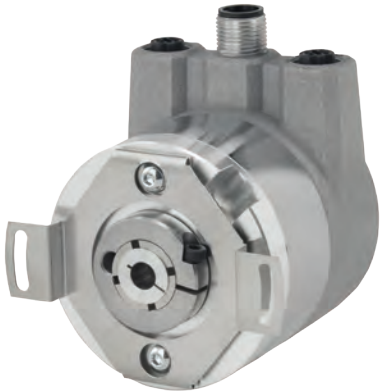


## MODEL A58HE - ETHERNET ABSOLUTE ENCODER



Ø58 mm



### FEATURES

- Single Turn/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
- Color LEDs for operating condition, bus status, link activity
- Compact design with bus cover
- 58 mm (2.28") diameter package

The Model A58HE 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 Model A58HE plugs directly into your network with minimal provisioning for rapid deployment, facilitating data exchange among myriad networked devices. The Model A58HE retains absolute position information even after a power loss, facilitating speedy system recovery at start-up without the need for system re-homing.

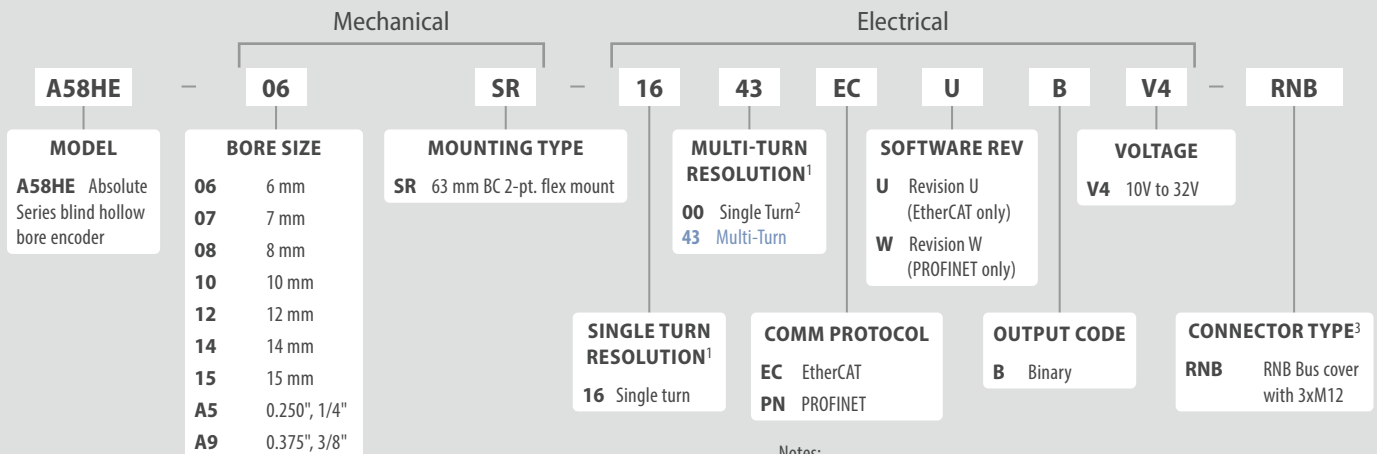
Ready for Industry 4.0 and for the Industrial Internet of Things (IIoT), data exchange between the Model A58HE and other applications has no influence on the control loop. The Model A58HE is non-reactive and can work independently from the PLC or master, transferring data through network gateways to 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 A58HE ORDERING GUIDE

Blue type indicates price adder options



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).

Notes:

- 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

# MODEL A58HE - ETHERNET ABSOLUTE ENCODER

## MODEL A58HE 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  $\mu$ s  
 Resolution  
 Single Turn.....up to 65,536 steps/360° (16 bit)  
 Multi-Turn.....43 bit  
 Accuracy  
 Single Turn..... $\pm 0.0878^\circ$  ( $\leq 12$  bit)  
 Single Turn, Repeat Accuracy .. $\pm 0.0878^\circ$  ( $\leq 12$  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  $\mu$ s  
 .....PROFINET: 250  $\mu$ s, applicable for up to 125  $\mu$ 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 .....Blind hollow bore  
 Flange Material .....Aluminum  
 Shaft Material.....Stainless steel  
 Shaft Length.....17 mm  
 Insertion depth  
 min.....10 mm  
 max .....19 mm  
 Housing Cap .....Steel case chrome-plated, magnetic shielding  
 Connection Cover.....Die cast aluminum, powder coated  
 Weight .....14.462 oz / 410 g approx  
 Shaft Rotation .....Bi-directional  
 Max Radial Shaft Load .....80 N (17.9 lb)  
 Max Axial Shaft Load .....50 N (11.2 lb)  
 Starting Torque.....Approximately 1.6 Ncm (2.226 oz-in) at ambient temperature.  
 Max Shaft Speed.....6000 RPM  
 Bearings Type .....2 precision ball bearings  
 Nominal Service Life .....1 x 10<sup>9</sup> revs. at 100% rated 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

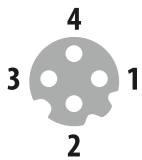
### Environmental

Operating Temp.....-40° to 85° C  
 Storage Temp.....-40° to 100° C  
 Sealing .....IP65 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

## NETWORK BUS CONNECTOR PINOUT

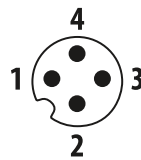
Bus cover with 3x M12x1. For EPC-supplied mating cables, wiring table is provided with cable. Trim back and insulate unused wires.

Female Connector  
Port1 (IN)



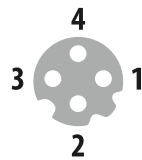
Function	M12x1, 4-pin, D-coded
Tx+	1
Rx+	2
Tx-	3
Rx-	4

Power



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

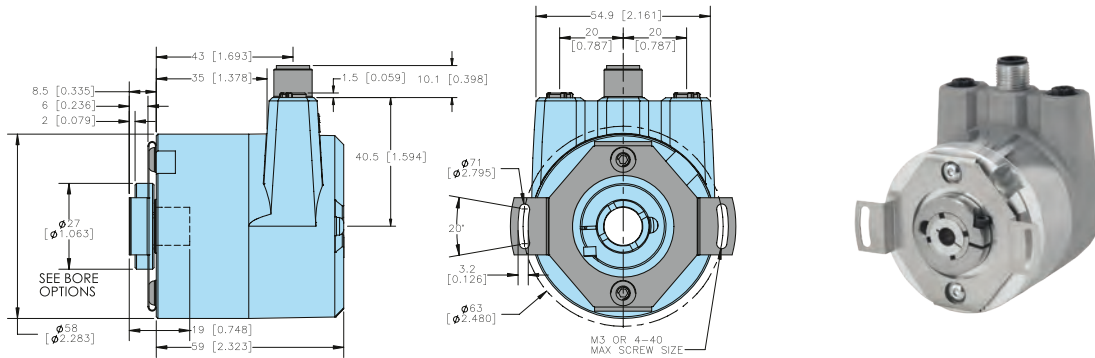
Female Connector  
Port2 (OUT)



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

## MODEL A58HE - ETHERNET ABSOLUTE ENCODER

### MODEL A58HE 63 MM 2 PT. FLEX MOUNT (SR)



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

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