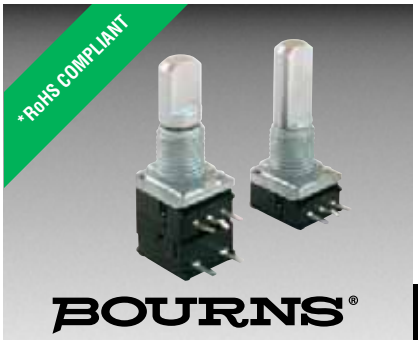


Features

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

BOURNS® PRO AUDIO

PEC09 Series - 9 mm Incremental Encoder

Electrical Characteristics

Output	2-bit quadrature code
Closed Circuit Resistance	3 ohms 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 (15 RPM)	5.0 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 B
Rotational Life	30,000 cycles minimum
IP Rating	IP 40

Mechanical Characteristics

Mechanical Angle	360 ° continuous
Torque	
Running/Detent	30 to 200 gf.cm (0.42 to 2.7 oz.-in.)
Mounting	10.0 kgf.cm (8.67 lb.-in.) maximum
Terminal Bend Strength	300 gf (10.6 ozf)
Shaft Push-Pull Strength	10 kgf (22 lbf)
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 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	See How to Order
Switch Actuation Force	300 ± 200 gf (10.6 ± 7.0 ozf)

How To Order

PEC09 - 2 0 20 F - S 0012

Model

Terminal Configuration
- 2 = PC Pin Vertical/Side Exit

Detent Option
- 0 = No Detents (12, 15 pulses)
- 1 = 12 Detents (12 pulses)
- 2 = 24 Detents (12 pulses)
- 3 = 30 Detents (15 pulses)

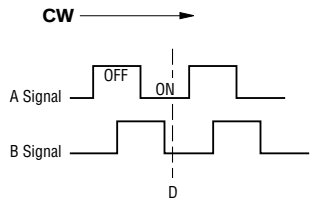
Standard Shaft Length
- 15 = 15.0 mm
- 20 = 20.0 mm
- 25 = 25.0 mm

Shaft Style
- F = Metal Flatted Shaft
- K = Metal Knurled Shaft

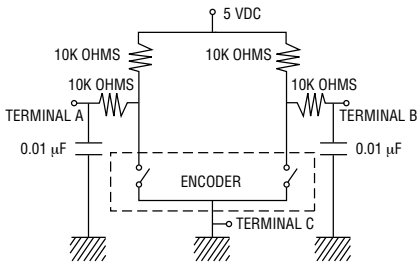
Switch Configuration
- N = No Switch
- S = Push Momentary (0.5 mm stroke)
- T = Push Momentary (1.5 mm stroke)

Resolution
- 0012 = 12 Pulses per 360 ° Rotation
- 0015 = 15 Pulses per 360 ° Rotation

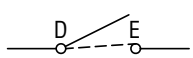
Quadrature Output Table



Suggested Filter Circuit



Switch Circuit



CIRCUIT DIAGRAM

WARNING Cancer and Reproductive Harm - 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.

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Applications

Level control, tuning and timer settings in:

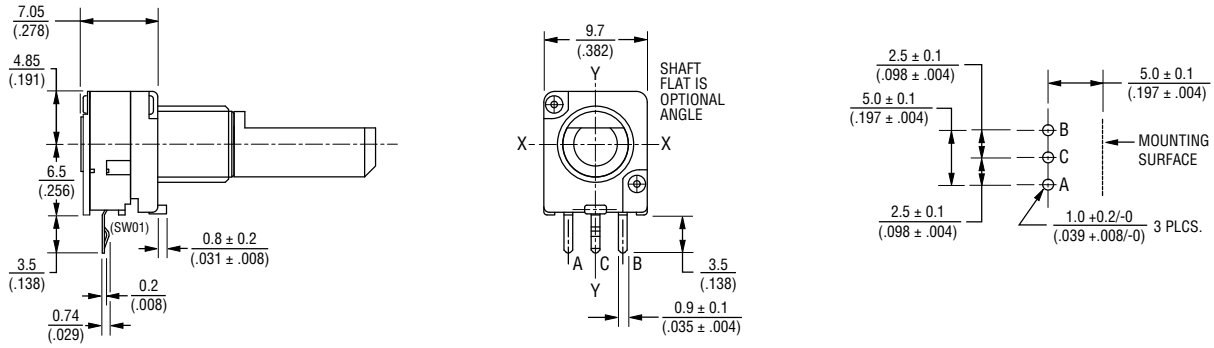
- Audio-visual equipment
- Consumer electric appliances
- Environmental controls
- Musical instrumentation
- Communications equipment

