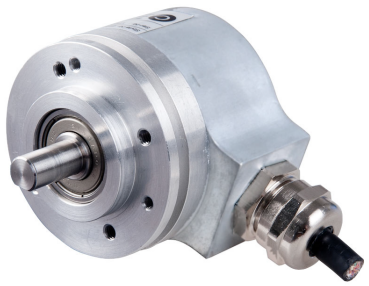
Miniature Absolute Singleturn Encoder EAC50



Description

Miniature absolute singleturn encoder EAC50 series can withstand a higher axial and radial load with its reasonable and compact structure. The standard flange combined the clamping and synchronous flanges together, while leaving multiple types of pre-screwed holes for easy installation. The EAC50 series can be widely used in angular and positioning measurement, particularly in the textile industry.

Features

- Pre-screwed holes for easy installation
- Clamping and synchronous flanges combined
- Durable stainless steel shaft
- Metal housing for shock resistance
- Waterproof metal wiring for greater IP level
- Protection class IP64
- Reverse connection protection

Mechanical Characteristics

shaft diameter（mm）	Φ6g6/Φ8g6
Protection acc. to EN 60529	Ip64
Speed（r/m）	6000
Max load capacity of the shaft	
Axial load capacity	40N
Radial load capacity	80N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Rotor moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20 ℃~~+80 ℃
Storage temperature	-25 ℃~~+85 ℃
Weight	330g

Resolution

2, 4, 8, 16, 32, 64, 90, 128, 180, 250, 256, 360, 500, 512, 720, 1024

Electrical Characteristics

Output circuit	PNP	PNP open collector	NPN	NPN open collector
Resolution	10 Bits	10 Bits	10 Bits	10 Bits
Supply voltage (Vdc)	10-30V/5V	10-30V/5V	10-30V/5V	10-30V/5V
Power consumption (no load)	≤125mA	≤125mA	≤80mA	≤80mA
Permissible load (channel)	±80mA	±80mA	±50mA	±50mA
Pulse frequency	Max300kHz	Max300kHz	Max300kHz	Max300kHz
Signal level high	MinUb-1.5V	MinUb-1.5V	MinUb-2.5V	MinUb*70%
Signal level low	Max0.4V	depends on pull-down resistor	Max0.4V	Max0.4V
Rise timeTr	Max 1 μs	Max 1 μs	Max 1 μs	Max 1 μs
Fall timeTf	Max 1 μs	Max 1 μs	Max 1 μs	Max 1 μs

*): NPN open collector is depending on the pull-up resistor. 4.7kΩ is the recommended resistance. 8.2kΩ is the recommended resistance for PNP open collector.

**): NPN (PNP) open collector is depending on pull-up (down) resistor and cable length.

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Miniature Absolute Singleturn Encoder EAC50

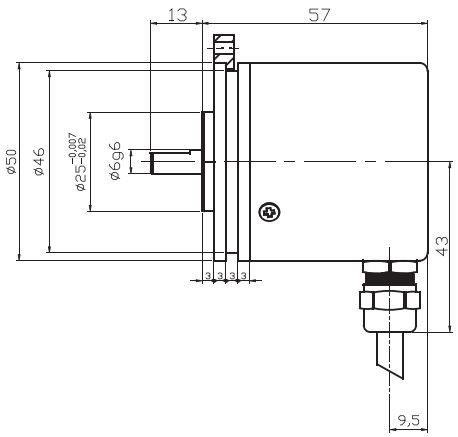
Terminal Configuration

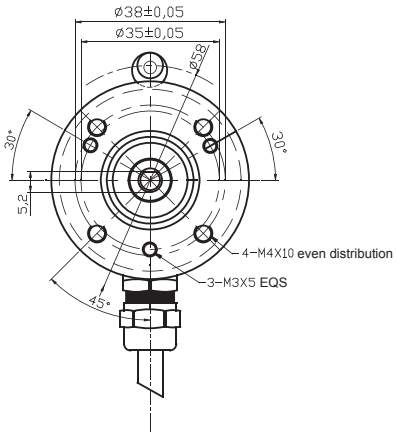
Signal	0V	+U_b	bit0	bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8	bit9	V/R *
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	BK	PL	GY/PK	RD/BU	YE/BN
Gray code	/	/	0	1	2	3	4	5	6	7	8	9	-

Attention
Bite definition of parallel interface for an absolute encoder is: bit0=MSB, bit1=MSB-1,bit2=MSB-2, ...

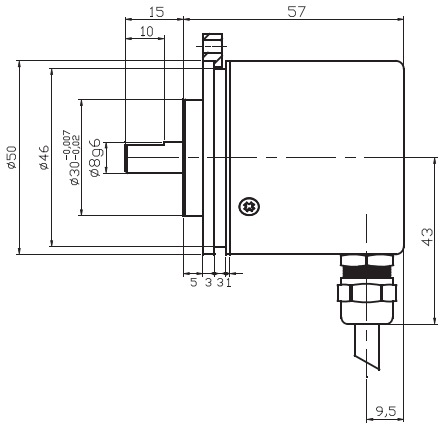
Dimensions

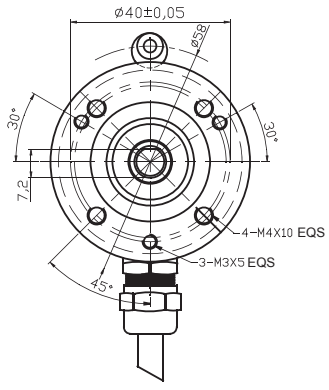
EAC50A





EAC50B





servo-restraint ring：50PXL（see installation accessories for reference）

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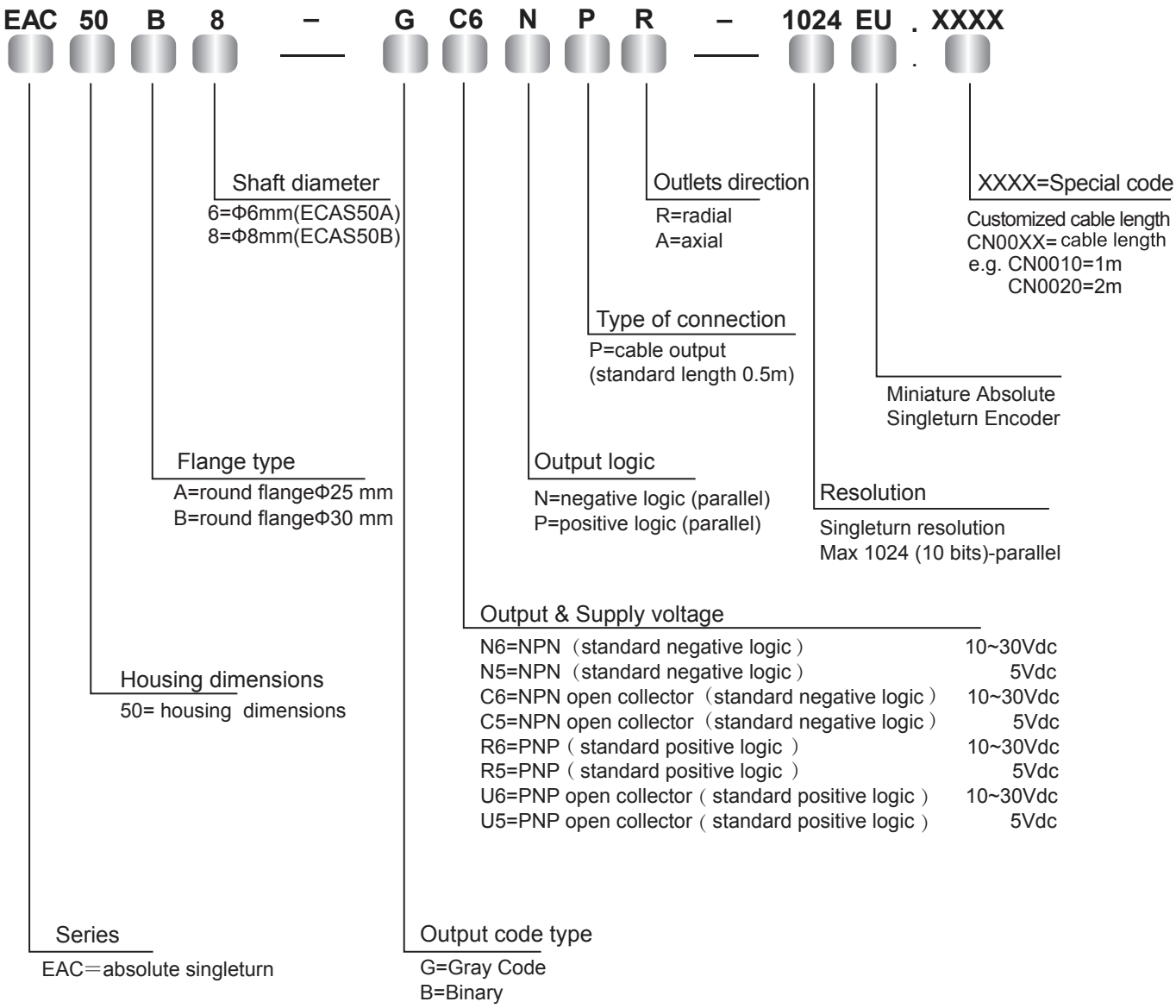
Order Code:



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CANopen Interface Absolute Singleturn Encoder EAC58

Description

CANopen interface absolute singleturn encoder EAC 58 series is used in industrial environments with special requirements. It has outstanding performance in withstanding mechanical damages and higher axial and radial loads. It complies with CANopen protocol and has a max resolution up to 8192, and is programmable based on requests.

Features

- Waterproof seal provides greater IP level
- Pre-screwed holes are for the convenience of customer
- Durable stainless steel shaft
- Metal housing for better shock resistance
- Protection class IP65

Mechanical Characteristic

Shaft diameter（mm）	Φ6g6/Φ10g6
Protection acc. to EN 60529	IP65
Speed(r/m)	6000
Max load capacity of the shaft	
Axial load capacity	60N
Radial load capacity	120N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Rotor moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-40°C~~+80°C
Storage temperature	-45°C~~+85°C
Weight	480g

Resolution 8192

Electrical Characteristics

Supply voltage（Ub）	10 ... 30V
Operating current	Max 0.29A
Linearity	±1/2 LSB (±1 LSB when 13bit)
Code type	Binary
Interface	CAN HIGH-Speed to ISO/DIS 11898,Basic and Full-CAN
	CAN specification 2.0 B
Protocols	CANopen Profile DSP 406 with additional function
Baud rate	Programmable via DIP switches 10 ... 1000 Kbits/s
	CAN DNET 125/250/500 kBit/s
Basic identifier/ node number	Programmable via DIP switches
Conforms to CE requirements acc.to EN 61000-6-1，EN 61000-6-4 , EN 61000-6-3 and EN 61000-4-8	
Conforms to international Electromagnetic Standards EN 61000-4，5 CANopen also conforms to the additional properties as described in DSP406	

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CANopen Interface Absolute Singleturn Encoder EAC58

Electrical Characteristics

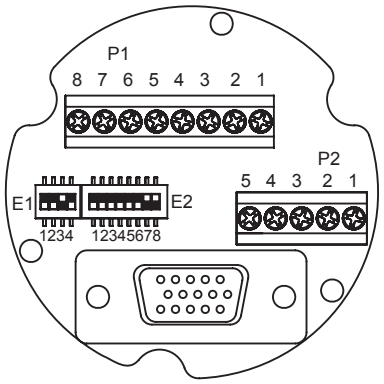
The CANopen Equipment Specifications describe the functionality of the communication and of that part of the CANopen fieldbus system specific to the manufacturers.
In addition, using devices of CANopen interface offers the advantage of future-ready expandability, which includes the following functions:
The following functionality is integrated

CAN-LED for Bus status	Programmable Parameters:
CAN-LED for operating mode	Polling mode or auto mode, direction
Additional Event Mode	Resolution per revolution, preset value and offset

Terminal Configuration (M12)

P1:Terminal wiring(IN)

Ub	1	External power supply，10～30V
GND	2	External power supply 0V
CAN+	3	CAN+
CAN-	4	CAN-
0V	5	CAN Gnd
GND1	6	Rotation direction and external reset power supply
CLR	7	External reset, 10～30V, use GND1 as reference
LH	8	Freeze current signal, 10~30V, use GND1 as reference



P2:Terminal wiring(OUT)

Ub	1	External power supply，10～30V
GND	2	External power supply0V
CAN+	3	CAN+
CAN-	4	CAN-
0V	5	CAN Ea

E1:Switch setting

DIP1	DIP2	DIP3	Baud rate	DIP4
0	0	0	1000Kbps	0 Counter close-wise as the default direction
1	0	0	800Kbps	1 CW direction as the default direction
0	1	0	500Kbps	
1	1	0	250Kbps	
0	0	1	125Kbps（default）	
1	0	1	100Kbps	
0	1	1	50Kbps	
1	1	1	20Kbps	

E2:Switch setting

DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	Node address	DIP8
0	0	0	0	0	0	1	64	terminal resistance
LSB	LSB+1	LSB+2	. . . . .	MSB-2	MSB-1	MSB	（default）	120Ω

LSB：Low Significant Bit MSB:Most Significant Bit

Cable outlet description

Signal	$+U_b$	GND	CAN+	CAN-	0V
Color	RD	BK	WH	BU	GY

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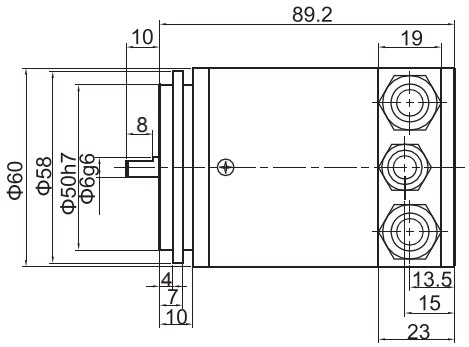
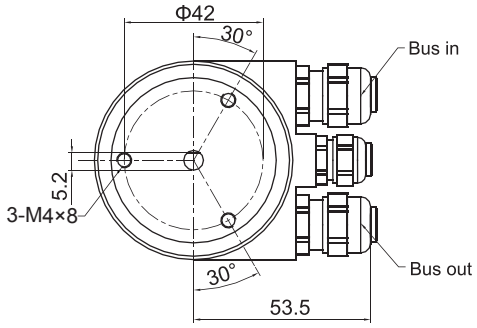
CANopen Interface Absolute Singleturn Encoder EAC58

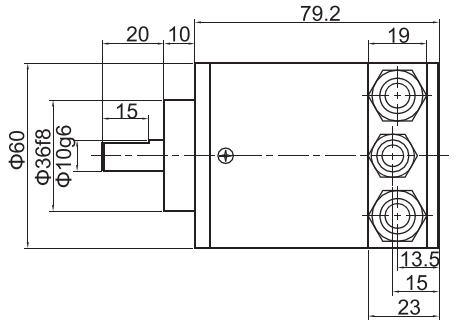
Dimensions

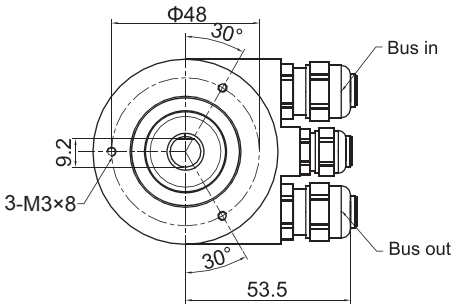
EAC58B



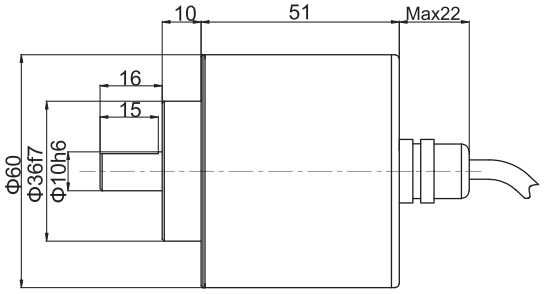


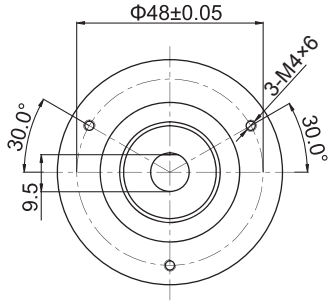
EAC58C





EAC58C (PA Output)





