### PE30 Prox Encoder™

- Extremely compact, J1939 capable
  - Shell body 1.2” (30.5mm) tall w/o connector
- Patented true non-contact position sensing
  - 0.5” (12mm) gap between sensor and application
  - 0.10” (2.5mm) center alignment
  - 30° planar tilt
- Totally sealed IP69k (connector dependent)
- LED indicators for power and output feedback
- Incremental or Absolute position
- Outputs: Quadrature, Step and Direction, SSI, PWM, Analog, Modicon MODBUS, & J1939 Can Bus

### Standard Operating Characteristics

#### Electrical

<table>
<thead>
<tr>
<th>Outputs</th>
<th>A - PPR - SEPP</th>
<th>Incremental 13 bit Quadrature w/ Single Ended Output</th>
<th>A B Z</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A - PPR - DIPP</td>
<td>Incremental 13 bit Quadrature w/ Differential Output</td>
<td>A B Z &amp; A' B' Z'</td>
</tr>
<tr>
<td></td>
<td>A - 1939</td>
<td>J1939 13 bit @1000 positions (8192 positions max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B - PWM</td>
<td>PWM absolute position</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A - SSI1</td>
<td>SSI absolute position @8192 positions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V1 Voltage Out</td>
<td>5 VDC IN, 0-5 VDC OUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V2 Voltage Out</td>
<td>6-36 VDC IN, 0-5 VDC OUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I1 Current Out</td>
<td>0-24 VDC IN, 4-20 mA OUT</td>
<td></td>
</tr>
</tbody>
</table>

- **Input Power**: 6 to 30 VDC at approx 60 mA max, not including output loads
- **Electrical Protection**: Over-voltage, reserve-voltage, output short-circuit protected
- **LED Indicators**: Power and output channels
- **Connections**: Terminal Plug, M8, M12, M12 Pigtail, Flying Lead Cable, Shielded Flying Lead, or Deutsch - 4 or 6 pin
- **Resolution**: 0.3°
- **Repeatability**: 0.30%
- **Nonlinearity**: <1%

#### Mechanical

- **Housing Diameter**: 30mm
- **Housing Material**: Aluminum or Stainless Steel (corrosion resistant)
- **Housing Height**: 1.2” (30.5mm) body; 1.86” (47.2mm) w/ M12 connector
- **Mounting**: 30mm thread (standard proximity switch thread style)
- **Weight**: 1.0 oz w/o mounting nuts; 2.2 oz w/ recommended mounting nuts
- **Magnet / sensor gap**: Standard 0.5” (12mm) (Max w/ custom mag assembly up to 1” [30mm])
- **Rated planar tilt / axial gap**: Planar 30° (Max 45°) / Axial 0.1” (2.5mm) (Max 0.16” [4mm])
- **Speed**: 3000 RPM max

#### Environmental

- **Operating Temperature**: -30° to +80° C
- **Storage Temperature**: -40° to +90° C
- **Humidity**: 100%
- **Shock**: 400g/6ms (MIL STD 202)
- **Vibration**: 5 to 3000 Hz, 20g (MIL STD 202)
- **Protection Class**: IP69K (connection dependent)

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General ordering guide found on next page (St; 13 / 2)
**PE30 GENERAL ORDERING GUIDE**

Build part number first by selecting Housing Style (code 1), MagElec (code 2), and Connection (code 3). Add Special Codes (code 4) to the end of the Joral part number. Refer to 'Special Part Number Information' for explanation of modifiers.

Examples:  
PE30-A-1024-SEPP-M12-54 - Stainless Steel (PE30, modifier S4), M12 Connector (M12), 13 bit incremental quadrature @ 1024 PPR  
PE30-A-1939-SC72-61 - Red aluminum (PE30, no modifier), Extended thread (modifier 61), 72” Shielded cable (SC72)  
PE30-V1-0-180-0-5-CW-C72-33 - Red aluminum (PE30, no modifier), 72” Cable (C72), 0-5v out (V1) @ 0-180°, 0.5v to 4.5v out, clockwise direction (OV)

