

## Features

- Push switch option
- High detent torque
- High rotational life and switch life
- Metal bushing/shaft
- RoHS compliant\*



## PEC11H Series - 11 mm Encoder w/High Detent Force

### 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).....	3.0 ms maximum**
RPM (Operating) .....	60 maximum**

### Environmental Characteristics

Operating Temperature Range .....	-20 °C to +70 °C (-4 °F to +158 °F)
Storage Temperature Range .....	-35 °C to +85 °C (-31 °F to +185 °F)
Humidity.....	MIL-STD-202, Method 103B, Condition A
Vibration .....	10~55~10 Hz / 1 min. / Amplitude 1.5 mm
Shock.....	100 G
Rotational Life.....	100,000 cycles minimum
IP Rating.....	IP 40
Moisture Sensitivity Level.....	1

### Mechanical Characteristics

Mechanical Angle .....	360 ° continuous
Torque	
Detent .....	210 ±70 gf-cm (2.0 ± 0.1 oz-in)
Mounting .....	70 N-cm (6.2 lb-in) maximum
Shaft Strength (Push-Pull).....	50 N (11.2 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 ± 1 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 .....	30,000 actuations 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.)

### Additional Information

Click these links for more information:



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**WARNING**  
Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\*RoHS Directive 2015/863, Mar 31, 2015 and 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. 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](http://www.bourns.com/docs/legal/disclaimer.pdf).



**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

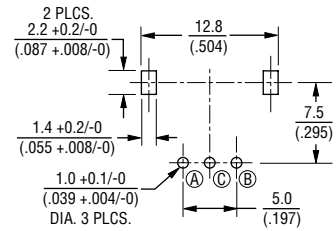
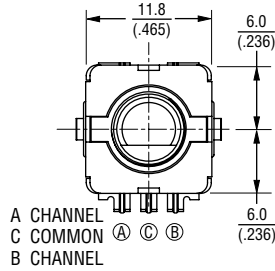
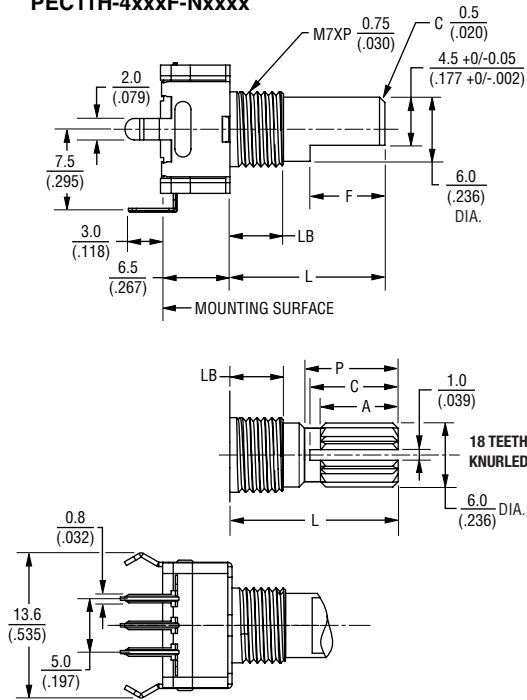
Level control, tuning and timer settings in:

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

## PEC11H Series - 11 mm Encoder w/High Detent Force **BOURNS®**

### Product Dimensions

#### PEC11H-4xxxF-Nxxxx

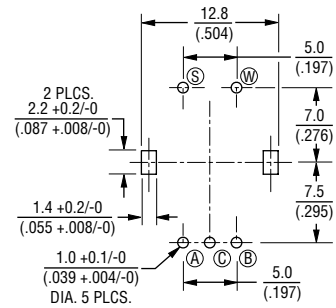
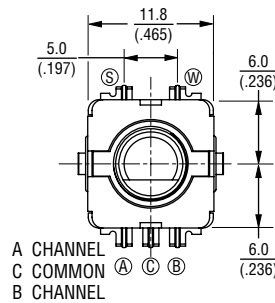
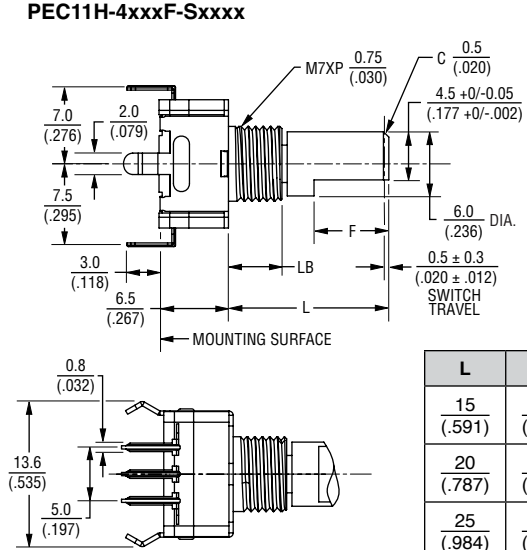


