FEATURES

Single Turn/Multi-Turn Absolute Encoder (16 Bit ST / 43 Bit MT)
SSI or CANopen® communication
Maintenance-free and environmentally friendly all-magnetic design
Energy harvesting magnetic multi-turn technology
No gears or batteries
Standard Size 36 mm (1.42”) package
Meets CE/EMC standards for immunity and emissions

The Model A36SB absolute encoder offers a high performance solution for your absolute feedback needs. It provides maintenance-free feedback thanks to its innovative battery-free and gear-free multi-turn technology. This encoder is especially suited for applications where position information must be retained after loss of system power. Its rugged magnetic technology and high IP rating make the Model A36SB an excellent choice, even in tough industrial environments. Available with a 1/4” or 6 mm shaft and a servo mount, the Model A36SB is easily designed into a variety of applications.

COMMON APPLICATIONS

Robotics, Telescopes, Antennas, Medical Scanners, Wind Turbines, Elevators, Lifts, Motors, Automatic Guided Vehicles, Rotary and X/Y Positioning Tables

MODEL A36SB ORDERING GUIDE

Blue type indicates price adder options

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<tr>
<th>Mechanical</th>
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<th>Electrical</th>
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<tr>
<td>MODEL</td>
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<td>MOUNTING TYPE</td>
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<td>Absolute Series</td>
<td>36 mm Servo Mount</td>
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<td>SHAFT SIZE</td>
<td>06</td>
<td>01 to 16</td>
<td>Bit</td>
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<tr>
<td>6 mm</td>
<td>1/4”, 0.250”</td>
<td>Multi-Turn</td>
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<td>SINGLE TURN RESOLUTION</td>
<td>01 to 43</td>
<td>Single Turn</td>
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<td>CO</td>
<td>SOFTWARE REV</td>
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<td>SSI</td>
<td>A</td>
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<tr>
<td>1</td>
<td>CANopen</td>
<td>Revision A</td>
<td>V2</td>
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<tr>
<td>INPUT VOLTAGE</td>
<td>5 VDC</td>
<td>5 to 32 VDC</td>
<td>AMJ</td>
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<tr>
<td>CONNECTOR TYPE</td>
<td>AMJ</td>
<td>5-pin M12 Axial Mount</td>
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<td></td>
<td>AMK</td>
<td>8-pin M12 Axial Mount</td>
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<td>AC6</td>
<td>6-ft Axial Mount</td>
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</tr>
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<td></td>
<td>RC6</td>
<td>6-ft Radial Mount</td>
<td>5</td>
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</table>

Notes:
3 Available with SSI only.
4 For mating connectors, cables, and cordsets see Accessories at encoder.com. For Connector Pin Configuration Diagrams, see Technical Information or see Connector Pin Configuration Diagrams at encoder.com.
5 Available with CANopen only.

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MODEL A36SB SPECIFICATIONS

**Electrical**
- **Input Voltage**: 5 to 32 VDC max SSI or CANopen
- **Input Current**: 50 mA typical for 5 to 32 VDC
  88mA typical for 5 VDC
- **Power Consumption**: 0.5 W max
- **Resolution (Single)**: 01 to 16 bit
- **Resolution (Multi)**: 01 to 43 bit
- **Accuracy**: ± 0.0878°
- **Repeatability**: ± 0.0878°
- **CE/EMC**: Immunity tested per EN 61000-6-2:2006
  Emissions tested per EN 61000-6-3:2011
- **CANopen Interface**
  - **CANopen Protocol**: Communication profile CiA 301
  - **Device profile for encoder CiA 406 V3.2**
  - **Node Number**: 0 to 127 (default 127)
  - **Baud Rate**: 10 Kbaud to 1 Mbaud with automatic bit rate detection
- **Programmable CANopen Transmission Modes**
  - **Synchronous**: When a synchronization telegram (SYNC) is received from another bus node, PDOs are transmitted independently
  - **Asynchronous**: A PDO message is triggered by an internal event (e.g., change of measured value, internal time, etc.)

**SSI Interface**
- **Clock Input**: Via opto coupler
- **Clock Frequency**: 100 kHz to 500 KHz. Higher frequencies may be available. Contact Customer Service.
- **Data Output**: RS485 / RS422 compatible
- **Output Code**: Gray or binary
- **SSI Output**: Angular position value
- **Parity Bit**: Optional (even/odd)
- **Error Bit**: Optional
- **Turn On Time**: < 1.5 sec
- **Pos. Counting Dir.**: Connect DIR to GND for CW
  Connect DIR to VDC for CCW (when viewed from shaft end)
- **Set to Zero**: Yes, see Technical Bulletin TB-529:
  Understanding EPC’s SSI Encoders
- **Protection**: Galvanic Isolation

**Mechanical**
- **Max Shaft Speed**: 12,000 RPM
- **Radial Shaft Load**: 17 lb (80 N) = bearing life of 1.4×10^6 revolutions
- **Axial Shaft Load**: 11 lb (50 N) = bearing life of 1.4×10^6 revolutions
- **Housing**: All metal with protective finish
- **Weight**: 5 oz typical

**Environmental**
- **Operating Temp**: -40° to 85° C
- **Storage Temp**: -40° to 100° C
- **Humidity**: 95% RH non-condensing
- **Vibration**: 38 g @ 10 to 2000 Hz
- **Shock**: 310 g @ 6 ms duration
- **Sealing**: IP67, shaft sealed to IP65

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**WIRING TABLE**

For EPC-supplied mating cables, refer to wiring table provided with cable. For CE (Conformity European) requirements, use M12 cordset with shield connected to M12 coupling nut. Trim back and insulate unused wires.

### SSI Encoders
**8-pin M12**

<table>
<thead>
<tr>
<th>Function</th>
<th>Gland cable wire color</th>
<th>8-Pin M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground (GND)</td>
<td>White</td>
<td>1</td>
</tr>
<tr>
<td>+VDC</td>
<td>Brown</td>
<td>2</td>
</tr>
<tr>
<td>SSI CLK+</td>
<td>Green</td>
<td>3</td>
</tr>
<tr>
<td>SSI CLK-</td>
<td>Yellow</td>
<td>4</td>
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<tr>
<td>SSI DATA+</td>
<td>Gray</td>
<td>5</td>
</tr>
<tr>
<td>SSI DATA-</td>
<td>Pink</td>
<td>6</td>
</tr>
<tr>
<td>RESET</td>
<td>Blue</td>
<td>7</td>
</tr>
<tr>
<td>DIR</td>
<td>Red</td>
<td>8</td>
</tr>
<tr>
<td>Shield</td>
<td>Side-exit housing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>End-Exit N/C</td>
<td></td>
</tr>
<tr>
<td>Meets</td>
<td>Housing</td>
<td></td>
</tr>
</tbody>
</table>

**Primary dimensions are in mm, secondary dimensions [inches] in brackets for reference only.**