SERIES 62P
Low Cost, PC Mount

FEATURES
- Low Cost
- Compact Size
- PC Mount
- No De-Bouncing Required
- Reliable, Up to 2 Million Cycles
- Choice of Detent and Pushbutton Force
- Available in 16 Positions
- Quadrature Output

APPLICATION
- Automotive Controls
- White Goods
- Audio

DIMENSIONS in inches (and millimeters)

CIRCUITRY
### WAVEFORM AND TRUTH TABLE

**Standard Quadrature 2-bit Code**

<table>
<thead>
<tr>
<th>POSITION</th>
<th>OUTPUT A</th>
<th>OUTPUT B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
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<td>5</td>
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</tr>
<tr>
<td>6</td>
<td></td>
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</tr>
</tbody>
</table>

* Indicates logic high code repeats every four positions.

### SPECIFICATIONS

#### Electrical Ratings
- **Operating Voltage:** 5 Vdc +/-.25 Vdc
- **Supply Current:** 30mA maximum at 5 Vdc
- **Logic High:** 3.0V minimum
- **Logic Low:** 1.0V maximum
- **Logic Rise and Fall:** less than 30 ms

#### Pushbutton Switch Ratings
- **Rating:** 5.0 Vdc at 10mA resistive
- **Contact Resistance:** less than 10 ohms (TTL or CMOS compatible)
- **Voltage Breakdown:** 250 Vac between mutually insulated parts
- **Contact Bounce:** less than 4 ms at make and less than 10 ms at break
- **Actuation Life:** 3,000,000 operations
- **Actuation Force:**
  - 6: 600 +/- 200 grams
  - 4: 450 +/- 150 grams
- **Shaft Travel:** .015 ± .010 inch

#### Mechanical Ratings
- **Operating Torque:**
  - H: 1.4 in-oz +/- 0.6 in-oz initial
  - L: 0.6 in-oz +/- 0.3 in-oz initial
  - N: +/-0.5 in-oz initial
- **Rotational Life:**
  - H&L: 500,000 cycles
  - N: 2 million cycles
- **Shaft Push Out Force:** 20 lbs minimum
- **Operating Speed:** 100 RPM maximum
- **Axial Shaft Play:** .010 maximum

#### Environmental Ratings
- **Operating Temperature Range:** -40°C to 85°C
- **Storage Temperature Range:** -55°C to 100°C
- **Relative Humidity:** 90-95% at 40°C for 96 hours
- **Vibration Resistance:** Harmonic motion with Amplitude of 15g, within a varied 10 to 2000 Hz frequency for 12 hours per MIL-STD-202, Method 204
- **Mechanical Shock Resistance:** Test 1: Tested at 100g for 6mS, half sine, 12.3 ft/s
- **Test 2:** 100g for 6mS, Sawtooth, 9.7 ft/s

#### Materials and Finishes
- **Code/Clutch Housing:** Thermoplastic
- **Shaft:** Thermoplastic
- **Code/Detent Rotor:** Reinforced Thermoplastic
- **Bushing:** Thermoplastic
- **Terminal Pins:** Brass, Tin plated
- **Detent Spring:** Stainless Steel
- **Dome:** Stainless Steel
- **Pushbutton Contact:** Nickel plated brass
- **Phototransistor:** Planar Silicon
- **Detent Balls:** .0625 dia. Stainless Steel
- **Infrared Emitter:** Gallium Aluminum Arsenide
- **Label:** White Thermal Transfer Cast Film. Adhesive Coated
- **Bracket:** Stainless Steel, Tin plated

### ORDERING INFORMATION

**Encoder**

- **Series**
- **Angle of Throw:** 22-16 Position (22°)
- **Rotational Torque:** N - Non-detent
  - L - Low torque
  - H - High torque
- **Pushbutton Force:**
  - 0 - No Pushbutton
  - 4 - 450 grams
  - 6 - 600 grams
- **Shaft Option:**
  - Blank
  - Standard Ø.187 Shaft
  - Ø.250 Shaft Sleeve

**Ordering Code:**

- 62PXX-XXX

*EXTERNAL PULL-UP RESISTORS REQUIRED ON PIN 3 AND PIN 4
*EXTERNAL RESISTOR REQUIRED ON PIN 1