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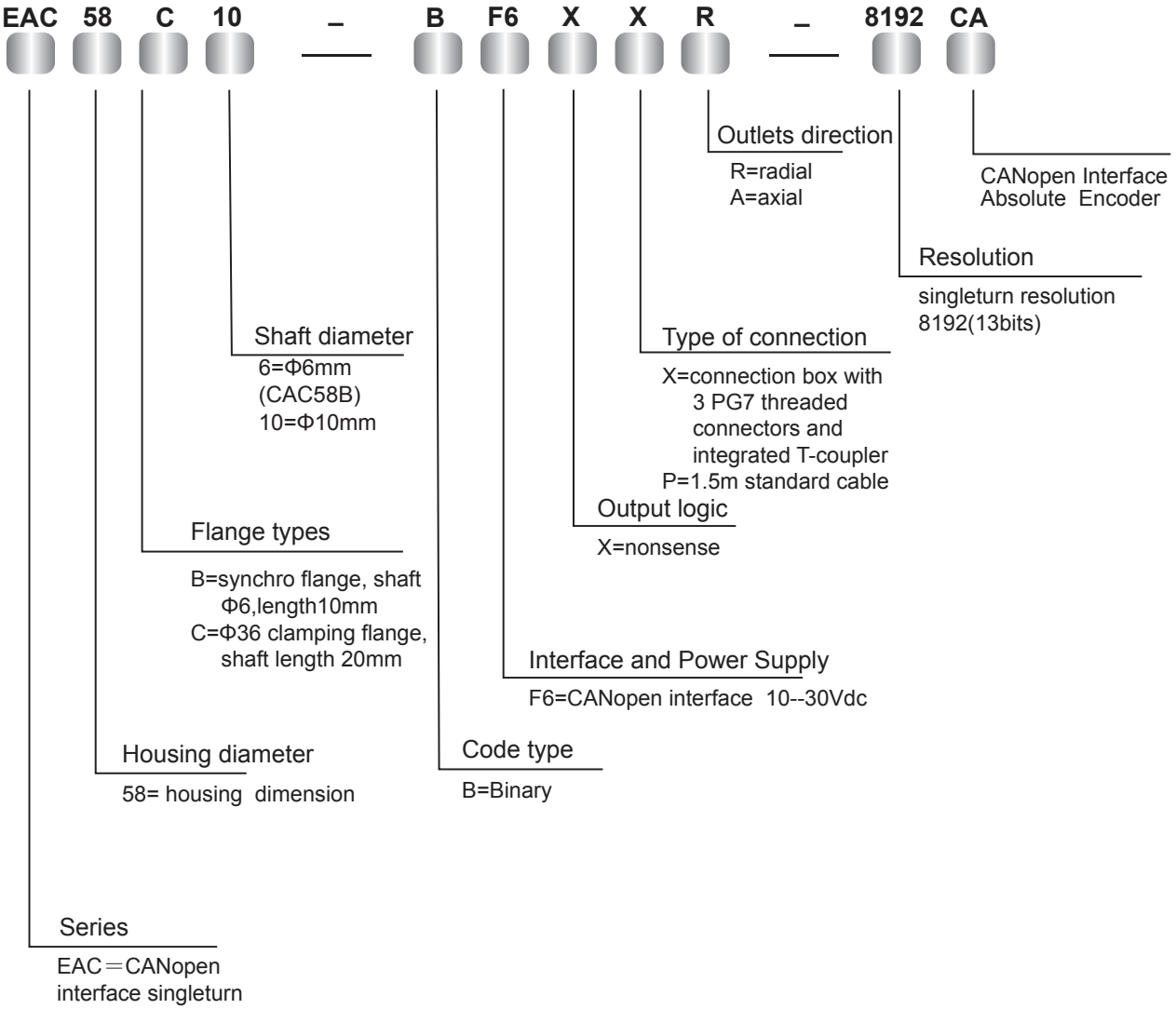
CANopen Interface Absolute Singleturn Encoder EAC58

Order Code:



Including：

EDS- for documentations and user manuals please see enclosed CD.

Connect BUS-IN and BUS-OUT to the encoder using a suitable terminal wiring box.

This sample is for reference only, please subject to the actual products.

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Profibus-DP Interface Absolute Singleturn Encoder EAC58

Description

Profibus-DP interface absolute singleturn encoder EAC58 series provides outstanding performance in withstanding mechanical damages and higher axial and radial loads. Various types of flanges are available to meet different requirements. The series complies with Profibus protocol, and its maximum resolution is up to 8192. Its high speed communication and anti-interference deliver strong and stable operation.

Features

- Various types of flanges are available
- Pre-screwed holes are convenient for installation
- Waterproof seal provides greater IP level
- Direct cable output, which is convenient for installation and maintenance
- Protection class IP65
- Metal housing for better shock resistance
- Conforming to Profibus-DP protocol

Mechanical Characteristics

Shaft diameter (mm)	Φ6g6	-58B
	Φ8g6	-58A/B
	Φ9.52(3/8")g6	-58A
	Φ10g6	-58C
Hollow shaft diameter (mm)	Φ8H7/Φ9.52H7/Φ10H7	-58/W
	Φ12H7/Φ14H7/ Φ15H7	-58/W
Protection acc. to EN 60529	IP65	
Speed	6000, continuous	
Axial load capacity	80N	
Radial load capacity	160N	
Shock resistance	50G/11ms	
Vibration resistance	10G 10~2000Hz	
Bearing life	10^9 revolution	
Rotor moment of inertia	approx.1.8×10^{-6} kgm^2	
Starting torque	<0.05Nm	
Body material	ALUNI 9002/5 -(D11S)	
Housing material	AL6060	
Flange material	ALUNI 9002/5 -(D11S)	
Operating temperature	-40°C~~+80°C	
Storage temperature	-45°C~~+85°C	
Weight	~800g	

Resolution 8192 4096

Electrical Characteristics

Resolution	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

Connection

+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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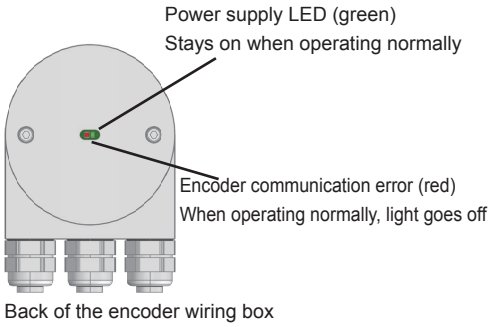
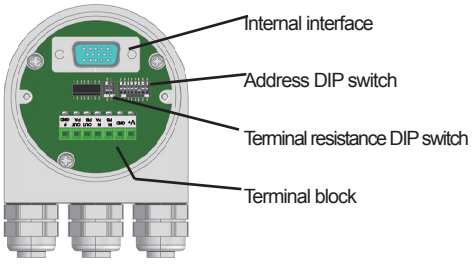
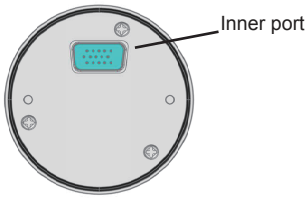


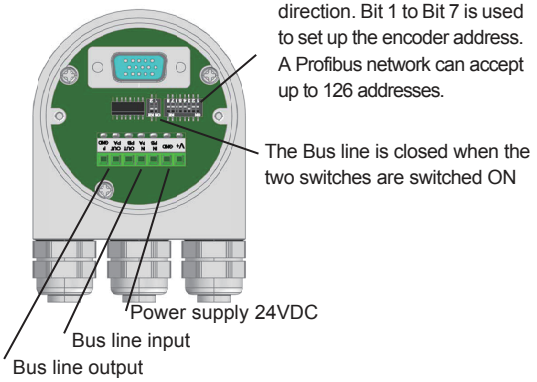
Back of the encoder wiring box



Inside of the encoder wiring box



Back cover of the encoder



Introduction

Profibus-DP interface absolute singleturn encoder (Identification number 0x0CCA) comforms to the Profibus-DP standard as described on the European Standard EN 50170 Vol. 2. The encoders are designed according to “Profibus Profile for Encoders, Order No. 3062”.

The Profibus-DP interface has the same maximum resolution and features (8192 position/revolution) of the stand-along version, and it also has the advantages of the Profibus-DP network.Through the Profibus-DP network is possible to:

- During the periodic data exchange, obtaining the angular position from the encoder.
- Resolution and the revolution are configurable now (please refer to the corresponding chapters for configuring the parameters).
- Changing the default increment count direction (change between CW/CCW when configuring the parameters).
- Perform the Preset operation (Set the encoder to read a specific position).
- Read the diagnosis status.
- Getting info about the code supplied by the device.

From the device it is possible to:

- Display the ON/OFF status.
- Display the device activity on the bus.
- Activate the Reset function
- Sett up the device address.
- If required, insert the terminal resistance into the bus.
- Change the counting direction

Installation

IInstalling the Profibus-DP encoder in a network requires the execution of the standard procedures necessary for configuring any Profibus-DP slave. The procesures are as follows:

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 the device has in the bus.

3- Directly set up the address (which must be unique in the network and as the same as the device) for the slave.

4- Prepare the applications at the master side and set up the Profibus network.

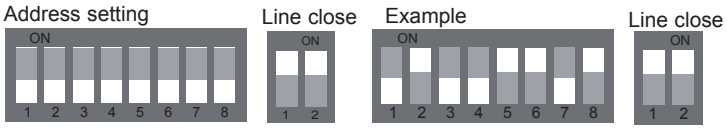
On the back cover of the encoder there are two LED indicators. The device’s operating status can be observed by the two LEDs. The green LED shows the power status and must be on constantly. The red LED only switches off during the periodic data exchange between the Profibus master and the encoder.

Note：To set and configure the slave into the Profibus-DP master, it is necessary to use the “gsd” file delivered with the encoder. The file can be found on the CD.

DIP-switch setup (configuring slave address)

Besides the address and the standard position of a terminal DIP switch, a configuration example of Profibus and the devices is illustrated below.

In this example, device’s address is set up as 1001101, with the corresponding decimal address as 77. Bit 7 is the top digit, and bit 1 is the lowest digit. Bit 8 is used for changing the counter direction. Bit 1 to bit 7 are used to configuring encoder’s address.



Network Characteristics

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 (mm²)	>0.34*)

This cable allows the optimal 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, the physical characteristics of a Profibus network are learned.

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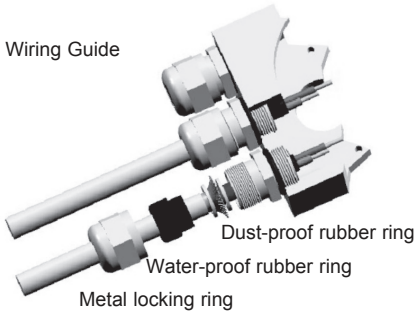
Profibus-DP Interface Absolute Singleturn Encoder EAC58



Max. number of station participating	DP: 126 (Address 0-125)
in the exchange of user data	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

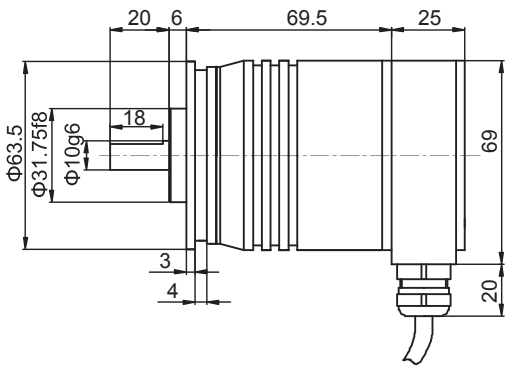
According to EN50170, a maximum of 4 repeaters are allowed between any two stations.Dependent on the repeater type and manufacturer, more than 4 repeaters may be allowed in some cases. Refer to the manufacturer's technical specification for details.

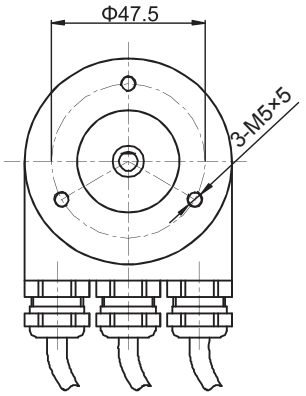
Wiring box

Unscrew the back cover, and wire the cables (power cable, input and output bus) according to the instructions on the cover. The cable will pass through the metallocking ring, water-proof rubber ring, and dust-proof rubber ring into the metal notch.Lock the metal ring to fasten the cables

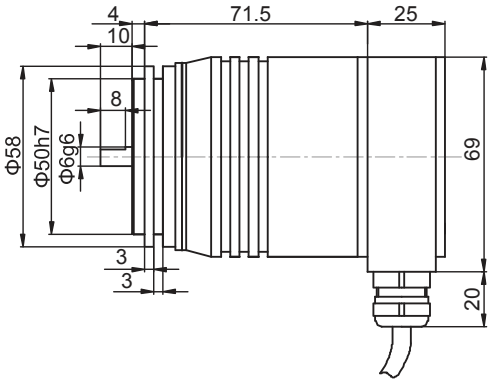
Dimensions

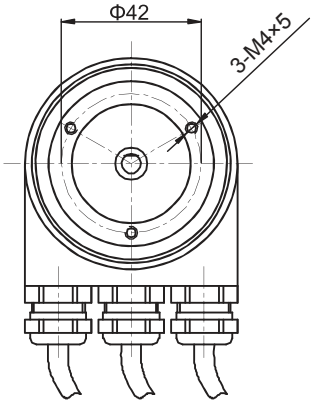
EAC58A





EAC58B





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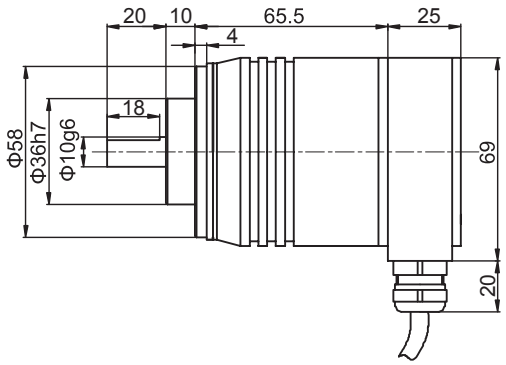
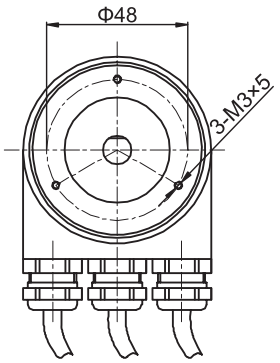
Profibus-DP Interface Absolute Singleturn Encoder EAC58

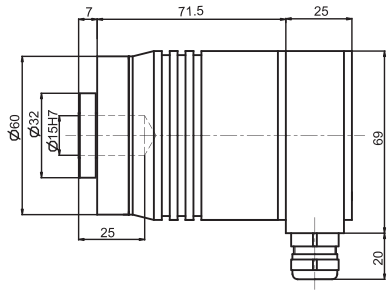
Dimensions

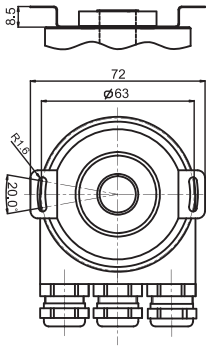
EAC58C





EAC58W





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Profibus-DP Interface Absolute Singleturn Encoder EAC58

Order Code:

Profibus-DP Interface
Absolute Encoder

Resolution

resolution (see previous pages for reference)
standard8192 (13 bits)

Outlets direction

R=radial

Type of connection

X=integrated coupler terminal box with 3 PG7 threaded connectors
T=integrated coupler terminal box with 3 M12 plugs

Output logic

X=nonsense

Output & Supply voltage

F6=Profibus-DP interface 10~30Vdc

Code type

B=Binary

Shaft/ Hollow shaft diameter

6=Φ6g6mm (58B)
8=Φ8g6mm 58A/B
9=Φ9.52g6mm 58A
10=Φ10g6mm
Only for flange type 58W
8 =Φ8H7mm
9 =Φ9.52H7mm
10=Φ10H7mm
12=Φ12H7mm
14=Φ14H7mm
15=Φ15H7mm

Flange type

A=round flange
B=synchro flange, shaft length 10mm
C=Φ36clamping flange,shaft length 20mm
W=blind hollow shaft flange, double-winged spring leaf installation

Housing diameter

58=Φ58flange

Series

EAC＝Profibus-DP interface absolute singleturn

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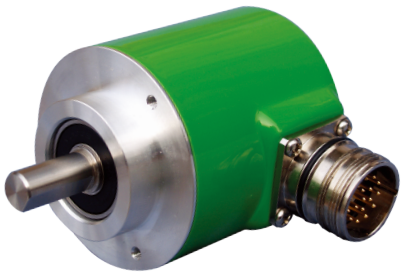
4…20mA Analog Output Absolute Singleturn Encoder EAC58



Description:

The 4-20mA Analog output absolute singleturn encoder EAC58 series features acompact structure with striong perfomance in withstanding mechanical damages and higher axial and radial loads. EACA58 series is equipped with the RESET function,and has the resolution up to 8192.4-20mA output is compatible with special PC controllers.

