

EAM58-DP

ARTICLE PROPERTIES

TYPE	Profibus-DP interface absolute multiturn encoder
SIZE	Ø 58

TECHNICAL DATA

SHAFT DIAMETER	Ø 6g6 (58B) mm Ø 8g6 (58A/B/D/E) mm Ø 9.52 (3/8")g6 (58A/D/E) mm Ø 10g6 (58C) mm	STARTING TORQUE	< 0.05 N·m
HOLLOW SHAFT DIAMETER	Ø 8H7 / Ø 9.52H7 / Ø 10H7 mm (58W) Ø 12H7 / Ø 14H7 / Ø 15H7 mm (58W)	BODY MATERIAL	Aluminum
SPEED	6000 rpm, continuous	HOUSING MATERIAL	Aluminum
BEARING LIFE	10 ⁹ revolution	FLANGE MATERIAL	Aluminum
MOMENT OF INERTIA	1.8 x 10 ⁻⁶ kgm ²	WEIGHT	800 g (58B/C, 63A/D/E)

ENVIRONMENTAL CONDITIONS

PROTECTION CLASS	IP65	OPERATING TEMPERATURE	-40 ... +80 °C
MAX LOAD CAPACITY OF THE SHAFT	80 N axial, 160 N radial	STORAGE TEMPERATURE	-45 ... +85 °C
SHOCK RESISTANCE (EN 60068-2-27)	50 g, 11 ms	RELATIVE HUMIDITY / CONDENSATION	90%, condensation not permitted
VIBRATION RESISTANCE (EN 60068-2-6)	10 g, 10 ... 2000 Hz		

Resolution 4096 (revolution) × 8192 (resolution), 4096 (revolution) × 4096 (resolution)
 Revolution and resolution can be programmed in PLC (see operation manual for configurations)

ELECTRICAL PARAMETERS

REVOLUTION	4096 (12 bits)	BAUD RATE	12 Mbaud
RESOLUTION / REVOLUTION	8192 (13 bits)	LINEARITY	±1/2 LSB
SUPPLY VOLTAGE	10 ... 30 V DC	OUTPUT FREQUENCY	Max. 100 KHz
POWER CONSUMPTION (NO LOAD)	300 mA		

STANDARDS AND DIRECTIVES

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR	EN IEC 61000-6-2 EN IEC 61000-6-4
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APPROVALS



TERMINAL ASSIGNMENT

Signal				Terminal configuration of M12 plug		
+V	Supply voltage	24 V DC	1	<p>Bus input</p>	<p>Power</p>	<p>Bus output</p>
0 V	Ground		3			
A	Profibus-DP output	GN	2			
B	Profibus-DP output	RD	4			
A	Profibus-DP input	GN	2			
B	Profibus-DP input	RD	4			

INTRODUCTION

	<p>The Profibus-DP Bus multiturn absolute encoder (identification code 0 x 0CCA) conforms to the Profibus-DP standards as described in the European Standard EN 50170 volume 2. It also complies with the existing encoder regulation document: “Profibus Profile for Encoders, Order No. 3062”.</p> <p>The Profibus-DP interface maintains the same maximum resolution and characteristics (8192 position / revolution, 4096 revolution) of the stand-alone version, and it also adds on the extra feature of the Profibus-DP network.</p>
<p>Power supply LED (green) Stays on when operating normally</p> <p>Encoder Communication Error (red). When operating normally, light goes off.</p> <p>Back of the encoder wiring box</p>	<p>Through the Profibus-DP network, it is possible to:</p> <ul style="list-style-type: none"> • Obtain the angular position information from the encoder during the periodic data exchange. • Program the resolution and the revolution (refer to corresponding chapters for parameter setting). • Change the default increment counting direction (switch between CW/CCW when configuring the parameters). • Perform the Preset operation (Set the encoder to read a specific position). • Read the diagnosis status. • Obtain info about the code supplied by the device.

