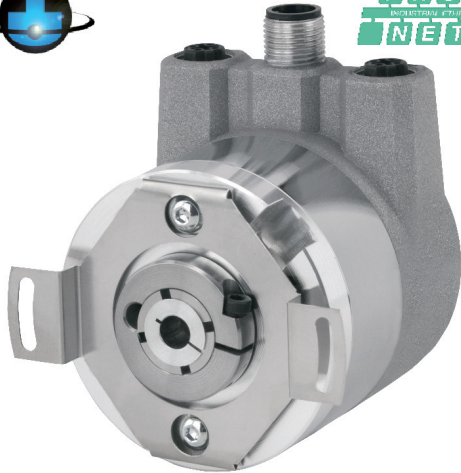


# Model A58HE - Hollow Bore EtherNet Absolute Encoder

**BRITISH  
ENCODER**  
PRODUCTS COMPANY



**EtherCAT®**  **EtherNet/IP™**  
Ø58.0 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  
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
- Color LEDs for operating condition, bus status, link activity
- 58 mm (2.28") diameter package
- Compact design with bus cover

## BEPC Absolute Encoder - now with EtherCAT Connectivity

The Model A58HE 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 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.

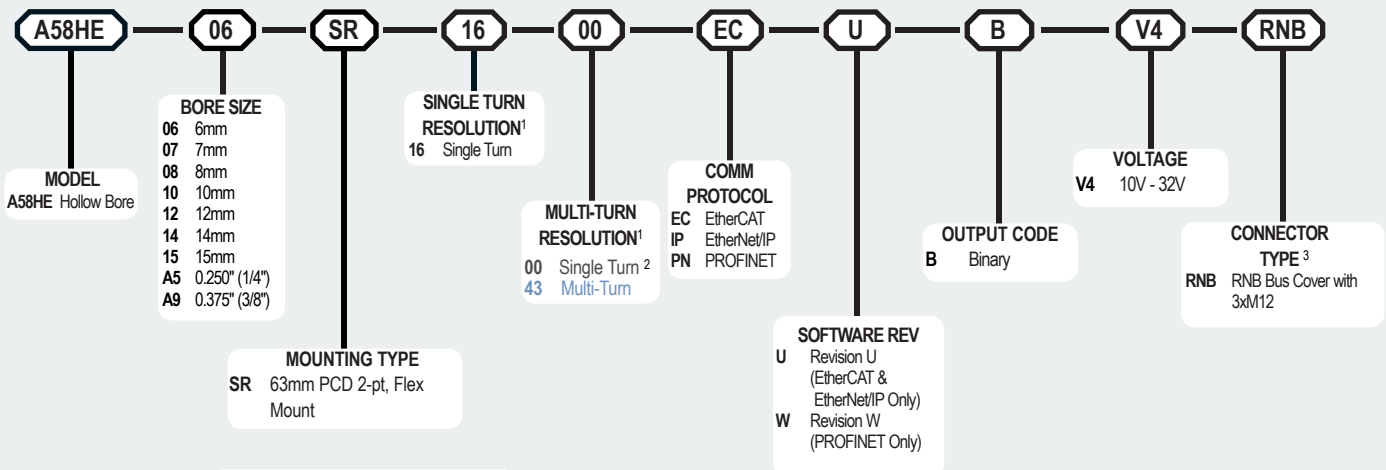
## Common Applications

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**

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See [encoder.co.uk](http://encoder.co.uk) for more information.

EtherCAT® (Ethernet for Control and Automation Technology) is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.  
EtherNet/IP™ is a trademark of ODVA, Inc.  
PROFINET® is a registered trademark and patented technology, licensed by PU (PROFIBUS & PROFINET) International.

