

BOURNS®

Features

- Compact design, long life and high reliability
- Vertical and horizontal mount versions
- Flatted and knurled shaft styles
- Variety of LED colors available



PEL12S - 12 mm Encoder with Illuminated Shaft

Electrical Characteristics

Output	2-bit quadrature code
Closed Circuit Resistance	3 ohms maximum
Contact Rating	0.5 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).....	100 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)
Operating Humidity	25 % to 85 % R.H.
Rotational Life	30,000 cycles minimum
IP Rating.....	IP 40

Mechanical Characteristics

Mechanical Angle	360 ° continuous
Detent Torque.....	30 to 200 g-cm (0.42 to 2.77 oz.-in.)
Running Torque	50 g-cm (0.69 oz.-in.) maximum
Shaft Strength (Push-Pull).....	5 kgf (11.0 lbs.)
Weight	3 gm (0.1 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 seconds
Hand Soldering.....	Not recommended
Hardware	No hardware supplied

How To Order

PEL12S - 4 0 20 F - N 1 024

Model _____

Terminal Configuration _____
 2 = Vertical Mount/Side Exit PC Pin 4 = Horizontal Mount/Rear Exit PC Pin

Detent Option _____
 0 = No Detents 2 = 24 Detents

Standard Shaft Length _____

Flatted:	Knurled:
15 = 15.0 mm 25 = 25.0 mm	24 = 24.0 mm
17 = 17.5 mm 30 = 30.0 mm	
20 = 20.0 mm	

Shaft Style _____
 F = Insulated Flatted Shaft S = Insulated Knurled Shaft (18 Teeth)

Switch Configuration _____
 N = No Switch

LED Color _____

Single:		
1 = Red	3 = Blue	5 = White
2 = Green	4 = Orange	

Resolution _____
 024 = 24 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

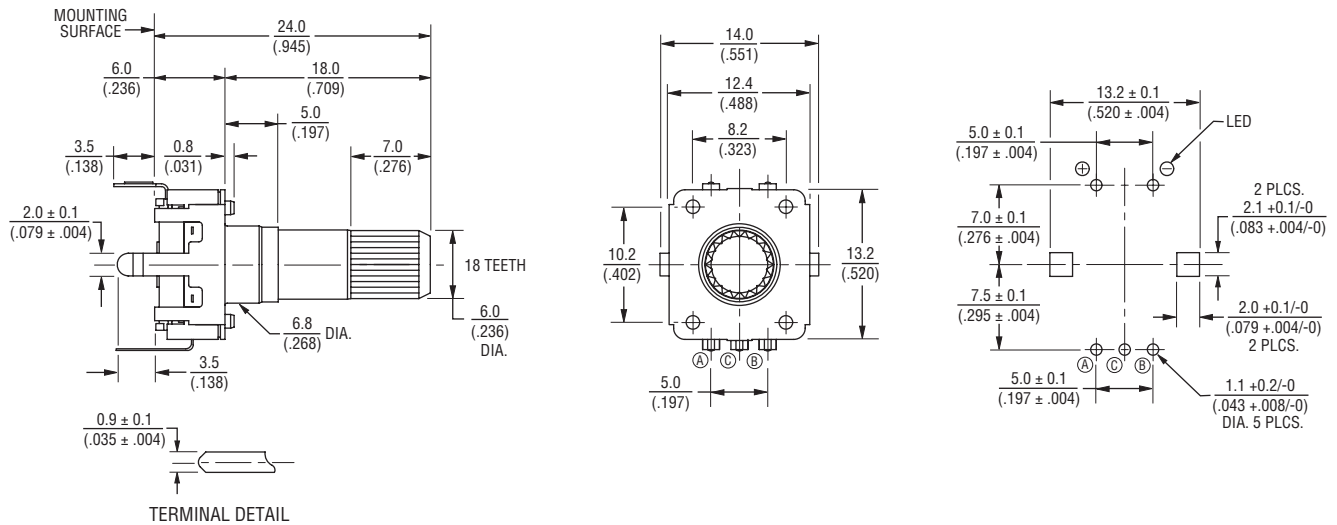
Level control, tuning and timer settings in:

