**Features**
- Carbon element
- Ganging up to 8 sections available
- Knurled and flatted shaft styles
- Audio taper option
- Tracking error within 3 dB
- RoHS compliant*

**PTR90 Series - 9 mm Multi-Ganged Potentiometer w/Rotary Switch**

### Electrical Characteristics

- **Standard Resistance Range**: 1 K ohms to 1 M ohms
- **Total Resistance Tolerance**: ±10 % or ±20 %
- **Standard Tapers**: Linear & audio
- **Maximum Operating Voltage**: 150 VAC, 20 VDC
- **Rated Power**
  - Linear Taper: 0.05 watts
  - Audio Taper: 0.025 watts
- **Noise**: 100 mV max.
- **Insulation Resistance @ 250 VDC**: 100 M ohms
- **Dielectric Withstanding Voltage**: 300 VAC
- **End Resistance**: 20 ohms max.
- **Tracking Error** (-40 dB to 0 dB): ±3 dB

### Environmental Characteristics

- **Operating Temperature**: -10 °C to +50 °C
- **Rotational Life**: 15,000 cycles
- **IP Rating**: IP 40

### Switch Characteristics

- **Contact Resistance**: 50 milliohms max.
- **Rated Power**: 3 A @ 16 VDC
- **Detent Torque**: 400 g-cm max.
- **Switch Activation Angle**: 50 ° max.

### Mechanical Characteristics

- **Mechanical Angle**: 300 ° ±10 °
- **Running Torque**: 10 to 250 g-cm
- **Stop Strength**: 4.0 kg-cm
- **Shaft Push/Pull Strength**: 5.0 kgf min.
- **Shaft Wobble**: 0.6 x L/20 mm p-p max.
- **Mounting Torque**: 7.0 kg-cm min.
- **Soldering Condition**
  - Manual Soldering: 96.5 Sn/3.0 Ag/0.5 Cu solid wire or no-clean resin cored wire 270 °C max. for 3 seconds
  - Wave Soldering: 96.5 Sn/3.0 Ag/0.5 Cu solder with no-clean flux 260 °C max. for 5 seconds
  - Wash Process: Not recommended Mounting Hardware: One flat washer and one mounting nut supplied per potentiometer

### Derating Curve

- ![Derating Curve](image)

### 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>
<tr>
<td>20,000</td>
<td>203</td>
</tr>
<tr>
<td>50,000</td>
<td>503</td>
</tr>
<tr>
<td>100,000</td>
<td>104</td>
</tr>
<tr>
<td>200,000</td>
<td>204</td>
</tr>
<tr>
<td>500,000</td>
<td>504</td>
</tr>
<tr>
<td>1,000,000</td>
<td>105</td>
</tr>
</tbody>
</table>

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**Warning**: Cancer and Reproductive Harm
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)
### Applications
- Audio/TV sets
- Amplifiers/mixers/drum machines/synthesizers/DJ equipment
- Multimedia sound systems
- Portable electronics

### PTR90 Series - 9 mm Multi-Ganged Potentiometer w/Rotary Switch

### Product Dimensions

<table>
<thead>
<tr>
<th>PTR904</th>
<th>PTR906</th>
<th>PTR908</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Dimensions Diagram]</td>
<td>![Dimensions Diagram]</td>
<td>![Dimensions Diagram]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RECOMMENDED PCB LAYOUT</th>
<th>RECOMMENDED PCB LAYOUT</th>
<th>RECOMMENDED PCB LAYOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>![PCB Layout Diagram]</td>
<td>![PCB Layout Diagram]</td>
<td>![PCB Layout Diagram]</td>
</tr>
</tbody>
</table>

### SCHEMATIC

<table>
<thead>
<tr>
<th>PTR904</th>
<th>PTR906</th>
<th>PTR908</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Schematic Diagram]</td>
<td>![Schematic Diagram]</td>
<td>![Schematic Diagram]</td>
</tr>
</tbody>
</table>

### Specifications

- Dimensions: **MM (INCHES)**
  - **DIMENSIONS:**
    - **SW R4 R3 R2 R1**
      - **23.3 ± 0.5** (**9.17 ± 0.20**)
      - **6.25** (**246**)
      - **2.5** (**0.98**)
      - **5.0** (**1.97**)

- **MOUNTING SURFACE**
  - **DIA. HOLES**: 14 PLCS. **1.0 +0.2/-0** (**0.039 +0.008/-0**)

- **DIA. HOLES**: 20 PLCS. **1.0 +0.2/-0** (**0.039 +0.008/-0**)

- **Applications**
  - Audio/TV sets
  - Amplifiers/mixers/drum machines/synthesizers/DJ equipment
  - Multimedia sound systems
  - Portable electronics

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PTR90 Series - 9 mm Multi-Ganged Potentiometer w/Rotary Switch

Product Dimensions

**SHAFT STYLE “K”**

<table>
<thead>
<tr>
<th>L</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 (0.591)</td>
<td>5 (0.197)</td>
<td>6 (0.236)</td>
</tr>
<tr>
<td>20 (0.787)</td>
<td>7 (0.276)</td>
<td>10 (0.394)</td>
</tr>
<tr>
<td>25 (0.984)</td>
<td>10 (0.394)</td>
<td>12 (0.472)</td>
</tr>
</tbody>
</table>

**SHAFT STYLE “F”**

<table>
<thead>
<tr>
<th>L</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 (0.591)</td>
<td>9.5 ± 0.3 (0.374 ± 0.012)</td>
<td>6 (0.236)</td>
</tr>
<tr>
<td>20 (0.787)</td>
<td>6.0 ± 0.1 (0.236 ± 0.004)</td>
<td>10 (0.394)</td>
</tr>
<tr>
<td>25 (0.984)</td>
<td>6.5 ± 0.3 (0.256 ± 0.012)</td>
<td>12 (0.472)</td>
</tr>
</tbody>
</table>

SHAFT SHOWN IN CCW POSITION

**How To Order**

**PTR90 1 - 2 0 20 K - B 203**

Model
- PTR90 = With Rotary Switch

No. of Sections
- 1 = 1 Section
- 2 = 2 Sections
- 3 = 3 Sections
- 4 = 4 Sections
- 5 = 5 Sections
- 6 = 6 Sections
- 8 = 8 Sections

Pin Style
- 1 = PC Pins vertical/ down facing and ±10 % Total Resistance Tolerance
- 2 = PC Pins vertical/ down facing and ±20 % Total Resistance Tolerance

Center Detent Option
- 0 = No Detent
- 2 = Center Detent

Standard Shaft Length
- 15 = 15 mm
- 20 = 20 mm
- 25 = 25 mm

Shaft Styles
- K = Knurled Type Shaft (Metal)
- 18 Toothed Serration Type
- F = Flatted Metal Shaft

Resistance Taper (See Taper Charts)
- Taper Series followed by Curve Number

Resistance Code (See Table)
- Other shaft styles available.

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