Model 86A Extra Heavy Duty Machine Tool Encoder

Features
• Standard 68mm Diameter Package
• Up to 3000 PPR, Opto-Asic Technology
• Square Flange Mounting
• IP65 Double O-Ring Sealed

Model 86A is an extra heavy duty unit which employs a highly reliable Opto-Asic encoder module mounted within a rugged mechanical housing. The heavy duty sealed bearings, together with double O-Ring sealing makes this encoder a serious and reliable alternative to a wide range of machine tool encoders, and at an advantageous price.

Common Applications
Motion Control Feedback, Conveyors, Elevator Controls, Machine Control, Food Processing, Process Control, Robotics, Material Handling, Textile Machines

Model 86A Ordering Guide
Red type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

Model 86A PPR Options

<table>
<thead>
<tr>
<th>PPR</th>
<th>0500</th>
<th>0512</th>
<th>1000</th>
<th>1024</th>
<th>1250</th>
<th>2000</th>
<th>2048</th>
<th>2500</th>
<th>2540</th>
</tr>
</thead>
</table>

For specification assistance call Customer Service at +44 (0)1978 262100

NOTES:
1. 24 VCC max for high temperature option.
2. For Non-Standard Cable Lengths Contact the sales office.
Model 86A Specifications

**Electrical**

- **Input Voltage**: 4.75 to 24 VCC max for temperatures up to 70º C
- **Input Current**: 100 mA max with no output load
- **Input Ripple**: 100 mV peak-to-peak at 0 to 100 kHz
- **Output Format**: Incremental - Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See Waveform Diagrams below.
- **Output Types**: Line Driver - 20 mA max per channel (Meets RS 422 at 5 VCC supply)
- **Index**: Occurs once per revolution. The index is un gated. See Waveform Diagrams below.
- **Freq Response**: Up to 200 KHz
- **Noise Immunity**: Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2
- **Symmetry**: ±10º electrical at 100 kHz output
- **Quad Phasing**: 1 to 2540 PPR: 90º ±22.5º electrical at 100 kHz output
- **Min Edge Sep**: 1 to 2540 PPR: 67.5º electrical at 100 kHz output
- **Rise Time**: Less than 1 microsecond
- **Accuracy**: Instrument and Quadrature Error: For 0500 to 2540 PPR, 0.017º mechanical (1.0 arc minutes) from one cycle to any other cycle.

**Mechanical**

- **Max Shaft Speed**: 3600 RPM. Higher shaft speeds may be achievable, contact Customer Service.
- **Shaft Size**: See order code
- **Shaft Material**: 303 stainless steel
- **Shaft Rotation**: Bi-directional
- **Radial Shaft Load**: 35 kg max
- **Axial Shaft Load**: 35 kg max
- **Starting Torque**: 2.118 x 10⁻² Nm typical.
- **Max Acceleration**: 1 x 10⁵ rad/sec²
- **Electrical Conn**: 17-pin MS Style, or gland with 2M of cable (foil and braid shield, 24 AWG conductors)
- **Housing**: Anodised Aluminium
- **Bearings**: Precision ABEC ball bearings
- **Mounting**: Square Flange with 4 Holes 5.50mm Dia on a 71.19 PCD
- **Weight**: 800gms typical

**Environmental**

- **Operating Temp**: 0º to 70º C for standard models
- **Storage Temp**: -25º to -65º C for high temperature option
- **Humidity**: 95% RH non-condensing
- **Vibration**: 10 g @ 58 to 500 Hz
- **Shock**: 50 g @ 11 ms duration
- **Sealing**: IP64 (IP65 optional)

---

Model 86A

**Model 86A**

- **Input Voltage**: 4.75 to 24 VCC max for temperatures up to 70º C
- **Input Current**: 100 mA max with no output load
- **Input Ripple**: 100 mV peak-to-peak at 0 to 100 kHz
- **Output Format**: Incremental - Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See Waveform Diagrams below.
- **Output Types**: Line Driver - 20 mA max per channel (Meets RS 422 at 5 VCC supply)
- **Index**: Occurs once per revolution. The index is un gated. See Waveform Diagrams below.
- **Freq Response**: Up to 200 KHz
- **Noise Immunity**: Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2
- **Symmetry**: ±10º electrical at 100 kHz output
- **Quad Phasing**: 1 to 2540 PPR: 90º ±22.5º electrical at 100 kHz output
- **Min Edge Sep**: 1 to 2540 PPR: 67.5º electrical at 100 kHz output
- **Rise Time**: Less than 1 microsecond
- **Accuracy**: Instrument and Quadrature Error: For 0500 to 2540 PPR, 0.017º mechanical (1.0 arc minutes) from one cycle to any other cycle.

---

Waveform Diagrams

**Wiring Tables**

**Cable Colours**

<table>
<thead>
<tr>
<th>Cable Colours</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>0 Volts</td>
</tr>
<tr>
<td>White</td>
<td>+Vcc</td>
</tr>
<tr>
<td>Brown</td>
<td>A</td>
</tr>
<tr>
<td>Yellow</td>
<td>JA</td>
</tr>
<tr>
<td>Red</td>
<td>B</td>
</tr>
<tr>
<td>Green</td>
<td>IB</td>
</tr>
<tr>
<td>Orange</td>
<td>Z</td>
</tr>
<tr>
<td>Blue</td>
<td>/Z</td>
</tr>
<tr>
<td>Drain</td>
<td>Screen</td>
</tr>
</tbody>
</table>