

MODEL A58SE – ETHERNET ABSOLUTE ENCODER

EtherCAT

PROFINET



Ø58 mm

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 N
- Color LEDs for operating condition, bus status, link activity
- Compact design with bus cover
- MP Housing Option is most the compact EtherCAT and PROFINET model available
- 58 mm (2.28") diameter package

COMMON APPLICATIONS

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

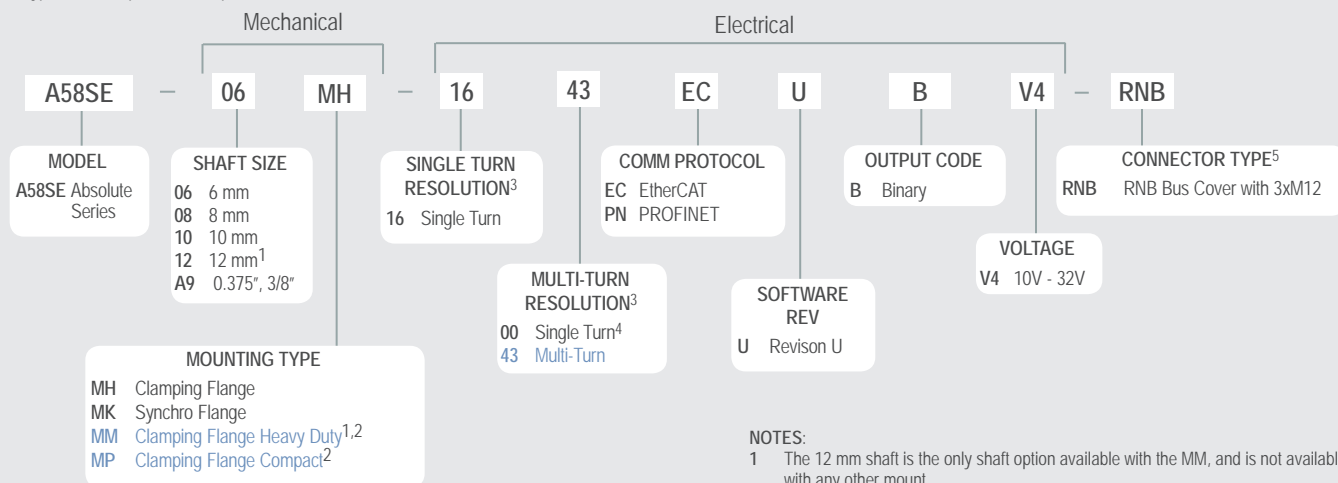
EPC Absolute Encoder with Ethernet connectivity

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.

MODEL A58SE ORDERING GUIDE

Blue type indicates price adder options.



NOTES:

- The 12 mm shaft is the only shaft option available with the MM, and is not available with any other mount.
- Additional lead times required.
- Customer configures at setup.
- Single turn encoders cannot be configured for multi-turn resolution.
- For mating connectors, cables, and cordsets, see [Accessories](#) at encoder.com.

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PROFINET is a registered trademark and patented technology, licensed by PI (PROFIBUS & PROFINET International).

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 μ s
 Resolution
 Single Turn up to 65,536 steps/360° (16 bit)
 Multi-Turn 43 bit
 Accuracy
 Single Turn $\pm 0.0878^\circ$ (≤ 12 bit)
 Single Turn, Repeat Accuracy $\pm 0.0878^\circ$ (≤ 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 μ s
 PROFINET: 250 μ s, applicable for up to 125 μ s
 Code Binary, CW default, programmable

Programmable Parameters Steps per revolution; counts of revolution; preset; scale; counting direction
 EtherCAT: 2x 8 cam switches; DC-Mode
 PROFINET: MRPD; 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 Syncho, 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

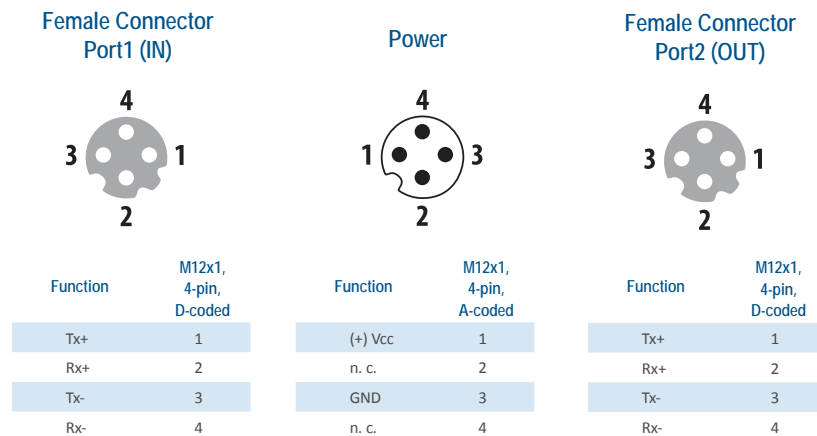
Type 2 precision ball bearings
 Nominal Service Life 1×10^9 revs. at 100% rated shaft load
 1×10^{10} revs. at 40% rated shaft load
 1×10^{11} revs. at 20% rated shaft load

