

## Profibus-DP Interface Absolute Multiturn Encoder EAM58

### Description

Profibus protocol absolute multi-turn encoder EAM58 series, which has good performance against mechanical damage, and can withstand higher axial and radial load. Various flanges could meet different requirements. The product adopts high precision and high stability chip to ensure the maximum single-turn resolution 19bit, which can meet the accuracy control requirement of field.



### Features

- Various flanges available
- Pre-screw hole, convenient for usage
- Waterproof seal promotes IP level
- Cable output, convenient for installation and maintenance
- Protection class IP65
- Metal housing for shock resistance
- Conforming to Profibus-DP protocol, programmable revolution and resolution

### Mechanical Characteristics

|                            |                                       |
|----------------------------|---------------------------------------|
| Shaft diameter (mm)        | Φ6g6/Φ8g6/Φ10g6                       |
| Hollow shaft diameter (mm) | Φ8H7/Φ10H7/Φ12H7/Φ15H7                |
| Protection class           | IP65                                  |
| Speed (r/m)                | 6000                                  |
| Max.load capacity of shaft |                                       |
| Axial                      | 80N                                   |
| Radial                     | 160N                                  |
| Shock resistance           | 50G/11ms                              |
| Vibration resistance       | 10G 10~2000Hz                         |
| Service life of bearing    | 10 <sup>9</sup> revolution            |
| Rotor moment of inertia    | 1.8×10 <sup>-6</sup> kgm <sup>2</sup> |
| Starting torque            | <0.01Nm                               |
| Body material              | AL-alloy                              |
| Housing material           | ZnAl-alloy                            |
| Operating temperature      | -40°C~~+80°C                          |
| Storage temperature        | -45°C~~+85°C                          |
| Weight                     | 360g--750g                            |

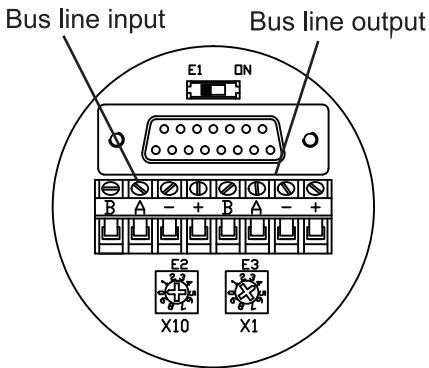
### Electrical Characteristics

|                             |                |
|-----------------------------|----------------|
| Revolution                  | 4096 (12 bits) |
| Resolution/revolution       | 8192 (13 bits) |
| Supply voltage              | 10~30 Vdc      |
| Power consumption (no load) | 300mA          |
| Baud rate                   | 12 Mbaud       |
| Linearity                   | +/- 1/2 LSB    |
| Output frequency            | Max 100 KHz    |

### Terminal Assignment

|    |                             |
|----|-----------------------------|
| +V | Supply voltage (24VDC)      |
| 0V | Ground                      |
| A  | Profibus-DPline output (GN) |
| B  | Profibus-DPline output (RD) |
| A  | Profibus-DPline input (GN)  |
| B  | Profibus-DPline input (RD)  |

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Terminal block

E1: Terminal setting switch - the default is OFF  
 If the encoder is a terminal device, dial the DIP switch to ON, with the resistance of 120Ω.

E2\E3: Address setting switch  
 Set in decimal combination. As shown in the figure, the default address is 4.

## Connection

|     |                              |
|-----|------------------------------|
| V+  | Supply voltage               |
| GND | Ground                       |
| B   | Profibus-DP line input (RD)  |
| A   | Profibus-DP line input (GN)  |
| B   | Profibus-DP line output (RD) |
| A   | Profibus-DP line output (GN) |

## Introduction

Profibus-DP interface absolute multiturn encoder (Identification number 0x0CCA) is complying to the Profibus-DP standard as described on the European Standard EN 50170 volume 2. The encoders are according to "Profibus Profile for Encoders, Order No. 3062". The Profibus-DP interface maintains the same maximum resolution and characteristics (16384 position/ revolution, 16384 revolution) of the stand-alone version and adds the plus of the Profibus-DP network..

By the Profibus-DP network is possible:

- During the periodic data exchange, getting the indication of the angular position from the encoder.
- Setting the resolution and the revolution (refer to corresponding paragraph for parameter setting).
- Changing the default increase direction (CW/CCW converting for parameter resetting).
- To perform the Preset operation (Set the encoder to read a specific position).
- Reading the diagnostic operating mode.
- Getting info about the code supplied by the device.

