1 5/16" (33.3 mm) Industrial Single Turn, Bushing Mount, Conductive Plastic Potentiometer

**FEATURES**

- Center tap available
- Continuous rotation and mechanical stops both standard
- Suitable model for all types of industrial applications

### QUICK REFERENCE DATA

<table>
<thead>
<tr>
<th>Sensor type</th>
<th>ROTATIONAL, conductive plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type</td>
<td>Output by turrets</td>
</tr>
<tr>
<td>Market appliance</td>
<td>Industrial</td>
</tr>
<tr>
<td>Dimensions</td>
<td>1 5/16&quot; (33.3 mm)</td>
</tr>
</tbody>
</table>

### ELECTRICAL SPECIFICATIONS

#### Ohmic Value Range

<table>
<thead>
<tr>
<th>Parameter</th>
<th>STANDARD</th>
<th>SPECIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance</td>
<td>± 10 %</td>
<td>± 5 %</td>
</tr>
<tr>
<td>Linearity (independent)</td>
<td>± 0.5 %</td>
<td>± 0.25 %</td>
</tr>
</tbody>
</table>

#### Power Rating

- 40 °C ambient: 2 W
derated to zero at 125 °C

#### Electrical Angle

- Continuous: 345° ± 4°
- Stops: 340° ± 5°

#### Insulation Resistance

- 1000 MΩ minimum at 500 VDC

#### Dielectric Strength

- 1000 V RMS, 60Hz

### MATERIAL SPECIFICATIONS

- **Housing**: Molded glass filled thermoplastic
- **Rear Lid**: Glass filled thermoset plastic
- **Shaft**: Stainless steel, non-magnetic
- **Terminals**: Brass, plated for solderability, non-passivated
- **Mount Hardware**: Steel, nickel plated
- **Lockwasher Internal Tooth**: Steel, nickel plated
- **Panel nut**: Brass, nickel plated

### ENVIRONMENTAL SPECIFICATIONS

- **Vibration**: 15 g thru 2000 Hz
- **Shock**: 50 g
- **Salt Spray**: 48 h
- **Rotational Life**: 2 million
- **Shaft Revolutions**: 2 million
- **Operating Temperature Range**: -55 °C to +125 °C

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability

### ORDERING INFORMATION

- **Model**: 138
- **Style**: B: bushing
- **Mechanical Options**: 0 = continuous, 2 = stops
- **Features**: 0 = standard, 1 = center tap
- **Value**
  - 470 = 47 Ω
  - 222 = 2.200 Ω
  - 103 = 10 kΩ
  - For ohmic value range see electrical specification
- **Special Request**: Custom reference

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Revision: 29-Nov-17

For technical questions, contact: sferprecisionpot@vishay.com

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Model 138
Vishay Spectrol

**PART NUMBER DESCRIPTION** (for information only)

<table>
<thead>
<tr>
<th>138-</th>
<th>2-</th>
<th>1-</th>
<th>502</th>
<th>xxxx</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL</td>
<td>MECHANICAL OPTIONS</td>
<td>FEATURES</td>
<td>OHMIC VALUE</td>
<td>SPECIAL</td>
</tr>
</tbody>
</table>

**DIMENSIONS** in inches (millimeters)

MODEL 138B/138...

**MECHANICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>STARTING</th>
<th>RUNNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation</td>
<td>360° (continuous) 340° ± 5° stops</td>
<td></td>
</tr>
<tr>
<td>Bearing Type</td>
<td>Sleeve</td>
<td></td>
</tr>
<tr>
<td>Torque (maximums)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shaft Runout (TIR)</td>
<td>0.002&quot; (0.05 mm)</td>
<td></td>
</tr>
<tr>
<td>Pilot Dia. Runout (TIR)</td>
<td>0.003&quot; (0.08 mm)</td>
<td></td>
</tr>
<tr>
<td>Lateral Runout (TIR)</td>
<td>0.005&quot; (0.13 mm)</td>
<td></td>
</tr>
<tr>
<td>Shaft End Play</td>
<td>0.008&quot; (0.20 mm)</td>
<td></td>
</tr>
<tr>
<td>Shaft Radial Play</td>
<td>0.003&quot; (0.08 mm)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>1.0 oz. maximum (28.35 g)</td>
<td></td>
</tr>
<tr>
<td>Stop Strength</td>
<td>8.0 in - lbs (9.21 kg - cm) (stops version only)</td>
<td></td>
</tr>
</tbody>
</table>

**POWER RATING CHART**

**MARKING**

Units shall be marked with Vishay Spectrol name, model number, resistance and tolerance, linearity, terminal identification, and data code Applicable test procedures:

MIL-R-39023

Example of a marking for a standard part:

138-2-0-502
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