Features:

- Waterproff seal provides greater IP level
- Pre-screwed holes for convenience purpose
- Durable stlnless steel shaft
- Metal housing for better shock resistance
- Protection class IP65
- Staring and flnishing points calibration function equipped

Mechanical Characteristics

Shaft diameter（mm）	Φ6g6/Φ10h8
Protection acc. to EN60529	IP65
Speed（r/m）	6000
Max load capacity of the shaft	
Axial load capacity	60N
Rsdial load capacity	120N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Rotor moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	360g

Resolution：8192.For other resolution repuests please contact us for further information.

Electrical Characteristics

Type of Interface	4--20mA	0--10V
Supply voltage（Ub）	10--30VDC/5VDC	10--30VDC
Current consumption	70mA	70mA
Max.loading current	84mA	84mA
Word-updating frequency	Max15.000/s	Max. 15.000/s
Current loop	10 ... 30VDC	10 ... 30VDC
Analog signal	4 ... 20mA	0 ... 10V
Max.input resistance	200Ω	200Ω
Measuring range	0 ... 360°	0 ... 360°
Max.sensitivity（25°C）	0.2°	0.2°
Resolution	13 Bit	13 Bit
Setup time	Max. 2 ms	Max. 2 ms
Temperature effect	0.1°/10K	0.1°/10K
No-load current	≤3.5 mA	≤3.5 mA
Sensor should be electrically isolated form current loop		

Conforms to CE requirements of EN 61000-6-1， EN 61000-6-4 and EN 61000-6-3

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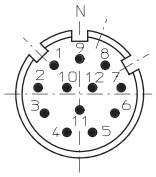
4…20mA Analog Output Absolute Singleturn Encoder EAC58

Terminal Configuration

Voltage signal	0V	+U_b	VOUT+	VOUT-	VIN+	VIN-	STZ	VR	STT	-----	-----	-----	⏚
Current Signal	0V	+U_b	----	-----	+I	-I	STZ	VR	STT	-----	-----	-----	⏚
Color	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY/PK	RD/BU	
Gray	1	2	3	4	5	6	7	8	9	10	1	12	PH

Top view of the connecting end on needle connector block

12-pin plug



+I: Input of current loop

I-: Output of current loop

0V/+U_b and VIN+/VIN-: can be powered together or seperately

VOUT+/VOUT-: voltage output VIN-/VOUT-: connected in circuit

STZ: SET input (signal level remains high for 2 sec), the output current is set to 4mA

VR: Up/down input, as the input is activated, decreasing current values are transmitted when shaft turning clockwise

STT input: SET input (signal level remains high for 2 sec), the output current is set to 20mA

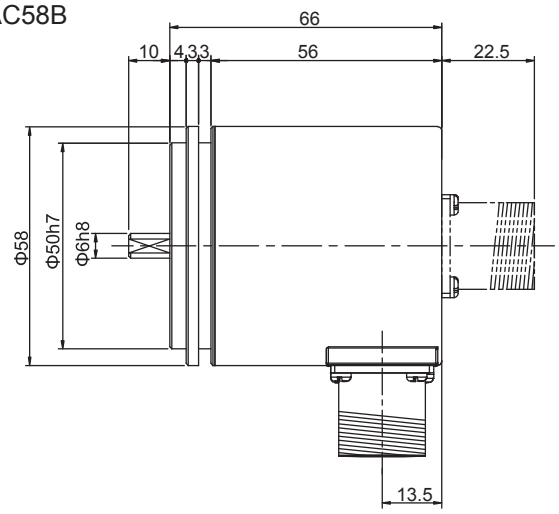
PH: Plug housing

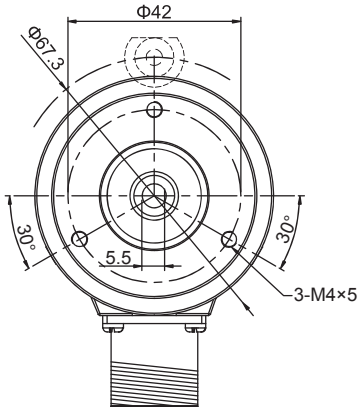
Attention: 1, Before initial start-up, unused outputs must be insulated..

2, Shaft remains static, and at the same time set STZ & STT signal at high level; singleturn resumes to 4-20mA, and the present position output is at 4mA.

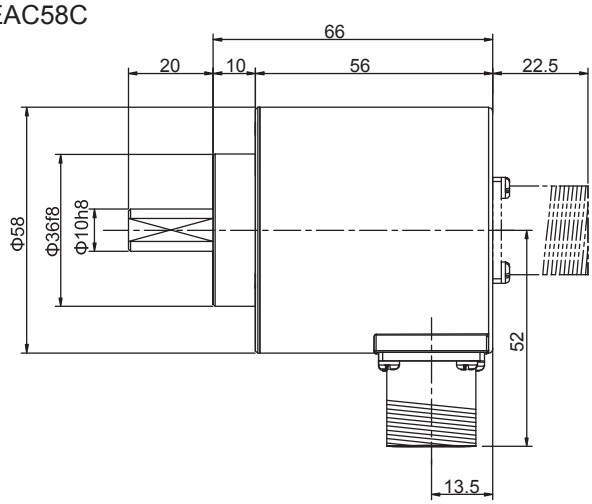
Dimensions

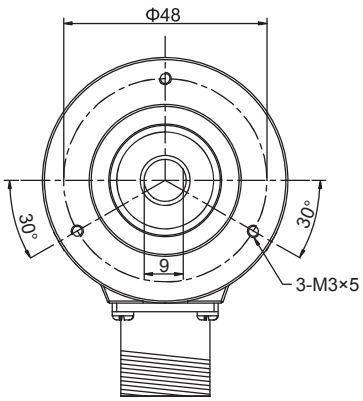
EAC58B





EAC58C





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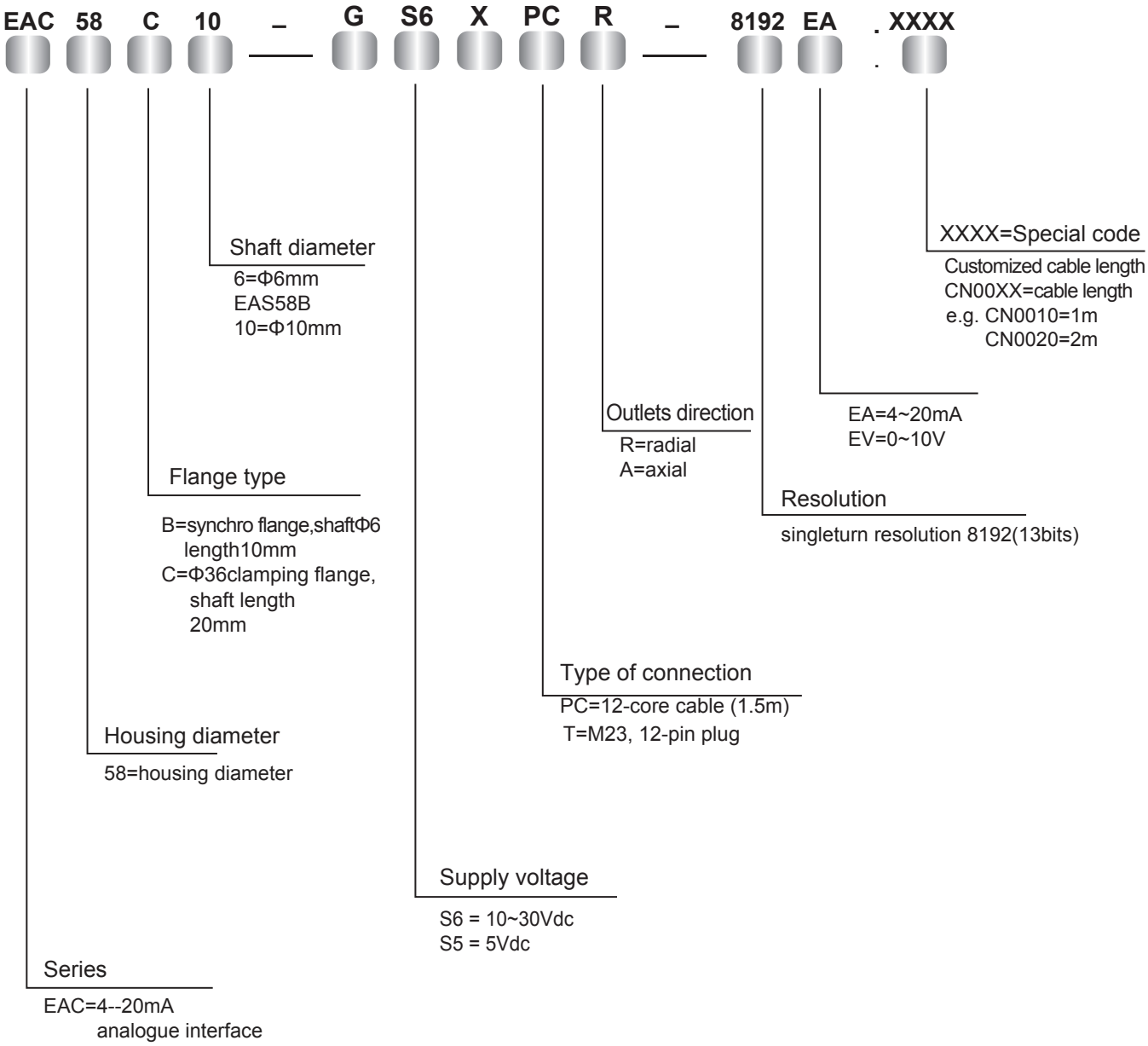
4…20mA Analog Output Absolute Singleturn Encoder EAC58

Order Code



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Standard Absolute Singleturn Encoder EAC58

Description

Standard absolute singleturn encoder EAC58 series can be widely used in various industrial environments. The series also has a good performance against mechanical damage, and withstanding higher axial and radial load. Various flange types and connections are available. EAC58 series also has the RESET function and resolution up to 8192.

Features

- Pre-screwed holes for easy installation
- Waterproof seal provides greater IP level
- Durable stainless steel shaft
- Metal housing for shock resistanceMetal housing for shock resistance
- Protection class IP65
- Reverse connection protection and short circuit protection

Mechanical Characteristics

Shaft diameter（mm)	Φ6/Φ8/Φ9/Φ10h8
Protection acc. to EN 60529	Ip65
Speed (r/m)	6000
Max load capacity of the shaft	
Axial load capacity	60N
Radial load capacity	120N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Rotor moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20 ℃~~+80 ℃
Storage temperature	-25 ℃~~+85 ℃
Weight	360g

Resolution

SSI：1024， 2048， 4096， 8192

Parallel：2， 4， 8， 16， 32， 64， 128， 256， 512， 1024， 2048， 4096，8192

Electrical Characteristics

Output circuit	SSI	SSI	Parallel	Parallel
Output driver	RS422	RS422	Push-pull/NPN open collector	
Resolution	13 Bits	13 Bits	13 Bits	13 Bits
Supply voltage (Vdc)	10-30V	5V	10-30V	5V
Power consumption (no load)	≤200mA	≤200mA	≤200mA	≤200mA
Permissible load (channel)	±20mA	±20mA	±20mA	±2zhuo0mA
Pulse frequency	Max1MHz	Max1MHz	Max40kHz	Max40kHz
Signal level high	Typ.3.8V	Typ.3.8V	MinUb-2.8V	Min3.4V
Signal level low	Max0.5V	Max0.5V	Max2.0V	Max0.5V
Rise timeTr	Max 100ns	Max 100ns	Max 0.2μs	Max 0.2μs
Fall timeTf	Max 100ns	Max 100ns	Max 0.2μs	Max 0.2μs

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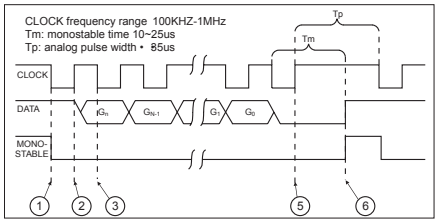
Standard Absolute Singleturn Encoder EAC58

Terminal Configuration

SSI Wiring Guide

Signal	0V	+U_b	+C	-C	+D	-D	ST *	V/R*	Shielded
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	⏚
12-pin	1	2	3	4	5	6	7	8	PH



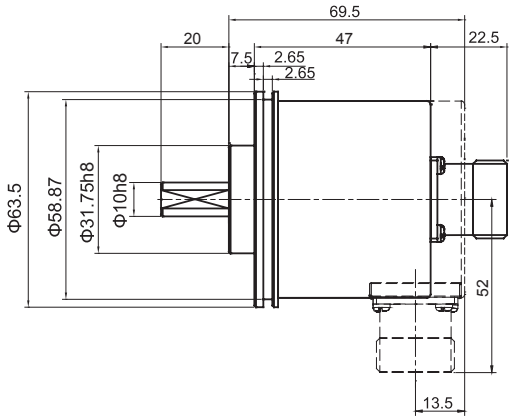
Parallel Wiring Guide

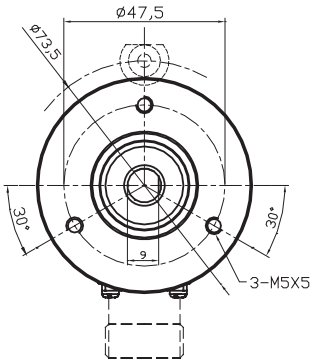
Signal	0V	+U_b	bit0	bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8	bit9	bit10	bit11	bit12	V/R *	ST *
Color	WH	BN	GN	YE	GY	PK	BU	RD	BK	PL	GY/PK	RD/BU	WH/GN	BN/GN	WH/YE	YE/BN	WH/GY
17-pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Gray	/	/	1	2	3	4	5	6	7	8	9	10	11	12	13	/	/
Binary																	

Attention
Bite definition of parallel interface for an absolute encoder is：bit0=MSB,bit1=MSB-1,bit2=MSB-2,.....

Dimensions

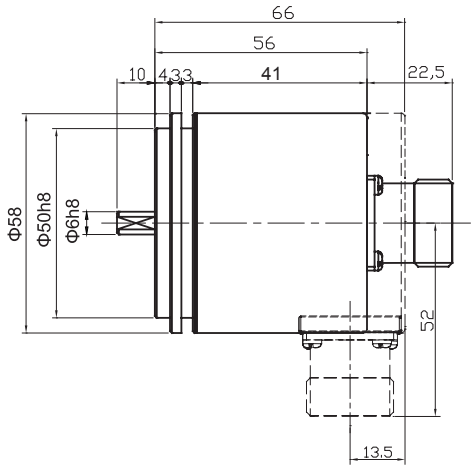
EAC58A

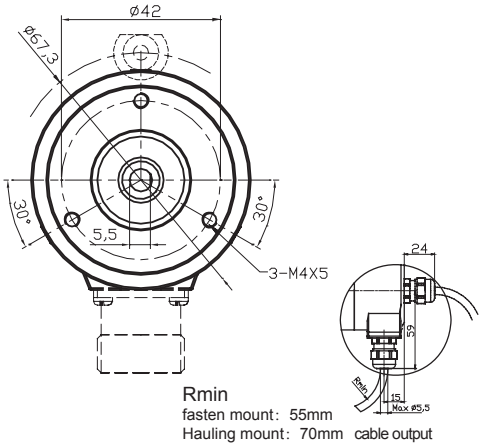




servo-restraint ring：
58PXL (see installation accessories for reference)

EAC58B





Rmin
fasten mount：55mm
Hauling mount：70mm cable output

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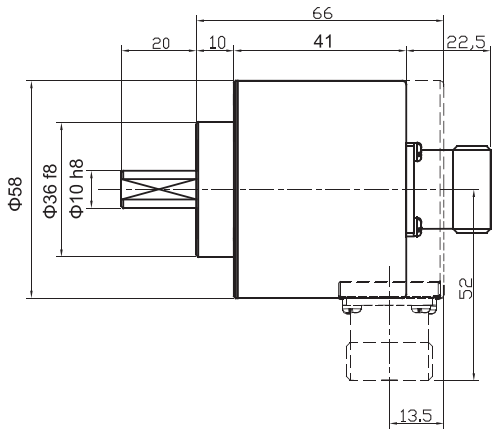
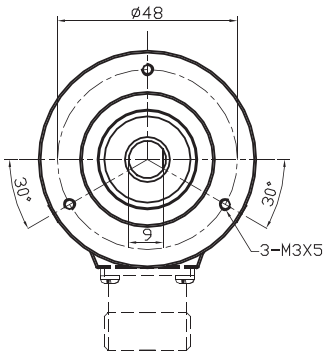
Standard Absolute Singleturn Encoder EAC58

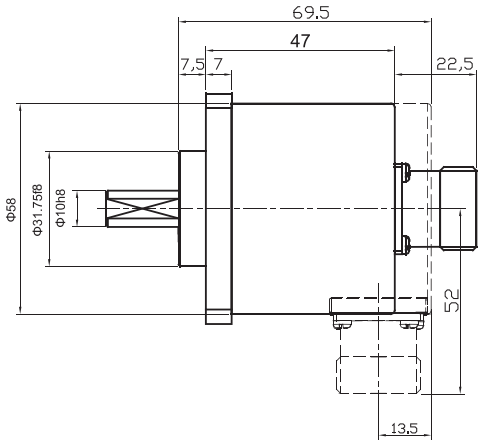
Dimensions

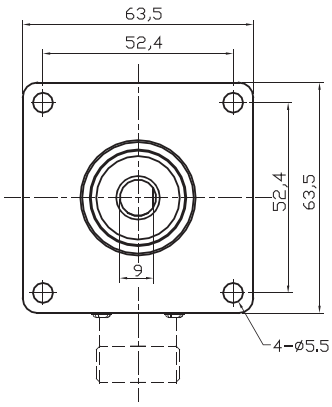
EAC58C





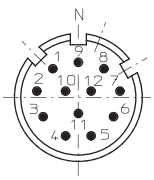
EAC58D



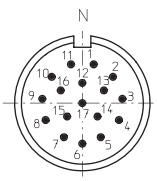


Note:Do not use excessive force during hardwiring between driving shaft,flange,and encoder to prevent shaft damage form overload.

