

# 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  
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
- Compact design with bus cover
- MP Housing Option is the most compact EtherCAT and PROFINET model available
- 58 mm (2.28") diameter package

### BEPc Absolute Encoder - now with EtherCAT Connectivity

The Model A58SE is an EtherCAT or PROFINET-ready, multi-turn absolute encoder designed for harsh factory and plant environments. 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.

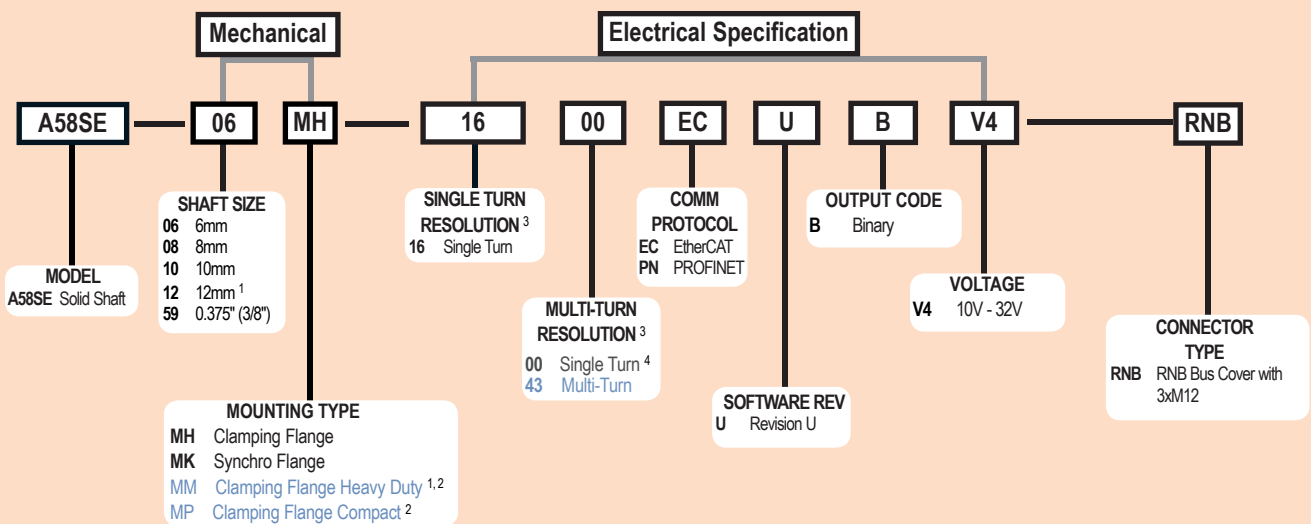
## Common Applications

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

### 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](#) or Page 103 (A58HE Datasheet)

EtherCAT (Ethernet for Control and Automation Technology) is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.  
PROFINET is a registered trademark and patented technology, licensed by PI (PROFIBUS & PROFINET international)

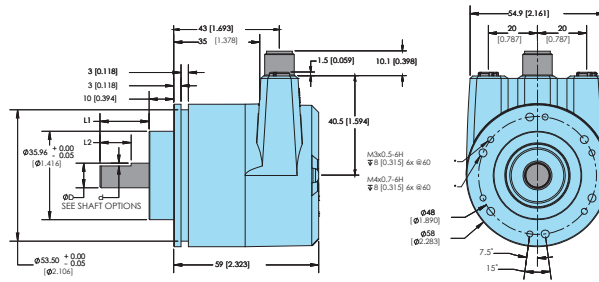
# Model A58SE - Solid Shaft Ethernet Absolute Encoder



