

# Model A25SB - Solid Shaft 63.5mm Absolute Encoder



## Features

- Single Turn/Multi-Turn Absolute Encoder (16 Bit ST / 43 Bit MT)
- SSI or CANopen Communication
- Maintenance-Free and Environmentally Friendly Magnetic Design
- Energy Harvesting Magnetic Multi-Turn Technology
- No Gears or Batteries
- IP67 Sealing Available
- Servo and Flange Mounting
- Standard Size 25 (63.50mm) Package
- Meets CE/EMC Standards for Immunity and Emissions

The Model A25SB 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. It provides maintenance-free feedback thanks to its innovative battery-free and gear-free multi-turn technology. This encoder is the perfect choice for harsh industrial applications thanks to its rugged magnetic technology, available IP67 rating, and proven double bearing design. Available with several shaft sizes and mounting styles, the Model A25SB is easily designed into OEM and aftermarket applications.

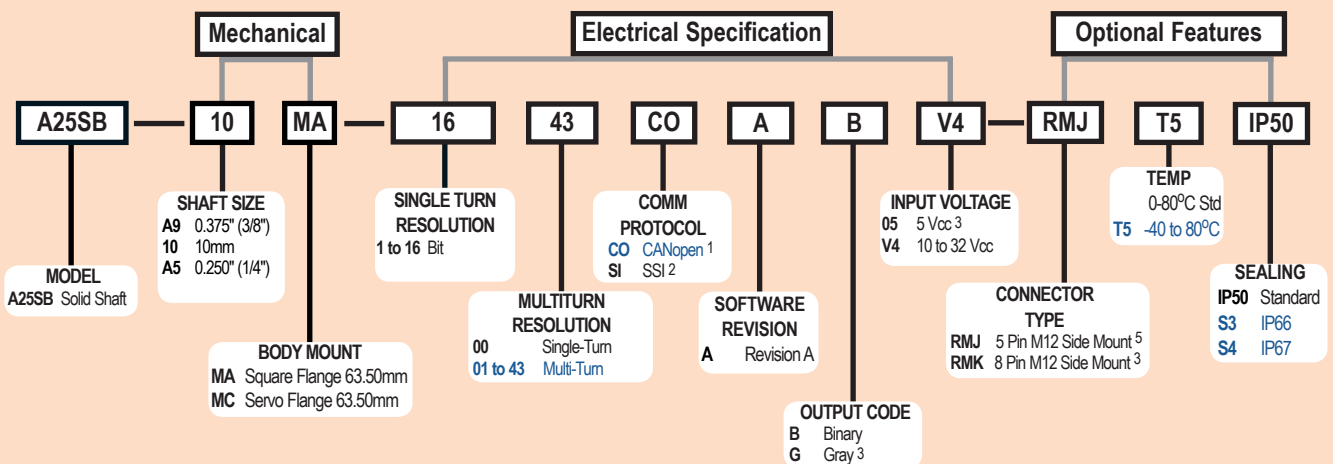
## Common Applications

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

## Model A25SB Ordering Guide

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

Absolute Encoders



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

### NOTES:

- 1 Please Refer to the [CANOpen Interface Technical Manual](http://www.encoder.co.uk) at [www.encoder.co.uk](http://www.encoder.co.uk)
- 2 Please Refer to Technical Bulletin: [TB-529 Understanding BEPC SSI Encoders](http://www.encoder.co.uk) at [www.encoder.co.uk](http://www.encoder.co.uk)
- 3 Available with SSI Only.
- 4 For Connectors, Cables and Cordsets please visit the [Accessories](http://www.encoder.co.uk) section at [www.encoder.co.uk](http://www.encoder.co.uk) or in our Catalogue.
- 5 Available with CANopen Only.