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INTRODUCTION

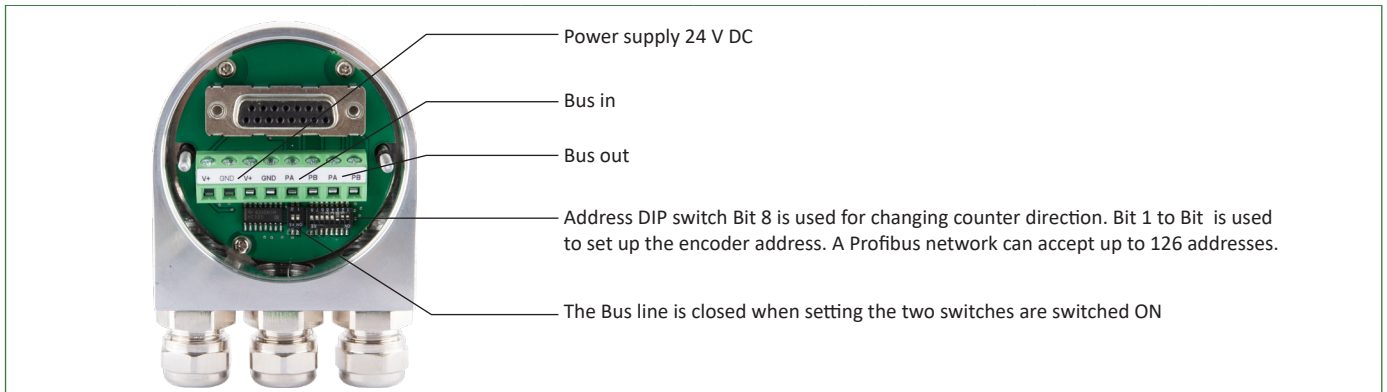
<p>Inside of the encoder wiring box</p>	<p>When using the device, it is possible to:</p> <ul style="list-style-type: none"> • Display the ON / OFF status. • Display the device activity on the bus. • Activate the Reset function. • Set up the device address. • If required, inserting the terminal resistor into the bus. • Change the counting direction. <p>Obtain info about the code supplied by the device. Installing the Profibus-DP encoder in a network requires the execution of the standard procedures necessary for configuring any Profibus-DP slave. The procedures are as follows.</p> <ol style="list-style-type: none"> 1- Add the slave onto the master (please see corresponding chapter). 2- Wire the encoder into the Profibus network. Whether wiring it in the middle or at the terminal are depending on the physical position of the device in the bus. 3- Directly set up the address (which must be unique in the network and as same as the device) for the slave. 4- Prepare the applications at the master side and set up the Profibus network. <p>On the back cover of the encoder there are two LED indicators. The device's operating status can be observed by the two LED. The green LED shows the power status and must be on constantly.</p> <p>The red LED only switches off only during the periodic data exchange between the Profibus master and the encoder.</p>
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DIP-SWITCHES SETUP (CONFIGURING SLAVE ADDRESS)

<p>Back cover of the encoder</p>	<p>Besides the address and the standard position of a terminal DIP switch, a configuration example of Profibus and the devices is illustrated below.</p> <p>In this example, device's address is set up as 1011001, with the corresponding decimal address as 77. Bit 7 is the most significant bit, and bit 1 is the least significant bit. Bit 8 is used for changing the counter direction. Bit 1 to bit 7 are used to configure encoder's address.</p>			
	<p>Address setting</p>	<p>Line close</p>	<p>Example</p>	<p>Line close</p>

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NETWORK PARAMETERS



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 ... 20 Mhz)
Rated capacity (PF/m)	< 30
Loop resistance (Ω /Km)	\leq 110
Core diameter (mm)	> 0.64 ^{*)}
Core cross-section (mm ²)	> 0.34 ^{*)}

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

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

Finally, the physical characteristics of a Profibus network are now known.

Max. number of station participating in the exchange of user data	DP: 126 (Address 0 ... 125) FMS: 127 (Address 0 ... 26)
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 may be allowed in some cases. Refer to the manufacturer's technical specification for details.

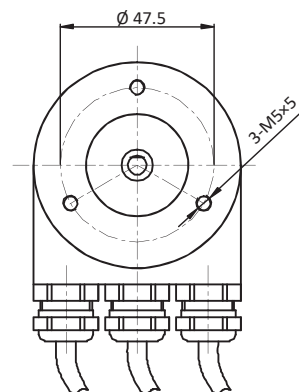
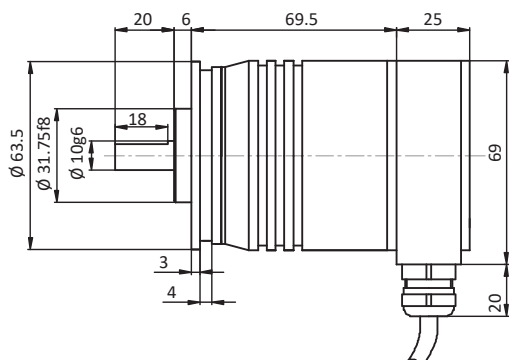
WIRING BOX