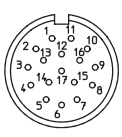
Top view of 12-pin encoder



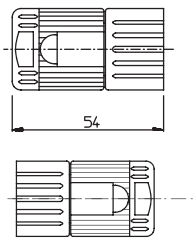
Top view of 17-pin encoder



Hole arrangement for of 17-pin connector



Size



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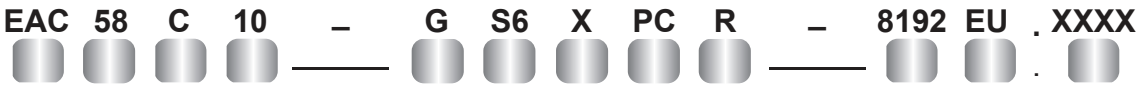
Standard Absolute Singleturn Encoder EAC58

Order Code:



Series
EAC = absolute singleturn series

Housing dimensions
58= housing dimensions

Flange type
A=Φ31.75 clamping flange, shaft length 20mm
B=synchronous flange, shaft length 10mm
C=Φ36 clamping flange, shaft length 20mm
D=63.5 spuare flange, Φ31.75,shaft length 20mm

Shaft diameter
6=Φ6mm(EACS58B)
8=Φ8mm
9=Φ9.52mm (3/8")
10=Φ10mm

Output Code
G=Gray Code
B=Binary

Interface & Supply voltage

P6=push-pill (standard positive logic)	10~30Vdc
P5=push-pill (standard positive logic)	5Vdc
S6=SSI (synchronous serial interface)	10~30Vdc
S5=SSI (synchronous serial interface)	5Vdc
C6=NPN open collector (standard negative logic)	10-30Vdc

Output logic
P=positive logic (parallel)
N=negative logic (parallel)
X= ninsense (SSI)

Types of connection
PC=12-core cable (SSI) standard length 1.5m
T=M23, 12-pin connector (SSI)
PD=18-core cable (parallel) standard length 1.5m
TA=M23, 17-pin connector (parallel)

Resolution
singleturn resolution
(see previous pages for reference)
Max 8192 (13 bits)-parallel
standard 8192 (13 bits)-SSI

Standard Absolute Singleturn Encoder

Outlets direction
R=radial
A=axial

XXXX=Special code
Customized cable length
CN00XX= cable length
e.g. CN0010=1m
CN0020=2m

Connector accessories
Connectors matching with "T" wiring
Ordering code: TMSP1612F
Connectors matching with "TA" wiring
Ordering code: TMSP1617F

This sample is for reference only, please subject to the actual products.
Please contact ELCO for further specification requests and requirements.

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Standard Hollow Shaft Absolute Singleturn Encoder EAC58P

Description

Standard absolute singleturn encoder EAC58P series can be widely used in various industrial environments. The series also has a good performance against mechanical damage, and withstanding higher axial and radial load. Various flange types and connections are available. EAC58P series is also equipped with the RESET function with resolution up to 8192.

Features

- Hollow shaft installation saves space with "C" ring lock
- Φ8/10/12 hollow shaft for easy applications
- Waterproof seal provides greater IP level
- Metal housing is capable of withstanding higher axial and radial loads
- Protection class IP65
- Output cables or connectors are available for easy maintenance

Mechanical Characteristics

Hollow shaft diameter（mm）	Φ8/Φ10/Φ12H7
Protection acc. to EN 60529	IP65
Speed（r/m）	6000
Max load capacity of the shaft	
Axial load capacity	60N
Radial load capacity	1200N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Rotor moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	360g

Resolution

SSI：1024， 2048， 4096， 8192

Parallel：2， 4， 8， 16， 32， 64， 128， 256， 512， 1024， 2048， 4096，8192

Electrical Characteristics

Output circuit	SSI	SSI	Parallel	Parallel
Output driver	RS422	RS422	Push-pull/NPN OC	
Resolution	13 Bits	13 Bits	13 Bits	13 Bits
Supply voltage (Vdc)	10-30V	5V	10-30V	5V
Power consumption (no load)	≤200mA	≤200mA	≤200mA	≤200mA
Permissible load (channel)	±20mA	±20mA	±20mA	±20mA
Pulse frequency	Max1MHz	Max1MHz	Max40kHz	Max40kHz
Signal level high	Typ.3.8V	Typ.3.8V	Typ.Ub-2.8V	Typ.3.4V
Signal level low	Max0.5V	Max0.5V	Max2.0V	Max0.5V
Rise timeTr	Max 100ns	Max 100ns	Max 0.2μs	Max 0.2μs
Fall timeTf	Max 100ns	Max 100ns	Max 0.2μs	Max 0.2μs

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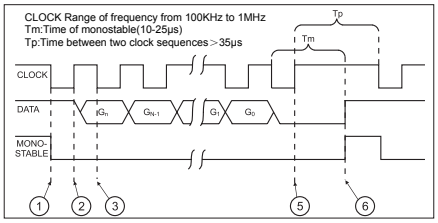
Standard Hollow Shaft Absolute Singleturn Encoder EAC58P

Terminal Configuration

SSI Wiring Guide

Signal	0V	+U_b	+C	-C	+D	-D	ST*	V/R*	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	⏚
12-pin	1	2	3	4	5	6	7	8	PH



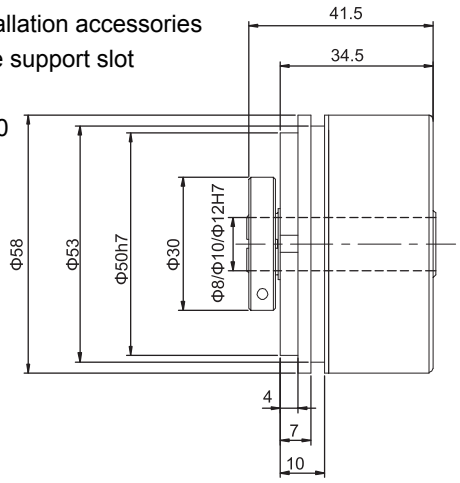
Parallel

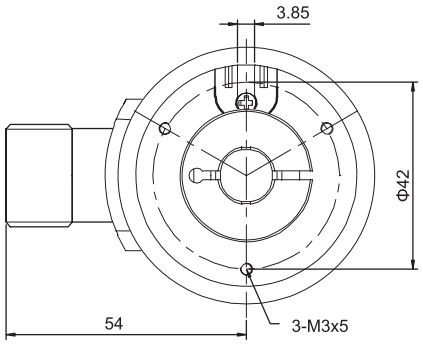
Signal	0V	+U_b	bit0	bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8	bit9	bit10	bit11	bit12	V/R*	ST *
Color	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY/PK	RD/BU	WH/GN	BN/GN	WH/YE	YE/BN	WH/GY
12-pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Gray	/	/	1	2	3	4	5	6	7	8	9	10	11	12	13	/	/
Binary																	

Attention
Bite definition of parallel interface for an absolute encoder is: bit0=MSB, bit1 =MSB-1, bit2=MSB-2,

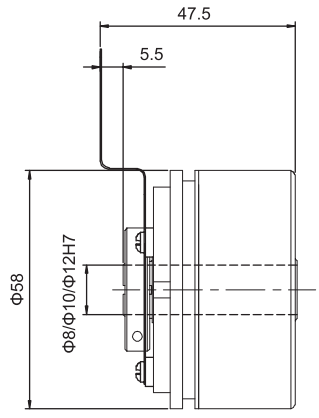
Dimensions

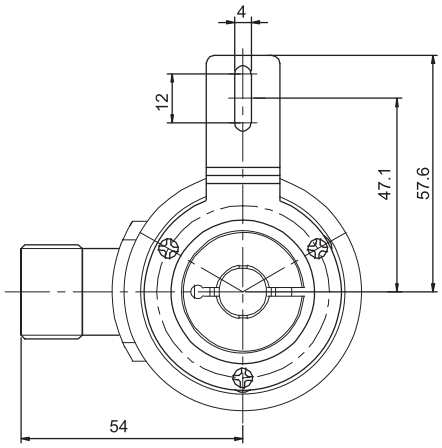
EAC58P(Q)
P without installation accessories
Q short torque support slot
Accessories:
E23230010A/0





EAC58H
Accessories:
E41350050A/0





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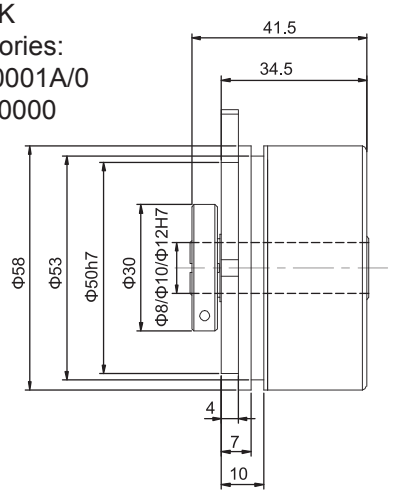
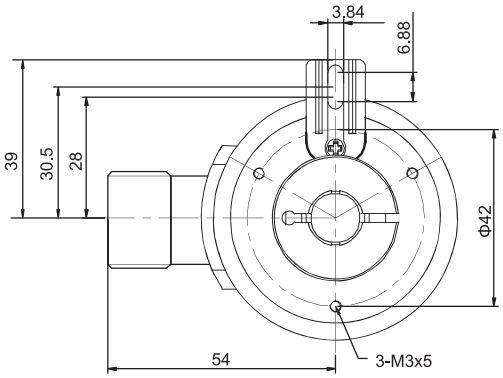
Standard Hollow Shaft Absolute Singleturn Encoder EAC58P

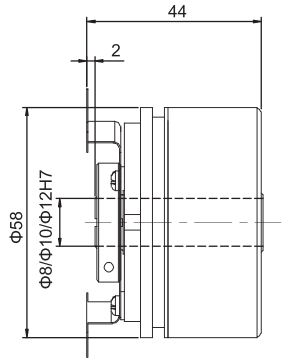
Mechanical Drawings

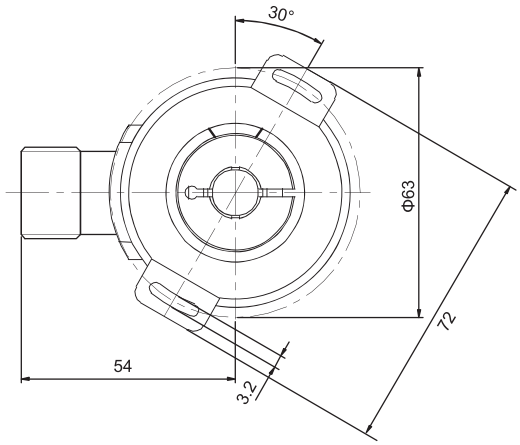
EAC58K
Accessories:
E41220001A/0
E4700 0000





EAC58W
Accessories:
E41350042A/1





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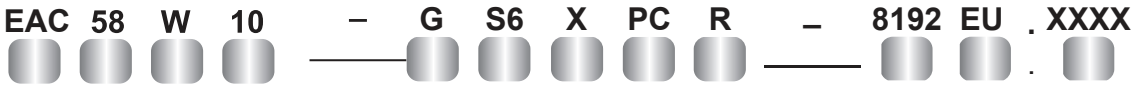
Standard Hollow Shaft Absolute Singleturn Encoder EAC58P

Order Code:



Series
EAC = standard absolute singleturn

Housing dimensions
58=housing diameter

Flange type
p=without installation accessories
H=tether arm
Q=short torque support slot
K=long torque support slot
W=double-winged stator coupling

Hollow Shaft diameter
8=Φ8mm
9=Φ9.52mm
10=Φ10mm
12=Φ12mm

Output Code
G=Gray Code
B=Binary

Interface & Supply voltage

P6=push-pill (standard positive logic)	10~30Vdc
P5=push-pill (standard positive logic)	5Vdc
S6=SSI (synchronous serial interface)	10~30Vdc
S5=SSI (synchronous serial interface)	5Vdc
C6=NPN open collector (standard negative logic)	10-30Vdc

Output logic
P=positive logic (parallel)
N=negative logic (parallel)
X= ninsense (SSI)

Types of connection
PC=12-core cable (SSI)
standard length 1.5m
T=M23, 12-pin connector (SSI)
PD=18-core cable (parallel)
standard length 1.5m
TA=M23, 17-pin connector (parallel)

Resolution
singleturn resolution
(see previous pages for reference)
Max 8192 (13 bits)-parallel
standard 8192 (13 bits)-SSI

Standard Absolute Singleturn Encoder

Outlets direction
R=radial
A=axial

XXXX=Special code
Customized cable length
CN00XX= cable length
e.g. CN0010=1m
CN0020=2m

Connector accessories
Connectors matching with "T" wiring
Ordering code: TMSP1612F
Connectors matching with "TA" wiring
Ordering code: TMSP1617F

This sample is for reference only, please subject to the actual product.
Please contact ELCO for further specification requests and requirements.

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CANopen Interface Absolute Multiturn Encoder EAM58

Description

CANopen interface absolute multiturn encoder EAM58 series is used in industry environments of special requirements. It delivers good performance in withstanding mechanical damages, and is also capable of withstanding higher axial and radial loads. Various types of flanges can be used to meet the different requirements. It complies with CANopen pertocol and has a max resolution up to 8192 and max revolution up to 4096.The resolution and revolution can be programmed according to customer requirements. Its high speed communication and anti-interference features ensure steady performance during operation.

Features

- Clamping flange
- Waterproof seal provides greater IP level
- Pre-screwed holes for the convenience of customers
- Durable stainless steel shaft Φ6/Φ10
- Direct cable output, convenient for installation and maintenance
- Cable output, convenient for installation and maintenance
- Protection class IP65
- Metal housing for better shock resistance
- Conforming to CANopen protocol

Mechanical Characteristics

Shaft diameter (mm)	Φ6g6	-58B
	Φ8g6	-58A/B/D/E
	Φ9.52(3/8")g6	-58A/D/E
	Φ10g6	-58C
Hollow shaft diameter (mm)	Φ8H7/Φ9.52H7/Φ10H7	-58/W
	Φ12H7/Φ14H7/ Φ15H7	-58/W
Protection acc. to EN 60529	IP65	
Speed	6000，continuous	
Axial load capacity	80N	
Radial load capacity	160N	
Shock resistance	50G/11ms	
Vibration resistance	10G 10~2000Hz	
Bearing life	10^9 revolution	
Rotor moment of inertia	approx.1.8×10^{-6} kgm^2	
Starting torque	<0.05Nm	
Body material	ALUNI 9002/5 -(D11S)	
Housing material	AL6060	
Flange material	ALUNI 9002/5 -(D11S)	
Operating temperature	-40°C~~+80°C	
Storage temperature	-45°C~~+85°C	
Weight	~800g -58B/C，63A/D	

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

Electrical Characteristics

Supply voltage (U_b)	10 ... 30V
Power consumption	Max 0.29A
Linearity	±1/2 LSB (12 bit)； ±1 LSB (13 bit)
Code type	Binary
Interface	CAN HIGH-Speed to ISO/DIS 11898,Basic and
	Full-CAN;CAN specification 2.0 B
Protocols	CANopen Profile DSP 406 with additional function
Baud rate	Programmable via DIP switches 10 ... 1000 Kbits/s
	CAN DNET 125/250/500 kBit/s
Basic identifier/node number	Programmable via DIP switches
Conforms to CE acc. to EN 61000-6-1， EN 61000-6-4 , EN 61000-6-3 and EN 61000-4-8	

Conforms to the international Electromagnetic Standards EN 61000-4,5 CANopen also conforms to additional properties as described in DSP406

Electrical Characteristics

The CANopen Equipment Specifications describe the functionality of the communication and of that part of the CANopen fieldbus system specific to the manufacturer.

