The distinctive features of conductive plastic potentiometers are a single integrated main bearing with very close tolerances and shaft with screwdriver slot combined with a shaft marking for easy identification of the wiper position. Because of its extremely low torque, this potentiometer is particularly suitable for applications where the repercussions of the driving shaft could lead to measuring faults.

The standard version P2201 A502 has a nominal resistance of 5 kΩ.

Special versions with different electrical travels are available.

![Image of potentiometer with specifications]

- **Special features**
  - extremely low torque: 0.003 Ncm
  - very long life - $100 \times 10^6$ movements
  - excellent linearity - standard ± 0.1%
  - very good repeatability better than 0.01°
  - single integrated main bearing
  - shaft with screwdriver slot and marking
  - unrestricted continuous rotation

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**Description**

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>servo size 11</td>
</tr>
<tr>
<td>Case</td>
<td>two-parts; flange anodized aluminium, cover high-grade temperature resistant plastic</td>
</tr>
<tr>
<td>Shaft</td>
<td>stainless steel with screwdriver slot and marking</td>
</tr>
<tr>
<td>Bearings</td>
<td>stainless integrated steel ball bearings, dust-protected</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>terminals gold-plated brass</td>
</tr>
</tbody>
</table>
Included in delivery
3 clamps Z1-11

Recommended accessories
Fork coupling Z 103 G 3 (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 ($I_o \leq 1 \mu A$).

Mechanical Data

Dimensions
see drawing
Mounting
with 3 clamps Z 1 - 11
Mechanical travel
360, continuous °
Permitted shaft loading (axial and radial)
static or dynamic force
15 N
Maximum torque
<0.003 Nm
Maximum operational speed
600 mm⁻¹
Weight
20 g

Electrical Data
Actual electrical travel
345 ±2 °
Nominal resistance
5 kΩ
Resistance tolerance
±20 %
Repeatability
0.0012 (%) %
Effective temperature coefficient of the output-to-applied voltage ratio
typical 5 ppm/K
Independent linearity
±0.1 %
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 m/s²
Amax = 5 m/s²
Shock
10 g
11 ms
Life
100 x 10⁶ movem.
Protection class
IP 50 (DIN 400 50 / IEC 529)

Order designations
Type
Art.no.
P2201 A502 002 003

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