Wiring Guide	
<p>Dust-proof rubber ring Water-proof rubber ring Metal locking ring</p>	<p>Unscrew the back cover and wire the cables (power cable, input and output bus) according to the instructions on the cover wiring. The cable will pass through the metal locking ring, water-proof rubber ring, and dust-proof rubber ring into the metal notch. Lock the metal ring to fasten the cables.</p>

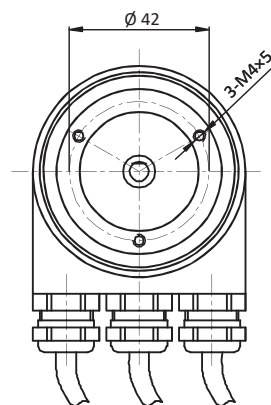
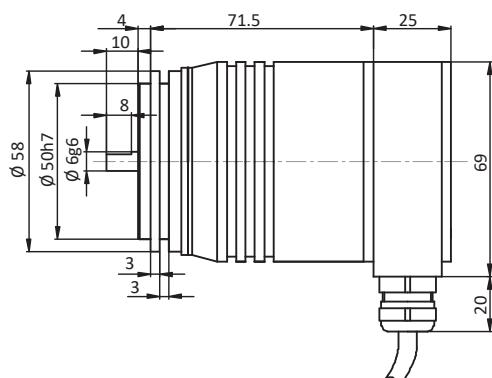
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DIMENSIONS (mm)

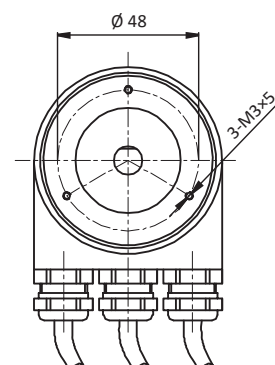
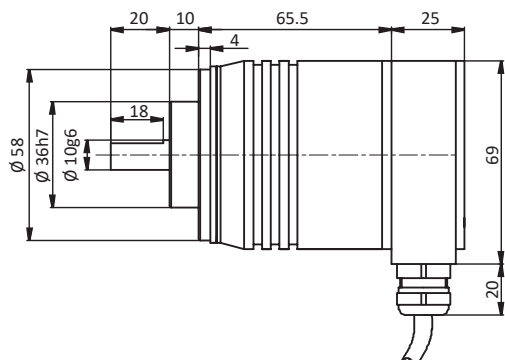
EAM58A