In addition, using devices of CANopen interface offers the advantage of future-ready expandability, which includes the following functions:

Including the following functions:	Programmable parameters:
CAN-LED for Bus status	Polling mode or auto mode, direction
CAN-LED for operating mode	resolution per revolution, preset value and offset

Additional Event Mode

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CANopen Interface Absolute Multiturn Encoder EAM58

Terminal Configuration (M12)

P1:Terminal wiring(IN)

Ub	1	External power supply，10～30V
GND	2	External power supply 0V
CAN+	3	CAN+
CAN+	4	CAN-
0V	5	CAN Gnd
GND1	6	Rotational direction and external reset power supply
CLR	7	External reset signal, 10～30V, use GND1 as reference
LH	8	Freeze current signal, 10~30V, use GND1 as reference

P2:Terminal wiring(OUT)

Ub	1	External power supply，10～30V
GND	2	External power supply0V
CAN+	3	CAN+
CAN+	4	CAN-
0V	5	CAN Gnd

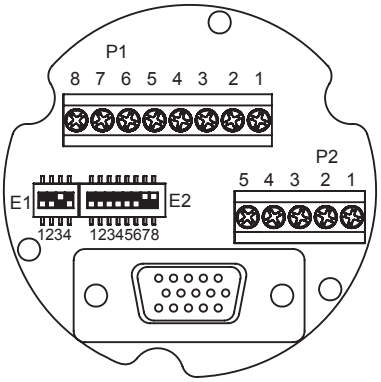
E1:Switch setting

DIP1	DIP2	DIP3	Baud rate	DIP4
0	0	0	1000Kbps	0 counter clock-wise as the default direction
1	0	0	800Kbps	1* clock-wise direction as the default direction
0	1	0	500Kbps	
1	1	0	250Kbps	
0	0	1	125Kbps*	
1	0	1	100Kbps	
0	1	1	50Kbps	
1	1	1	20Kbps	

E2:Switch setting

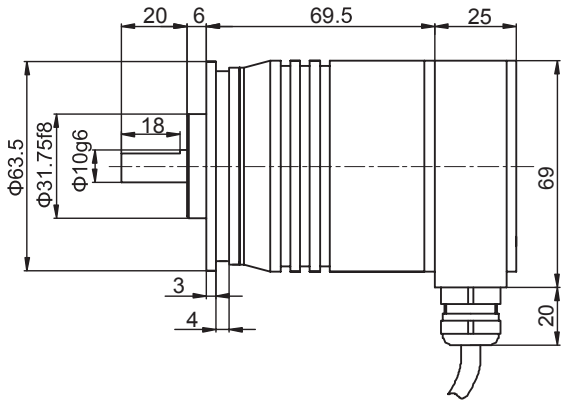
DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	Node address	DIP8
0	0	0	0	0	0	1	64*	1* terminal resistance
LSB	LSB+1	LSB+2	……	MSB-2	MSB-1	MSB		120Ω

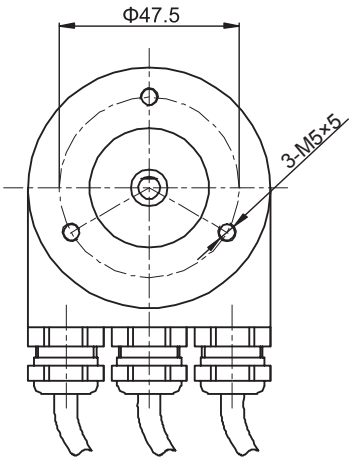
LSB：Low Significant Bit MSB:Most Significant Bit *:default



Dimensions

EAM58A





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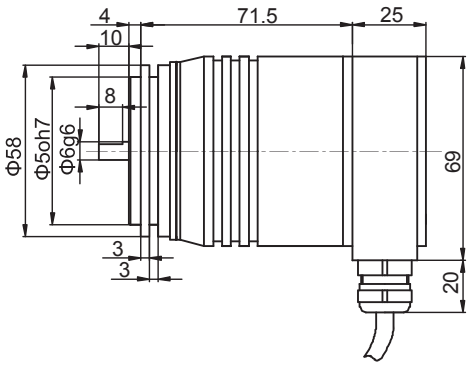
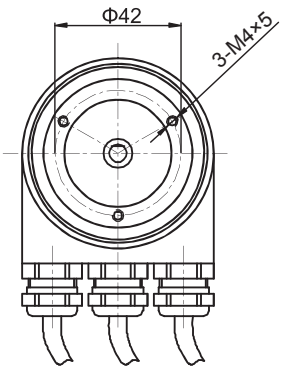
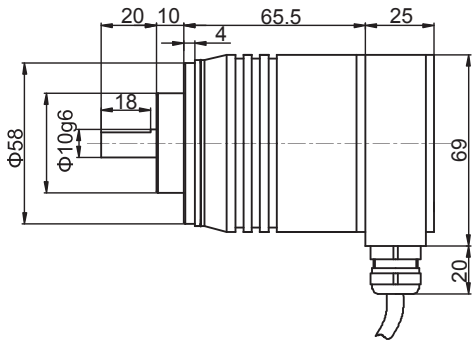
CANopen Interface Absolute Multiturn Encoder EAM58

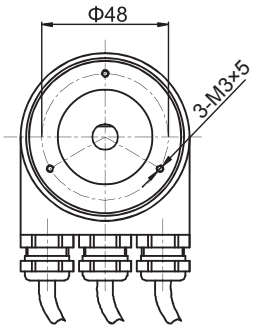
EAM58B



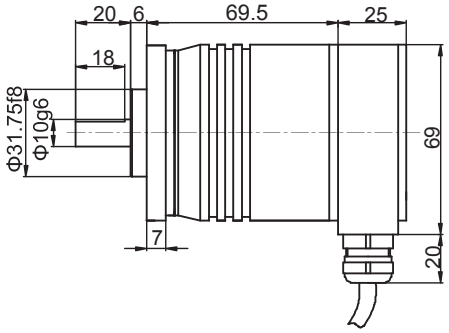


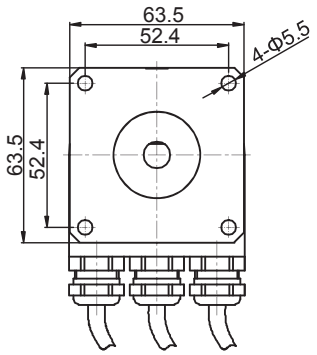
EAM58C



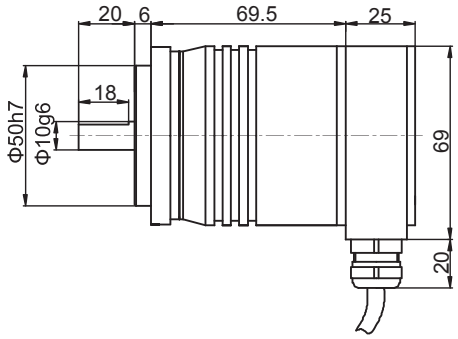


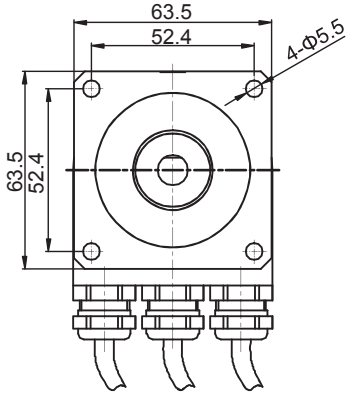
EAM58D





EAM58E





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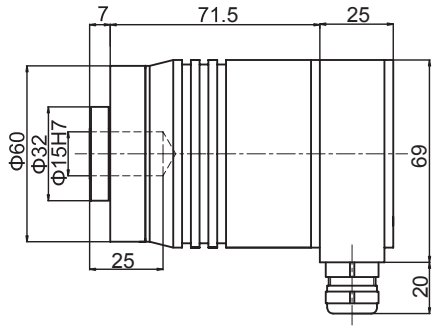
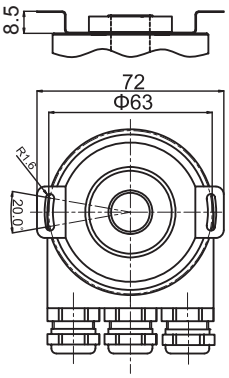
CANopen Interface Absolute Multiturn Encoder EAM58

EAM58W





Order Code:

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

CANopen Interface Absolute Encoder

Resolution
revolution/resolution
(see previous pages for reference)
standard: 4096/8192 (25 bits)

Outlets direction
R=radial

Type of connection
X=integrated coupler terminal box with 3 PG7 threaded connectors
T=integrated coupler terminal box with 3 M12 plugs

Output logic
X=nonsense

Output & Supply voltage
F6=CANopeninterface 10--30Vdc

Code type
B=Binary

Shaft diameter
6=Φ6g6mm (58B)
8=Φ8g6mm 58A/B/D/E
9=Φ9.52g6mm 58A/D/E
10=Φ10g6mm
Only for flange type 58W
8 =Φ8H7mm
9 =Φ9.52H7mm
10=Φ10H7mm
12=Φ12H7mm
14=Φ14H7mm
15=Φ15H7mm

Flange types
A=round flange
B=synchro flange, shaft length 10mm
C=Φ36clamping flange,shaft length 20mm
D=Φ63.5square flange，Φ31.75，shaft length20mm
E=Φ63.5quare flange，Φ50h7，shaft length20mm
W=shaft length，double-winged spring leaf installation

Housing diameter
58=58flange

Series
EAM=CANopen interface multiturn

Including
EDS – please see enclosed CD for documentations and operation maunal

Connect BUS-IN and BUSOUT to the encoder using a suitable terminal wiring box.

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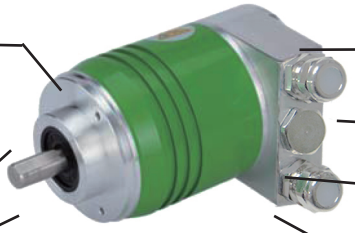
DeviceNet Absolute Multiturn Encoder EAM58

Descriptions

DeviceNet absolute multituren encoder EAM58 series is used in various industrial environment. It delivers excellent performance in withstanding mechaniclal damages. It complies with DeviceNet protocol and has a max. resolution of 8192 and max. revolution up to 4096. Its high speed communication and anti-interference function ensure steady performance during operatuion.

Features

DeviceNet®



- Pre-screwed holes, convenient for installation
- Water-proof seal, improve protection grade
- Optional shaft diameter; better load capacity thanks to stainless steel design
- Cable output, faciliate maintemance and installation
- Protection grade of IP65
- Metal housing for better shock resistance
- Comply with DeviceNet Bus protocol

Mechanical Characteristics

Shaft diameter (mm)	Φ6g6	-58B optional
	Φ8g6	-58A/B/C
	Φ9.52(3/8")g6	-58A/B/C
	Φ10g6	-58A/B/C
Hollow shaft diameter (mm)	Φ8H7/Φ9.52H7/Φ10H7	-58W
	Φ12H7/Φ14H7/ Φ15H7	-58W
Protection Grade	IP65	
Speed (r/m)	6000	
Axial load capacity	80N	
Radial load capacity	160N	
Shock resistance	50G/11ms	
Vibration resistance	10G 10~2000Hz	
Bearing life	10^9 revolution	
Moment of inertia	approx. 1.8×10^{-6} kgm^2	
Starting torque	<0.05Nm	
Housing material	AL UNI 9002/5 - (D11S)	
Cover material	AL 6060	
Flange material	AL UNI 9002/5 - (D11S)	
Operating temperature	-40°C~~+80°C	
Storage temperature	-45°C~~+85°C	
Weight	~800g	

4096 (Max. revolution) × 8192 (Max. resolution of single turn)

Electrical Characteristics

Max.revolution	4096 (12 bits)
Max revsolution/revolution	8192 (13 bits)
Supply voltage (Vdc)	10~30 Vdc
Power consumption (no load)	350mA
Bus Max. rate	500K
Linearity	+/- 1/2 LSB
Protocal	DeviceNet Profile for Encoder Release V2.0

Terminal Assignment

V+	Power supply (24VDC)
GND	Power ground (24VDC)
CG	CAN GND
CAN-	CAN Low
CAN+	CAN High
CG	CAN GND
CAN-	CAN Low
CAN+	CAN High

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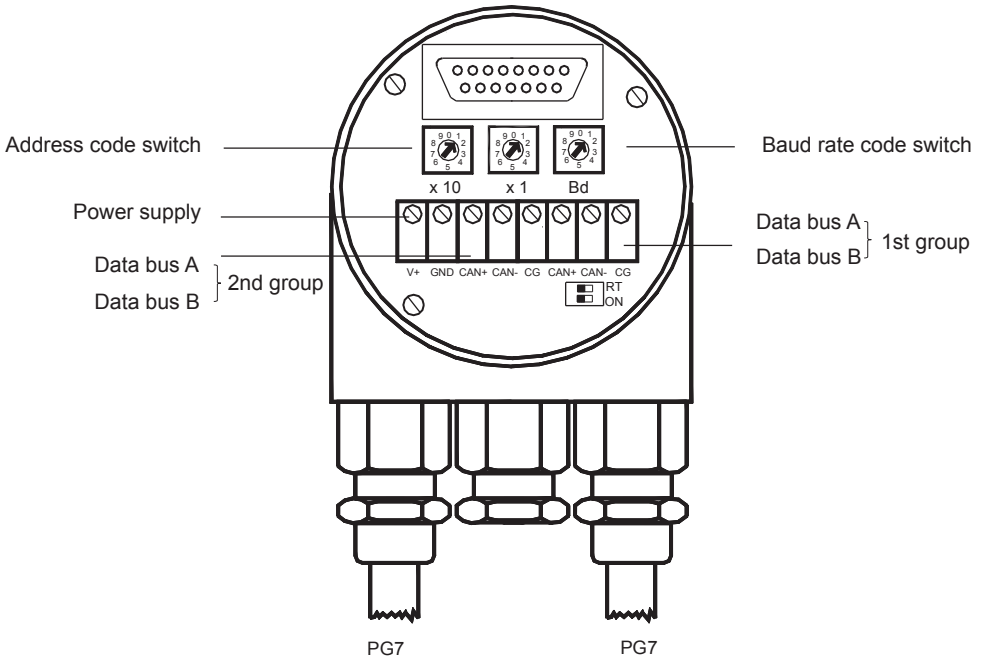
DeviceNet Absolute Multiturn Encoder EAM58

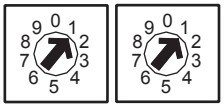


Regulate station address

The station address can be regulated by the swith and be distributed only once among the address 1 to 63.

Regulate terminal resistor

Set the terminal resistor (120 Ω) into the circuit by the DIP switch.



