PEC11R Series - 12 mm Incremental Encoder

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

Electrical Characteristics
- Output: 2-bit quadrature code
- Contact Rating: 10 mA @ 5 VDC
- Insulation Resistance: 100 megohms @ 250 VDC
- Dielectric Withstanding Voltage: 300 VAC minimum
- Electrical Travel: Continuous
- Contact Bounce (15 RPM): 2.0 ms maximum**
- RPM (Operating): 0.60 maximum**

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)
- Humidity: 10–55% - 10 Hz / 1 min. / Amplitude 1.5 mm
- Shock: 100 G
- Rotational Life: 30,000 cycles minimum
- Switch Life: 20,000 cycles minimum
- IP Rating: IP 40

Mechanical Characteristics
- Mechanical Angle: 360 ° continuous
- Torque
- 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 Side Load (Static): 10.2 kgf-cm (8.83 lb.-in.) maximum
- Weight: 2.04 kgf (4.5 lbs.) minimum
- Mounting: 5 gm (0.17 oz.) maximum
- Terminals: Printed circuit board terminals
- Soldering Condition
- Wave Soldering: Sn95.5/Ag2.8/Cu0.7 solder with no-clean flux: 260 °C max. for 3 ±1 sec.
- Hand Soldering: Not recommended
- Hardware: One flat washer and one mounting nut supplied with each 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
- Switch Actuation Force: 610 ± 306 gf (8.47 ± 4.24 oz.-in.)
- Contact Resistance: 100 milliohms @ 5 VDC

How To Order

Model PEC11R - 4 0 20 F - S 0012

Terminal Configuration
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 = 15.0 mm
20 = 20.0 mm
25 = 25.0 mm
30 = 30.0 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
0018 = 18 Pulses per 360 ° Rotation
0024 = 24 Pulses per 360 ° Rotation

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

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

PEC11R Series - 12 mm Incremental Encoder

Product Dimensions

PEC11R-4xxxF-Nxxxx

PEC11R-4xxxF-Sxxxx

<table>
<thead>
<tr>
<th>L</th>
<th>LB</th>
<th>F</th>
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<tbody>
<tr>
<td>15</td>
<td>5.0</td>
<td>7.0</td>
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<td>20</td>
<td>7.0</td>
<td>10.0</td>
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<tr>
<td>25</td>
<td>7.0</td>
<td>12.0</td>
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<tr>
<td>30</td>
<td>7.0</td>
<td>12.0</td>
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</tbody>
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DIMENSIONS: MM (INCHES)

TOLERANCES: ± 0.5 (0.020)

Switch Circuit

Suggested Filter Circuit

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PEC11R Series - 12 mm Incremental Encoder

Product Dimensions

PEC11R-4xxxK-Nxxxx

PB A

15 5.0 7.0 6.0
(.591) (.197) (.276) (.236)

L
LB
P
A

20
(.787)
7.0
(.276)
7.0
(.276)
6.0
(.236)

30
(1.181)
7.0
(.276)
16.0
(.630)
12.0
(.472)

PEC11R-4xxxK-Sxxxx

PB A

18 TEETH

6.0 +0/-0.1
(.236 +0/-.004)

DIA.

1.0
(.039)

M7 X 0.75
(.030)

SWITCH TRAVEL
0.5
(.020)

A

18 TEETH

6.0 +0/-0.1
(.236 +0/-.004)

DIA.

1.0
(.039)

M7 X 0.75
(.030)

DIMENSIONS:  MM (INCHES)

TOLERANCES:  
 \[
\begin{array}{c}
\text{TOLERANCES: }  \\
< 10  =  0.3 \\
\geq 10  =  0.5 \\
\end{array}
\]

REV. 11/16

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