From the device it is possible:

- To display the ON/OFF status.
- To display the device activity on the bus.
- Reset function
- Setting the device address.
- If required, inserting in the bus the terminal resistance.
- Inverting the counting direction

## Equipment installation

Installing the Profibus-DP encoder in a network requires the execution of the standard steps necessary for configuring any Profibus-DP slave. The sequence of steps is as follows:

- 1- Commissioning the slave on the master (see corresponding paragraph).
- 2- Wiring the encoder into the Profibus network using or not terminations depending on the physical position the device has in the bus.
- 3- Directly set the address (which must be unique in the network and the same as the one chosen in point 1) for the slave.
- 4- Preparing the master side application and setting up the Profibus network.

On the back cover of the encoder there is a LED inspection window. The device operating status can be controlled by the two LED through the window. The green one shows the power presence and must be permanently switched on. The red LED switches off only during the periodic data exchange between the Profibus master and the encoder.

## Network specifications

Usually, an A type cable is used to wire a DP/FMS network. This cable has to have the following characteristics

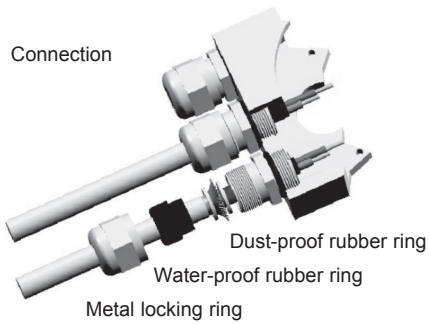
| Parameter                             | A type cable                                 |
|---------------------------------------|--|
| Characteristic resistance (Ω)         | 135...165 at a certain frequency (3...20Mhz) |
| Rated capacity (PF/m)                 | <30  |
| Loop resistance (Ω/Km)                | ≤110   |
| Core diameter (mm)                    | >0.64*                                       |
| Core cross-section (mm <sup>2</sup> ) | >0.34*                                       |

This cable allows an optimum network utilization. In fact, it is possible to reach the maximum communication speed allowed (12Mbaud). However, there are some limitations due to the maximum physical dimensions of a bus segment as follows

| kbaud         | 9.6   | 19.2  | 93.75 | 187.5 | 500  | 1500 | 12000 |
|---------------|-------|-------|-------|-------|------|------|-------|
| Range/Segment | 1200m | 1200m | 1200m | 1000m | 400m | 200m | 100m  |

Finally, mainly physical specifications of Profibus network are perceived.

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|   |   |
|---|---|
| Max. number of station participating in the exchange of user data | DP: 126 (Address 0...125)<br>FMS: 127 (Address 0...126) |
| Max. number of stations per segment                               | 32  |
| Available data transfer rates (kbit/s)                            | 9.6,19.2,45.45,93.75,187.5,500,1500,3000,               |
| Max. segments   | 6000,12000  |

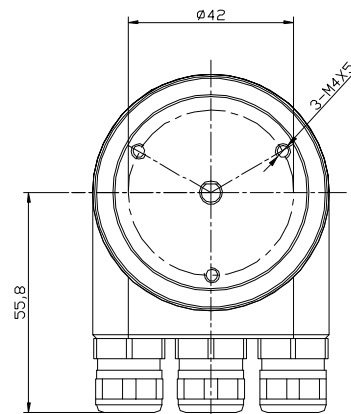
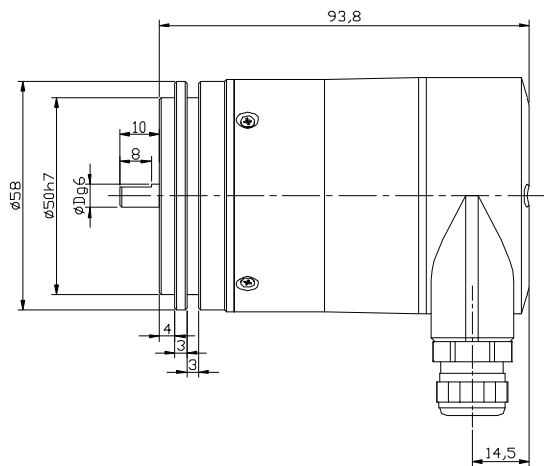
According to EN50170, a maximum of 4 repeaters are allowed between any two stations. Dependent on the repeater type and manufacturer, more than 4 repeaters are allowed in some cases. Refer to the manufacturer's technical specification for details.