Regulate Baud rate

Baud rate k bit/s	Switch
125	0
250	1
500	2

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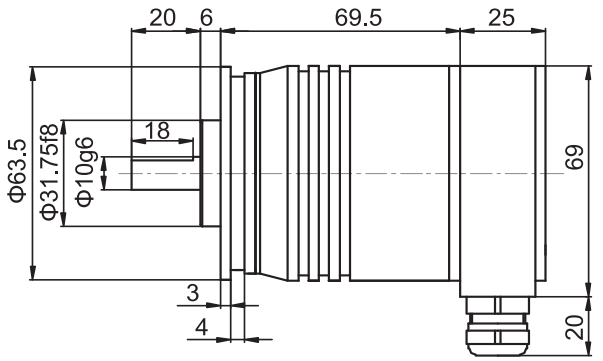
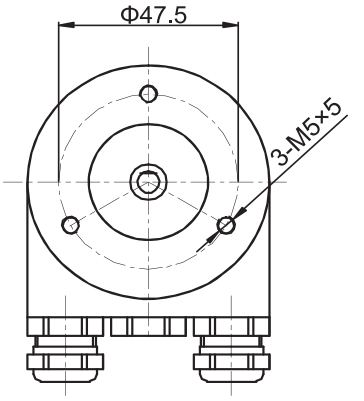
DeviceNet Absolute Multiturn Encoder EAM58

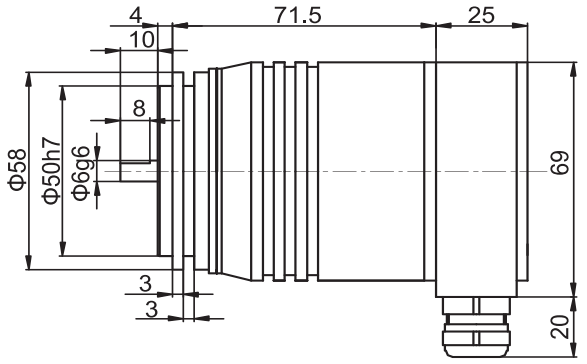
Dimensions (mm)

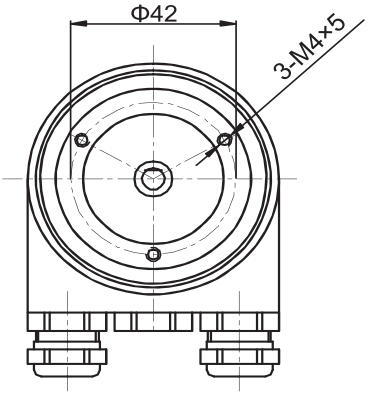
EAM58A





EAM58B





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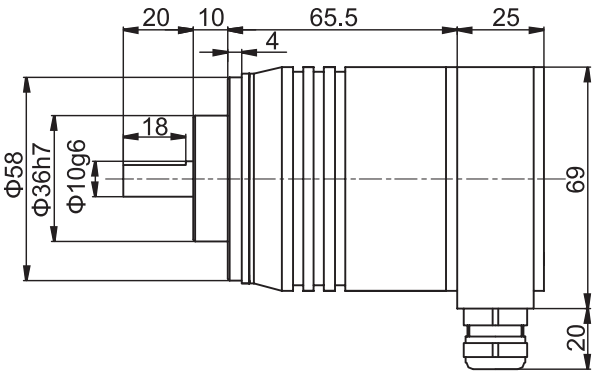
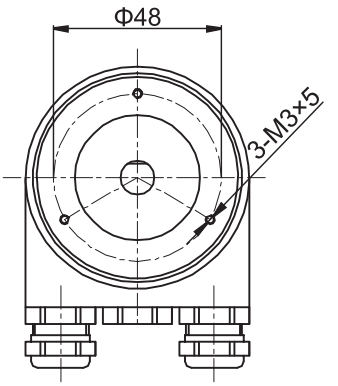
DeviceNet Absolute Multiturn Encoder EAM58

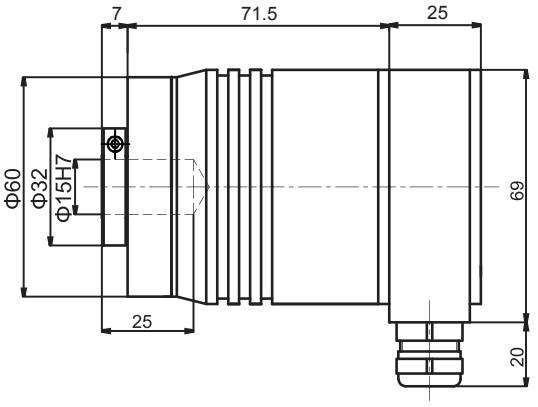
Dimensions (mm)

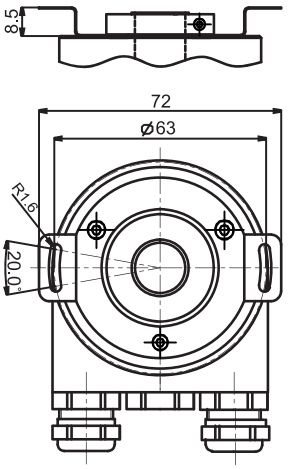
EAM58C





EAM58W





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DeviceNet Absolute Multiturn Encoder EAM58

Order Code:

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

Series
EAM=absolute multiturn DeviceNET

Housing diameter
58=Φ58

Flange types
A=round flange (58A)
B=synchro flange, shaft length 10mm
C=Φ36 clamping flange,shaft length 20mm
W=blind hollow shaft flange, installed with double-winged fixing sheet

(Hollow) Shaft diameter
6=Φ6g6mm for 58B
8=Φ8g6mm for 58A/B/C
9=Φ9.52g6mm for 58A/B/C
10=Φ10g6mm for 58A/B/C

Only applicable for the axis aperture in flange type 58 W
8 =Φ8H7mm
9 =Φ9.52H7mm
10=Φ10H7mm
12=Φ12H7mm
14=Φ14H7mm
15=Φ15H7mm

Code type
B=Binary

Interface & Supply voltage
F6=Profibus-DP interface 10~30Vdc

Output logic
X=not applicable

Type of connection
X= terminal box 2 PG7 threaded connectors and integrated T-coupler
T= integrated coupler terminal box with 3 M12 plugs

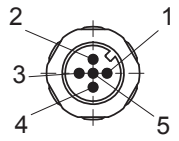
Outlets direction
R=radial

Resolution
Turns/Singleturn resolution (refer to previous pages)
Standard 4096/8192 (25 bits)

DeviceNet Absolute Encoder

M 12 terminal assignment:

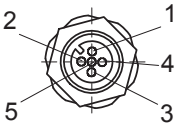
Bus in:



Signal	DRAIN	+ V DC	– V DC	CAN_H	CAN_L
Pin	1	2	3	4	5

For 5-core male plug, the order code of "T" connector is: TMSP12F-F5

Bus out:



Signal	DRAIN	+ V DC	– V DC	CAN_H	CAN_L
Pin	1	2	3	4	5

For 5-core female plug, the order code of "T" connector is: TMSP12F-M5

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Profibus-DP Interface Absolute Multiturn Encoder EAM58

Description

Profibus-DP interface absolute multiturn encoder EAM 58 series are capable of withstanding mechanical damage and higher axial and radial loads. Various types of flanges can be adapted to meet different requirements. It complies with Profibus protocol,and has the max resolution up to 8192 and the max revolution up to 4096. The resolution and revolution can be configured in accordance with customer requirements. Its high speed communication and anti-interference capabilities deliver stable operation.

Features

- Various types of flanges available
- Pre-screwed holes for the convenience of customer
- Waterproof seal provides greater IP level
- Cable output, convenient in installation and maintenance
- Protection class IP65
- Metal housing for better shock resistance
- Conforming to Profibus-DP protocol, programmable revolution and resolution

Mechanical Characteristics

Shaft diameter (mm)	Φ6g6	-(58B)
	Φ8g6	-58A/B/D/EA
	Φ9.52(3/8")g6	-58A/D/E
	Φ10g6	-58C
Hollow shaft diameter (mm)	Φ8H7/Φ9.52H7/Φ10H7	-58W
	Φ12H7/Φ14H7/ Φ15H7	-58W
Protection acc. to EN 60529	IP65	
Speed	6000，continuous	
Axial load capacity	80N	
Radial load capacity	160N	
Shock resistance	50G/11ms	
Vibration resistance	10G 10~2000Hz	
Bearing life	10^9 revolution	
Rotor moment of inertia	approx.1.8×10^{-6} kgm^2	
Starting torque	<0.05Nm	
Body material	ALUNI 9002/5 -(D11S)	
Housing material	AL6060	
Flange material	ALUNI 9002/5 -(D11S)	
Operating temperature	-40°C~~+80°C	
Storage temperature	-45°C~~+85°C	
Weight	~800g -58B/C, 63A/D/E	

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

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 Assignement

+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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Profibus-DP Interface Absolute Multiturn Encoder EAM58

Introduction

The Profibus-DP Bus multiturn absolute encoder (identification code 0x0CCA) 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”.

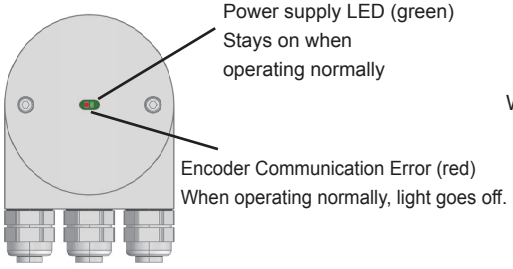
The Profibus-DP interface maintains the same maximum resolution and characteristics (8192 position/ revolution, 4096 revolution) of the stand-along version, and it also adds on the extra feature of the Profibus-DP network.

Through the Profibus-DP network, it is possible to:

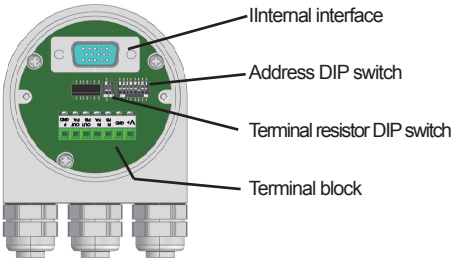
- Obtain the angular position information from the encoder during the periodic data exchange.
- Program the resolution and the revolution (refer to corresponding chapters for parameter setting).
- Change the default increment counting direction (switch between CW/CCW when configuring the parameters).
- 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.

When using the device, it is possible to:

- 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



Back of the encoder wiring box



Inside of the encoder wiring box

Installation

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

1- Add the slave onto the master (please see corresponding chapter).

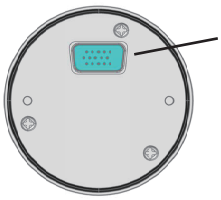
2- Wire the encoder into the Profibus network. Whether wiring it in the middle or at the terminal are depending on the physical position of the device in the bus.

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.

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. The red LED only switches off only during the periodic data exchange between the Profibus master and the encoder.

Note: To set and configure the slave into the Profibus-DP master, it is necessary to use the “gsd” file delivered with the encoder. The file can be found on the CD.

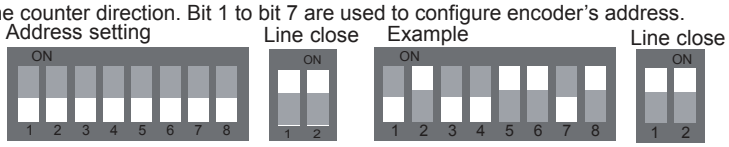


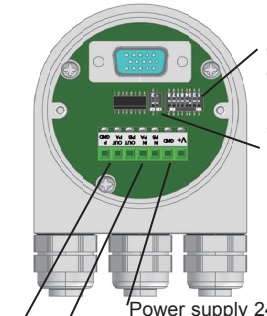
Back cover of the encoder

DIP-switches setup (configuring slave address)

Besides the address and the standard position of a terminal DIP switch, a configuration example of Profibus and the devices is illustrated below.

In this example, device’s address is set up as 1001101, with the corresponding decimal address as 77. Bit 7 is the top digit, and bit 1 is the lowest digit. Bit 8 is used for changing the counter direction. Bit 1 to bit 7 are used to configure encoder’s address.





Network Characteristics

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

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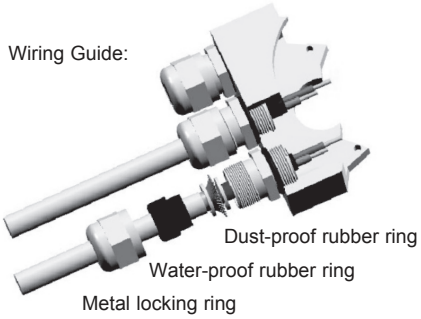
Profibus-DP Interface Absolute Multiturn Encoder EAM58

Wiring Guide:



Max. number of station participating	DP：126（Address 0-125）
in the exchange of user data	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

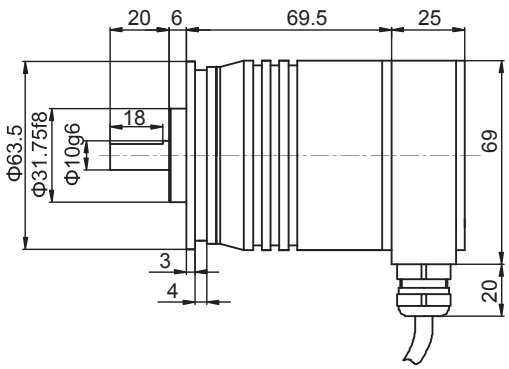
According to EN50170, a maximum of 4 repeaters are allowed between any two stations. Dependent on the repeater type and manufacturer, more than 4 repeaters may be allowed in some cases. Refer to the manufacturer's technical specification for details.

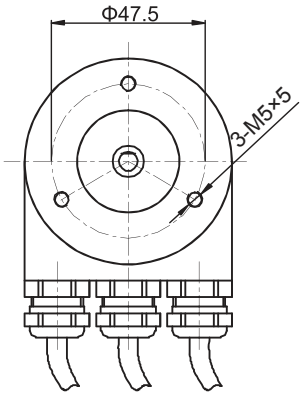
Wiring box

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

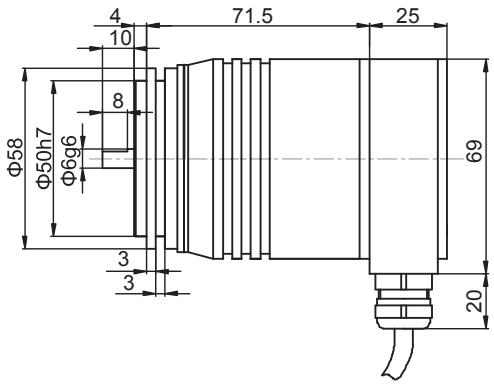
Dimensions

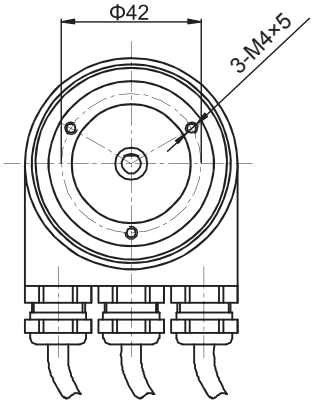
EAM58A





EAM58B





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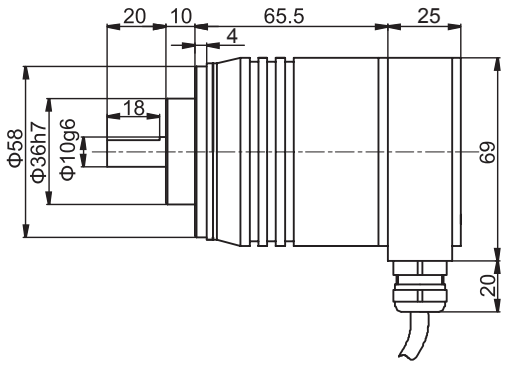
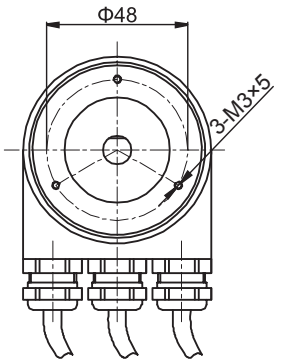
Profibus-DP Interface Absolute Multiturn Encoder EAM58

