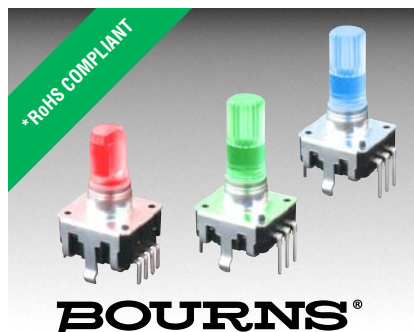




## Features

- Compact design, long life and high reliability
- Momentary switch
- Triple LED design
- Flatted and knurled shaft styles
- Bushing and bushingless options



## PEL12T - 12 mm Encoder with Switch and 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                |
| Switch Life .....                 | 20,000 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).....  | 5 kgf (11.0 lbs.)                                                           |
| Shaft Strength (Pull) ..... | 10 kgf (22.0 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                                                        |

### Switch Characteristics

|                                     |                                |
|-------------------------------------|--------------------------------|
| Switch Type .....                   | Contact Push ON Momentary SPST |
| Power Rating (Resistive Load) ..... | 10 mA at 5 V DC                |
| Contact Resistance .....            | 100 milliohms                  |
| Switch Travel .....                 | 0.5 +0.0/-0.3 mm               |
| Switch Actuation Force .....        | 450 ± 200 gf (15.9 ± 7.0 oz.)  |

### How To Order

**PEL12T - 4 0 21 F - S 1 024**

|                        |                                          |                                                  |              |
|------------------------|------------------------------------------|--------------------------------------------------|--------------|
| Model                  | _____                                    |                                                  |              |
| Terminal Configuration | _____                                    |                                                  |              |
|                        | 4 = Horizontal Mount/Rear Exit PC Pin    |                                                  |              |
| Detent Option          | _____                                    |                                                  |              |
|                        | 0 = No Detents                           | 2 = 24 Detents                                   |              |
| Standard Shaft Length  | _____                                    |                                                  |              |
| Flatted:               | 16 = 16.0 mm                             | 26 = 26.0 mm                                     | Knurled:     |
|                        | 18 = 18.5 mm                             | 31 = 31.0 mm                                     | 25 = 25.0 mm |
|                        | 21 = 21.0 mm                             |                                                  |              |
| Shaft Style            | _____                                    |                                                  |              |
|                        | F = Insulated Flatted Shaft              | S = Insulated Knurled Shaft (18 Teeth)           |              |
|                        | G = Insulated Flatted Shaft w/Bushing*** | T = Insulated Knurled Shaft (18 Teeth) w/Bushing |              |
| Switch Configuration   | _____                                    |                                                  |              |
|                        | S = Push Momentary Switch                |                                                  |              |
| LED Color              | _____                                    |                                                  |              |
| Triple:                | _____                                    |                                                  |              |
|                        | 1 = Red/Green/Blue                       |                                                  |              |
| Resolution             | _____                                    |                                                  |              |
|                        | 024 = 24 Pulses per 360 ° Rotation       |                                                  |              |

\*\*\* Available in 18.5, 21 and 26 mm shaft lengths.

\*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.

Customers should verify actual device performance in their specific applications.

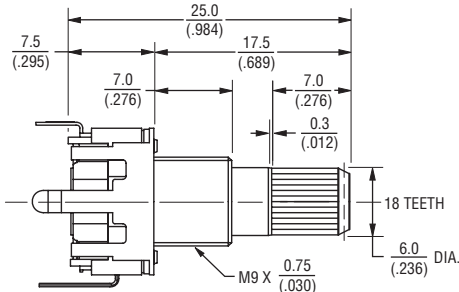


# PEL12T - 12 mm Encoder with Switch and Illuminated Shaft

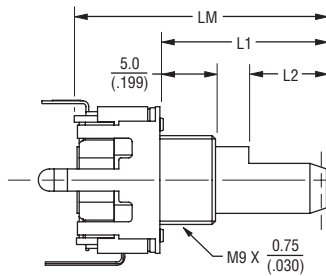
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## Product Dimensions

PEL12T-4xxxS-S1024 (Horizontal Mount w/Triple LED & Switch, Knurled Shaft w/Bushing)



PEL12T-4xxxF-S1024 (Horizontal Mount w/Triple LED & Switch, Flatted Shaft w/Bushing)

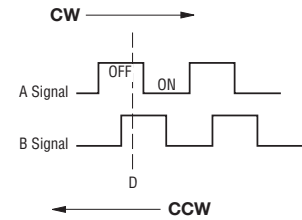


| L2           | L1             | LM             |
|--------------|----------------|----------------|
| 5<br>(.197)  | 11<br>(.433)   | 18.5<br>(.728) |
| 7<br>(.276)  | 13.5<br>(.532) | 21<br>(.827)   |
| 12<br>(.472) | 18.5<br>(.728) | 26<br>(1.024)  |

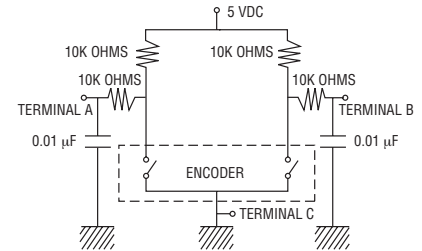
DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

TOLERANCES:  
 UNDER  $\frac{10.0}{(.394)} = \frac{\pm 0.3}{(\pm .012)} \quad \frac{10.0 - 100}{(.394 - 3.937)} = \frac{\pm 0.5}{(\pm .020)}$

## Quadrature Output Table



## Suggested Filter Circuit



## LED Characteristics (Triple)

| LED Color      |       | Power Dissipation (mW) | DC Forward Current (mA) | Forward Voltage (V) |      |
|----------------|-------|------------------------|-------------------------|---------------------|------|
|                |       |                        |                         | Typ.                | Max. |
| Red/Green/Blue | Red   | 60                     | 25                      | 2.0                 | 2.4  |
|                | Green | 110                    | 25                      | 3.3                 | 3.7  |
|                | Blue  | 110                    | 25                      | 3.3                 | 3.7  |

### Notes:

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

## LED Terminal Decoder

| Code | Color              | Terminals       |
|------|--------------------|-----------------|
| 1    | Red / Green / Blue | ① ⑤ / ② ⑤ / ④ ⑤ |

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REV. 05/22/12

Specifications are subject to change without notice.  
 Customers 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.

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- 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.

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- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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