

# Model A58SE - Solid Shaft EtherNet Absolute Encoder



## Features

- Single/Multi-Turn Absolute Encoder (16 Bit ST / 43 Bit MT)
- Available in two industrial Ethernet protocols:  
EtherCAT with CoE, FoE, EoE – device profile: CiA DS-406 V4.0.2, Class 3  
EtherNet/IP™ position sensor, DLR  
PROFINET I-O (CC-C) – device profile: switchable V4.1, Class 3, 4
- Maintenance-free and environmentally-friendly magnetic design
- Energy-harvesting magnetic multi-turn technology
- No gears or batteries
- Low TCO and easy provisioning with internal web server
- Shaft loads up to 400 Newtons
- Color LEDs for operating condition, bus status, link activity
- 58 mm (2.28") diameter package
- MP Housing Option is most the compact EtherCAT model available
- Compact design with bus cover

### BEPC Absolute Encoder - now with EtherCAT Connectivity

The Model A58SE is an EtherCAT®, EtherNet/IP™, or PROFINET® protocol, multi-turn absolute encoder designed for heavy duty industrial applications. It is particularly suited to applications where Ethernet-based connectivity is required, and the encoder must retain position information after power-off events. Easily designed into a wide variety of system applications, the A58SE plugs directly into your network with minimal provisioning for rapid deployment, facilitating data exchange among myriad networked devices. The Model A58SE retains absolute position information even after a power loss, facilitating speedy system recovery at start-up without the need for system re-homing.

Ready for Industry 4.0 and for the Industrial Internet of Things (IIoT), data exchange between the Model A58SE and other applications has no influence on the control loop. The Model A58SE is non-reactive and can work independently from the PLC or master, transferring data through network gateways to other automation networks and sites, and up to the cloud for analysis.

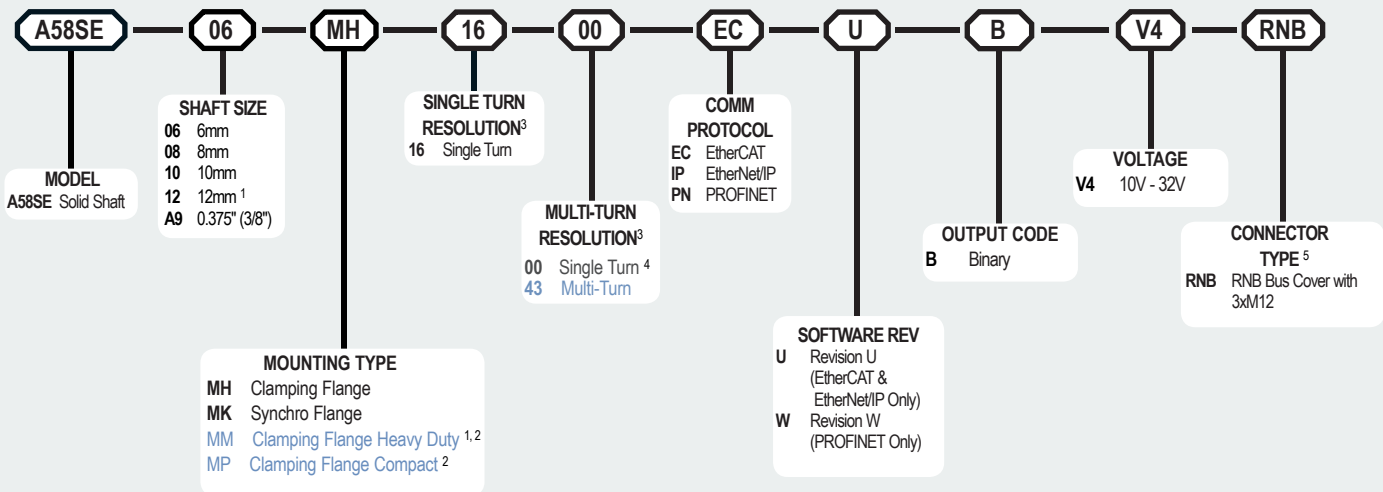
**EtherCAT®** **EtherNet/IP™**  
Ø58.0 mm

## Common Applications

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

## Model A58SE Ordering Guide

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



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

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See [encoder.co.uk](http://encoder.co.uk) for more information.

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EtherNet/IP™ is a trademark of ODVA, Inc.

