Special features
• excellent precision - linearity ±0.075 %, repeatability ±0.02 %
• very high resolution - better than 0.008°
• exceptionally long life - to 100 million movements
• operating speed to 10,000 RPM
• continuous rotation allowed
• sealed to IP40
• industry standard size, provides excellent performance at reasonable cost

The P4500 is a precision potentiometer for measuring, control, and instrumentation applications. It offers a servo size 13 metal case, ball-bearings, a conductive resistance element and elastomer-damped wipers.

Special versions with different angular ranges and shaft dimensions are available.

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>servo size 20</td>
</tr>
<tr>
<td>Case</td>
<td>two-part: flange anodised aluminium; cover high-grade, temperature-resistant plastic</td>
</tr>
<tr>
<td>Shaft</td>
<td>stainless steel</td>
</tr>
<tr>
<td>Bearings</td>
<td>stainless steel ball bearings</td>
</tr>
<tr>
<td>Resistance element</td>
<td>conductive plastic</td>
</tr>
<tr>
<td>Wiper assembly</td>
<td>precious metal multi-finger wipers</td>
</tr>
<tr>
<td>Electrical connections</td>
<td>gold-plated brass terminals</td>
</tr>
</tbody>
</table>
### Mechanical Data

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included in delivery</td>
<td>3 mounting clamps Z1-31.</td>
</tr>
<tr>
<td>Recommended accessories</td>
<td>Fork coupling Z-104-G06, P/N 005690; Fork coupling Z-105-G06, P/N 005691, (backslash-free); MAP - Process-control indicator, with display, MUP / MUK - signal conditioners.</td>
</tr>
<tr>
<td>Important</td>
<td>All values given for linearity, lifetime and temperature coefficient are derived with no electrical load on the wiper (I &lt;= 1μA).</td>
</tr>
</tbody>
</table>

#### Dimensions
- see drawing

#### Mounting with
- with 3 clamps Z1-31

#### Mechanical travel
- 360, continuous

#### Permitted shaft loading (axial and radial)
- static or dynamic force
- 45 N

#### Torque
- ≤ 0.15 Nm

#### Maximum operational speed
- 10,000 RPM

#### Weight
- 80 g

### Electrical Data

#### Actual electrical travel
- 355 ±2 °

#### Available resistance values
- 1; 2; 5 kΩ

#### Resistance tolerance
- ±20 %

#### Repeatability
- 0.002 (≤ 0.007°) %

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

#### Independent linearity
- ±0.05 %

#### Max. permissible applied voltage
- 42 V

#### Recommended operating wiper current
- ≤ 1 μA

#### Max. wiper current (in case of malfunction)
- 10 mA

#### 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
  - Amax = 0.75 g
  - amax = 20 mm

#### Shock
- 50 g
- 11 ms

#### Life
- 100 x 10^6 movements

#### Protection class
- IP 40 (DIN 400 55 / IEC 529)

### Order designations

<table>
<thead>
<tr>
<th>Type</th>
<th>P/N</th>
<th>R in kΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-6501-A102</td>
<td>008201</td>
<td>1</td>
</tr>
<tr>
<td>P-6501-A202</td>
<td>008202</td>
<td>2</td>
</tr>
<tr>
<td>P-6501-A502</td>
<td>008203</td>
<td>5</td>
</tr>
</tbody>
</table>

### Additional models available

<table>
<thead>
<tr>
<th>Type</th>
<th>P/N</th>
<th>±</th>
<th>±</th>
<th>±</th>
<th>±</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-6501-S0049</td>
<td>008224</td>
<td>60°</td>
<td>±2°</td>
<td>independent linearity</td>
<td>±0.2 %</td>
</tr>
<tr>
<td>P-6501-G252</td>
<td>008221</td>
<td>90°</td>
<td>±2°</td>
<td>independent linearity</td>
<td>±0.3 %</td>
</tr>
<tr>
<td>P-6501-R252</td>
<td>008225</td>
<td>180°</td>
<td>±2°</td>
<td>independent linearity</td>
<td>±0.15 %</td>
</tr>
</tbody>
</table>

Type designations for non-standard models will be specified upon receipt of order.

© 05/2010
Subject to change.

Novotechnik U.S., Inc.
155 Northboro Road
Southborough, MA 01772

Phone 508 485 2244
Fax 508 485 2430
info@novotechnik.com
www.novotechnik.com