L	LB	F	P	A	C
15 (.591)	5.0 (.197)	5.0 (.197)	7.0 (.276)	6.0 (.236)	6.0 (.236)
20 (.787)	7.0 (.276)	10.0 (.394)	7.0 (.276)	6.0 (.236)	7.0 (.276)
25 (.984)	7.0 (.276)	12.0 (.472)	12.0 (.472)	10.0 (.394)	11.0 (.433)

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

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

#### PEC11H-4xxxF-Sxxxx



L	LB	F	Dim.	Tol.
15 (.591)	5.0 (.197)	5.0 (.197)	<10.0 (<.394)	±0.3 (±.012)
20 (.787)	7.0 (.276)	10.0 (.394)	10.0 ~ 100 (.394 ~ 3.937)	±0.5 (±.020)
25 (.984)	7.0 (.276)	12.0 (.472)		

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

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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# PEC11H Series - 11 mm Encoder w/High Detent Force



## How To Order

**PEC11H - 4 0 20 F - S 0020**

Model \_\_\_\_\_

Terminal Configuration \_\_\_\_\_  
 4 = PC Pin Horizontal/Rear Facing

Detent Option \_\_\_\_\_  
 0 = 16 Detents (8, 16 pulses)      2 = 24 Detents (24 pulses)  
 1 = 20 Detents (20 pulses)          3 = 30 Detents (15 pulses)

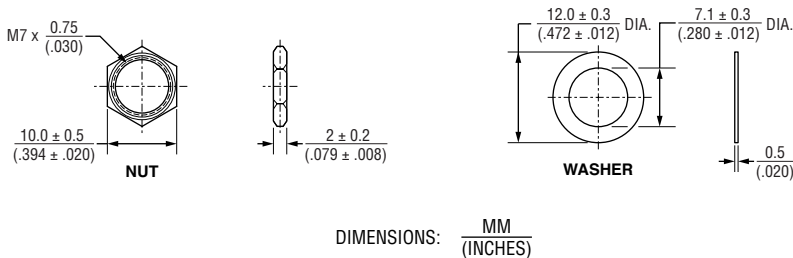
Standard Shaft Length \_\_\_\_\_  
 15 = 15.0 mm      25 = 25.0 mm  
 20 = 20.0 mm      30 = 30.0 mm

Shaft Style \_\_\_\_\_  
 F = Metal Flatted Shaft  
 K = Metal Knurled Shaft

Switch Configuration \_\_\_\_\_  
 S = Push Momentary Switch  
 N = No Switch

Resolution \_\_\_\_\_  
 0008 = 8 Pulses per 360 ° Rotation      0020 = 20 Pulses per 360 ° Rotation  
 0015 = 15 Pulses per 360 ° Rotation      0024 = 24 Pulses per 360 ° Rotation  
 0016 = 16 Pulses per 360 ° Rotation

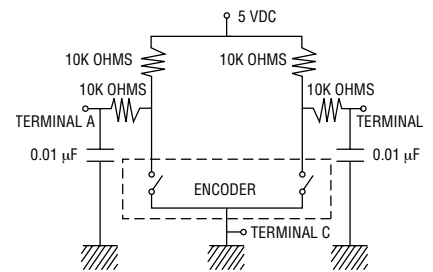
## Hardware



## Switch Circuit



## Suggested Filter Circuit



## Quadrature Output Table

