Profibus-DP Interface Absolute Multiturn Encoder EAM58

Description

Profibus protocol absolute multi-turn encoder EAM58 series 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 13bit, which can meet the accuracy control requirement of field.

Features

- Various flanges available
- Pre-screw hole, convenient for usage
- Waterproof seal improves 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 parameters

Shaft diameter	Φ6g6/Φ8g6/Φ10g6 mm
Hollow shaft diameter	Φ8H7/Φ10H7/Φ12H7/Φ15H7 mm
Protection class	IP65
Speed	6000 r/m
Max.load capacity of shaft	
Axial	80 N
Radial	160 N
Shock resistance	50G/11 ms
Vibration resistance	10G 10...2000 Hz
Service life of bearing	10^9 revolution
Rotor moment of inertia	1.8×10^{-6} kgm^2
Starting torque	<0.01 Nm
Body material	AL-alloy
Housing material	ZnAl-alloy
Operating temperature	-40...+80 ℃
Storage temperature	-45...+85 ℃
Relative humidity/condensation	90%, Condensation not permitted
Weight	360...750 g

Electrical parameters

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

Terminal Assignement

+V	Supply voltage（24 VDC）
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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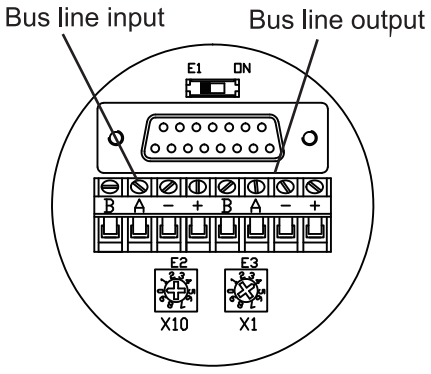

Terminal block

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.

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-along 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.

Connection

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

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…165at a certain frequency（3…20Mhz）
Rated capacity（PF/m）	<30
Loop resistance（Ω/Km）	<=110
Core diameter（mm）	>0.64*）
Core cross-section（mm^2）	>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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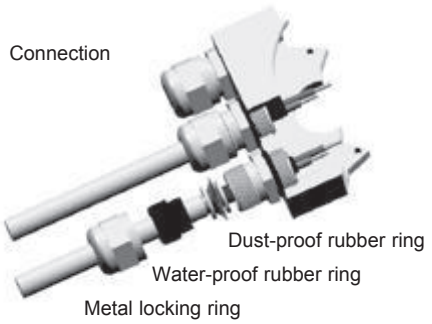


Max. number of station participating in the exchange of user data	DP：126（Address 0…125） FMS：127（Address 0…126）
Max. number of stations per segment	32
Available data transfer rates (kbit/s)	9.6,19.2,45.45,93.75,187.5,500,1500,3000,
Max. segments	6000,12000

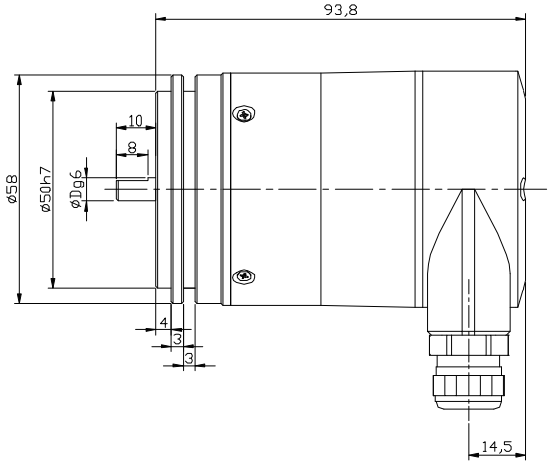
According to EN50170, a maximum of 4 repeaters are allowed between any two stations. Dependent on the repeater type and manufacturer, more than 4 repeaters are allowed in some cases. Refer to the manufacturer's technical specification for details.

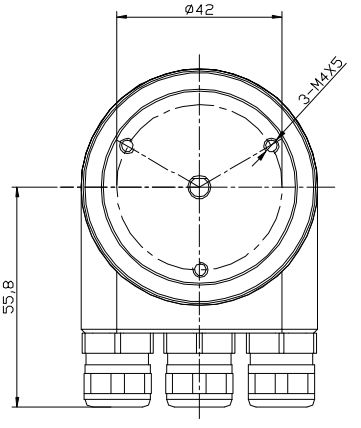
Connection box

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.

