MODEL MA58H – MULTI-TURN ABSOLUTE ENCODER

DISCONTINUED - PLEASE SEE REPLACEMENT MODEL A58HB

Ø58 mm

FEATURES

58 mm Diameter Package
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
Flex Mount Eliminates Couplings and Is Ideal for Motors or Shafts
Meets CE/EMC Standards for Immunity and Emissions

The Model MA58H Mulit-Turn Absolute Encoder offers a high performance solution for your absolute feedback needs. It provides maintenance-free feedback thanks to its innovative battery-free and gear-free multi-turn technology. 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 MA58H an excellent choice, even in the harshest industrial environments. Available with bores up to 3/8" or 14 mm and two flexible mounting options, the Model MA58H 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 MA58H ORDERING GUIDE

Blue type indicates price adder options. For single turn applications, see Model SA58H.

Mechanical | Electrical

MA58H – **04** **SQ** – **14** **18** **V3** **P1** **C1** **A** – **SMJ**

MODEL
MA58H Absolute Series

BORE SIZE
04 6 mm
07 7 mm
14 8 mm
10 10 mm
12 12 mm
13 14 mm
01 0.250", 1/4"
02 0.375", 3/8"

MOUNTING TYPE
SQ 108 mm BC Flex Arm
SR 63 mm BC 2-pt. Flex Mount

SINGLE TURN RESOLUTION
14 Bit (CANopen)[1]
08 to 14 Bit (SSI)[2]

MULTI-TURN RESOLUTION
18 18 Bit (CANopen)[1]
39 39 Bit (CANopen)[1,3]
01 to 39 Bit (SSI)[2]
Price adder for Bit > 18

INPUT VOLTAGE
5 5 VDC[4]
V3 10 to 30 VDC

COMM PROTOCOL
P1 CANopen[1]
P2 SSI[2]

OUTPUT CODE
C1 Binary
C2 Gray[4]

SOFTWARE REV
A Revison A

CONNECTOR TYPE[5]
SMJ 5-pin M12 Side Mount[6]
SMK 8-pin M12 Side Mount[4]

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 Additional lead time required.
4 Available with SSI only.
5 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.
6 Available with CANopen only.

MODEL MA58H SPECIFICATIONS

Electrical

Input Voltage..... 10 to 30 VDC max
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:
Single Turn ..... 14 bit (CANopen)
8 to 14 bit (SSI)
Multi-Turn ..... Up to 39 bit multi-turn
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 ..... 1 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. 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 TB529: *Understanding EPC's SSI Encoders***
Protection ..... Galvanic Isolation with SSI option

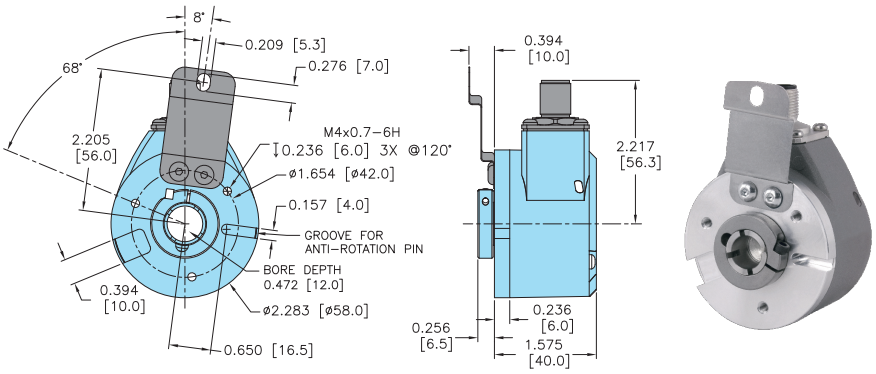
Mechanical

Max Shaft Speed..... 6000 RPM
Shaft Rotation ..... Bi-directional
Radial Run-out ..... 0.007" max
Axial Endplay..... ± 0.030" max
Radial Shaft Load ..... 18 lb max. Max load bearing life of 1 x 10^9 revolutions
Axial Shaft Load ..... 11 lb max. Max load bearing life of 1 x 10^9 revolutions
Starting Torque ..... 2.3 oz-in typical
Housing ..... All metal with protective finish
Bearings..... 2 precision ball bearings
Weight..... 7.5 oz typical

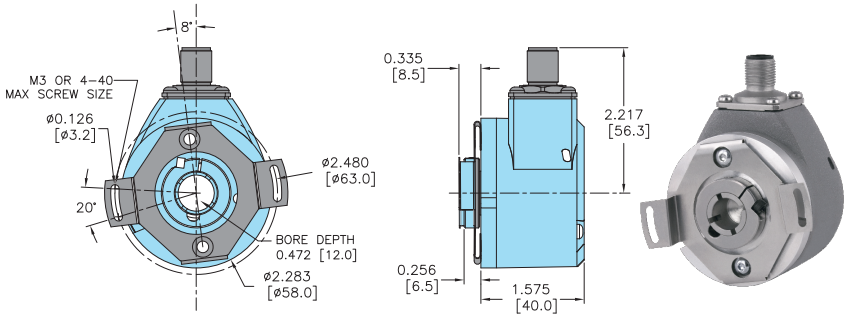
Environmental

Operating Temp ..... -40° to 85° C
Storage Temp ..... -40° to 100° C
Vibration..... 5.1 g (10 Hz up to 2000 Hz)
Shock..... 100 g (6 ms)
Sealing..... IP67, shaft sealed to IP65

MODEL MA58H 108 MM BC FLEX ARM (SQ)



MODEL MA58H 63 MM 2 PT. FLEX MOUNT (SR)



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 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

Function	8-Pin M12
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

Function	5-Pin M12
+VDC	2
Ground (GND)	3
CAN $_{HIGH}$	4
CAN $_{LOW}$	5
CAN $_{GND}$ / Shield*	1

*M12 connector is connected to encoder housing.