By the time you have read this first sentence, you could have installed BEI's model MX15 INSTA-MOUNT™ modular optical encoder. In addition to its quick and easy installation, the MX15 is designed to operate with jitter-free output signals without tight controls on shaft endplay, runout or perpendicularity. The new INSTA-MOUNT™ encoder is capable of operating within a temperature range of -10° to +70°C, requiring less than 30 milliamps of L.E.D. current, without degradation of output signals and is short circuit protected. The MX15 is perfectly suited for motor manufacturers and other high volume OEMs.

BEI's INSTA-MOUNT™ Series encoder offers 5V TTL compatible quadrature outputs with index and complements as options. Axial shaft movements during operation, of ±0.010", will not adversely affect the output signals. Shaft run outs of 0.005" TIR can also be absorbed by this device without affecting output signal performance.

**MX15 Series Encoder Ordering Options:** for assistance, call 800.350.2727

Use this diagram, working from left to right to construct your model number (example: MX153-25-500-G-C18)
**MX15 Series— Modular Incremental Rotary Optical Encoder**

### Dimensions

#### Figure 1

(MX152/MX153)

![Figure 1 Diagram](image1)

- **Dimensions:**
  - Width: 1.280
  - Height: 7.0
  - Hole Diameter: 2K Ø1.20 THRU HOLE

#### Figure 2

(MX156)

Dimensions not shown, same as Figure 1

![Figure 2 Diagram](image2)

- **All dimensions in inches**
- ****
- **.xx = ±0.02**
- **.xxx = ±0.005**

### Terminations

#### Terminal Board (Header)

**PINOUT: MX152 & MX153**

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Signal</th>
<th>Pin #</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NC</td>
<td>5</td>
<td>Data B</td>
</tr>
<tr>
<td>2</td>
<td>Index (MX153)</td>
<td>6</td>
<td>Data A</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
<td>7</td>
<td>ground</td>
</tr>
<tr>
<td>4</td>
<td>+5 volt</td>
<td>8</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>9</td>
<td>Data B</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>10</td>
<td>Data B</td>
</tr>
</tbody>
</table>

#### Round Shielded Cable

**COLOR CODE: MX152 & MX153**

<table>
<thead>
<tr>
<th>Color</th>
<th>Function</th>
<th>Color</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>+5 volt</td>
<td>Green</td>
<td>Data B</td>
</tr>
<tr>
<td>Black</td>
<td>Ground</td>
<td>Orange</td>
<td>Index(MX153)</td>
</tr>
<tr>
<td>White</td>
<td>Data A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COLOR CODE: MX156**

<table>
<thead>
<tr>
<th>Color</th>
<th>Function</th>
<th>Color</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>+5 volt</td>
<td>Green</td>
<td>Data B</td>
</tr>
<tr>
<td>Black</td>
<td>Ground</td>
<td>Wht/Blk</td>
<td>Data B</td>
</tr>
<tr>
<td>White</td>
<td>Data A</td>
<td>Orange</td>
<td>Index</td>
</tr>
<tr>
<td>Blue</td>
<td>Data A</td>
<td>Red/Blk</td>
<td>Index</td>
</tr>
</tbody>
</table>

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Tel: 805-968-0782 /800-350-2727 | Fax: 805-968-3154 /800-960-2726 | 7230 Hollister Ave., Goleta, CA 93117-2807 | www.beied.com
Specification No. 02121-001 Rev.11-10
Installation Instructions for MX15 Series Encoders

**Preparation:**
1. Inspect motor interface per MX15 Data Sheet or specification drawing.
2. Motor shaft must be free of burrs and other surface defects.

**Installation:**
1. Motor shaft should NOT be rotating during initial encoder installation.
2. Hold encoder perpendicular to motor shaft. Guide the encoder onto the motor shaft, pushing encoder STRAIGHT on until it is flush against the motor surface. Do NOT rock side to side.
3. Install two #2-56 mount screws. Do not fully tighten at this point. (Note: A thread sealant should be applied to the screw threads.)
4. Rotate the motor shaft (300 RPM, minimum). Insert push pin into the 1/16 hole in top of encoder and press until pin bottoms out on encoder cover momentarily, then remove pin. CAUTION: DO NOT press the push pin while motor shaft is stationary. Pin should only be pressed for one or two seconds while shaft is rotating.
5. Fully tighten mounting screws. (Recommended torque is 20 to 25 ounce inches.)
6. This completes the mechanical installation. Proceed with electrical connections as indicated on product data sheet or specification drawing.

**Removal:**
1. Motor shaft may be stationary or rotating up to 1000 RPM during encoder removal.
2. Remove two mounting screws.
3. Grasp encoder firmly and pull STRAIGHT off the motor shaft. Do NOT rock side to side.

These commodities, technology or software if exported from the United States must be in accordance with the Bureau of Industry, and Security, Export Administration regulations. Diversion contrary to U.S law is prohibited.