MODEL MA36S – MULTI-TURN ABSOLUTE ENCODER

Ø36 mm

FEATURES

Standard Size 36 mm Package (1.42")
Durable Magnetic Technology
Multi-Turn Absolute Encoder (12 Bit/39 Bit)
SSI and CANopen Communications
Proven New Turns Counting Technology – No Gears or Batteries

The Model MA36S Multi-Turn Absolute Encoder is ideal for a wide variety of industrial applications – especially where you need an encoder with the capability of output even in power-off scenarios. Its fully digital output and innovative use of battery-free multi-turn technology make the Model MA36S an excellent choice for applications with a high presence of noise. Its durable magnetic technology and high IP rating make it a perfect choice for dirty, industrial environments. Available with a 6 mm or 1/4" shaft and a servo mount, the Model MA36S is easily designed into a variety of applications.

COMMON APPLICATIONS

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

MODEL MA36S ORDERING GUIDE

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.
For single turn applications see Model SA36S.

Mechanical | Electrical

MA36S – 19 MB – 12 10 V3 P2 C1 A – EMJ

MODEL
MA36S Absolute Series

SHAFT SIZE
19 1/4", 0.250"
20 6 mm

MOUNTING
MB 36 mm Servo Mount

SINGLE TURN RESOLUTION
12 Bit (CANopen)
08 to 14 Bit (SSI)

MULTI-TURN RESOLUTION
18 18 Bit (CANopen)
39 39 Bit (CANopen)
01 to 39 Bit (SSI Only)
Price adder for Bit > 18

INPUT VOLTAGE
5 5 VDC[1]
V3 10 to 30 VDC

COMM PROTOCOL
P1 CANopen
P2 SSI

OUTPUT CODE
C1 Binary
C2 Gray[1]

SOFTWARE REV
A Revison A

CONNECTOR TYPE[2]
EMJ 5-pin M12 End Mount[3]
EMK 8-pin M12 End Mount[1]
EC6 6 Ft End Mount Cable with Gland Nut[1]
SC6 6 Ft Side Mount Cable with Grommet[1]

NOTES:
1 Available with SSI only.
2 For mating connectors, cables, and cordsets, see Encoder Accessories on page 102 or visit www.encoder.com. For Pin Configuration Diagrams, see page 107 or visit www.encoder.com.
3 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 MA36S SPECIFICATIONS

Electrical

Input Voltage..... 10 to 30 VDC max SSI or CANopen
5 VDC SSI Only
Input Current ..... 50 mA max with no external load

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°

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..... 100 KHz to 500 KHz
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..... Apply VDC for 2 sec
Protection ..... Galvanic Isolation

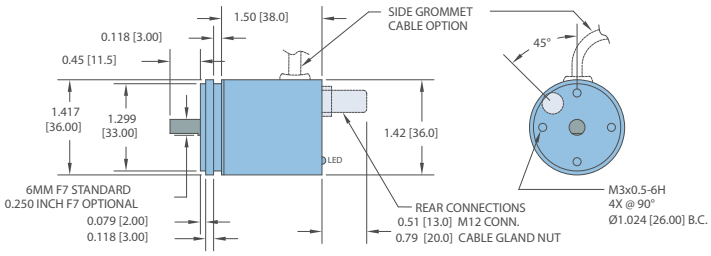
Mechanical

Max Shaft Speed..... 12,000 RPM
Radial Shaft Load ..... 7 lb (32 N) = bearing life 1.10^{10} revs
3.6 lb (16 N) = bearing life 1.10^{11} 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

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 MA36S SOLID SHAFT



All dimensions are in inches with a tolerance of +0.005" or +0.01" unless otherwise specified.
Metric dimensions are given in brackets [mm].

WIRING TABLES

SSI ENCODERS

Function	Cable† Wire Color	8-pin M-12
Ground (GND)	White	1
+VDC	Brown	2
SSI CLK+	Green	3
SSI CLK-	Yellow	4
SSI DATA+	Gray	5
SSI DATA-	Pink	6
PRESET	Blue	7
DIR	Red	8
Shield	Side - Exit Housing End - Exit N/C	Housing

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

CANOPEN ENCODERS

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