EAM58B



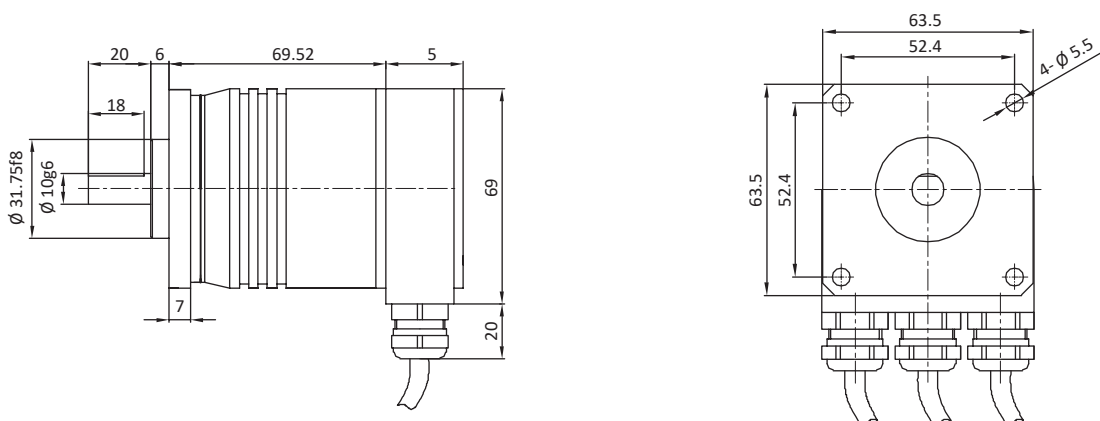
EAM58C



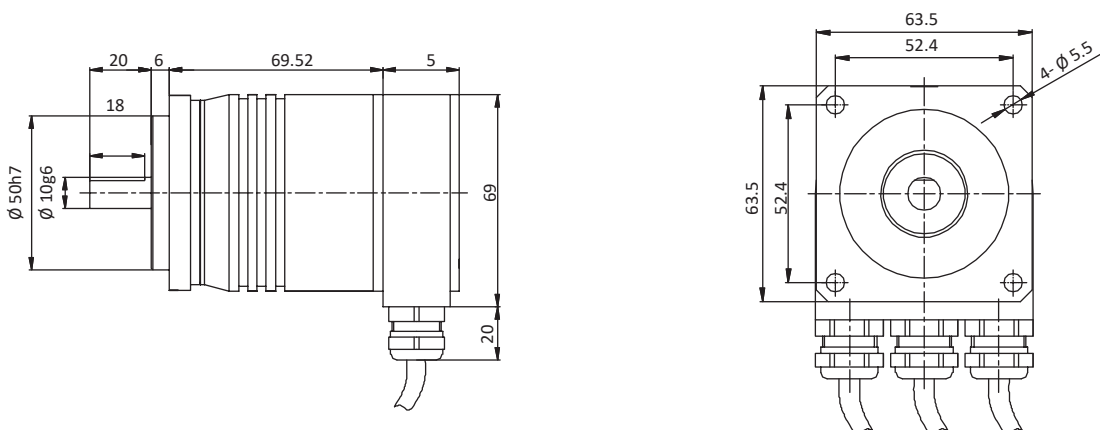
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DIMENSIONS (mm)