Environmental

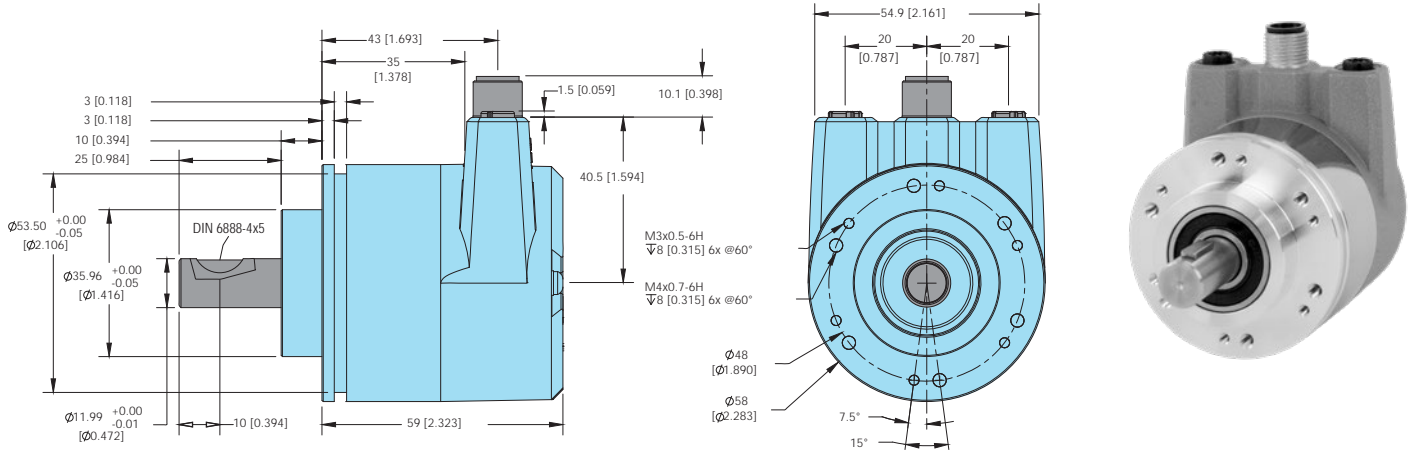
Operating Temp -40° to 85° C
 Storage Temp -40° to 100° C
 Sealing IP65 tested per EN 60529
 ESD 8 kV tested per EN 61000-4-2
 Burst 2 kV tested per 61000-4-4
 EMC EN 61000-6-2; EN 61000-6-3
 Vibration 200 m/s² (10 Hz up to 1000 Hz)
 (20.3 g [10Hz up to 1000 Hz]) tested per EN 60068-2-6
 Shock 5000 m/s² (6 ms)
 509.8 g (6 ms) tested per EN 60068-2-27
 Design According to DIN VDE 0160

NETWORK BUS CONNECTOR PINOUT

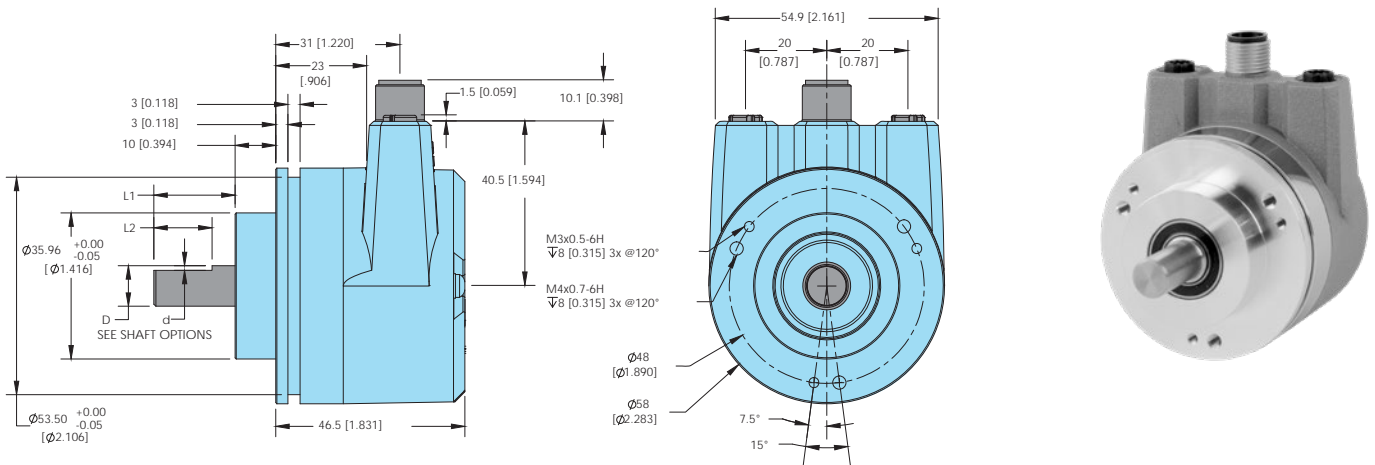
Bus cover with 3x M12x1. For EPC-supplied mating cables, wiring table is provided with cable. Trim back and insulate unused wires.



MODEL A58SE CLAMPING FLANGE HEAVY DUTY (MM)



MODEL A58SE CLAMPING FLANGE COMPACT (MP)



SHAFT SIZE	ØD	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]

Primary dimensions are in mm, secondary dimensions SI units [inches] in brackets for reference only.

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