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### NOTES:

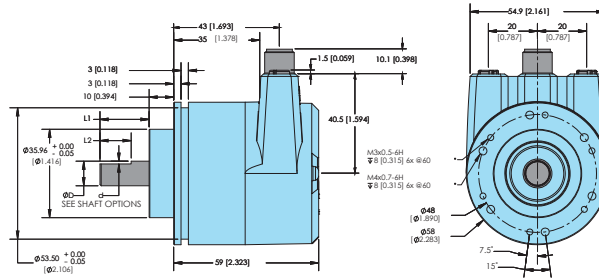
- 1 The 12mm shaft is the only shaft option available with the MM, and is not available with any other Mount.
- 2 Additional lead times required.
- 3 Customer configures at setup.
- 4 Single turn encoders cannot be configured for multi-turn resolution.
- 5 For mating connectors, cables, and cordsets see [Accessories](#) at [encoder.co.uk](http://encoder.co.uk)

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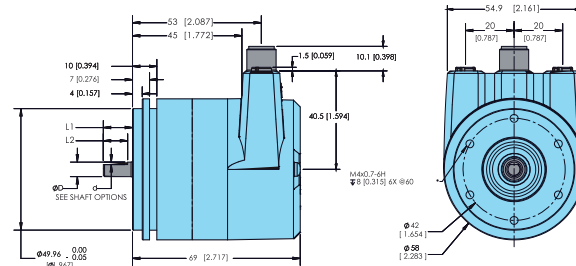
## Model A58SE Specifications

- Electrical**  
 Power Supply .....10 VDC up to 32 VDC  
 Current Consumption.....typ. 125 mA  
 Power Consumption .....typ. 3 W
- Sensor Specification**  
 Internal Cycle Time .....50 µs  
**Resolution**  
 Single Turn.....Up to 65,536 steps/360° (16 bit)  
 Multi-Turn.....43 bit  
**Accuracy**  
 Single Turn.....± 0.0878° (≤ 12 bit)  
 Single Turn, Repeat Accuracy ± 0.0878° (≤ 12 bit)  
**Technology**  
 Single Turn.....Innovative Hall-sensor technology  
 Multi-Turn.....Patented energy-harvesting technology, no battery and no gears  
 Turn on time.....< 1.5 s
- Interface**  
 Interface.....Industrial Ethernet  
 Protocol.....EtherCAT, EtherNet/IP, PROFINET-IO (CC-C)  
 Device Profile.....EtherCAT: CiA DS-406 V4.0.2, Class 3;  
 EtherNet/IP: Conformance per CT-18, Specification Vol 2, Ed 1.29, CIP Specification Vol 1, Ed 3.31;  
 PROFINET: V4.1, Class 3, 4  
**Data Transfer** .....100BASE-TX  
 Cycle time .....EtherCAT: up to 50 µs  
 EtherNet/IP: 1 ms  
 PROFINET: 250 µs, applicable for up to 125 µs  
**Code**.....Binary, CW default, programmable  
**Programmable Parameters** Steps per revolution; counts of revolution; preset; scale; counting direction  
 EtherCAT: 2x 8 cam switches; DC-Mode  
 EtherNet/IP: CAMs, warning messages  
 PROFINET: MRPD; MRP; LLD; IRT  
 See associated protocol Technical Reference Manual for full list of programmable attributes for that protocol.  
**Diagnostic LED** .....Traffic and connection management  
 L/A1: Port 1 (IN) L/A2: Port 2 (OUT)  
**Status LED** .....STAT, MOD: status of encoder and bus
- Mechanical**  
 Flange .....Synchro, Clamping, Clamping Heavy Duty, Clamping Compact  
 Flange Material .....Aluminum  
 Shaft Material .....Stainless steel  
**Shaft Length**  
 6 mm dia.....12 mm length  
 8 mm dia.....19 mm length  
 10 mm dia.....20 mm length  
 3/8" dia.....20 mm / 0.787" length  
 12 mm dia.....25 mm length  
**Housing Cap** .....Steel case chrome-plated, magnetic shielding  
**Connection Cover** .....Die cast aluminum, powder coated  
**Weight** .....24.7 oz / 700 g approx  
**Max Radial Shaft Load**  
 MH and MK .....125 N (28.1 lb) for 6 mm and 8 mm shafts  
 220 N (49.4 lb) for 10 mm and 3/8" shafts  
 MM .....400 N (89.9 lb)  
 MP .....60 N (13.5 lb)  
**Max Axial Shaft Load**  
 MH and MK .....120 N (27 lb)  
 MM .....400 N (89.9 lb)  
 MP .....50 N (11.2 lb)  
**Starting Torque** .....Approximately 1 Ncm (1.416 oz-in) at ambient temperature.  
**Max Shaft Speed** .....8000 RPM
- Bearings**  
 Bearings Type .....2 precision ball bearings  
 Nominal Service Life .....1 x 109 revs. at 100% rated shaft load  
 1 x 1010 revs. at 40% rated shaft load  
 1 x 1011 revs. at 20% rated shaft load
- Environmental**  
 Operating Temp .....-40° to 85° C  
 Storage Temp .....-40° to 100° C  
 Sealing .....IP65 tested per EN 60529  
 ESD .....8 kV tested per EN 61000-4-2  
 Burst .....2 kV tested per 61000-4-4  
 EMC .....EN 61000-6-2; EN 61000-6-3  
 Vibration .....200 m/s<sup>2</sup> (10 Hz up to 1000 Hz)  
 (20.3 g (10Hz up to 1000 Hz) tested per EN 60068-2-6  
 Shock .....5000 m/s<sup>2</sup> (6 ms)  
 509.8 g (6 ms)  
 tested per EN 60068-2-27  
 Design .....According to DIN VDE 0160