# Model A25SB - Solid Shaft 63mm Absolute Encoder



## Model A25SB Specifications

### Electrical

Input Voltage ..... 10 to 32 VDC max SSI or CANopen  
5 VDC SSI Only  
Input Current ..... 50 mA typical for 10 to 32 VDC  
80mA typical for 5 VDC  
Power Consumption ... 0.5 W max  
Resolution (Single)..... 01 to 16 bit  
Resolution (Multi)..... 01 to 43 bit  
Accuracy .....  $\pm 0.35^\circ$   
Repeatability .....  $\pm 0.2^\circ$   
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 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

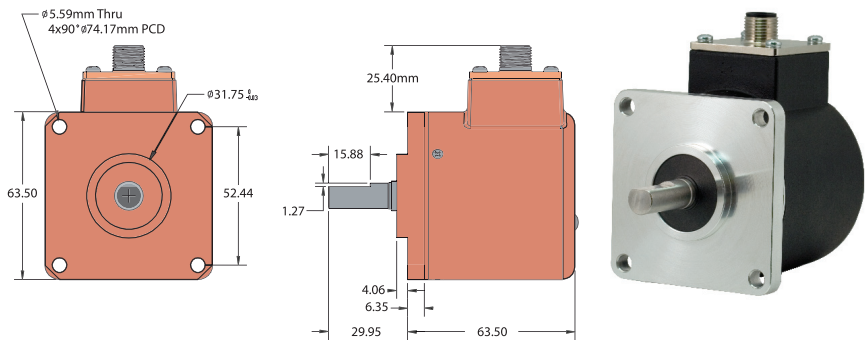
### Mechanical

Max Shaft Speed ..... 8,000 RPM  
Shaft Material ..... 303 Stainless Steel  
Radial Shaft Load ..... 80 lb (355 N) max. Rated load of 20 to 40 lb (88 to 177 N) = bearing life of 1.5 x10<sup>9</sup> revolutions  
Axial Shaft Load ..... 80 lb (355 N) max. Rated load of 20 to 40 lb (88 to 177 N) = bearing life of 1.5 x10<sup>9</sup> revolutions  
Starting Torque ..... 0.00706 Nm typical with no seal  
0.02118 Nm typical with IP66 shaft seal  
0.04943 Nm typical with IP67 shaft seal  
Housing ..... Black non-corrosive finish  
Weight ..... 20 oz typical

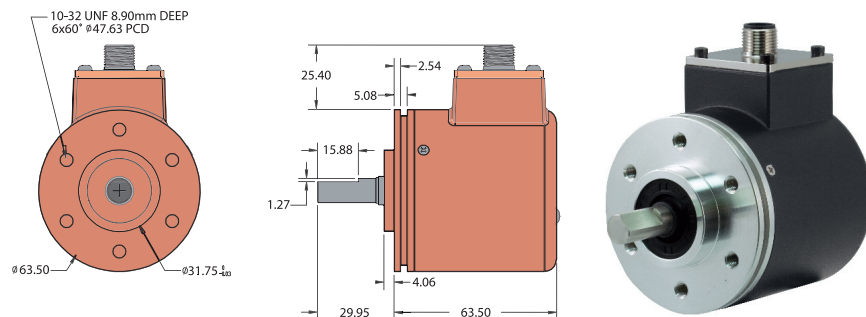
### Environmental

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 A25SB Flange Mount (MA)



## Model A25SB Servo Mount (MC)



All dimensions are in mm with a tolerance of  $\pm 0.127$  or  $\pm 0.254$  unless otherwise specified.

### Wiring Table

#### CANopen Encoders

Function	Pin
+VCC	2
Ground (GND)	3
CAN <sub>High</sub>	4
CAN <sub>Low</sub>	5
CAN <sub>GND</sub> / shield	1

5-pin M12

#### SSI Encoders

Function	Pin
Ground (GND)	1
+VCC	2
SSI CLK+	3
SSI CLK-	4
SSI DATA+	5
SSI DATA-	6
PRESET	7
DIR	8
Shield	housing

8-pin M12