

## Features

- Two push switch options
- Dual concentric shaft
- Two encoders in a single package
- Metal bushing/shaft
- Switch stroke options
- RoHS compliant\*



## PEC11D Series - 12 mm Dual Concentric Rotary Encoder w/Switch

### Electrical Characteristics

Output.....	2-bit quadrature code
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 (15 RPM).....	2.0 ms maximum**
RPM (Operating).....	60 maximum**

### Additional Information

Click these links for more information:



### Environmental Characteristics

Operating Temperature Range.....	-40 °C to +85 °C (-40 °F to +185 °F)
Storage Temperature Range.....	-40 °C to +85 °C (-40 °F to +185 °F)
Operating Humidity.....	25 % to 85 % R.H.
Rotational Life.....	15,000 cycles minimum
Switch Life.....	20,000 cycles minimum
IP Rating.....	IP 40
Moisture Sensitivity Level.....	1
ESD Classification (HBM).....	N/A

### Mechanical Characteristics

Mechanical Angle.....	360 ° continuous
Torque	
Detent.....	100 ±70 gf-cm (1.39 ± 0.97 oz-in)
Shaft Side Load (Static).....	2.04 kgf (4.5 lbs.) minimum
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 max. for 5 ±1 sec.
Hand Soldering.....	350 °C for 3 sec. max.
Hardware.....	None

### Switch Characteristics

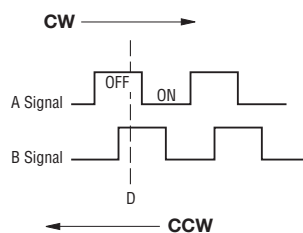
Switch Type.....	Contact Push ON Momentary SPST
Power Rating (Resistive Load).....	10 mA at 5 V DC
Switch Travel	
S (Standard).....	0.5 +0.0/-0.3 mm
H (High).....	1.5 ± 0.5 mm
Switch Actuation Force	
S (Standard).....	350 ± 100 gf (12.35 ± 3.53 oz.)
H (High).....	400 ± 200 gf (14.10 ± 7.05 oz.)
Contact Resistance.....	200 milliohms @ 5 VDC

### How To Order

**PEC11D - 4 1 20 F - S 0015**

Model.....	PEC11D - 4 1 20 F - S 0015
Terminal Configuration.....	4 = PC Pin Horizontal/ Rear Facing
Detent Option.....	1 = 30 Detents (15 pulses)
Standard Shaft Length.....	20 = 20.0 mm
Shaft Style.....	F = Metal Flatted Inner Shaft with Slotted Outer Shaft
Switch Configuration.....	S = 0.5 mm Momentary Switch Stroke (Standard) H = 1.5 mm Momentary Switch Stroke (High)
Resolution.....	0015 = 15 Pulses per 360 ° Rotation

### Quadrature Output Table



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\*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.

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# Applications

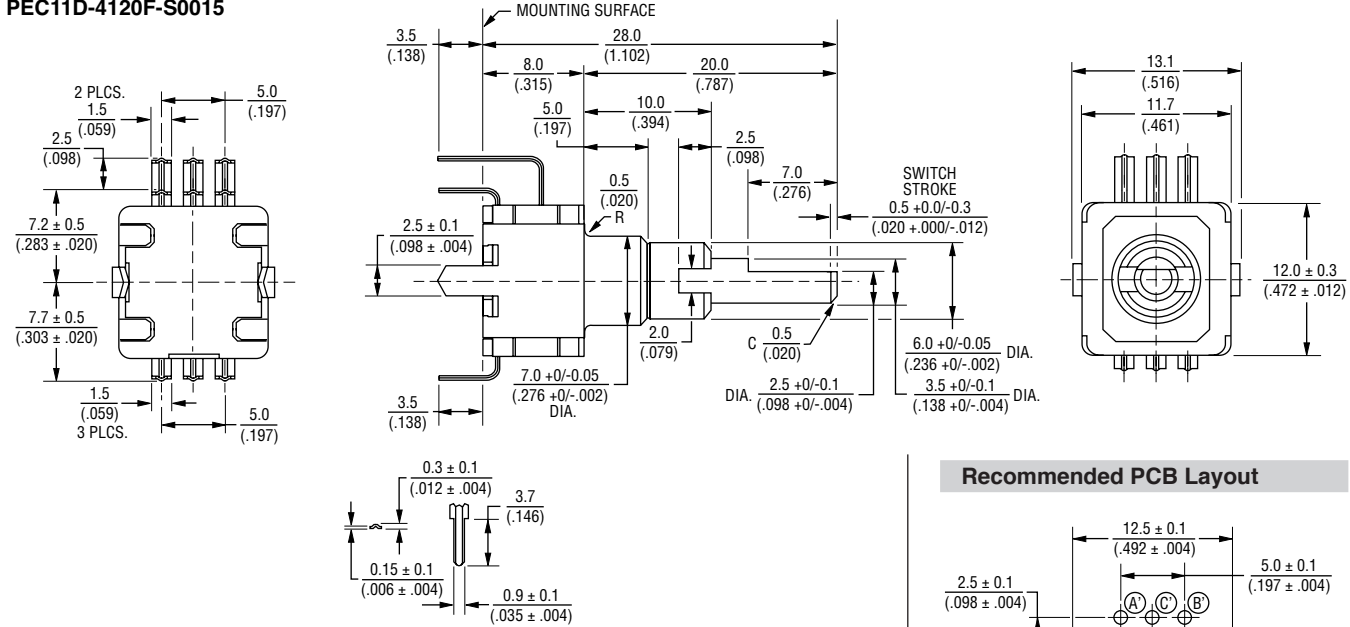
Level control, tuning and menu select in:

- Audio-visual equipment
- Professional audio, broadcast and lighting consoles
- Musical instrumentation
- Communications equipment

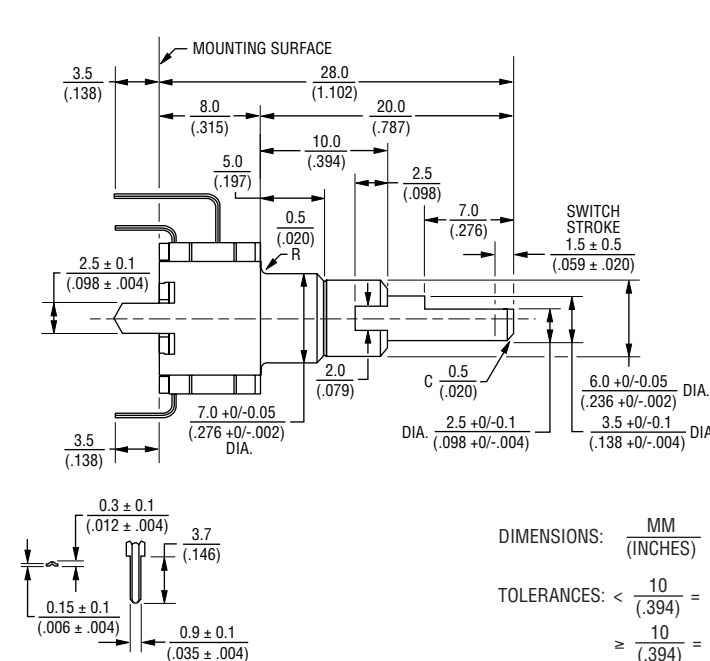
## PEC11D Series - 12 mm Dual Concentric Rotary Encoder w/Switch BOURNS®

### Product Dimensions

#### PEC11D-4120F-S0015

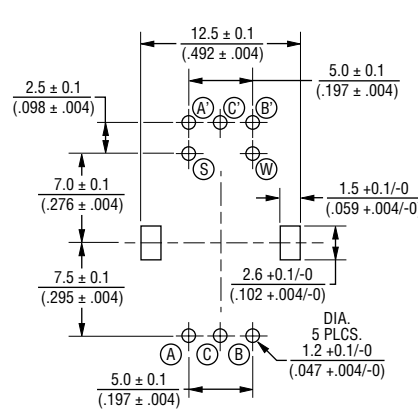


#### PEC11D-4120F-H0015

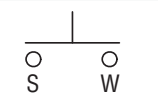


DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$   
 TOLERANCES:  $< \frac{10}{.394} = \pm \frac{0.3}{.012}$   
 $\geq \frac{10}{.394} = \pm \frac{0.5}{.020}$

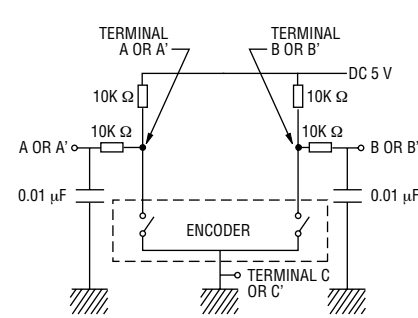
### Recommended PCB Layout



### Switch Circuit



### Suggested Filter Circuit



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