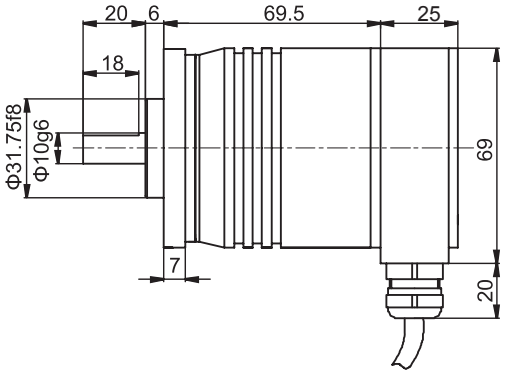
Dimensions

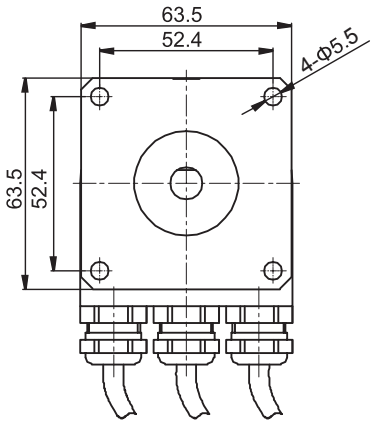
EAM58C



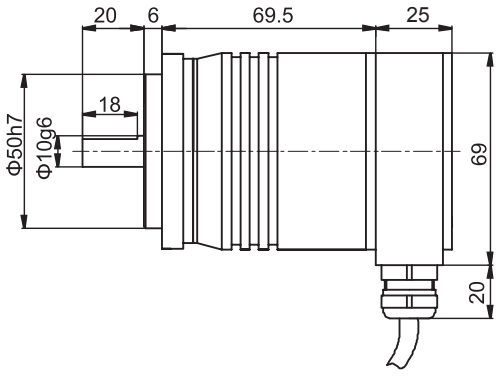


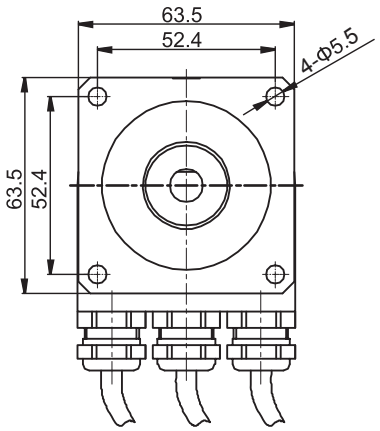
EAM58D





EAM58E





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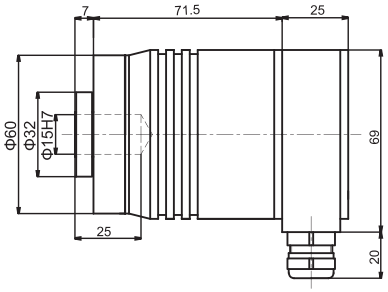
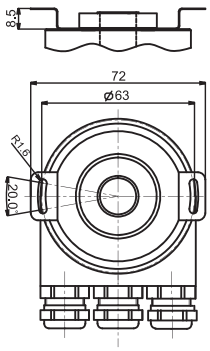
Profibus-DP Interface Absolute Multiturn Encoder EAM58

Dimensions

EAM58W





Order Code:

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

Profibus-DP Interface Absolute Encoder

Resolution
resolution (see previous pages for reference Standard 4096/8192(25 bits)

Connection direction
R=radial

Types of connection
X=integrated coupler terminal box with 3 PG7 threaded connectors
T=integrated coupler termianl box with 3 M12 plugs

Output logic
X= nonsense

Interface & Power Supply
F6=Profibus-DP interface 10~30Vdc

Code type
B=Binary

Shaft diameter
6=Φ6g6mm (58B)
8=Φ8g6mm 58A/B/D/E,
9=Φ9.52g6mm 58A/D/E,
Only applicable for axis aperture in flange type 58W
8 =Φ8H7mm
9 =Φ9.52H7mm
10=Φ10H7mm
12=Φ12H7mm
14=Φ14H7mm
15=Φ15H7mm

Flange type
A=round flange
B=synchro flange, shaft length 10mm
C=Φ36clamping flange,shaft length 20mm
D=Φ63.5square flange, Φ31.75, shaft length20mm
E=Φ63.5quare flange, Φ50h7, shaft length20mm
W=blind hollow shaft flange, double-winged spring leaf installation

Housing diameter
58=Φ58flange

Series
EAM=Profibus-DP interface absolute multiturn

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4-20mA Analog Output Absolute Multiturn Encoder EAM58

Description:

4-20mA Analog output absolute multiturn encoder EAM58 series, designed with compact structure is capable of withstanding higher axial and radial loads. European standard flanges provide great convenience in installation. The encoder can provide 16 bits and 4-20mA analog and data outputs to meet the specific interface needs of PC. Multiple configurations of resolution and number of turns are available to meet different application requirements.

Features:

- European standard flange
- Waterproof seal provides greater IP level
- Pre-screwed holes for convenience purpose
- Durable stainless steel shaft
- Metal housing for better shock resistance
- Protection class IP65
- Output cables or connectors are available for easy installation and maintenance
- 4-20mA Analog output

Mechanical Characteristics

Shaft diameter(mm)	Φ6g6/Φ8g6/Φ9g6/Φ10g6
Protection acc. to EN 60529	IP65
Speed(r/m)	6000
Max load capacity of the shaft	
Axial load capacity	80N
Radial load capacity	160N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9 revolution
Rotor moment of inertia	1.8×10^{-6} kgm^2
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-40°C~~+80°C
Storage temperature	-45°C~~+85°C
Weight	360g~750g

Resolution 256 512 1024 2048 4096 8192

others on request

Electrical Characteristics

Output circuit	4--20mA	0--10V
Supply voltage(U_b)	10--30VDC/5VDC	10--30VDC
Power consumption typ.	70mA	70mA
No load Max.	84mA	84mA
Word change frequency	Max15.000/s	Max. 15.000/s
Current loop supply voltage	10 ... 30VDC	10 ... 30VDC
Analogue signal	4 ... 20mA	0 ... 10V
Max. input resistance	200Ω	200Ω
Measuring range	Determined based on on actual resolution	Determined based on on actual resolution
Max. sensitivity（25℃）	0.2°	0.2°
Resolution	16 Bit	16 Bit
Building up time	Max. 2 ms	Max. 2 ms
Temperature coefficient	0.1°/10K	0.1°/10K
Power consumption (no load)	≤3.5 mA	≤3.5 mA
Sensors must be electrically insulated from current loop.		

Conforms to CE requirements: EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3

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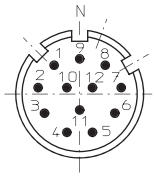
4-20mA Analog Output Absolute Multiturn Encoder EAM58

Terminal Configuration

Voltage signal	0V	+U_b	VOUT+	VOUT-	VIN+	VIN-	STZ	VR	STT	-----	-----	-----	⏚
Current Signal	0V	+U_b	----	-----	+I	-I	STZ	VR	STT	-----	-----	-----	⏚
Color	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY/PK	RD/BU	
Gray	1	2	3	4	5	6	7	8	9	10	1	12	PH

Top view of the connecting end on needle connector block

12-pin plug



+I: Input of current loop

I-: Output of current loop

0V/+U_b and VIN+/VIN-: can be powered together or seperately

VOUT+/VOUT-: voltage output VIN-/VOUT-: connected in circuit

STZ: SET input (signal level remains high for 2 sec), the output current is set to 4mA

VR: Up/down input, as the input is activated, decreasing current values are transmitted when shaft turning clockwise

STT input: SET input (signal level remains high for 2 sec), the output current is set to 20mA

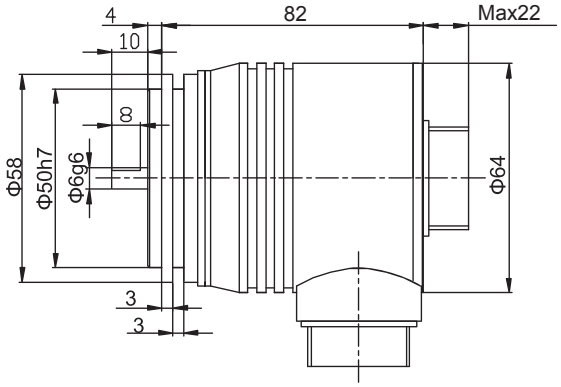
PH: Plug housing

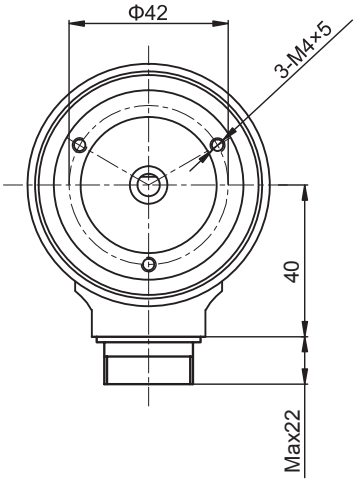
Attention: 1, Before initial start-up, unused outputs must be insulated..

2, Shaft remains static, and at the same time set STZ & STT signal at high level; singleturn resumes to 4-20mA, and the present position output is at 4mA.

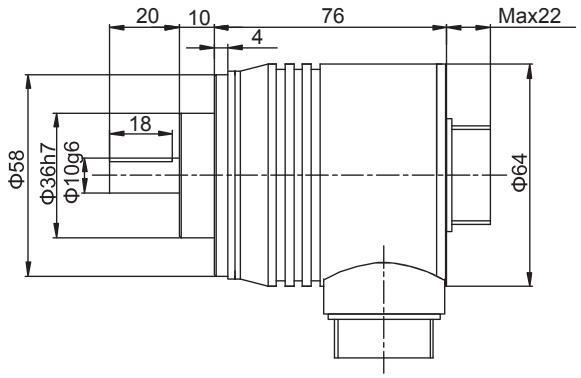
Dimensions

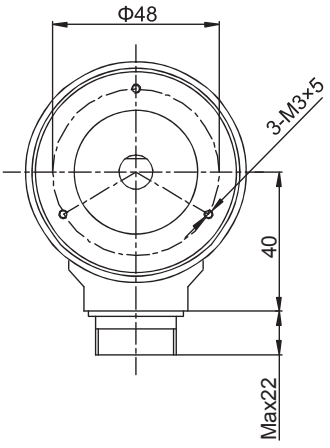
EAM58B





EAM58C





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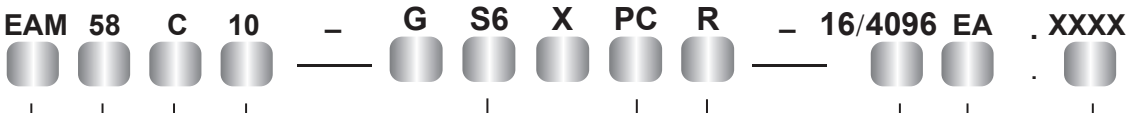
4-20mA Analog Output Absolute Multiturn Encoder EAM58

Order Code



Series
EAM=4--20mA analogue interface

Housing diameter
58=housing diameter

Flange type
B=synchro flange,shaftΦ6 length10mm
C=Φ36clamping flange, shaft length 20mm

Shaft diameter
6=Φ6mm EAS58B
10=Φ10mm

Supply voltage
S6 = 10~30Vdc
S5 = 5Vdc

Type of connection
PC=12-core cable (1.5m)
T=M23, 12-pin plug

Outlets direction
R=radial
A=axial

Resolution
Singleturn resolution Max. 8192 (13bits)
Multiturn resolution Max. 65536 (16bits)
Note: Add "D" for including resolution cable box.

EA=4~20mA
EV=0~10V

XXXX=Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

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Standard Absolute Multiiturn Encoder EAM58

Descriptions

The standard absolute multiturn encoder EAM58 series offers excellent performance to resist mechanical shocks and is capable of withstanding high axial and radial loads. Various flange types provide great convenience for installation; serial and parrallel interfaces are provided for various upper PC; optional turns, resolutions and code formats greatly facilitate customer's application.

Features

- Various types of flanges available
- Pre-screwed holes convenient to installation
- Waterproof seal provides higher IP grade
- Optional shaft diameters facilate the application
- Metal housing to resist shocks
- Protection grade of IP65
- Optional output connecting for easy use
- Varioius turns and resolutions

Mechanical Characteristics

Shaft diameter (mm)	Φ6g6/Φ8g6/Φ9g6/Φ10g6
Hollow shaft diameter (mm)	Φ8H7/Φ9.52H7/Φ10H7 -58W
	Φ12H7/Φ14H7/ Φ15H7 -58W
Protection Grade	IP65
Speed (r/m)	6000
Max. load capacity of the shaft	
Axial	80N
Radial	160N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9 revolution
Moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	Al-alloy
Housing material	Al-alloy
Operating temperature	-40°C~~+80°C
Storage temperature	-45°C~~+85°C
Weight	approx. 400g

Regular resolution:

Turns available: 2，4，8，16，32，64，128，256，512，1024，2048，4096

Optional resolution per turn：2，4，8，16，32，64，128，256，512，1024，2048，4096，8192

ST：Reset input, the current position value is saved as the new "0"position.

VR：Up/Down input, once this input is activated, the shaft will turn clockwise, and the output value will decrease gradually.

Latch：Latch input, current output value is freezed.

Electrical Characteristics

Output circuit	SSI	SSI	Parallel	Parallel
Output and driver	RS422	RS422	Push-Pull	Push-Pull
Resolution	13 Bits	13 Bits	13 Bits	13 Bits
Supply voltage (Vdc)	10-30V	5V	10-30V	5V
Power consumption (no load)	≤200mA	≤200mA	≤200mA	≤200mA
Max. load current	±20mA	±20mA	±20mA	±20mA
Max.output frequency	Max.15kHz	Max.15kHz	Max.40kHz	Max.40kHz
Signal level high	Typ.3.8V	Typ.3.8V	Min.Ub-2.8V	Min.3.4V
Signal level low	Max.0.5V	Max.0.5V	Max.2.0V	Max.0.5V
Rise time Tr	Max 100ns	Max 100ns	Max 1μs	Max 0.2μs
Fall time Tf	Max 100ns	Max 100ns	Max 1μs	Max 0.2μs

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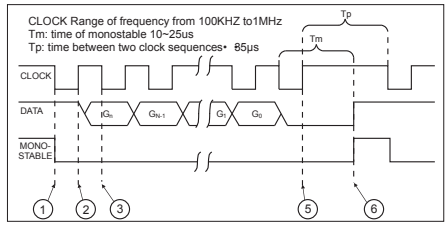
Standard Absolute Multiiturn Encoder EAM58

Terminal Assignment

SSI

Signal	0V	$+U_b$	+C	-C	+D	-D	ST *	V/R*	Latch	Shield
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	BK	⏚
12-pin	1	2	3	4	5	6	7	8	9	PH



Parallel

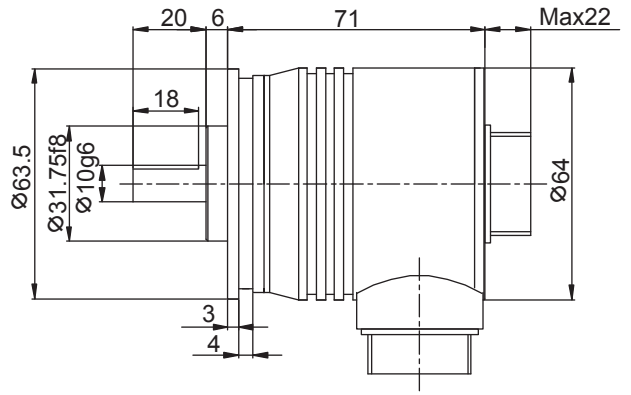
Signal	0V	$+U_b$	bit0	bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8	bit9	bit10	bit11	bit12
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	WH/GN	BN/GN	WH/YE	BN/YE	WH/GY
M32-pin	j	h	A	B	C	D	E	F	G	H	J	K	L	M	N
Gray	/	/	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13

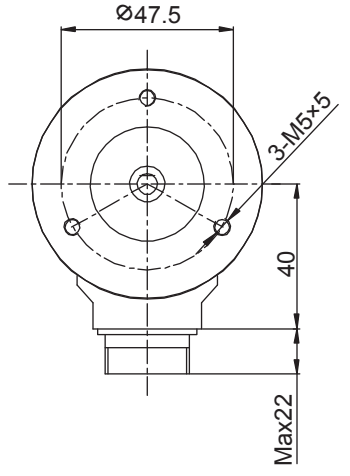
Signal	bit13	bit14	bit15	bit16	bit17	bit18	bit19	bit20	bit21	bit22	bit23	bit24	Latch	V/R*	ST
Color Code	BN/GY	WH/PK	BN/PK	WH/BU	BN/BU	WH/RD	BN/RD	WH/BK	BN/BK	GN/GY	YE/PK	GY/PK	YE/BK	RD/BU	GN/BU
M32-pin	P	R	S	T	U	V	W	X	Y	Z	a	d	e	g	f
Gray	G14	G15	G16	G17	G18	G18	G20	G21	G22	G23	G24	G25	/	/	/

Attention:
Bite definition of the parallel interface for an absolute encoder: bit0=MSB,bit1=MSB-1,bit2=MSB-2, ...

