Users should verify actual device performance in their specific applications.

Device performance may vary over time. The device characteristics and parameters in this data sheet can and do vary in different applications and actual specifications are subject to change without notice.


**Features**
- Carbon element
- Assortment of resistance tapers
- Variety of shaft lengths
- Dual gang element
- Flatted, slotted and knurled shaft styles
- Center detent option
- Rotary switch option

**Electrical Characteristics**

Standard Resistance Range

...1k ohms to 1 megohm

Standard Resistance Tolerance

R < 250K ohms..........................±20 %
R ≥ 250K ohms..........................±30 %

End Resistance

R < 50K ohms.................. 30 ohms max.
R ≥ 50K ohms........... 0.1 % of TR max.

Insulation Resistance @ 250 VDC

...100 megohms min.

Dielectric Withstanding Voltage ....300 VAC

Power Rating

3 A @ 16 VDC

Audio........................................ 0.05 watt
Linear........................................ 0.05 watt

Slider Noise..............................100 mV max.

Operating Voltage........... 50 VAC / 10 VDC

**Product Dimensions**

**Switch Characteristics**

Power Rating......................... 3 A @ 16 VDC

Contact Resistance.............100 microhm

Dielectric Strength

Bushing to Terminals.............. 300 VAC

Switch Terminals............. 50 VAC

Insulation Resistance

Bushing to Terminals @ 250 VAC

Switch Terminals @ 50 VAC

100 megohms

Switch Type............................. Rotary

Contact Arrangement.............. SPST

Switching Angle.................. 0° to max.

Detent Torque....................... 500 kgf-cm

Operating Life................ 10,000 cycles

Detent Torque ........................... 500 kgf-cm

Switching Angle ...........................50 ° max.

Contact Arrangement...................SPST

Switch Type ..................................... Rotary

Contact Arrangement.............. SPST

Switching Angle.................. 0° to max.

Operating Life................ 10,000 cycles

**Environmental Characteristics**

Operational Life................15,000 cycles

TR Shift .........................................±15 %

Operating Temperature Range .......-10 °C to +55 °C

Resistance to Solder Heat............... ±5 %

IP Rating.............................................IP 40

**Mechanical Characteristics**

Mechanical Angle ................... 300 ° ±3 °

Operating Torque................... 20–250 g-cm

Stop Strength..................... 5 g-cm max.

Mounting Torque.................. 10 kgf-cm max.

Shaft Push/Pull Strength ....... 10 kgf max.

Soldering Condition

Manual......................... 300 °C ±5 °C for 3 sec.

Wave.......................... 260 °C ±5 °C for 5 sec.

Wash............................ Not recommended

Hardware.......................... One flat washer and one mounting nut supplied with each potentiometer

**Schematic**

**Mounting Hole Detail**

**Locating Lug Detail**

**Switch Circuit**

**PTH90 Series Dual Concentric Shaft Panel Control w/Rotary Switch**

**PTH901 (Shown with Flatted Shaft)**

**PTH902 (Shown with Flatted Shaft)**

**Features**
- Carbon element
- Assortment of resistance tapers
- Variety of shaft lengths
- Dual gang element
- Flatted, slotted and knurled shaft styles
- Center detent option
- Rotary switch option

**Environmental Characteristics**

Operational Life................15,000 cycles

TR Shift .........................................±15 %

Operating Temperature Range .......-10 °C to +55 °C

Resistance to Solder Heat............... ±5 %

IP Rating.............................................IP 40

**Mechanical Characteristics**

Mechanical Angle ................... 300 ° ±3 °

Operating Torque................... 20–250 g-cm

Stop Strength..................... 5 g-cm max.

Mounting Torque.................. 10 kgf-cm max.

Shaft Push/Pull Strength ....... 10 kgf max.

Soldering Condition

Manual......................... 300 °C ±5 °C for 3 sec.

Wave.......................... 260 °C ±5 °C for 5 sec.

Wash............................ Not recommended

Hardware.......................... One flat washer and one mounting nut supplied with each potentiometer

**Switch Characteristics**

Power Rating......................... 3 A @ 16 VDC

Contact Resistance.............100 microhm

Dielectric Strength

Bushing to Terminals.............. 300 VAC

Switch Terminals............. 50 VAC

Insulation Resistance

Bushing to Terminals @ 250 VDC

Switch Terminals @ 50 VAC

100 megohms

Switch Type............................. Rotary

Contact Arrangement.............. SPST

Switching Angle.................. 0° to max.

