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\*RoHS COMPLIANT



**BOURNS®**

**Features**

- Compact design, long life and high reliability
- Low cost compared to optical type encoders
- Available in a wide variety of configurations to meet many user requirements



Model PEC12 is currently available, but will be replaced by the Model PEC12R per Product Change Notification details.

**PEC12 - 12 mm Incremental Encoder**

**Electrical Characteristics**

Output.....	2-bit quadrature code
Closed Circuit Resistance.....	3 ohms maximum
Contact Rating.....	1 mA @ 5 VDC
Insulation Resistance.....	10 megohms @ 250 VDC
Dielectric Withstanding Voltage	
Sea Level.....	50 VAC minimum
Electrical Travel.....	Continuous
Contact Bounce (15 RPM).....	5.0 ms. maximum**
RPM (Operating).....	100 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.....	MIL-STD-202, Method 103B, Condition B
Vibration.....	30 G
Contact Bounce.....	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
Running Torque.....	30.6 to 204 g-cm (0.42 to 2.83 oz.-in.)
Shaft Side Load (Static).....	2.04 kgf (4.5 lbs.) minimum
Weight.....	3 gm (0.1 oz.) maximum
Terminals.....	Printed circuit board terminals
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Soldering Condition	
Wave Soldering.....	Sn95.5/Ag2.8/Cu0.7 solder with no-clean flux: 260 °C max. for 3-5 seconds
Hand Soldering.....	Not recommended
Hardware.....	No hardware supplied

**Switch Characteristics**

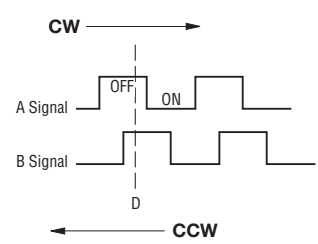
Switch Type.....	Contact Push ON Momentary SPST
Power Rating (Resistive Load).....	10 mA at 5 V DC
Switch Travel.....	0.5 +0.4/-0.3 mm
Switch Actuation Force.....	360 +153/-102 gf (5 +2.1/-1.4 oz.-in.)

**How To Order**

**PEC12 - 4 0 20 F - S 0012**

Model.....	PEC12 - 4 0 20 F - S 0012
Terminal Configuration.....	4 = Horizontal Mount/Rear Facing PC Pin
2 = Vertical Mount/Down Facing PC Pin	
Detent Option.....	0 = No Detents
1 = 12 Detents (available with 12 pulses only)	
2 = 24 Detents (available with 24 pulses only)	
Standard Shaft Length.....	20 = 20.0 mm
17 = 17.5 mm	
25 = 25.0 mm	
30 = 30.0 mm	
Shaft Style.....	F = Insulated Flatted Shaft
Switch Configuration.....	S = Push Momentary Switch
N = No Switch	
Resolution.....	0012 = 12 Pulses per 360 ° Rotation
0024 = 24 Pulses per 360 ° Rotation	

**Quadrature Output Table**



\*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
- Radios
- Musical instrumentation
- Communications equipment

