MODEL A25SB - ABSOLUTE SHAFT ENCODER

Ø2.5"

SSI CANopen
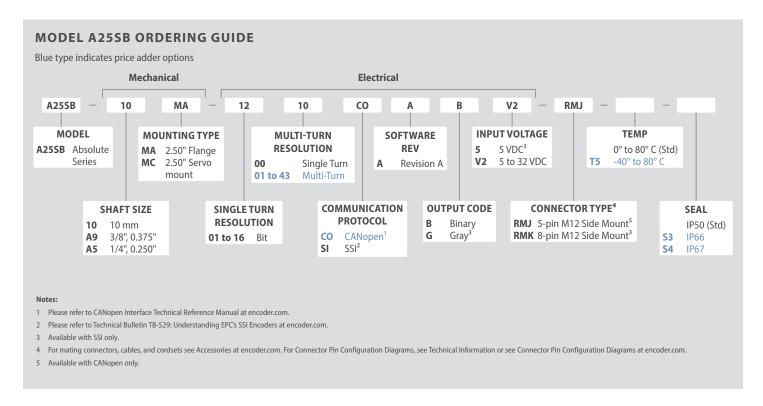Synchronous Serial Interface

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 package (2.5" x 2.5")
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

Mechanical		Electrical	

A25SB — 10 MA — 12 10 CO A B V2 — RMJ — —

MODEL
A25SB   Absolute Series

MOUNTING TYPE
MA   2.50" Flange
MC   2.50" Servo mount

MULTI-TURN RESOLUTION
00   Single Turn
01 to 43   Multi-Turn

SOFTWARE REV
A   Revision A

INPUT VOLTAGE
5   5 VDC[3]
V2   5 to 32 VDC

TEMP
0° to 80° C (Std)
T5   -40° to 80° C

SHAFT SIZE
10   10 mm
A9   3/8", 0.375"
A5   1/4", 0.250"

SINGLE TURN RESOLUTION
01 to 16   Bit

COMMUNICATION PROTOCOL
CO   CANopen[1]
SI   SSI[2]

OUTPUT CODE
B   Binary
G   Gray[3]

CONNECTOR TYPE[4]
RMJ   5-pin M12 Side Mount[5]
RMK   8-pin M12 Side Mount[3]

SEAL
IP50 (Std)
S3   IP66
S4   IP67

Notes:
1   Please refer to CANopen Interface Technical Reference Manual at encoder.com.
2   Please refer to Technical Bulletin TB-529: Understanding EPC's SSI Encoders at encoder.com.
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 A25SB SPECIFICATIONS

Electrical

Input Voltage	5 to 32 VDC max SSI or CANopen 5 VDC SSI Only
Input Current	50 mA typical for 5 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	± 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

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.)
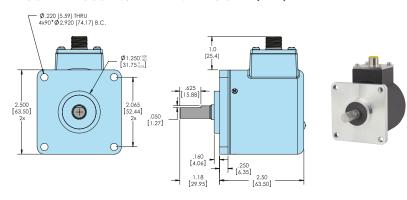
Programmable CANopen Transmission Modes

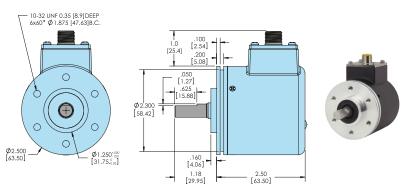|	
Synchronous	When a synchronization telegram (SYNC) is received from another bus node, PDOs are transmitted independently
Asynchronous	A PDO message is triggered by an internal event (e.g., change of measured value, internal timer, etc.)

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 x10^9 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 x10^9 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	30.6 g @ 10 to 2000 Hz
Shock	510 g @ 6 ms duration
Sealing	IP50 standard; IP66 or IP67 optional

MODEL A25SB 2.5" FLANGE MOUNT (MA)

MODEL A25SB 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
8-pin M12

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

CANopen Encoders
5-pin M12

Function	Pin
+VDC	2
Ground (GND)	3
CAN$_{High}$	4
CAN$_{Low}$	5
CAN$_{GND}$ / Shield	1

All dimensions are in inches with a tolerance of +0.005" or +0.01" unless otherwise specified.

Metric dimensions are given in brackets [mm].