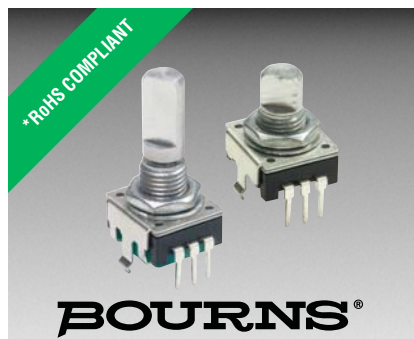




## Features

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



## PEC11R Series - 12 mm Incremental Encoder

### 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**          |

### 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.....                   | 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                                                        |
| Torque                        |                                                                         |
| Running.....                  | 50 to 200 gf.cm (0.68 to 2.7 oz.-in.)                                   |
| Mounting.....                 | 10.2 kgf.cm (8.83 lb.-in.) maximum                                      |
| 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 3 ±1 sec. |
| 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     |
| 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.) |
| Contact Resistance.....            | 100 milliohms @ 5 VDC              |

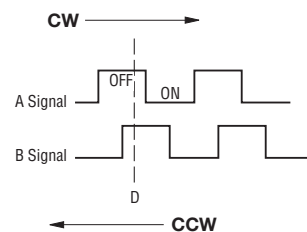
### How To Order

**PEC11R - 4 0 20 F - S 0012**

|                                      |  |
|--------------------------------------|--|
| Model.....                           |  |
| Terminal Configuration.....          |  |
| 4 = PC Pin Horizontal/Rear Facing    |  |
| Detent Option.....                   |  |
| 0 = No Detents (12, 18, 24 pulses)   |  |
| 1 = 18 Detents (18 pulses)           |  |
| 2 = 24 Detents (12, 24 pulses)       |  |
| 3 = 12 Detents (12, 24 pulses)       |  |
| Standard Shaft Length.....           |  |
| 15 = 15.0 mm                         |  |
| 20 = 20.0 mm                         |  |
| 25 = 25.0 mm                         |  |
| 30 = 30.0 mm                         |  |
| Shaft Style.....                     |  |
| F = Metal Flatted Shaft              |  |
| K = Metal Knurled Shaft <sup>1</sup> |  |
| Switch Configuration.....            |  |
| S = Push Momentary Switch            |  |
| N = No Switch                        |  |
| Resolution.....                      |  |
| 0012 = 12 Pulses per 360 ° Rotation  |  |
| 0018 = 18 Pulses per 360 ° Rotation  |  |
| 0024 = 24 Pulses per 360 ° Rotation  |  |

<sup>1</sup> Metal knurled shaft without switch is available in 15, 20 and 30 mm shaft lengths.  
Metal knurled shaft with push momentary switch is available in 15 and 20 mm shaft lengths.

### Quadrature Output Table



\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

\*\*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.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

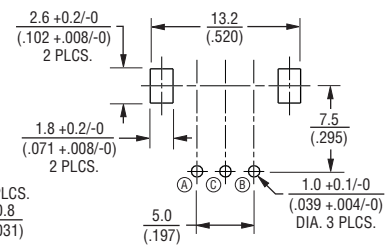
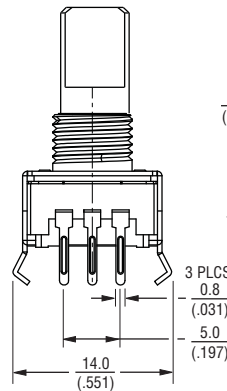
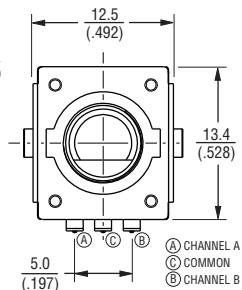
Level control, tuning and timer settings in:

- ## PEC11R Series - 12 mm Incremental Encoder

## Product Dimensions

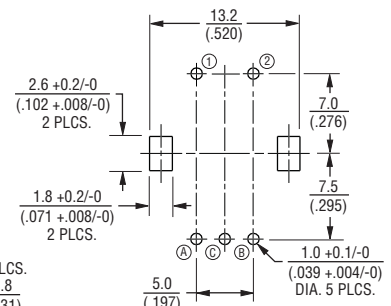
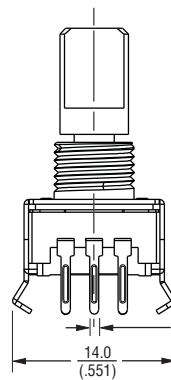
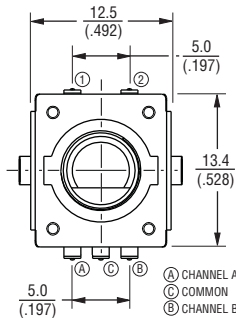
Technical drawing of a mounting bracket showing dimensions and tolerances:

