

Insulation resistance (500 VDC, 1 bar, 2 s)  
≥ 10 MΩ

Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC)  
≤ 100 μA

**Environmental Data**

Temperature range  
-40...+100 °C

Vibration  
5...2000 Hz  
A max = 0.75  
amax = 20 g

Shock  
50 g

Life  
100 x 10⁶ movem.

Protection class  
IP 67 (DIN 400 50 / IEC 529)

**Order designations**

<table>
<thead>
<tr>
<th>Type</th>
<th>Art.no.</th>
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<tbody>
<tr>
<td>IPS9501 A502</td>
<td>010061</td>
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Additional models available

| IPS9501 G2502 | 010066 | ± 90° ± 2° indep. lin.  
s ± 0.3%, R+ 2.5 kΩ ± 20% |

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### Included in delivery

4 mounting clamps Z4-1,  
1 corner plug Cannon  
No. CA 08 COM-E-16S-1S-B,  
1 anti-kink sleeve

### Recommended accessories

Spring loaded coupling,  
Z 110 G10 (backlash-free),  
Process-controlled indicators MAP... with display,  
Signal conditioner MUP... / MUK ... for standardized output signals

**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∞ ≤ 1 μA).