PEC11S Series - 12 mm SMD Incremental Encoder

Features
- Push switch option standard
- Compact, rugged design
- High reliability
- Metal bushing/shaft
- Surface mount version

Electrical Characteristics

- Output: 2-bit quadrature code
- Closed Circuit Resistance: 3 ohms maximum
- Insulation Resistance: 10 megohms @ 500 VDC
- Dielectric Withstanding Voltage: 1000 VAC @ 50 Hz
- Electrical Travel: 300 VAC minimum
- Contact Bounce (15 RPM): 2.0 ms maximum
- RPM (Operating): 60 maximum

Environmental Characteristics

- Operating Temperature Range: -40 °C to +70 °C (-40 °F to +158 °F)
- Storage Temperature Range: -40 °C to +85 °C (-40 °F to +185 °F)
- Operating Humidity: 25% to 80% R.H.
- Rotational Life: 15,000 cycles minimum
- Switch Life: 20,000 cycles minimum
- IP Rating: IP 40

Mechanical Characteristics

- Mechanical Angle: 360° continuous
- Detent Torque: 100 ± 70 gf cm (1.36 ± 0.09 oz-in.)
- Shaft Push-Pull Strength: 10 kg max.
- Weight: 5 gm (0.17 oz.) maximum
- Terminals: Printed circuit board surface mount terminals
- Soldering Condition: No hardware supplied with this encoder

Switch Characteristics

- Switch Type: Contact Push ON Momentary SPST
- Power Rating (Resistive Load): 10 mA at 5 V DC
- Switch Travel: 0.5 ± 0.3 mm (H), 1.5 ± 0.5 mm (S)
- Switch Actuation Force: See How To Order
- Contact Resistance: 100 mΩ max.

How To Order

PEC11S - 9 2 20 F - S 0015

Switch Circuit

Quadrature Output Table

<table>
<thead>
<tr>
<th>CW</th>
<th>OFF</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Signal</td>
<td>D</td>
<td>CCW</td>
</tr>
<tr>
<td>B Signal</td>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: D and E are dummy terminals on non-switch version.

Resolution
0.015° = 15 Pulses per 360° Rotation

Applications
Level control, tuning and timer settings in:
- Audio-visual equipment
- Consumer electric appliances
- Radios
- Musical instrumentation
- Communications equipment

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Solder Profile

![Solder Profile Diagram]

Notes:
1. No clean solder paste is recommended.
2. Aqueous wash is not recommended.
3. Use of water soluble soldering flux shall be avoided due to possible corrosion.
4. Multiple passes through the soldering process is not recommended.

Product Dimensions

Common Dimensions

![Common Dimensions Diagram]

Recommended PCB Layout

![Recommended PCB Layout Diagram]
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Product Dimensions - Shaft Styles

PEC11S without Switch

**KNURLED SHAFT**

**FLATTED SHAFT**

PEC11S with 0.5 mm Switch Travel

**KNURLED SHAFT**

**FLATTED SHAFT**

PEC11S with 1.5 mm Switch Travel

**KNURLED SHAFT**

**FLATTED SHAFT**

REV. 03/13
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.

For more information about this product, visit our website at:

www.potentiometers.com