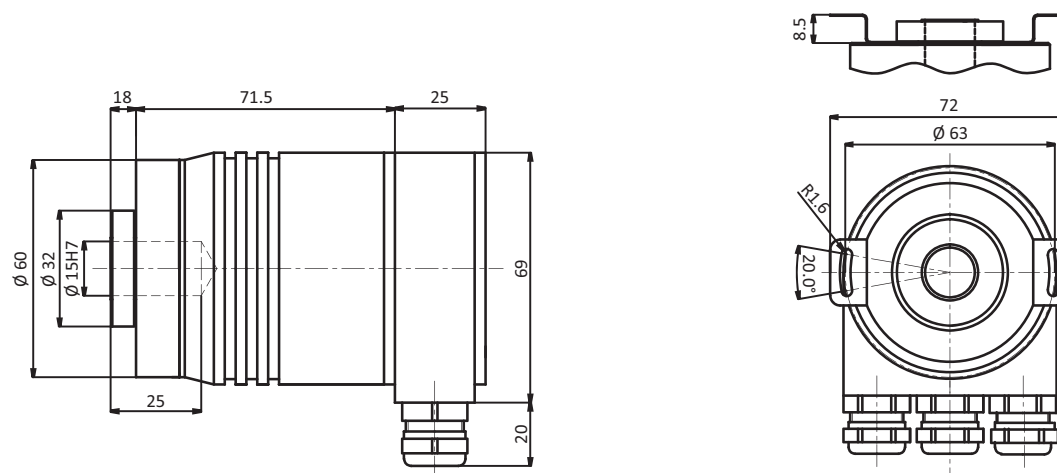
EAM58D



EAM58E

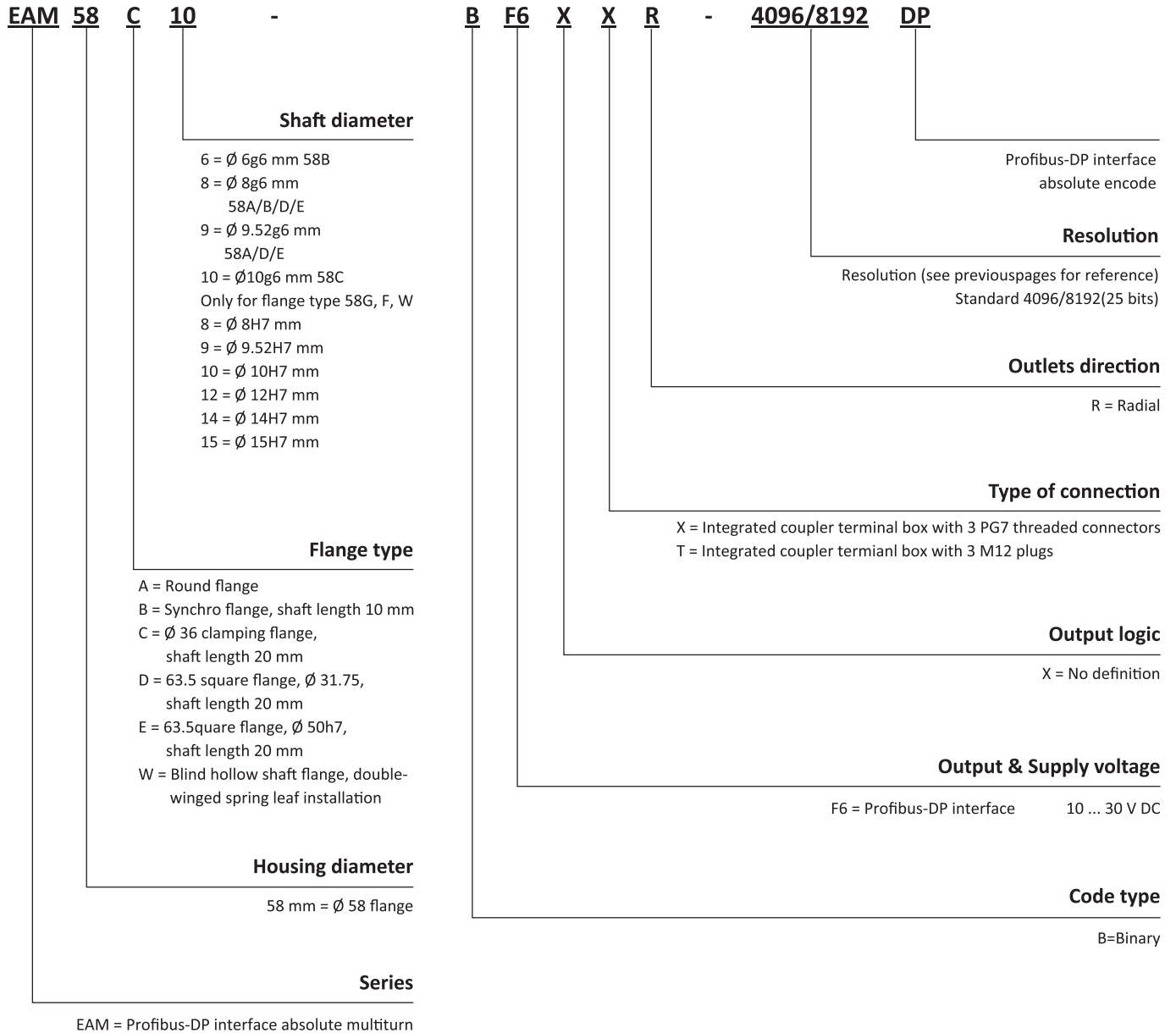


EAM58W



EAM58-DP

ORDER CODE



EAM58-DP

SALES AND SERVICE**Tianjin Elco Automation Co., Ltd**

No. 12, 4th XEDA Branch Road
Xiqing Economic-Technological Development Area
Tianjin 300385, P.R. China
Office Phone: 022 23788282
E-Mail: info@elco.cn
www.elco-holding.com.cn

Elco Industrie Automation GmbH

Benzstrasse 7
71720 Oberstenfeld,
Deutschland
Office Phone: +49 7062 / 6599-260
E-Mail: info@elco-automation.de
www.elco-automation.de

Elco Automation LLC

1097 Highway 101 South, Suite D-3 Greer
South Carolina 29651, USA
Office Phone: +1 864-581-7431
E-Mail: infousa@elcoautomation.com
www.elcoautomation.com

Elco Industrial Automation Pvt Ltd.

No 80, 1st Main, 2nd Cross, Royal Enclave,
Sidedahalli, Nagasandra Bangalore 560073, India
Office Phone: +91-7259931777
E-Mail: info@elcoautomation.in
www.elcoautomation.com

Elco Automation Korea Ltd.

706, 17 Daehak 4-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, Republic of Korea, 16226
Office Phone: +82-31-216-7890
E-Mail: sales@elcoautomation.co.kr
www.elcoautomation.com