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

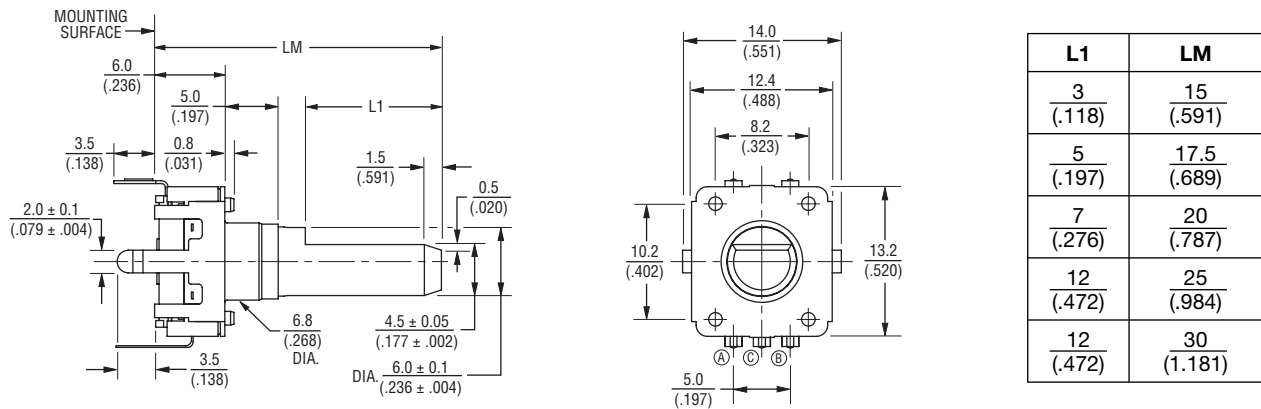
PEL12S - 12 mm Encoder with Illuminated Shaft **BOURNS®**

Product Dimensions

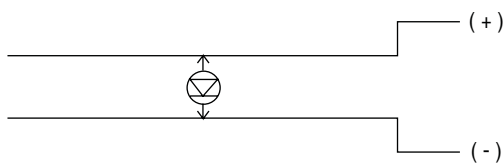
PEL12S-4xxxS-Nxxxx (Horizontal Mount w/Single LED, No Switch)



PEL12S-4xxxF-Nxxxx (Horizontal Mount w/Single LED, No Switch)



Single LED Circuit



TOLERANCES:
 UNDER $\frac{10.0}{.394} = \frac{\pm 0.3}{(\pm 0.12)}$ $\frac{10.0 - 100}{.394 - 3.937} = \frac{\pm 0.5}{(\pm 0.20)}$

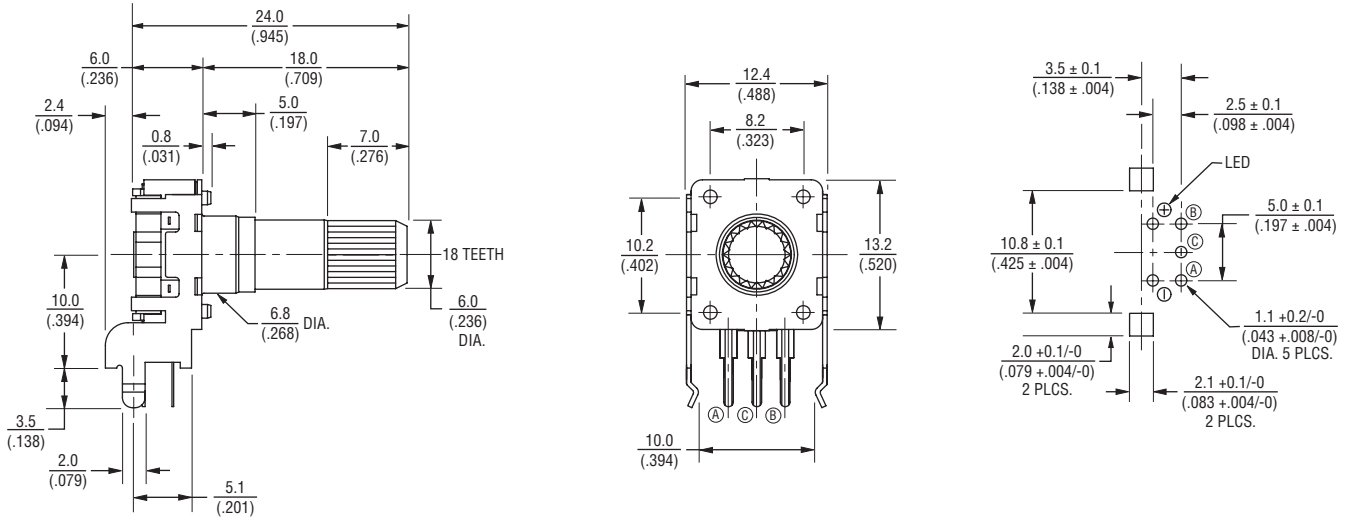
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PEL12S - 12 mm Encoder with Illuminated Shaft

