



**BOURNS®**

## Features

- Push switch option
- Compact, low profile
- High reliability
- Metal bushing/shaft
- RoHS compliant\*



## PEC11L Series - 11 mm Low Profile Encoder

### Electrical Characteristics

Output .....	2-bit quadrature code
Closed Circuit Resistance .....	100 milliohms maximum
Contact Rating .....	10 mA @ 5 VDC
Insulation Resistance .....	100 megohms @ 250 VDC
Dielectric Withstanding Voltage	
Sea Level .....	300 VAC minimum
Electrical Travel .....	Continuous
Contact Bounce (60 RPM) .....	10 ms maximum**
RPM (Operating) .....	60 maximum**

### Environmental Characteristics

Operating Temperature Range .....	-10 °C to +70 °C (+14 °F to +158 °F)
Storage Temperature Range .....	-40 °C to +85 °C (-40 °F to +185 °F)
Humidity .....	MIL-STD-202, Method 103B, Condition A
Vibration .....	30 G
Contact Bounce .....	10~55~10 Hz / 1 min. / Amplitude 1.5 mm
Shock .....	100 G
Rotational Life .....	100,000 cycles minimum
IP Rating .....	IP 40

### Mechanical Characteristics

Mechanical Angle .....	360 ° continuous
Torque	
Detent .....	20-150 gf-cm (0.27 to 2.0 oz-in)
Running .....	10 to 150 gf-cm (0.14 to 2.1 oz-in)
Mounting .....	70 N-cm (6.2 lb-in) maximum
Shaft Side Load (Static) .....	2.04 kgf (4.5 lbs) minimum
Shaft Strength (Push-Pull) .....	100 N (22.5 lbs)
Weight .....	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 ±5 °C max. for 3-5 seconds
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
Switch Life .....	20,000 cycles minimum
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.)

### How To Order

	<b>PEC11L - 4 0 20 F - S 0015</b>
Model .....	PEC11L
Terminal Configuration .....	4 = PC Pin Horizontal/Rear Facing
Detent Option .....	0 = No Detents (15, 20 pulses) 1 = 20 Detents (20 pulses) 2 = 30 Detents (15 pulses)
Standard Shaft Length .....	15 = 15.0 mm 20 = 20.0 mm 25 = 25.0 mm
Shaft Style .....	F = Metal Flatted Shaft K = Metal Knurled Shaft
Switch Configuration .....	S = Push Momentary Switch N = No Switch
Resolution .....	0015 = 15 Pulses per 360 ° Rotation 0020 = 20 Pulses per 360 ° Rotation

\*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.

\*\*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.

Customers should verify actual device performance in their specific applications.

# Applications

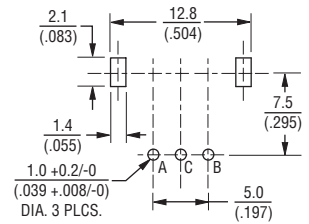
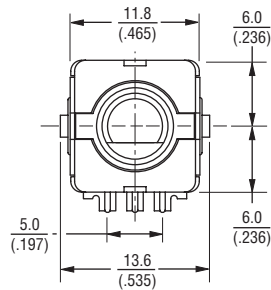
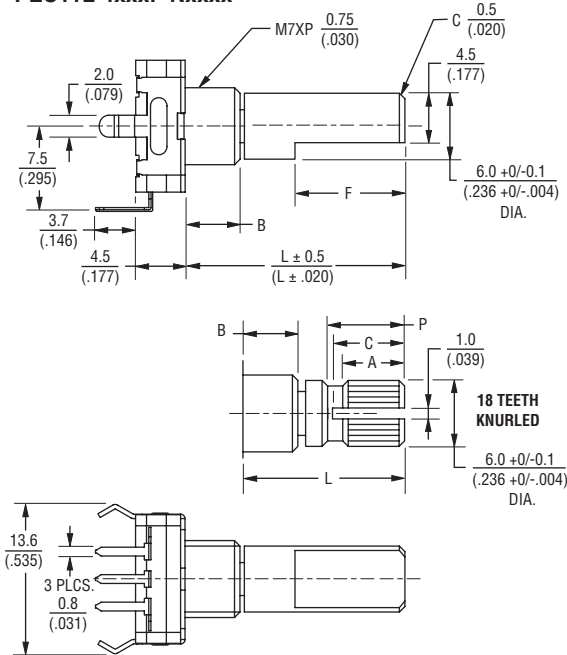
Level control, tuning and timer settings in:

- Audio-visual equipment
- Consumer electric appliances
- Environmental controls
- Musical instrumentation
- Communications equipment

## PEC11L Series - 11 mm Low Profile Encoder **BOURNS®**

### Product Dimensions

#### PEC11L-4xxxF-Nxxxx

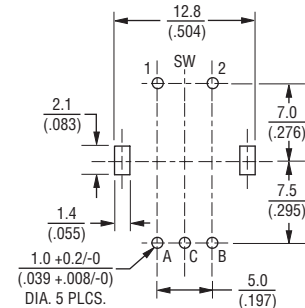
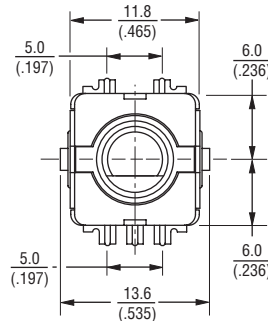
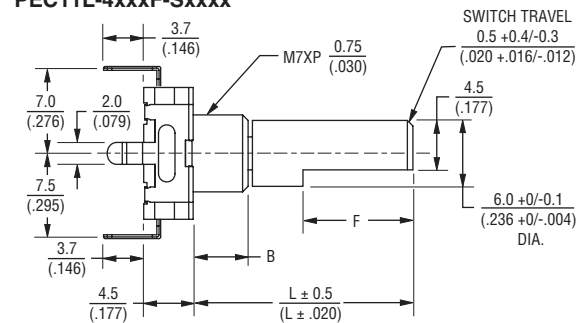


L	B	F	P	A	C
15 (.591)	5.0 (.197)	7.0 (.276)	7.0 (.276)	6.0 (.236)	7.0 (.276)
20 (.787)	7.0 (.276)	10.0 (.394)	7.0 (.276)	6.0 (.236)	7.0 (.276)
25 (.984)	7.0 (.276)	12.0 (.472)	12.0 (.472)	10.0 (.394)	11.0 (.433)

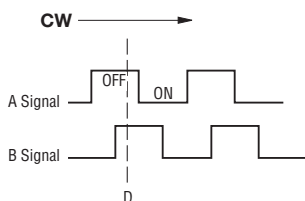
Dim.	Tol.
<10.0 (<.394)	±0.3 (±.012)
10.0 ~ 100 (.394 ~ 3.937)	±0.5 (±.020)

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

#### PEC11L-4xxxF-Sxxxx



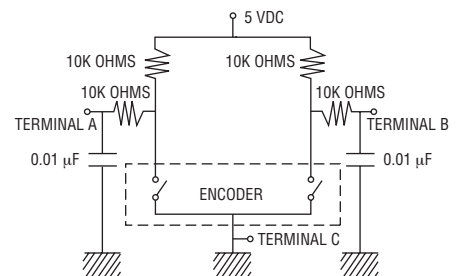
### Quadrature Output Table



### Switch Circuit



### Suggested Filter Circuit



REV. 02/11

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