

# Model A58HE - Hollow Bore 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
- Color LEDs for operating condition, bus status, link activity
- Compact design with bus cover
- 58 mm (2.28") diameter package

### BEPc Absolute Encoder - now with EtherCAT Connectivity

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 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.

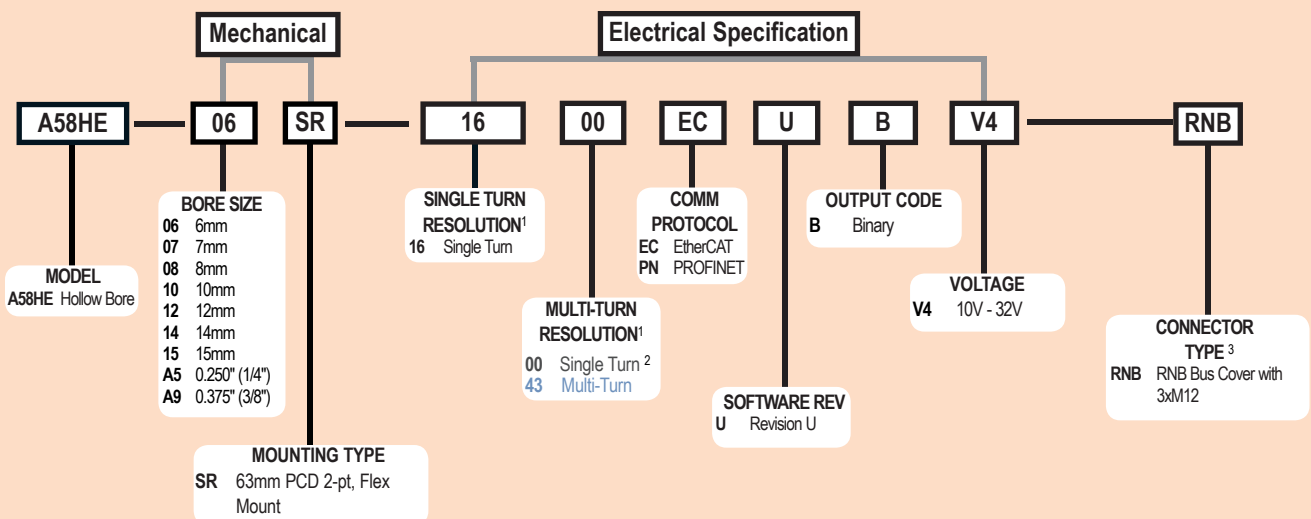
Ready for Industry 4.0 and for the Industrial Internet of Things (IIoT), data exchange between the Model A58HE and other applications has no influence on the control loop. The Model A58HE is non-reactive and can work independently from the PLC or master, transferring data through network gateways to 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. 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 Customer configures at setup.
- 2 Single turn encoders cannot be configured for multi-turn resolution.
- 3 For mating connectors, cables, and cordsets see [Accessories](#) at [encoder.co.uk](#)

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

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## Model A58HE 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: MRPD; MRP; LLDP; IRT

**Diagnostic LED** ..... Traffic and connection management: L/  
 A1: Port 1 (IN) / 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 ..... 17mm  
 Insertion Depth ..... Min --- 10mm, Max --- 19mm  
 Housing Cap ..... Steel case chrome-plated, magnetic shielding

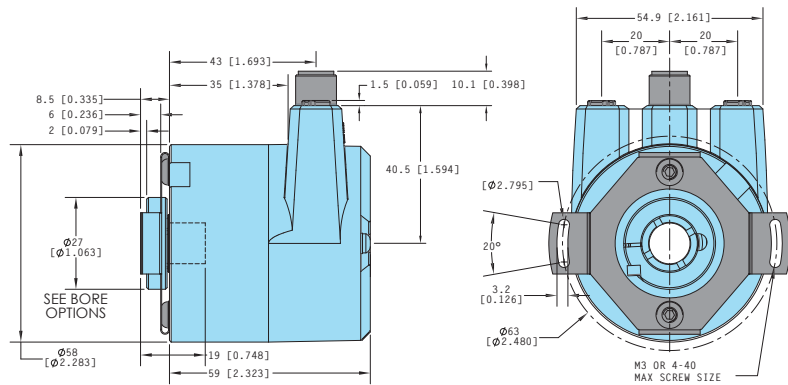
**Connection Cover** ..... Die cast aluminum, powder coated  
 Weight ..... 410 g approx  
 Shaft Rotation ..... Bi-Directional  
 Max Radial  
 Shaft Load ..... 80N  
 Max Axial  
 Shaft Load ..... 50N  
 Starting Torque ..... Approximately 1.6 Ncm at ambient temperature.  
 Max Shaft Speed ..... 6000 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  
 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 A58HE 63 mm 2 pt. Flex mount (SR)



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

## 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

## MATING CABLES/CORDSETS

DC Power Cable A-Code		Signal Cable D-Code, M12 4-Pin to RJ-45		Signal Cable D-Code, M12 4-Pin to M12 4-Pin	
Stock #	Length	Stock #	Length	Stock #	Length
075241	2 m	075245	2 m	075249	2 m
075242	5 m	075246	5 m	075250	5 m
075243	10 m	075247	10 m	075251	10 m
075244	20 m	075248	20 m	075252	20 m

Absolute Encoders  
Ethernet Hollow Bore