The Model SA36S Single Turn Absolute Encoder offers a high performance solution for your absolute feedback needs. This encoder is especially suited for applications where position information must be retained after loss of system power (i.e., system resets, outages, etc.). Its rugged magnetic technology and high IP rating make the Model SA36S an excellent choice, even in the harshest industrial environments. Available with a 1/4” or 6 mm shaft and a servo mount, the Model SA36S 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

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**DISCONTINUED - PLEASE SEE REPLACEMENT MODEL A36SB**

**Features**
- Standard Size 36 mm Package (1.42”)
- Durable Magnetic Technology
- Up to 14 Bits of Single Turn Resolution
- SSI and CANopen Communication
- Meets CE/EMC Standards for Immunity and Emissions

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**Model SA36S Ordering Guide**

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

For multi-turn applications, see Model MA36S.

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For multi-turn applications, see Model MA36S.
## MODEL SA36S SPECIFICATIONS

### Electrical
- **Input Voltage**: 10 to 30 VDC max SSI or CANopen
  - 5 VDC SSI Only
- **Input Current**: 50 mA typical for 10 to 30 VDC
  - 80mA typical for 5 VDC
- **Power Consumption**: 0.5 W max
- **Resolution**:
  - SSI: 12 bit (CANopen)
  - 8 to 14 bit (SSI)
- **Accuracy**: +/- 0.35°
- **Repeatability**: +/- 0.2°
- **CE/EMC**: Immunity tested per EN 61000-6-2:2006
  - Emissions tested per EN 61000-6-3:2011

### CANopen Interface
- **Protocol**: CANopen:
  - Communication profile CiA 301
  - Device profile for encoder CiA 406 V3.2 class C2
- **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, PDUs are transmitted independently
- **Asynchronous**: A PDU message is triggered by an internal event (e.g., change of measured value, internal timer, etc.)

### SSI Interface
- **Clock Input**: Via opto coupler
- **Clock Frequency**: 100KHz to 500KHz. 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**:
  - 7 lb (32 N) = bearing life 1.10^11 revs
  - 3.6 lb (16 N) = bearing life 1.10^10 revs
- **Axial Shaft Load**:
  - 5 lb (20 N) = bearing life 1.10^10 revs
  - 2.3 lb (10 N) = bearing life 1.10^11 revs
- **Starting Torque**: < 0.45 oz-in typical
- **Housing**: Ferrous chrome-plated magnetic screening
- **Weight**: 5 oz typical

### Environmental
- **Operating Temp**: -40° to 85° C
- **Storage Temp**: -40° to 100° C
- **Humidity**: 95% RH non-condensing
- **Vibration**: 5 g @ 10 to 2000 Hz
- **Shock**: 100 g @ 6 ms duration
- **Sealing**: IP67, shaft sealed to IP65

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### WIRING TABLE

#### SSI ENCODERS

<table>
<thead>
<tr>
<th>Function</th>
<th>Gland Cable†</th>
<th>Wire Color</th>
<th>B-pin M-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>+VDC</td>
<td>White</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SSI CLK+</td>
<td>Green</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SSI CLK-</td>
<td>Yellow</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SSI DATA+</td>
<td>Gray</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>SSI DATA-</td>
<td>Pink</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>PRESET</td>
<td>Blue</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>DIR</td>
<td>Red</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Shield</td>
<td>Side - Exit Housing End - Exit N/C</td>
<td>Housing</td>
<td></td>
</tr>
</tbody>
</table>

#### CANOPEN ENCODERS

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>+VDC</td>
<td>2</td>
</tr>
<tr>
<td>Ground (GND)</td>
<td>3</td>
</tr>
<tr>
<td>CAN High</td>
<td>4</td>
</tr>
<tr>
<td>CAN Low</td>
<td>5</td>
</tr>
<tr>
<td>CAN enc/ Shield</td>
<td>1</td>
</tr>
</tbody>
</table>

†Standard cable is 24 AWG conductors with foil and braid shield.