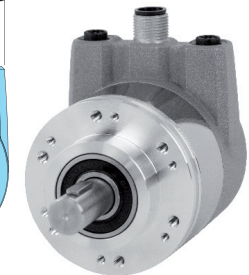
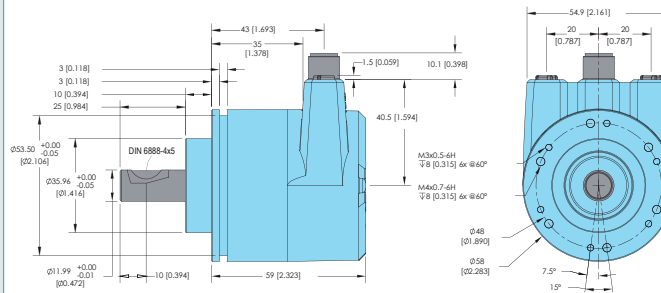
## Model A58SE Clamping Flange (MH)



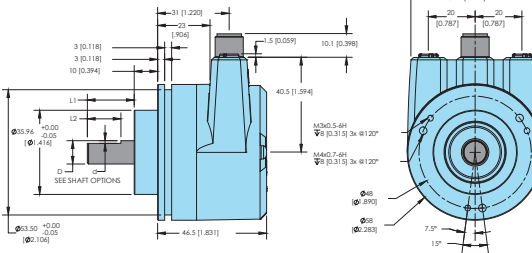
## Model A58SE Synchro Flange (MK)



## Model A58SE Clamping Flange Heavy Duty (MM)



## Model A58SE Clamping Flange Compact (MP)



Primary dimensions are in mm, secondary dimensions SI units [inches] in brackets for reference only.  
 For Shaft Sizes please refer to table below

SHAFT SIZE	Ø D	L1	d	L2
6mm	6 [0.236]	12 [0.472]	0.7 [0.028]	10 [0.394]
8mm	8 [0.315]	19 [0.748]	0.5 [0.020]	15 [0.591]
10mm	10 [0.394]	20 [0.787]	no flat	n/a
3/8"	9.5 [0.375]	20 [0.787]	1.2 [0.047]	10 [0.394]

## NETWORK BUS CONNECTOR PINOUT

Bus cover with 3x M12x1 For BEPC-supplied mating cables, wiring table is provided with cable. Trim back and insulate unused wires.

Female Connector Port 1 (In)		Power		Female Connector Port 2 (Out)	
Assignments	RNB	Assignments	RNB	Assignments	RNB
Function	M12x1, 4-pin, D-coded	Function	M12x1, 4-pin, A-coded	Function	M12x1, 4-pin, D-coded
Tx+	1	(+) Vcc	1	Tx+	1
Rx+	2	n.c.	2	Rx+	2
Tx-	3	GND	3	Tx-	3
Rx-	4	n.c.	4	Rx-	4