<table>
<thead>
<tr>
<th>Code 1: Housing Style</th>
<th>Code 2: MagElec (Sensor Output)</th>
<th>Code 3: Connection</th>
<th>Code 4: Special Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE30</td>
<td>A-_____ - SEPP</td>
<td>TRM Pluggable Terminal block</td>
<td>51 Red Aluminum</td>
</tr>
<tr>
<td>PE30</td>
<td>A-_____ - DIPP</td>
<td>INS Wire insertion terminal</td>
<td>53 Black Aluminum</td>
</tr>
<tr>
<td>PE30</td>
<td>A-1939 13 bit J1939@1000 positions</td>
<td>M12P M12 male on 18’ pigtail</td>
<td>71 Rollers</td>
</tr>
<tr>
<td>PE30</td>
<td>B-PWM 13 bit J1939@1000 positions</td>
<td>CXX Fying lead cable (enter XX as inches)</td>
<td>72 Spindles</td>
</tr>
<tr>
<td>PE30</td>
<td>A-SS1 13 bit J1939@1000 positions</td>
<td>SCXX Shielded cable (enter XX as inches)</td>
<td>90 13 bit @8192 counts per rotation (Typical J1939 option)</td>
</tr>
</tbody>
</table>

* More outputs and connection options available, contact Joral if desired configuration is not listed

**Special Part Number Information**  
Review below code sections for important P/N build information

**Code 1: Housing Style**  
- Modifier 54 - PE30 Stainless steel housing for corrosive applications.
- Modifier 61 - Add 61 to P/N for extended thread. Standard shell length w/o M12 1.2” (30mm), Extended length w/o M12 1.7” (43mm). Code 61 adds 0.5” (12.7mm) length to thread for more access in threaded mounting.

**Code 2: MagElec**  
(A - _____ - SEPP) or  
(A - _____ - DIPP)  
- Enter Quadrature PPR in place of _____  
- A = 13 bit PPR  
- Available 13 bit PPR: 0000, 0010, 0016, 0020, 0025, 0032, 0040, 0050, 0064, 0080, 0100, 0215, 0128, 0200, 0250, 0256, 0400, 0500, 1024, 2048

- Standard J1939 output is 1000 positions  
- A = 13 bit  
- MODIFIER 90 - for 8192 positions (max resolution) add code 90 to end of PE30 P/N

**Code 3: Connections**  
- All Outputs, All Connections - Connector exit back exit only (sensor epoxy side) for housing style PE30  
- J1939 Output - Addressing via varying value resistor in connection requires at least five conductors (M12, DE6 and Cables addressing compatible)  
- All Outputs w/ Deutsch - DE4 and DE6 connection Deutsch connectors add $20 to PE30 list  
- V1, V2, and 11 (Analog MagElec P/N Guide)  
  - First select MagElec code (V1, V2 or 11) then Angle Range (A1-A2), Voltage Range (V1-V2) and Signal Direction (Clockwise [CW] or Counter [CCW])  
  - PART NUMBER FORMULA (MagElec)-(A1-A2)-(V1-V2)-(CW or CCW)  
  - EXACT V1, V2, and 11 EXAMPLES  
    PE30 - V1 - 0-360 - 0.5-4.5 - CW - C72  
    PE30 - V2 - 0-180 - 0-5 - CCW - DE4  
    PE30 - I1 - 180-270 - 4-20 - CW - M12  

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**PE30 Dimensions & General Pin-outs**

### PE30 Dimensions & General Pin Outs

1. **BRN** = +VDC (VIN)
2. **WHT** = CHANNEL B
3. **BLUE** = COMMON/GROUND
4. **BLK** = CHANNEL A
5. **GRY** = CHANNEL Z

**Programming Resistor**

1. **BRN** = +VDC (VIN)
2. **WHT** = CAN HIGH
3. **BLUE** = COMMON/GROUND
4. **BLK** = CAN LOW
5. **GRY** = OPTIONAL ADDRESS

**Digital Limit Output**

1. **YEL** = CAN HIGH
2. **GRN** = CAN LOW
3. **RED** = +VDC (VIN)
4. **BLK** = ADDRESS GROUND
5. **WHT** = ADDRESS PROGRAM RESISTOR
6. **BLK** = COMMON/GROUND

**Quadrature Output**

1. **YEL** = CAN HIGH
2. **GRN** = CAN LOW
3. **RED** = +VDC (VIN)
4. **BLK** = COMMON/GROUND
5. **WHT** = ADDRESS PROGRAM RESISTOR
6. **BLK** = COMMON/GROUND

**Proportional (Analog) Output**

1. **BRN** = +VDC (VIN)
2. **WHT** = CAN HIGH
3. **BLUE** = COMMON/GROUND
4. **BLK** = CAN LOW
5. **GRY** = NOT USED

**Non-Contact Position Sensors**

For most recent dimensions please consult factory.

Dimensions informative only

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