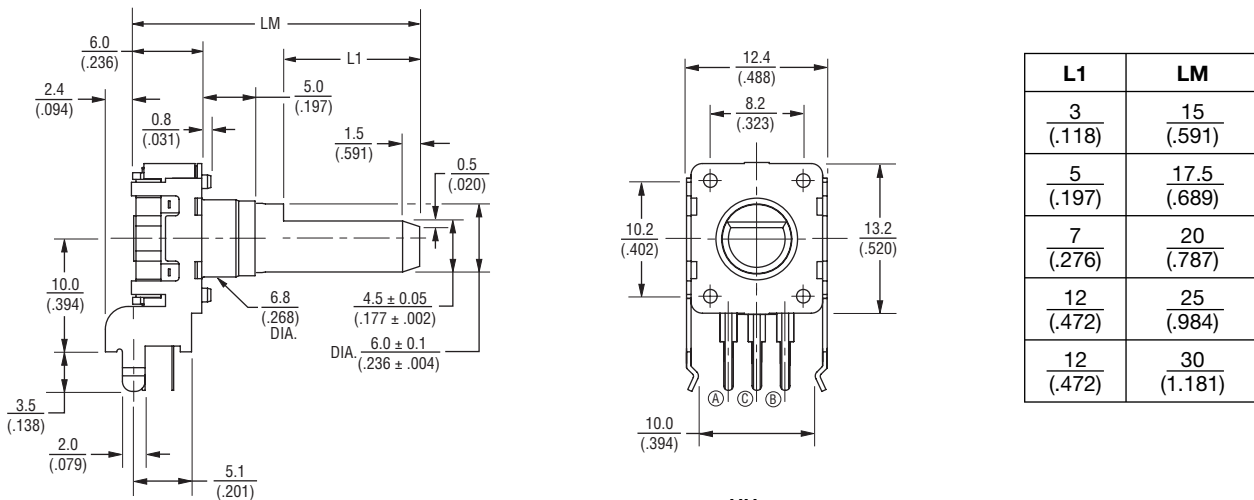
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Product Dimensions

PEL12S-2xxxS-Nxxxx (Vertical Mount w/Single LED, No Switch)



PEL12S-2xxxF-Nxxxx (Vertical Mount w/Single LED, No Switch)



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

TOLERANCES:
 UNDER $\frac{10.0}{(.394)} = \frac{\pm 0.3}{(\pm 0.012)}$ $\frac{10.0 \sim 100}{(.394 \sim 3.937)} = \frac{\pm 0.5}{(\pm 0.020)}$

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PEL12S - 12 mm Encoder with Illuminated Shaft

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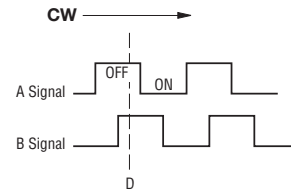
LED Characteristics (Single)

LED Color	Power Dissipation (mW)	DC Forward Current (mA)	Forward Voltage (V)	
			Typ.	Max.
Red	58	25	1.8	2.3
Green	53	25	2.0	2.5
Blue	80	20	3.5	4.0
Orange	100	30	2.2	2.6
White	120	30	3.4	4.0

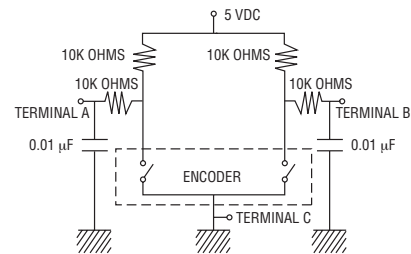
Notes:

Reverse Current: 10 μ A
 Reverse Voltage: 5 VDC
 Test Condition (IF): 20 mA

Quadrature Output Table



Suggested Filter Circuit



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