- Overall Length:** L
- Bracket Width:** 6.5 (.256)
- Mounting Surface Distance:** 7.5 (.295)
- Bracket Thickness:** 2.5 (.098)
- Threaded Section Length:** LB
- Thread Specification:** M7 X 0.75 P (.030)
- End Flange Thickness:** C 0.5 (.020)
- Flange Diameter:** DIA. 6.0 (.236)
- Flange Position from End:** 4.5 +0/-0.05 (.177 +0/-0.002)
- Distance from Mounting Surface to Thread Start:** 3.7 (.146)
- Distance from Mounting Surface to Flange Center:** F



Technical drawing of a switch assembly showing dimensions and labels:

- Dimensions:**
  - 6.5 (.256)
  - 7.0 (.276)
  - 7.5 (.295)
  - 2.5 (.098)
  - 3.7 (.146)
  - LB
  - L
  - 0.5 (.020)
  - 0.5 (.020)
  - 0.5 (+0/-0.002) (.177 +0/-0.002)
  - 4.5 (+0/-0.05) (.177 +0/-0.002)
  - 6.0 (.236)
  - F
  - P
  - C
- Labels:**
  - SWITCH TRAVEL
  - M7 X 0.75 (.030)
  - DIA.
  - MOUNTING SURFACE



## Switch Circuit


$$\begin{aligned} \text{TOLERANCES: } &< \frac{10}{(.394)} = \pm \frac{0.3}{(.012)} \\ &\geq \frac{10}{(.394)} = \pm \frac{0.5}{(.020)} \end{aligned}$$

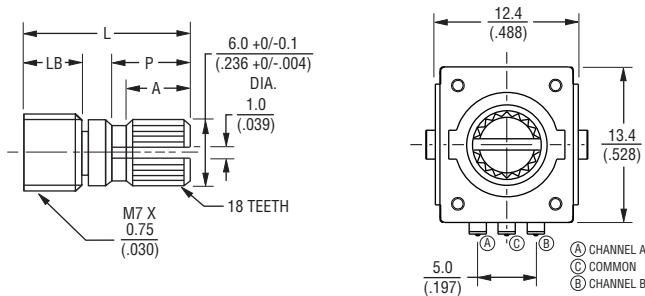
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

# PEC11R Series - 12 mm Incremental Encoder

**BOURNS®**

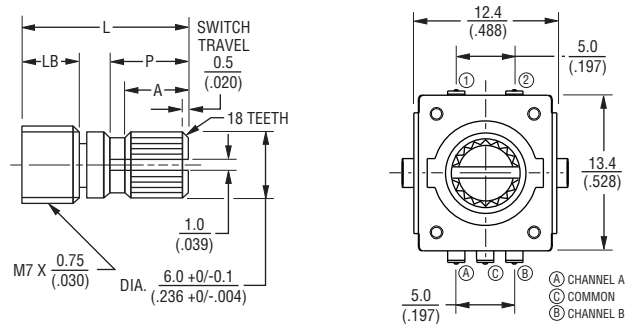
## Product Dimensions

### PEC11R-4xxxK-Nxxxx



| L             | LB            | P              | A              |
|---------------|---------------|----------------|----------------|
| 15<br>(.591)  | 5.0<br>(.197) | 7.0<br>(.276)  | 6.0<br>(.236)  |
| 20<br>(.787)  | 7.0<br>(.276) | 7.0<br>(.276)  | 6.0<br>(.236)  |
| 30<br>(1.181) | 7.0<br>(.276) | 16.0<br>(.630) | 12.0<br>(.472) |

### PEC11R-4xxxK-Sxxxx



| L            | LB            | P             | A             |
|--------------|---------------|---------------|---------------|
| 15<br>(.591) | 5.0<br>(.197) | 7.0<br>(.276) | 6.0<br>(.236) |
| 20<br>(.787) | 7.0<br>(.276) | 7.0<br>(.276) | 6.0<br>(.236) |

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

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

**BOURNS®**

Asia-Pacific: Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116

EMEA: Tel: +36 88 520 390 • Fax: +36 88 520 211

The Americas: Tel: +1-951 781-5500 • Fax: +1-951 781-5700

[www.bourns.com](http://www.bourns.com)

REV. 07/14

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)