The Model SA36H 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 SA36H an excellent choice, even in the harshest industrial environments. Available with a 1/4” or 6 mm hollow bore and a wide selection of flexible mounting options, the Model SA36H 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 SA36H 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 MA36H.

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Electrical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong> SA36H Absolute Series</td>
<td><strong>Resolution</strong> 12 Bit (CANopen)³ 08 to 14 Bit (SSI)²</td>
</tr>
<tr>
<td><strong>Bore Size</strong> 01 1/4&quot;, 0.250&quot; 04 6 mm</td>
<td><strong>Connector Type</strong> EMJ 5-pin M12 End Mount⁵ EMK 8-pin M12 End Mount³</td>
</tr>
<tr>
<td><strong>Mounting</strong> SF 1.812&quot; (46 mm) Slotted Flex-Mount SD 1.575&quot; (40 mm) Slotted Flex-Mount SW 1.653&quot; (42 mm) Slotted Flex-Mount</td>
<td><strong>Software Rev</strong> A Revision A</td>
</tr>
<tr>
<td><strong>Input Voltage</strong> 5 5 VDC¹ V3 10 to 30 VDC</td>
<td></td>
</tr>
</tbody>
</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.

Please note that configuration options for this product have changed. Confirm configuration options before ordering or contact Customer Service for assistance.
MODEL SA36H 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
  - 80 mA typical for 5 VDC
- Power Consumption: 0.5 W max
- Resolution: 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
- Note: The standard settings as well as any customization in the software can be changed via LSS (CiA 305) and the SDO protocol

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 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
- Bore Depth: 17 mm (0.669"
- User Shaft
- Radial Runout: 0.005" max
- 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

Model SA36H 1.812" (46 MM) Slotted Flex Mount (SF)

Model SA36H Optional Flex Mounts

Model SA36H 1.575" (40 MM) SD

Model SA36H 1.653" (42 MM) SW

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.

Wiring Table

SSI ENCODERS

<table>
<thead>
<tr>
<th>Function</th>
<th>Gland Cable†</th>
<th>8-pin M-12</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>
</tr>
<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>PRESET</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, End-Exit N/C</td>
<td>Housing</td>
</tr>
</tbody>
</table>

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

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 GND / Shield</td>
<td>1</td>
</tr>
</tbody>
</table>