PEC11R Series - 12 mm Incremental Encoder

Features
- Push switch option
- Compact, rugged design
- High reliability
- Metal bushing/shaft
- RoHS compliant*

Electrical Characteristics
- Output: 2-bit quadrature code
- Contact Rating: 10 mA @ 5 VDC
- Insulation Resistance: 100 megohms @ 250V DC
- Dielectric Withstanding Voltage: 300 VAC min.
- Switch Travel: Continuous
- Contact Bounce: 2.0 ms max.** RPM (Operating) 60 max.**

Environmental Characteristics
- Operating Temperature Range: -30 °C to +70 °C (-22 °F to +158 °F)
- Storage Temperature Range: -40 °C to +85 °C (-40 °F to +185 °F)
- Shock: 100 G @ 5 ms max.
- Vibration: 2.1 G @ Amplitude 1

Mechanical Characteristics
- Mechanical Angle: 360° Continuous
- Detent: 30 to 90 gf-cm (0.41 to 1.25 oz-in.)
- Running: 10 to 70 gf-cm (0.14 to 0.97 oz-in.)
- Shaft Load (Static): 2.04 kgf (4.5 lbs.) max.
- Weight: 5 gmn (0.17 oz.) max.
- Terminals: Printed circuit board terminals
- Soldering Condition: Wave Soldering
- Waviness: ≤0.004" max.

Switch Characteristics
- Switch Type: Contact Push ON Momentary SPST
- Power Rating: 10 mA at 5 VDC
- Switch Travel: 0.5 ± 0.3 mm
- Switch Actuation Force: 610 ± 360 gfl (8.47 ± 4.24 oz-in.)
- Contact Resistance: 100 milliøhms @ 5 VDC

WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

**Devices are tested using standard noise reduction filters. For optimum performance, designers should use noise reduction filters in their circuits.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

Additional Information
Click these links for more information:

Product Dimensions
PEC11R-1xxxF-Nxxxx
PEC11R-1xxxF-Sxxxx
PEC11R-2xxxF-Nxxxx

CAUTION
Do not store product in high temperature and humidity, direct sunlight and/or places where corrosive gases may be generated. Please use product within 6 months from the date of delivery and promptly after unpacking.
Applications

Level control, tuning and timer settings in:

- Audio-visual equipment
- Consumer electric appliances
- Radios
- Musical instrumentation
- Communications equipment

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Shaft Dimensions

**Flatted Shaft**

<table>
<thead>
<tr>
<th>L</th>
<th>LB</th>
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<tbody>
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<td>30</td>
<td>7</td>
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**Knurled Shaft**

**Knurled Shaft Without Switch**

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<th>L</th>
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<td>30</td>
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**Knurled Shaft With Switch**

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**DIMENSIONS:**

- **Flatted Shaft:**
  - L: 15 mm (0.591 in), 20 mm (0.787 in), 25 mm (0.984 in), 30 mm (1.181 in)
  - LB: 5 mm (0.197 in), 7 mm (0.276 in), 7 mm (0.276 in), 7 mm (0.276 in)
  - F: 0.75 mm (0.030 in)

- **Knurled Shaft:**
  - L: 15 mm (0.591 in), 20 mm (0.787 in), 25 mm (0.984 in), 30 mm (1.181 in)
  - LB: 5 mm (0.197 in), 7 mm (0.276 in), 7 mm (0.276 in), 7 mm (0.276 in)
  - F: 0.75 mm (0.030 in)

**Hardware**

<table>
<thead>
<tr>
<th>M7 x 0.5</th>
<th>NUT</th>
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</thead>
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<td>0.75 mm (0.030 in)</td>
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**Quadrature Output Table**

<table>
<thead>
<tr>
<th>ON</th>
<th>OFF</th>
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<tr>
<td>CW</td>
<td>D</td>
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</table>

**Suggested Filter Circuit**

<table>
<thead>
<tr>
<th>TERMINAL A</th>
<th>10K OHMS</th>
<th>10K OHMS</th>
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<tbody>
<tr>
<td>TERMINAL B</td>
<td>0.01 μF</td>
<td>0.01 μF</td>
</tr>
<tr>
<td>TERMINAL C</td>
<td>0.01 μF</td>
<td>0.01 μF</td>
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</tbody>
</table>

**Switch Circuit**

**How To Order**

PEC11R 4 0 20 F - S 0012

- Model
- Terminal Configuration
  - 1 = PC Pin Vertical / Side Facing 7 mm
  - 2 = PC Pin Vertical / Side Facing 10 mm
  - 4 = PC Pin Horizontal / Rear Facing
- Detent Option
  - 0 = No Detents (12, 18, 24 pulses)
  - 1 = 18 Detents (18 pulses)
  - 2 = 24 Detents (12, 24 pulses)
  - 3 = 12 Detents (12, 24 pulses)
- Standard Shaft Length
  - 15 = 15 mm
  - 25 = 25 mm
  - 20 = 20 mm
  - 30 = 30 mm
- Shaft Style
  - F = Metal Flatted Shaft
  - K = Metal Knurled Shaft
- Switch Configuration
  - S = Push Momentary Switch
  - N = No Switch
- Resolution
  - 0012 = 12 Pulses per 360° Rotation
  - 0024 = 24 Pulses per 360° Rotation
  - 0018 = 18 Pulses per 360° Rotation

1Metal knurled shaft without switch is available in 15, 20 and 30 mm shaft lengths.
2Metal knurled shaft with push momentary switch is available in 15 and 20 mm shaft lengths.

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