Detent Torque....................... 500 kgf-cm

Operating Life................ 10,000 cycles

Detent Torque ........................... 500 kgf-cm

Switching Angle ...........................50 ° max.

Contact Arrangement...................SPST

Switch Type ..................................... Rotary

Contact Arrangement.............. SPST

Switching Angle.................. 0° to max.

Operating Life................ 10,000 cycles

**Electrical Characteristics**

Standard Resistance Range

...1k ohms to 1 megohm

Standard Resistance Tolerance

R < 250K ohms..........................±20 %
R ≥ 250K ohms..........................±30 %

End Resistance

R < 50K ohms.................. 30 ohms max.
R ≥ 50K ohms........... 0.1 % of TR max.

Insulation Resistance @ 250 VDC

...100 megohms min.

Dielectric Withstanding Voltage ....300 VAC

Power Rating

3 A @ 16 VDC

Audio........................................ 0.05 watt
Linear........................................ 0.05 watt

Slider Noise..............................100 mV max.

Operating Voltage........... 50 VAC / 10 VDC

**Environmental Characteristics**

Operational Life................15,000 cycles

TR Shift .........................................±15 %

Operating Temperature Range .......-10 °C to +55 °C

Resistance to Solder Heat............... ±5 %

IP Rating.............................................IP 40

**Mechanical Characteristics**

Mechanical Angle ................... 300 ° ±3 °

Operating Torque................... 20–250 g-cm

Stop Strength..................... 5 g-cm max.

Mounting Torque.................. 10 kgf-cm max.

Shaft Push/Pull Strength ....... 10 kgf max.

Soldering Condition

Manual......................... 300 °C ±5 °C for 3 sec.

Wave.......................... 260 °C ±5 °C for 5 sec.

Wash............................ Not recommended

Hardware.......................... One flat washer and one mounting nut supplied with each potentiometer

**Switch Characteristics**

Power Rating......................... 3 A @ 16 VDC

Contact Resistance.............100 microhm

Dielectric Strength

Bushing to Terminals.............. 300 VAC

Switch Terminals............. 50 VAC

Insulation Resistance

Bushing to Terminals @ 250 VDC

Switch Terminals @ 50 VAC

100 megohms

Switch Type............................. Rotary

Contact Arrangement.............. SPST

Switching Angle.................. 0° to max.

Detent Torque....................... 500 kgf-cm

Operating Life................ 10,000 cycles

Detent Torque ........................... 500 kgf-cm

Switching Angle ...........................50 ° max.

Contact Arrangement...................SPST

Switch Type ..................................... Rotary

Contact Arrangement.............. SPST

Switching Angle.................. 0° to max.

Operating Life................ 10,000 cycles


Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.
**Applications**

- Multimedia sound systems
- Mixers / drums / DJ equipment
- Automotive sound systems
- Portable electronics
- Portable appliances

**PTH90 Series Dual Concentric Shaft Panel Control w/ Rotary Switch**

**Additional Shaft Styles**

**Knurled Shaft**

**Slotted Shaft**

**Hardware**

**Nut**

**Washer**

**How To Order**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Designator</th>
<th>Number of Sections</th>
<th>Center Detent</th>
<th>Shaft Length (FMS)</th>
<th>Shaft Style</th>
<th>Resistance Code</th>
<th>Resistance Taper (See Taper Charts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTH90 2 - 0 30 F - 103 B2</td>
<td>PTH90 = Dual Concentric Shaft Panel Control</td>
<td>1 = Dual Gang, No Switch</td>
<td>0 = No Detent</td>
<td>30 = 30 mm</td>
<td>F = Flatted Metal</td>
<td>(See Standard Resistance Table)</td>
<td>Taper Series followed by Curve Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Dual Gang w/ Rotary Switch</td>
<td>1 = Center Detent</td>
<td>35 = 35 mm</td>
<td>S = Slotted Metal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40 = 40 mm</td>
<td>K = Knurled (18 tooth serrated)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Standard Resistance Table**

<table>
<thead>
<tr>
<th>Resistance (Ohms)</th>
<th>Resistance Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
<td>102</td>
</tr>
<tr>
<td>2,000</td>
<td>202</td>
</tr>
<tr>
<td>5,000</td>
<td>502</td>
</tr>
<tr>
<td>10,000</td>
<td>103</td>
</tr>
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<td>20,000</td>
<td>203</td>
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<td>50,000</td>
<td>503</td>
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<td>104</td>
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<td>204</td>
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<tr>
<td>500,000</td>
<td>504</td>
</tr>
<tr>
<td>1,000,000</td>
<td>105</td>
</tr>
</tbody>
</table>

**REV. 04/15**

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