## 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](http://encoder.co.uk) at [encoder.co.uk](http://encoder.co.uk)

# Model A58HE - Hollow Bore EtherNet Absolute Encoder

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## 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 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, 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 µs  
EtherNet/IP: 1 ms  
PROFINET: 250 µs, applicable for up to  
125 µs  
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 program-  
mable attributes for that protocol.  
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

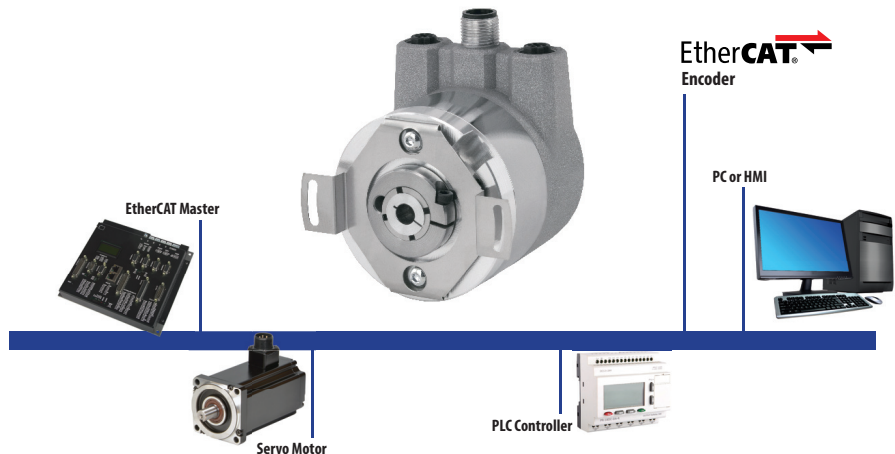
Flange.....Blind hollow bore  
Flange Material.....Aluminum  
Shaft Material .....Stainless steel  
Shaft Length .....17 mm  
Insertion depth  
min.....10 mm  
max.....19 mm  
Housing Cap.....Steel case chrome-plated, magnetic  
shielding  
Connection Cover.....Die cast aluminum, powder coated  
Weight .....14.462 oz / 410 g approx  
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

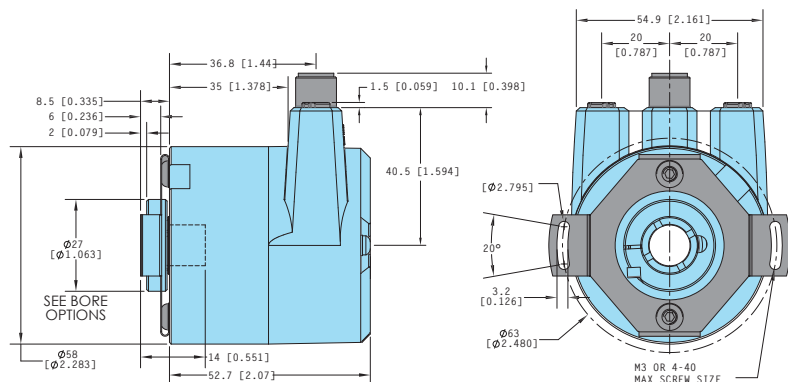
Bearings Type .....2 precision ball bearings  
Nominal Service Life 1 x 109 revs. at 100% rated shaft load  
1 x 1010 revs. at 40% rated shaft load  
1 x 1011 revs. at 20% rated shaft load

### Environmental

Operating Temp.....-40° to 85° C  
Storage Temp.....-40° to 100° C  
Sealing.....IP65 tested per EN 60529  
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



## 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

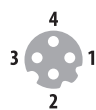
Bus cover with 3x M12x1

For BEPC-supplied mating cables, wiring table is provided with cable. Trim back and insulate unused wires.

### Female Connector Port 1 (In)

Assignments

RNB

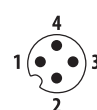


Function	M12x1, 4-pin, D-coded
Tx+	1
Rx+	2
Tx-	3
Rx-	4

### Power

Assignments

RNB



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

### Female Connector Port 2 (Out)

Assignments

RNB



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