



## 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



# PEC16 - 16 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 @ 50 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 .....                  | 10~55~10 Hz / 1 min. / Amplitude 1.5 mm |
| Shock.....                       | 100 G                                   |
| Rotational Life.....             | 100,000 cycles minimum                  |
| Switch Life .....                | 20,000 cycles minimum                   |
| IP Rating.....                   | IP 40                                   |

## Mechanical Characteristics

|                               |   |
|-------------------------------|---|
| Mechanical Angle .....        | 360 ° continuous  |
| Torque                        |   |
| Running .....                 | 30.6 to 204 g-cm (0.42 to 2.83 oz.-in)                                    |
| Mounting.....                 | 10.2 kgf. cm (8.83 lb.-in.) maximum                                       |
| Shaft Side Load (Static)..... | 3.06 kgf (6.7 lbs.) minimum   |
| Weight .....                  | 8 gm (0.28 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 .....                | One flat washer and one mounting nut supplied with each encoder.          |

## Switch Characteristics

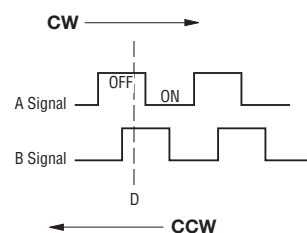
|                                    |  |
|------------------------------------|--|
| Switch Type .....                  | Contact Push ON Momentary SPST         |
| Power Rating (Resistive Load)..... | 10 mA at 5 V DC                        |
| Switch Travel .....                | 0.5 +0.4/-0.3 mm 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

## How To Order

|  |                                  |
|--|----------------------------------|
|  | <b>PEC16 - 4 0 20 F - S 0012</b> |
| Model .....                                    | PEC16                            |
| Terminal Configuration .....                   | 4                                |
| 2 = PC Pin Vertical/Down Facing                |                                  |
| 4 = PC Horizontal/Rear Facing                  |                                  |
| Detent Option .....                            | 0                                |
| 0 = No Detents                                 |                                  |
| 1 = 12 Detents (available with 12 pulses only) |                                  |
| 2 = 24 Detents (available with 24 pulses only) |                                  |
| Standard Shaft Length .....                    | 20                               |
| 15 = 15 mm                                     |                                  |
| 20 = 20.0 mm                                   |                                  |
| 25 = 25.0 mm <sup>1</sup>                      |                                  |
| 30 = 30.0 mm <sup>1</sup>                      |                                  |
| Shaft Style .....                              | F                                |
| F = Insulated Flatted Shaft                    |                                  |
| Switch Configuration .....                     | S                                |
| S = Push Momentary Switch                      |                                  |
| N = No Switch                                  |                                  |
| Resolution .....                               | 0012                             |
| 0012 = 12 Pulses per 360 ° Rotation            |                                  |
| 0024 = 24 Pulses per 360 ° Rotation            |                                  |

<sup>1</sup> Not available with switch

## Quadrature Output Table



## Switch Circuit



\*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.

# Applications

Level control, tuning and timer settings in:

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

## PEC16 - 16 mm Incremental Encoder

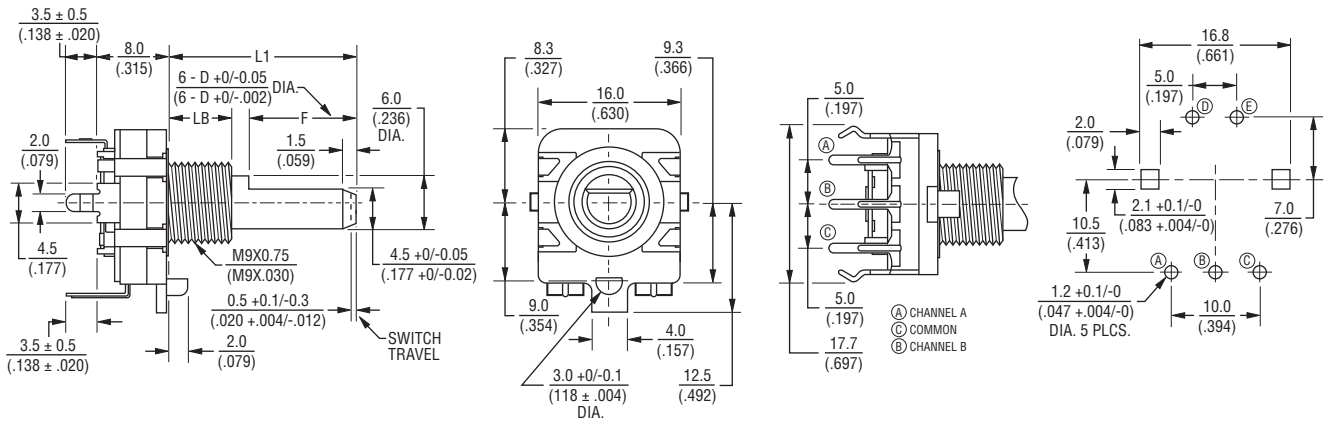
**BOURNS®**

### Product Dimensions

#### PEC16-2xxxF-Sxxxx



#### PEC16-4xxxF-Sxxxx



|    |                       |                       |
|----|-----------------------|-----------------------|
| L1 | $\frac{15.0}{(.591)}$ | $\frac{20.0}{(.787)}$ |
| LB | $\frac{5.0}{(.197)}$  | $\frac{7.0}{(.276)}$  |
| F  | $\frac{7.0}{(.276)}$  | $\frac{12.0}{(.472)}$ |

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

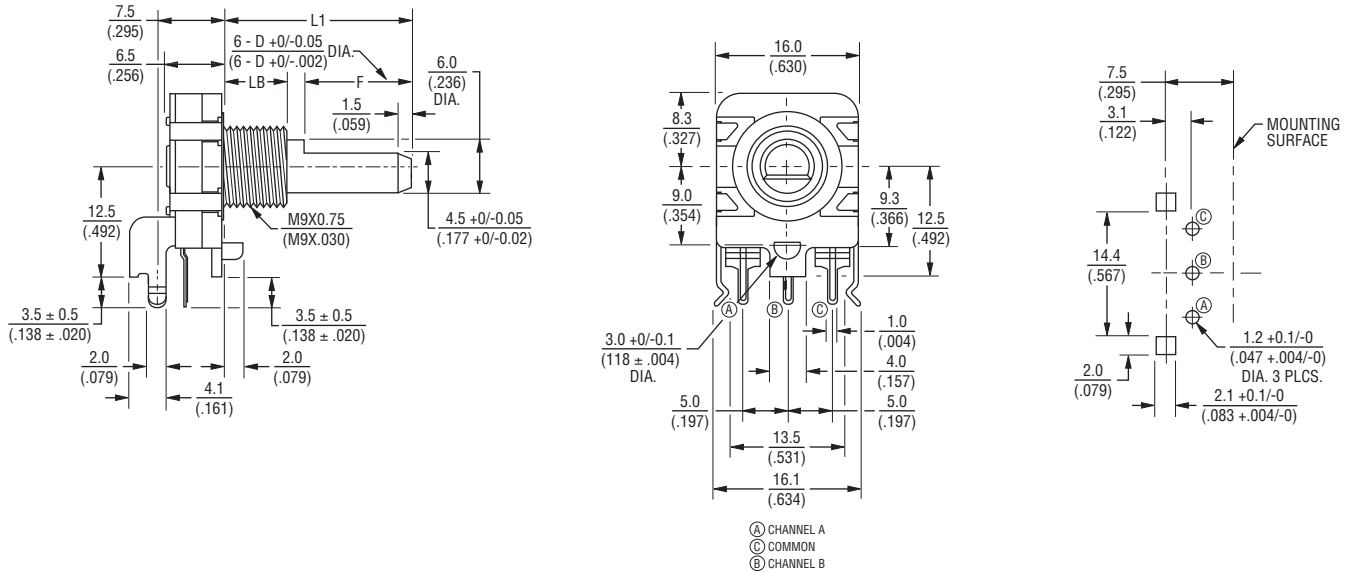
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# PEC16 - 16 mm Incremental Encoder

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## Product Dimensions

### PEC16-2xxxF-Nxxxx



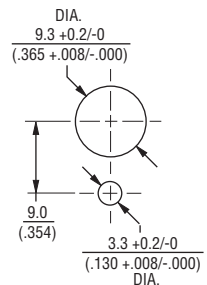
### PEC16-4xxxF-Nxxxx



|    |                |                |                |                 |
|----|----------------|----------------|----------------|-----------------|
| L1 | 15.0<br>(.591) | 20.0<br>(.787) | 25.0<br>(.984) | 30.0<br>(1.181) |
| LB | 5.0<br>(.197)  | 7.0<br>(.276)  | 7.0<br>(.276)  | 7.0<br>(.276)   |
| F  | 7.0<br>(.276)  | 12.0<br>(.472) | 12.0<br>(.472) | 12.0<br>(.472)  |

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

### Panel Hole Detail



REV. 03/13

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## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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