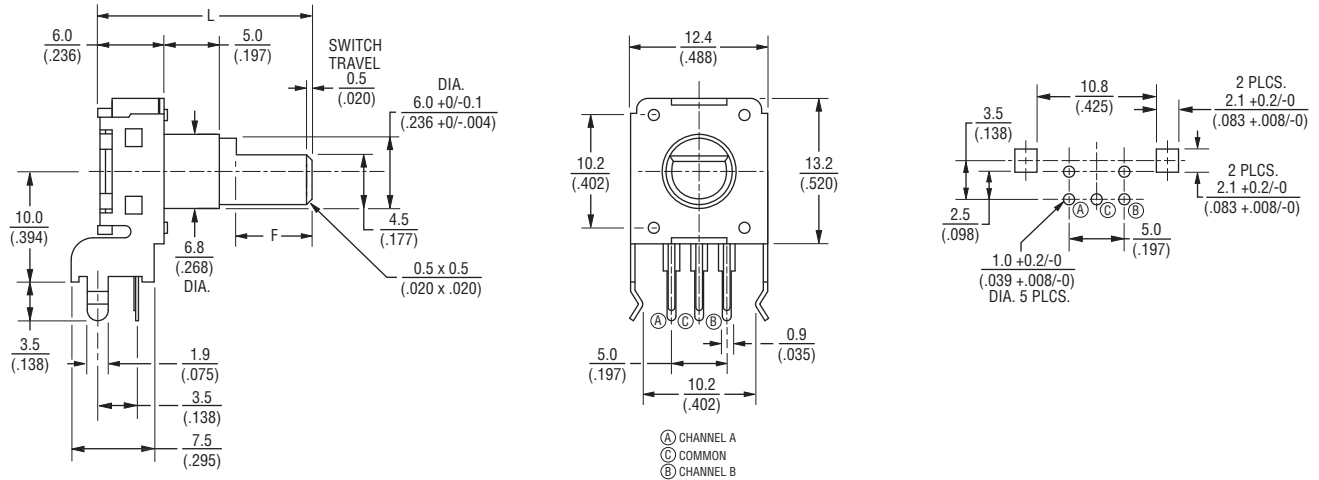


# PEC12 - 12 mm Incremental Encoder

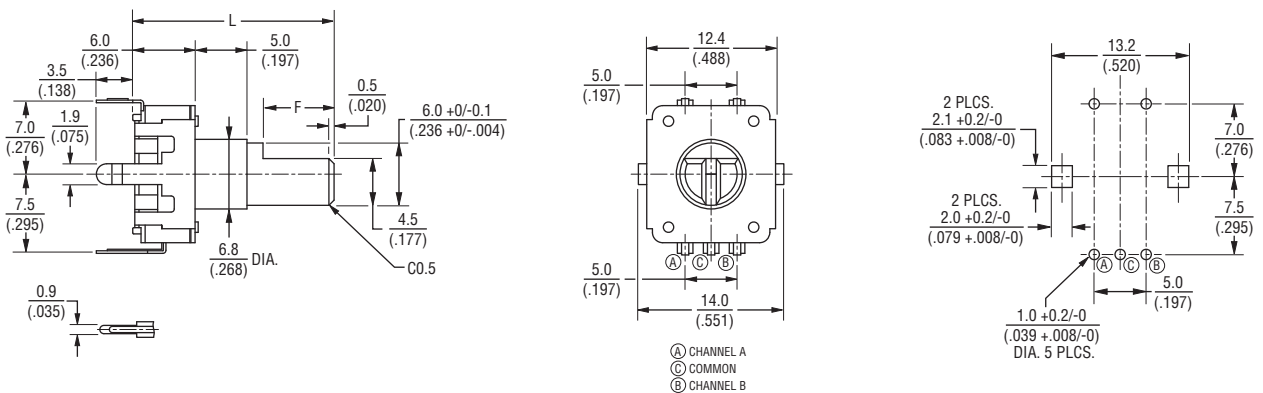
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### Product Dimensions

#### PEC12-2xxxF-Sxxxx (Vertical Mount)



#### PEC12-4xxxF-Sxxxx (Horizontal Mount)



L	17.5 (.688)	20.0 (.787)	25.0 (.984)	30.0 (1.181)
F	5.0 (.197)	7.0 (.276)	12.0 (.472)	12.0 (.472)