### Connection box

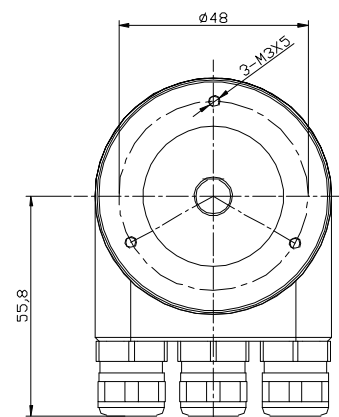
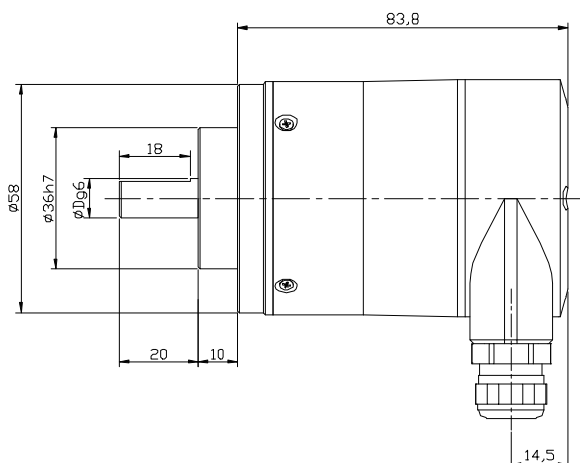
Open the cover according to the instructions on the cover wiring. The cable will pass through metal locking ring, water-proof rubber ring, dust-proof rubber ring, lock the cable.

## Dimensions

EAM58B

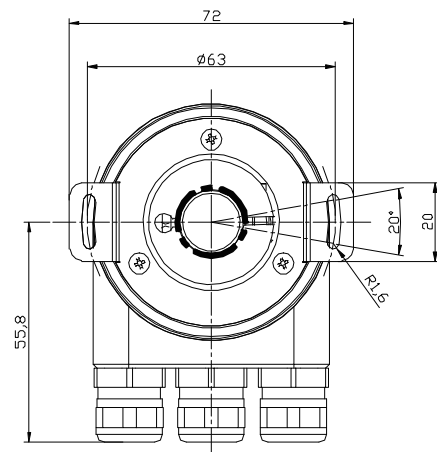
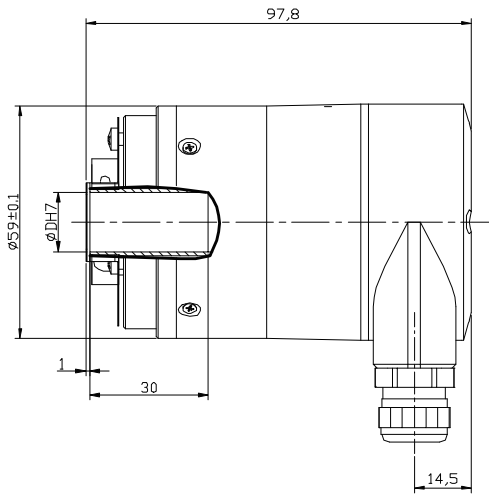


EAM58C



# Profibus-DP Interface Absolute Multiturn Encoder EAM58

EAM58W



Order Code

**EAM 58 C 10 - B F6 X X R - 4096/8192 DPND**

|  |  |   |   |   |  |  |   |  |   |  |   |   |
|--|--|---|---|---|--|--|---|--|---|--|---|---|
| <p><b>EAM</b></p> <hr/> <p>Series</p> <p>EAM = Profibus-DP interface absolute singleturn</p> | <p><b>58</b></p> <hr/> <p>Housing dimension</p> <p>58=<math>\varnothing 58</math> Flange</p> | <p><b>C</b></p> <hr/> <p>Flange type</p> <p>B=Synchronous flange<br/>C=Clamping flange<br/>W=Hollow shaft flange, double-wing spring mounting</p> | <p><b>10</b></p> <hr/> <p>Shaft diameter</p> <p>6=<math>\varnothing 6g6mm</math><br/>58B 可选<br/>8=<math>\varnothing 8g6mm</math><br/>10=<math>\varnothing 10g6mm</math><br/>8 =<math>\varnothing 8H7mm</math><br/>10=<math>\varnothing 10H7mm</math><br/>12=<math>\varnothing 12Hmm</math><br/>15=<math>\varnothing 15H7mm</math></p> | <p><b>-</b></p> <hr/> <p>Interface &amp; Supply voltage</p> <p>F6=profibus-DP interface 10-30V DC</p> | <p><b>B</b></p> <hr/> <p>Output code</p> <p>B=Binary</p> | <p><b>F6</b></p> <hr/> <p>Output logic</p> <p>X=Nonsense</p> | <p><b>X</b></p> <hr/> <p>Types of connection</p> <p>X=Integrated bus coupler terminal with 3 PG7 threaded connectors<br/>T=Integrated bus coupler terminal with 3 of M12 socket</p> | <p><b>X</b></p> <hr/> <p>Outlets direction</p> <p>R=Radial</p> | <p><b>R</b></p> <hr/> <p>Resolution</p> <p>Standard 4096/8192</p> | <p><b>-</b></p> <hr/> <p>Profibus-DP interface absolute singleturn</p> | <p><b>4096/8192</b></p> <hr/> <p>Resolution</p> <p>Standard 4096/8192</p> | <p><b>DPND</b></p> <hr/> <p>Profibus-DP interface absolute singleturn</p> |
|--|--|---|---|---|--|--|---|--|---|--|---|---|