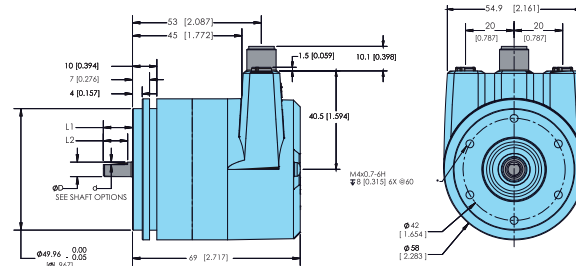
## Model A58SE Specifications

**Electrical**  
 Power Supply ..... 10 VCC up to 32 VCC  
 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 or PROFINET-IO (CC-C)  
 Device Profile .....EtherCAT: CiA DS-406 V4.0.2, Class 3  
 PROFINET: V4.1, Class 3, 4  
 Data Transfer .....100BASE-TX  
 Cycle time .....EtherCAT: up to 50 µs  
 PROFINET: 250 µs, Applicable for up  
 to 125 µs  
**Code** .....Binary, CW default, programmable  
**Programmable**.....Steps per revolution; counts of  
 Parameters revolution; preset; scale; counting  
 direction  
 EtherCAT: 2x 8 cam switches; DC-Mode  
 PROFINET: MRDP; MRP; LLDP; IRT  
**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**.....6mm Dia ---- 12mm Length  
 8mm Dia ---- 19mm Length  
 10mm Dia ---- 20mm Length  
 3/8" Dia ---- 20mm / 0.787" Length  
 12mm Dia ---- 25mm Length  
**Housing Cap**.....Steel case chrome-plated, magnetic  
 shielding  
**Connection Cover**.....Die cast aluminum, powder coated  
**Weight**.....700 g approx  
**Max Radial**  
**Shaft Load**.....MH and MK Mounts = 125N for 6mm  
 and 8mm, 220N for 10mm and 3/8"  
 shafts. MM Mounts = 400N and MP  
 Mounts = 60N  
**Max Axial**  
**Shaft Load**.....MH and MK Mounts = 120N  
 MM Mount = 400N, MP Mount = 50N  
**Starting Torque**.....Approximately 1 Ncm at ambient  
 temperature.  
**Max Shaft Speed**.....8000 RPM  
**Bearings**  
 Type .....2 precision ball bearings  
 Nominal Service.....1 x 10<sup>9</sup> revs. at 100% rated  
 Life .....shaft load  
 1 x 10<sup>10</sup> revs. at 40% rated shaft load  
 1 x 10<sup>11</sup> revs. at 20% rated shaft load  
**Environmental**  
 Operating Temp.....-40° to 85° C  
 Storage Temp.....-40° to 100° C  
 Sealing.....IP65 (IP67 on 10 mm shaft)  
 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 DIN VDE 0160

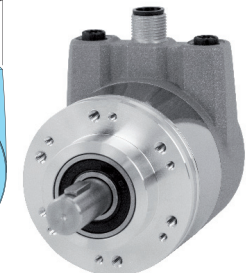
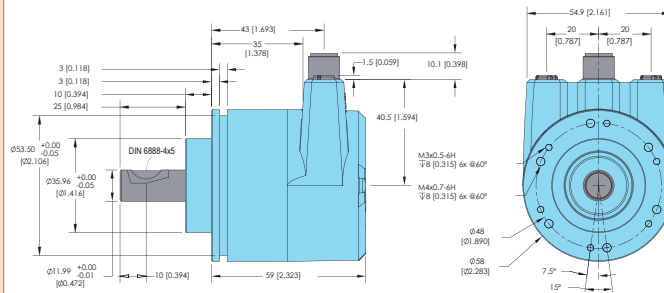
## Model A58SE Clamping Flange (MH)



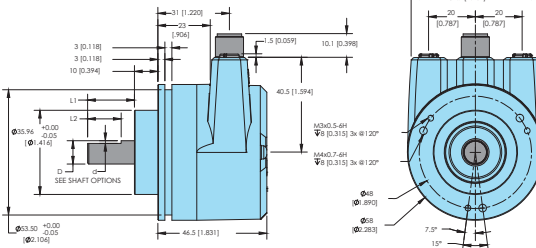
## Model A58SE Synchro Flange (MK)



## 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

Absolute Encoders  
Ethernet Solid Shaft