PEC09 Series - 9 mm Incremental Encoder

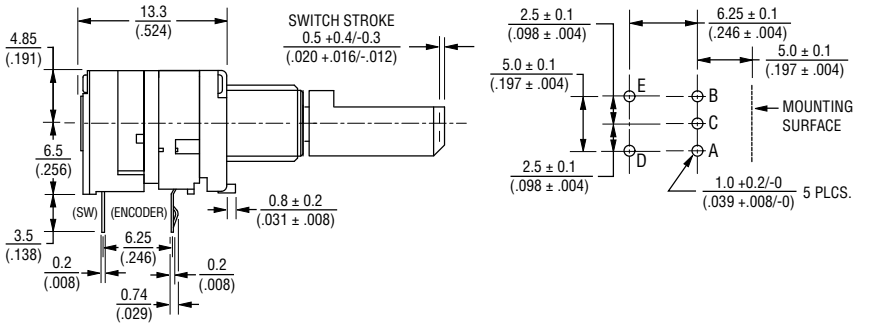
BOURNS®

Product Dimensions

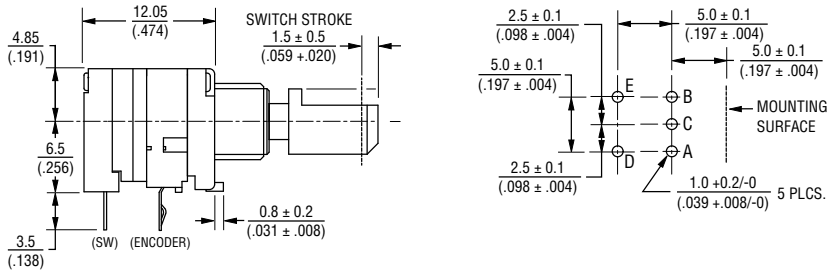
PEC09-2xxxF-Nxxxx



PEC09-2xxxF-Sxxxx

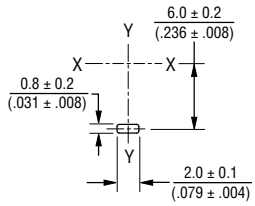


PEC09-2xxxF-Txxxx

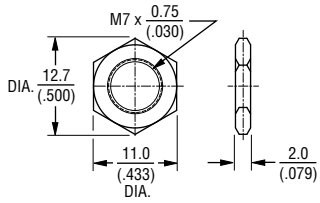


DIMENSIONS: MM (INCHES)

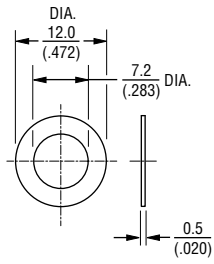
Locating Lug Detail



Hardware



NUT



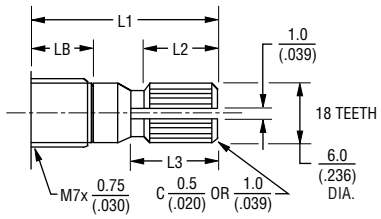
WASHER

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Shaft Options

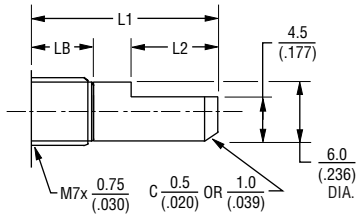
PEC09-2xxxx-Nxxxx

Knurled Type



L1	LB	L2	L3
15 (.591)	5.0 (.197)	6.0 (.236)	7.0 (.276)
20 (.787)	7.0 (.276)	10.0 (.394)	11.0 (.433)
25 (.984)	10.0 (.394)	10.0 (.394)	11.0 (.433)

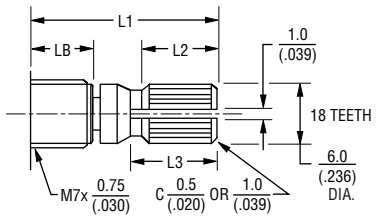
Flat Type



L1	LB	L2
15 (.591)	5.0 (.197)	7.0 (.276)
20 (.787)	7.0 (.276)	12.0 (.472)
25 (.984)	10.0 (.394)	12.0 (.472)

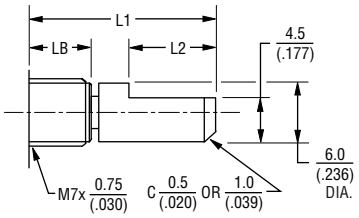
PEC09-2xxxx-Sxxxx (0.5 mm Switch Stroke)

Knurled Type



L1	LB	L2	L3
15 (.591)	5.0 (.197)	6.0 (.236)	7.0 (.276)
20 (.787)	7.0 (.276)	9.0 (.354)	10.0 (.394)
25 (.984)	10.0 (.394)	9.0 (.354)	10.0 (.394)

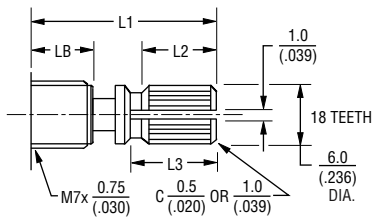
Flat Type



L1	LB	L2
15 (.591)	5.0 (.197)	7.0 (.276)
20 (.787)	7.0 (.276)	10.0 (.394)
25 (.984)	10.0 (.394)	10.0 (.394)

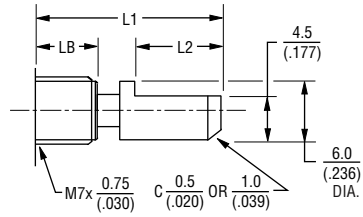
PEC09-2xxxx-Txxxx (1.5 mm Switch Stroke)

Knurled Type



L1	LB	L2	L3
15 (.591)	5.0 (.197)	5.0 (.197)	6.0 (.236)
20 (.787)	7.0 (.276)	8.0 (.315)	9.0 (.354)
25 (.984)	10.0 (.394)	8.0 (.315)	9.0 (.354)

Flat Type



L1	LB	L2
15 (.591)	5.0 (.197)	7.0 (.276)
20 (.787)	7.0 (.276)	10.0 (.394)
25 (.984)	10.0 (.394)	10.0 (.394)

DIMENSIONS: MM (INCHES)

Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com
EMEA: Tel: +36 88 885 877 • Email: eurocus@bourns.com
The Americas: Tel: +1-951 781-5500 • Email: americus@bourns.com
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