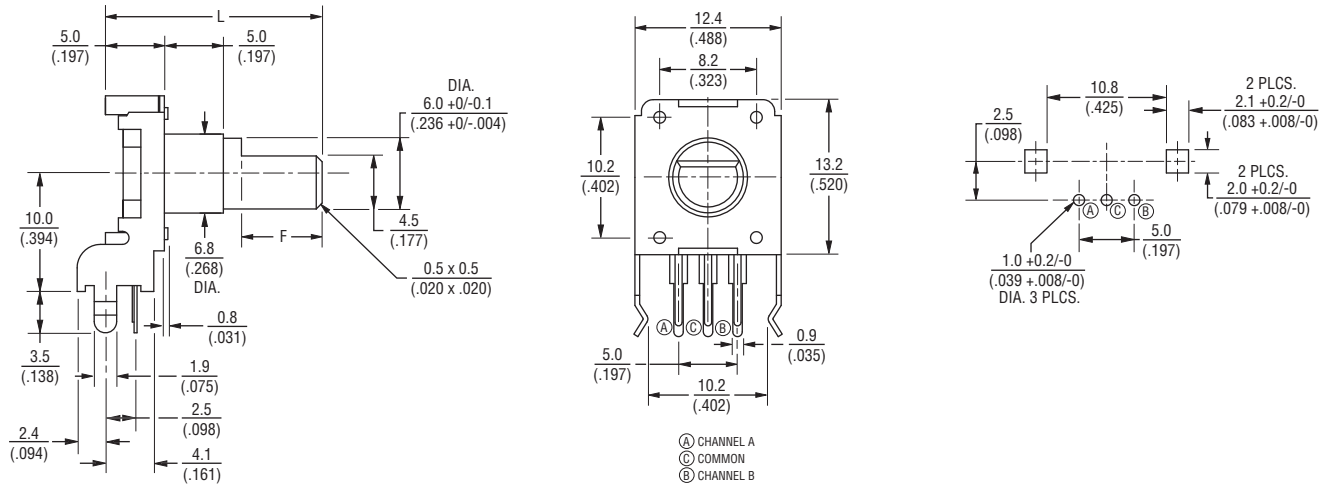
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

# PEC12 - 12 mm Incremental Encoder

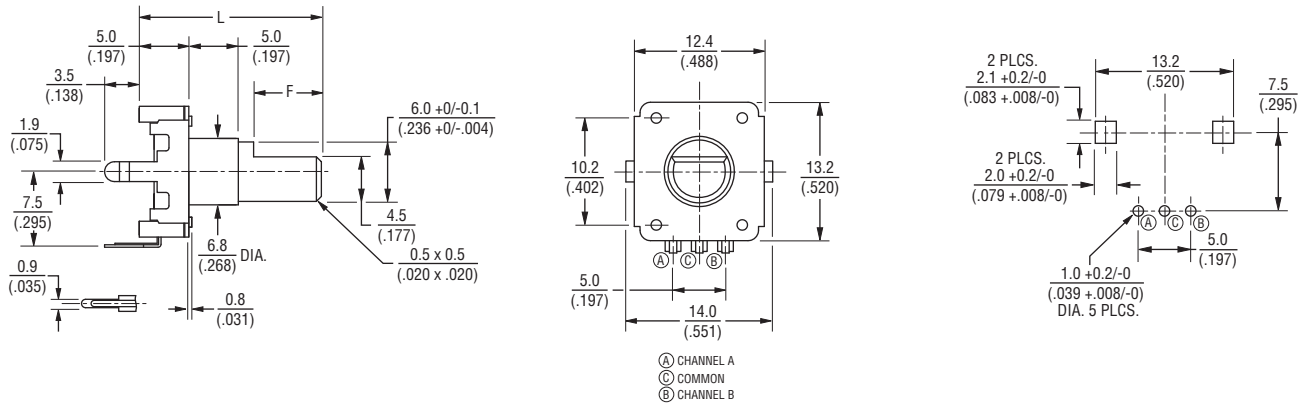
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## Product Dimensions

### PEC12-2xxxF-Nxxxx



### PEC12-4xxxF-Nxxxx



L	17.5 (.688)	20.0 (.787)	25.0 (.984)	30.0 (1.181)
F	5.0 (.197)	7.0 (.276)	12.0 (.472)	12.0 (.472)

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