The Model MA63S Multi-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.). It provides maintenance-free feedback thanks to its innovative battery-free and gear-free multiturn technology. This encoder is the perfect choice for harsh industrial applications thanks to its rugged magnetic technology, available IP67 rating, and proven "encoder within an encoder" design. Available with several shaft sizes and mounting styles, the Model MA63S is easily designed into OEM and aftermarket applications.

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

**FEATURES**
- Standard Size 25 Package (2.5” x 2.5”)
- Durable Magnetic Technology
- Multi-Turn Absolute Encoder (14 Bit ST / 39 Bit MT)
- SSI and CANopen Communication
- Proven Turns Counting Technology – No Gears or Batteries
- Servo and Flange Mounting
- IP67 Sealing Available
- Meets CE/EMC Standards for Immunity and Emissions

The Model MA63S Multi-Turn Absolute Encoder is a reliable solution for demanding applications requiring accurate and secure feedback even during power outages.
MODEL MA63S 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 (Single)....... 12 bit (CANopen)
8 to 14 bit (SSI)
Resolution (Multi)........ Up to 39 bit multi-turn
(CANopen or 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 (e.g., PDOs, scaling, heartbeat, node-ID, baud rate, etc.)

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 VDC for CCW
Connect DIR to GND for CW
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........... 8,000 RPM
Shaft Material............ 303 Stainless Steel
Radial Shaft Load........ 80 lb max. Rated load of 20 to 40 lb for bearing life of 1.5 x 10^9 revolutions
Axial Shaft Load........ 80 lb max. Rated load of 20 to 40 lb for bearing life of 1.5 x 10^9 revolutions
Starting Torque........... 1.0 oz-in typical with no seal
3.0 oz-in typical with IP66 shaft seal
7.0 oz-in typical with IP67 shaft seal
Housing...................... Black non-corrosive finish
Weight...................... 20 oz typical

Environmental
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...................... IP50 standard; IP66 or IP67 optional

MODEL MA63S 2.5” FLANGE MOUNT (MA)

MODEL MA63S 2.5” SERVO MOUNT (MC)

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground (GND)</td>
<td>1</td>
</tr>
<tr>
<td>+VDC</td>
<td>2</td>
</tr>
<tr>
<td>SSI CLK+</td>
<td>3</td>
</tr>
<tr>
<td>SSI CLK-</td>
<td>4</td>
</tr>
<tr>
<td>SSI DATA+</td>
<td>5</td>
</tr>
<tr>
<td>SSI DATA-</td>
<td>6</td>
</tr>
<tr>
<td>PRESET</td>
<td>7</td>
</tr>
<tr>
<td>DIR</td>
<td>8</td>
</tr>
<tr>
<td>Shield</td>
<td>Housing</td>
</tr>
</tbody>
</table>

CANOPEN ENCODERS

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

Trim back and insulate unused wires.