

MODEL A58SE - ETHERNET ABSOLUTE ENCODER



Ø58 mm

EtherCAT®

EtherNet/IP®

PROFINET®

FEATURES

- Single turn/multi-turn absolute encoder (16 Bit ST / 43 Bit MT)
- Available in three 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 N
- Color LEDs for operating condition, bus status, link activity
- Compact design with bus cover
- MP housing option is the most compact ethernet model available
- 58 mm (2.28") diameter package

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.

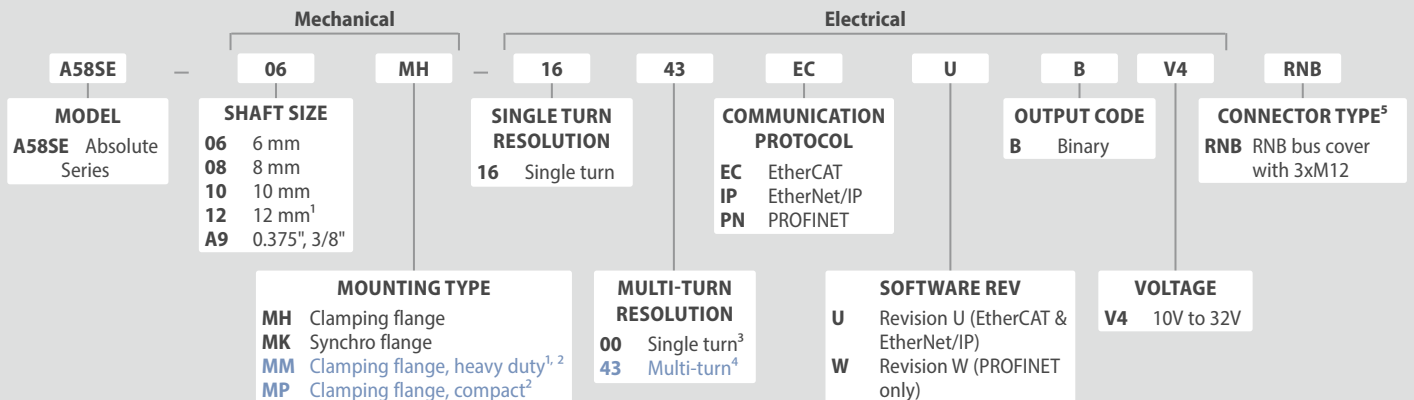
Ready for Industry 4.0 and for the Industrial Internet of Things (IIoT), data exchange between the Model A58SE and other applications has no influence on the control loop. The Model A58SE is non-reactive and can work independently from the PLC or master, transferring data through network gateways to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

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.



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.
- Single turn encoders cannot be configured for multi-turn resolution.
- Customer configures actual resolution at setup.
- For mating connectors, cables, and cordsets see encoder.com/encoder-accessories

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 EtherNet/IP™ is a trademark of ODVA, Inc.
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MODEL A58SE SPECIFICATIONS

Electrical

Power Supply10 VDC up to 32 VDC
 Current Consumption.....typ. 125 mA
 Power Consumptiontyp. 3 W

Sensor Specification

Internal Cycle Time.....50 μ s
 Resolution
 Single TurnUp 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 TurnInnovative Hall-sensor technology
 Multi-TurnPatented 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 μ s
 EtherNet/IP: 1 ms
 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
 EtherNet/IP: CAMs, warning messages
 PROFINET: MRPD; MRP; LLDP; IRT
 See associated protocol Technical
 Reference Manual for full list of
 programmable attributes for that
 protocol.

Diagnostic LEDTraffic 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 MaterialAluminum
 Shaft MaterialStainless 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 CapSteel 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)
 MP60 N (13.5 lb)

Max Axial Shaft Load

MH and MK120 N (27 lb)
 MM400 N (89.9 lb)
 MP50 N (11.2 lb)

Starting TorqueApproximately 1 Ncm (1.416 oz-in) at
 ambient temperature.