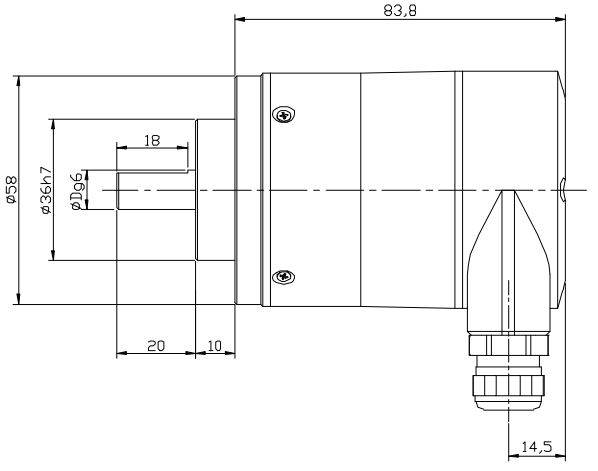
Dimensions (mm)

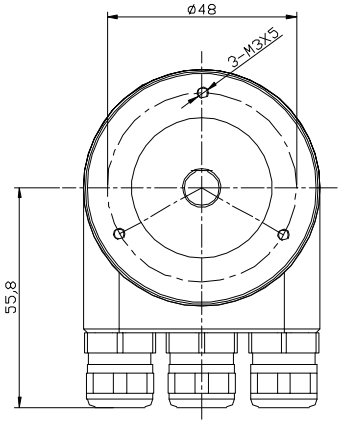
EAM58B





EAM58C





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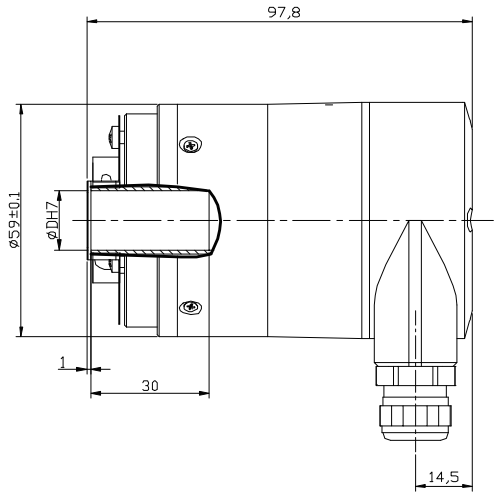
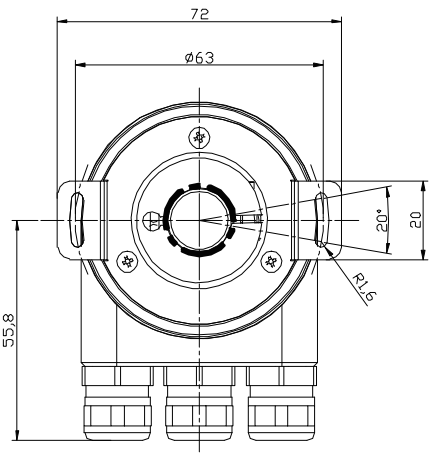
EAM58W





Order Code

EAM 58 C 10 – B F6 X X R – 4096/8192 DP

Shaft diameter

6=Φ6g6mm
58B optional
8=Φ8g6mm
10=Φ10g6mm

8 =Φ8H7mm
10=Φ10H7mm
12=Φ12Hmm
15=Φ15H7mm

Flange type

B=Synchronous flange
C=Clamping flange

W=Hollow shaft flange, double-wing spring mounting

Housing dimension

58=Φ58 Flange

Output code

B=Binary

Interface& Supply voltage

F6=Profibus-DP interface 10...30 VDC

Output logic

X= No definition

Types of connection

X=Integrated bus coupler terminal with 3 PG7 threaded connectors

T=Integrated bus coupler terminal with 3 of M12 socket

Outlets direction

R=Radial

Resolution

Standard 4096/8192

Profibus-DP interface absolute singleturn

Series

EAM=Profibus-DP interface absolute singleturn