Features

- Compact design, long life and high reliability
- Low cost compared to optical type encoders
- Incremental type
- Detent option

PES12 - 12 mm Shaftless Encoder

Electrical Characteristics

Output ........................................................................................................................................... Quadrature
Contact Rating ................................................................................................................................ 1 mA @ 5 V DC
Insulation Resistance ...................................................................................................................... 10 megohms @ 50 V DC
Dielectric Withstanding Voltage
  - Sea Level ................................................................................................................................. 50 VAC minimum
Contact Bounce (60 RPM) .............................................................................................................. 2.0 ms. maximum**

Environmental Characteristics

Operating Temperature Range ........................................................................................................ -10 °C to +65 °C (-14 °F to +149 °F)
Rotational Life ............................................................................................................................... 30,000 cycles minimum
IP Rating ........................................................................................................................................... IP 40

Mechanical Characteristics

Mechanical Angle .......................................................................................................................... 360 ° continuous
Running Torque ............................................................................................................................ 30 to 200 g-cm (0.41 to 2.78 oz.-in.)
Shaft Side Load (Static) .................................................................................................................. 2.04 kgf (4.5 lbs.) minimum
Weight ............................................................................................................................................ 1.5 gm (0.05 oz.)
Terminals ........................................................................................................................................ Printed circuit board terminals
  - Soldering Condition
    - Wave Soldering ...................................................................................................................... Sn95.5/Ag2.8/Cu0.7 solder with no-clean flux: 260 °C ±5 °C max. for 1-3 seconds
    - Hand Soldering ...................................................................................................................... 300 °C max. for 3 seconds max.
Hardware ............................................................................................................................................ No hardware supplied

Resolution ......................................................................................................................................... 0024 = 24 Pulses per 360 ° Rotation

How To Order

Model
Terminal Configuration
  - 4 = PC Horizontal/Rear Facing
Detent Option
  - 0 = No Detents
  - 2 = 24 Detents
Shaft Style
  - S = Shaftless
Switch Configuration
  - N = No Switch
Resolution
  - 0024 = 24 Pulses per 360 ° Rotation

Quadrature Output Table

<table>
<thead>
<tr>
<th>Mode</th>
<th>CW</th>
<th>CCW</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Signal</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>B Signal</td>
<td>I</td>
<td>D</td>
</tr>
</tbody>
</table>


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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WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov
Applications
- Audio-visual equipment
- Consumer electric appliances
- Radios
- Musical instrumentation
- Communications equipment
- Home appliances

PES12 - 12 mm Shaftless Encoder

Product Dimensions

TOLERANCES:
\[
\begin{align*}
\pm 0.3 & \text{ (±0.012)} \\
\geq 10.0 & \text{ (≥0.394)} \\
\pm 0.5 & \text{ (±0.020)}
\end{align*}
\]

DIMENSIONS: MM (INCHES)

BOURNS

Asia-Pacific:
Tel: +886-2 2562-4117
Email: asiacus@bourns.com

Europe:
Tel: +36 88 885 877
Email: eurocus@bourns.com

The Americas:
Tel: +1-951 781-5500
Email: americus@bourns.com

www.bourns.com

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