Max Shaft Speed.....8000 RPM

Bearings

Bearings Type2 precision ball bearings
 Nominal Service Life1 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

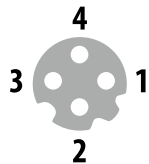
Environmental

Operating Temp-40° to 85° C
 Storage Temp-40° to 100° C
 Sealing.....IP65 tested per EN 60529
 ESD8 kV tested per EN 61000-4-2
 Burst.....2 kV tested per 61000-4-4
 EMCEN 61000-6-2; EN 61000-6-3
 Vibration200 m/s² (10 Hz up to 1000 Hz)
 (20.3 g [10Hz up to 1000 Hz])
 tested per EN 60068-2-6
 Shock5000 m/s² (6 ms)
 509.8 g (6 ms)
 tested per EN 60068-2-27
 DesignAccording to DIN VDE 0160

NETWORK BUS CONNECTOR PINOUT

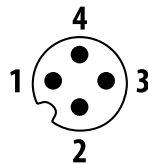
Bus cover with 3x M12x1. For EPC-supplied mating cables, wiring table is provided with cable. Trim back and insulate unused wires.

Female Connector Port1 (IN)



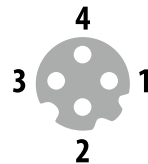
Function	M12x1, 4-pin, D-coded
Tx+	1
Rx+	2
Tx-	3
Rx-	4

Power



Function	M12x1, 4-pin, A-coded
(+) Vcc	1
n. c.	2
GND	3
n. c.	4

Female Connector Port2 (OUT)

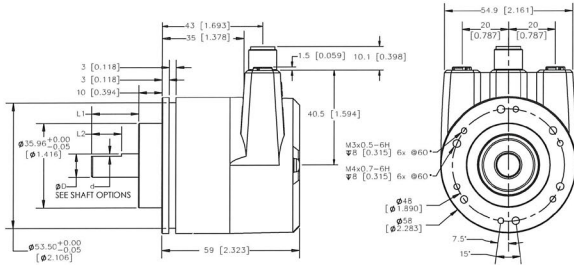


Function	M12x1, 4-pin, D-coded
Tx+	1
Rx+	2
Tx-	3
Rx-	4

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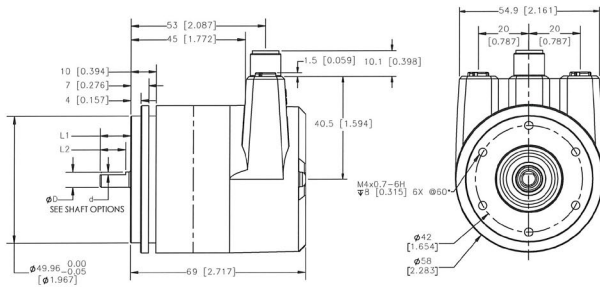
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MODEL A58SE CLAMPING FLANGE (MH)



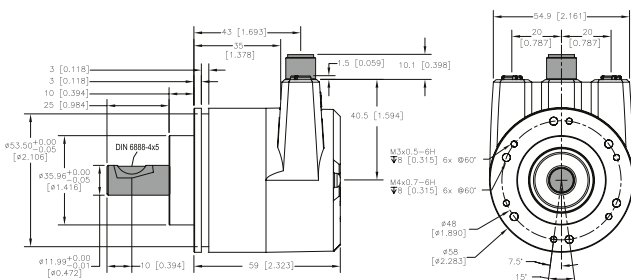
SHAFT SIZE	ØD	L1	d	L2
6mm	6 [0.236]	12 [0.472]	0.7 [0.028]	10 [0.394]
8mm	8 [0.315]	19 [0.748]	0.5 [0.020]	15 [0.591]
10mm	10 [0.394]	20 [0.787]	1 [0.039]	15 [0.591]
3/8"	9.5 [0.375]	20 [0.787]	1.2 [0.047]	10 [0.394]

MODEL A58SE SYNCHRO FLANGE (MK)

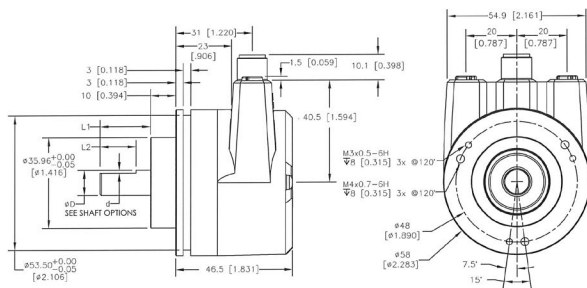


SHAFT SIZE	ØD	L1	d	L2
6mm	6 [0.236]	12 [0.472]	0.7 [0.028]	10 [0.394]
8mm	8 [0.315]	19 [0.748]	0.5 [0.020]	15 [0.591]
10mm	10 [0.394]	20 [0.787]	1 [0.039]	15 [0.591]
3/8"	9.5 [0.375]	20 [0.787]	1.2 [0.047]	10 [0.394]

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]	20 [0.787]	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.