Dimensions (mm)

EAM58A





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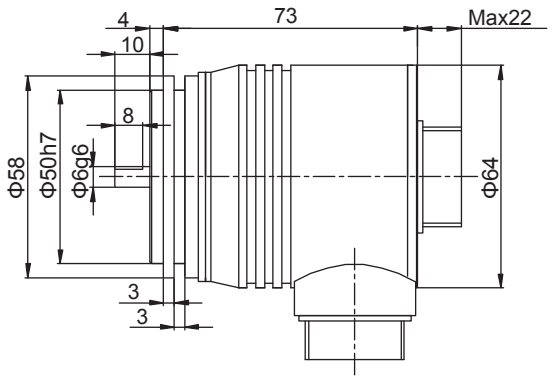
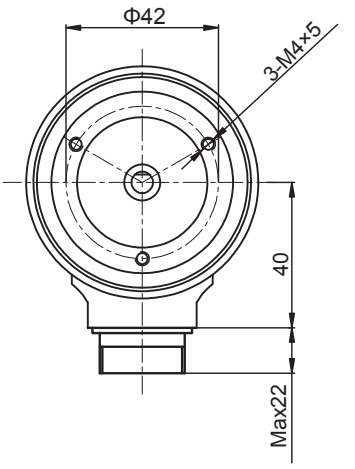
Standard Absolute Multiturn Encoder EAM58

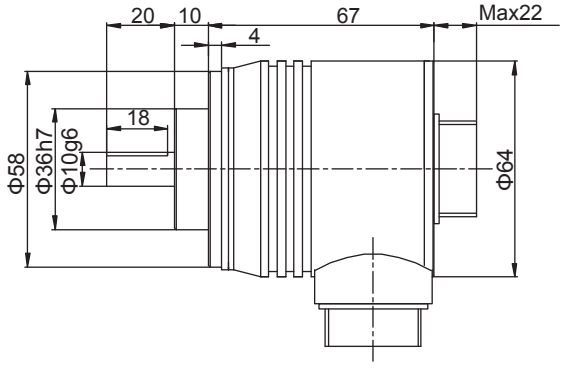
Dimensions (mm)

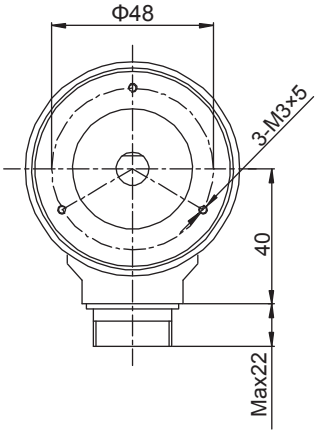
EAM58B



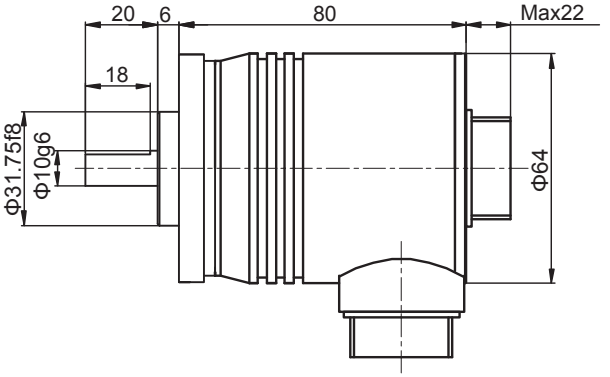


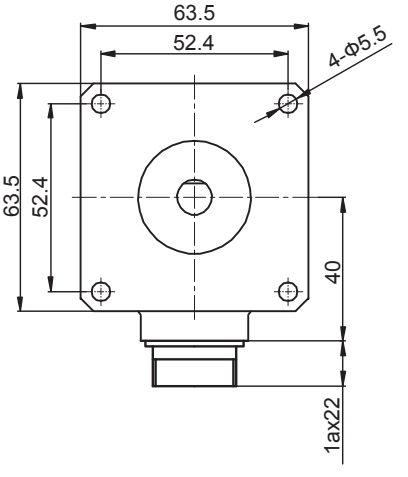
EAM58C





EAMS58D





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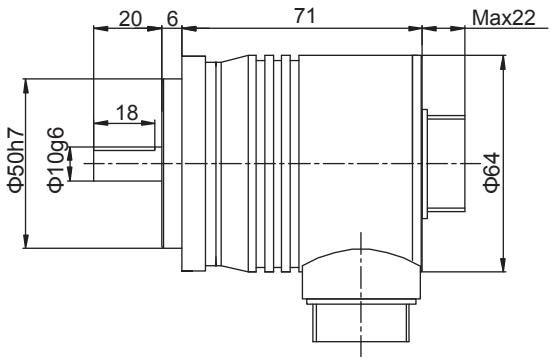
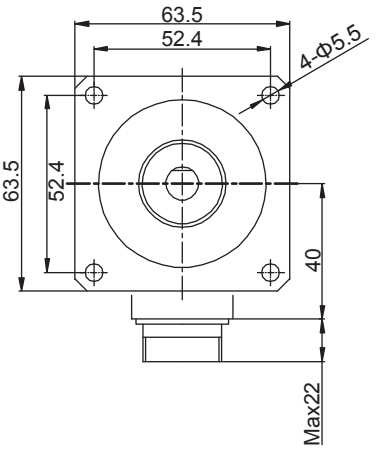
Standard Absolute Multiturn Encoder EAM58

Dimensions (mm)

EAM58E

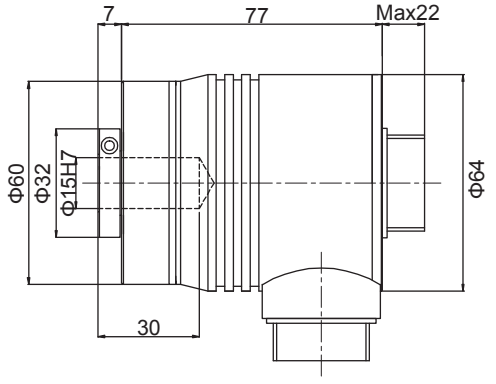


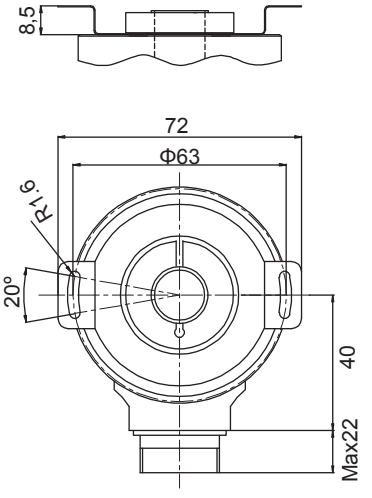


EAM58W

Matched accessory:

E41350042A/1





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Standard Absolute Multiturn Encoder EAM58

Order Code：

EAM 58 C 10 – G S6 X PC R – 4096/8192 EU . XXXX

Series
EAM＝standard absolute multiturn

Housing diameter
58=Φ58

Flange types
A=round flange
B=synchro flange, shaft length 10mm
C=Φ36 clamping flange,shaft length 20mm
D=Φ63.5 square flange，Φ31.75，shaft length20mm
E=Φ63.5square flange，Φ50，shaft length20mm
W=blind hollow shaft flange, installed with double-winged fixing sheet

(Hollow)
Shaft diameter
6=Φ6g6mm
58B
8=Φ8g6mm
58A/B/D/E
9=Φ9.52g6mm
58A/D/E
10=Φ10g6mm
Only applicable for the axis aperture in flange type 58W
8 =Φ8H7mm
9 =Φ9.52H7mm
10=Φ10H7mm
12=Φ12H7mm
14=Φ14H7mm
15=Φ15H7mm

Code type
G=Gray
B=Binary

Interface & Supply voltage

P6=push-pull with short-circuit protection (standard positive logic)	10~30Vdc
P5=push-pull with short-circuit protection (standard positive logic)	5Vdc
S6=SSI（synchro serial interface）	10~30Vdc
S5=SSI（synchro serial interface）	5Vdc

Please contact us for other requirements.

Output logic
N=negative logic (parallel)
P=positive logic (parallel)
X=not applicable (SSI)

Type of connection
PC=12-core cable (SSI), standard length 1.5m
T=M23, 12-pin plug (SSI),without matching connectors
PE=32-core cable (parallel), standard length 1.5m
MA=MS 19-pin plug
ME=MS 32-pin plug

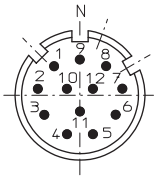
Outlets direction
R=radial
A=axial

Resolution
Turns/Singleturn resolution (refer to previous pages)
Standard 4096/8192 (25 bits)

Standard Absolute Multiturn Encoder

XXXX=Special code
Customized cable length
CN00XX= cable length
e.g. CN0010=1m
CN0020=2m

Topview of 12-pin plug



Connection accessories:
Connectors matching with connection type “T”
Order code: TMSP1612F
Connectors matching with connection type “ME”
Order code: MS32FV
Connectors matching with connection type “MA”
Order code: MS19FV

This sample is only for reference;
It’s subject to the actual products.

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ProfiNet Interface Absolute Multiturn Encoder EAM58

Desctiption

The ProfiNet Interface Absolute Multiturn Encoder EAM58 Series, has a good resistance to mechanical damage and is also capable of withstanding higher axial and radial loads. Various types of flanges can be used to meet different requirements. It complies with ProfiNet interface protocol and has a max. resolution of 8192 and a max. revolution of 4096. The resolution and revolution can be programmed according to customer requirements. The high speed communication and anti-interference features ensure steady performance during operation.

Features

- 6 Status indicators, for a fast and accurate understanding of the product status
- 3×M12 Connectors, implement a fast connection
- ProfiNet IO/RT interface with an intelligent diagnosis and high speed data transmission function
- Software configures the application of various parameters - convenient maintenance
- Faster data update, update time ≤1ms

Mechanical Characteristics

Shaft Diameter(mm)	Φ6g6	-58B
	Φ10g6	-58C
Hollow Shaft Diameter(mm)	Φ8H7/Φ10H7/Φ12H7	-58W
Degree of Protection	IP65	
Speed	6000	
Axial load capacity	40N	
Radial load capacity	80N	
Shock resistance	50G/11ms	
Vibration resistance	10G 10~2000Hz	
Bearing life	10^9 revolution	
Rotor moment of inertia	approx. 1.8×10^{-6} kgm^2	
Starting torque	<0.05Nm	
Body material	AL UNI 9002/5 -(D11S)	
Housing material	AL 6060	
Flange material	AL UNI 9002/5 -(D11S)	
Operating temperature	-40°C~~+80°C	
Storage temperature	-45°C~~+85°C	
Weight	~600g	

Electrical Characteristics

Max. number of laps	4096 (12 bits)
Max. resolution	8192 (13 bits)
Supply voltage	10~30 Vdc
Current consumption (without load)	200mA
Max. bus rate	100 Mbits/s
Linearity	12bits+/- 1/2 LSB
Interfaces	PROFINET IO/RT Class C
Encoder device protocol	V4.1 Class3

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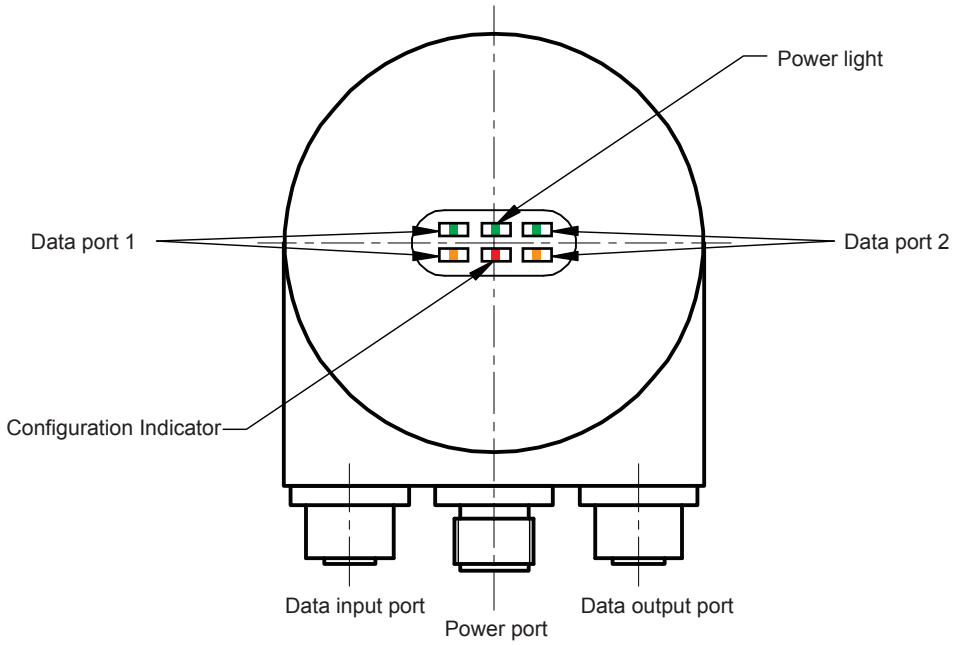
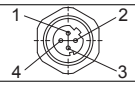
ProfiNet Interface Absolute Multiturn Encoder EAM58



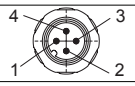
LED indicator light

Power light:	Green light for breakdown, no light for no power supply
Configuration lamp:	Red light for breakdown, no light for normal configuration
Interface 1/2:	Green/orange light for normal work, no light for not normal

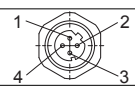
Data port 1:

Signal	T×D+	R×D+	T×D-	R×D-	
Needle number	1	2	3	4	

Data port:

Signal	+V	—	-V	—	
Needle number	1	—	3	—	

Data port 2:

Signal	T×D+	R×D+	T×D-	R×D-	
Needle number	1	2	3	4	

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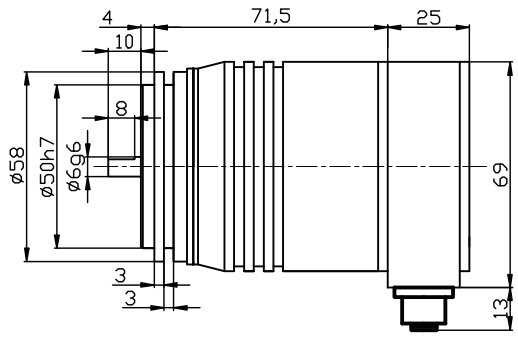
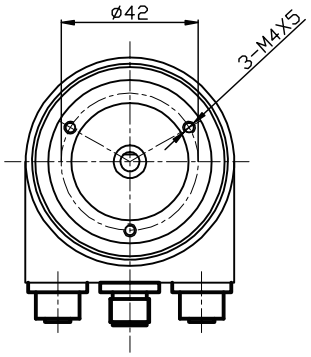
ProfiNet Interface Absolute Multiturn Encoder EAM58

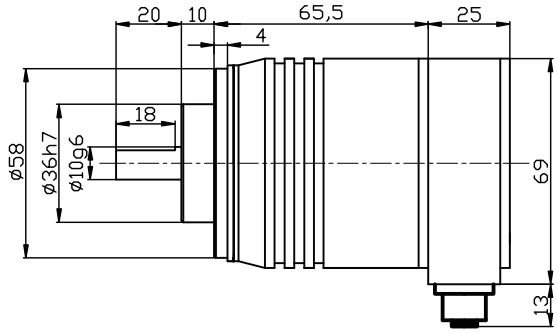
Mechanical drawing

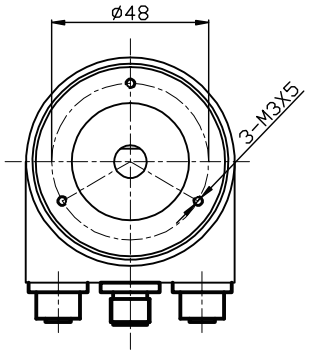
EAM58B



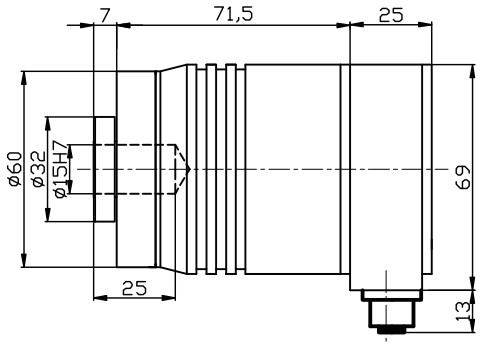


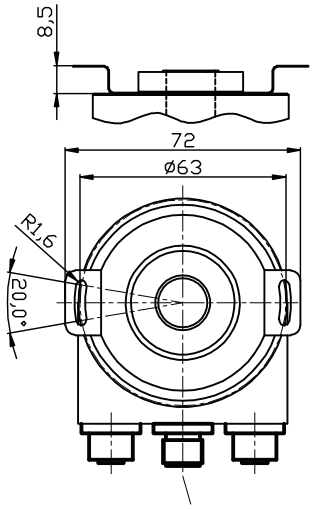
EAM58C





EAM58W





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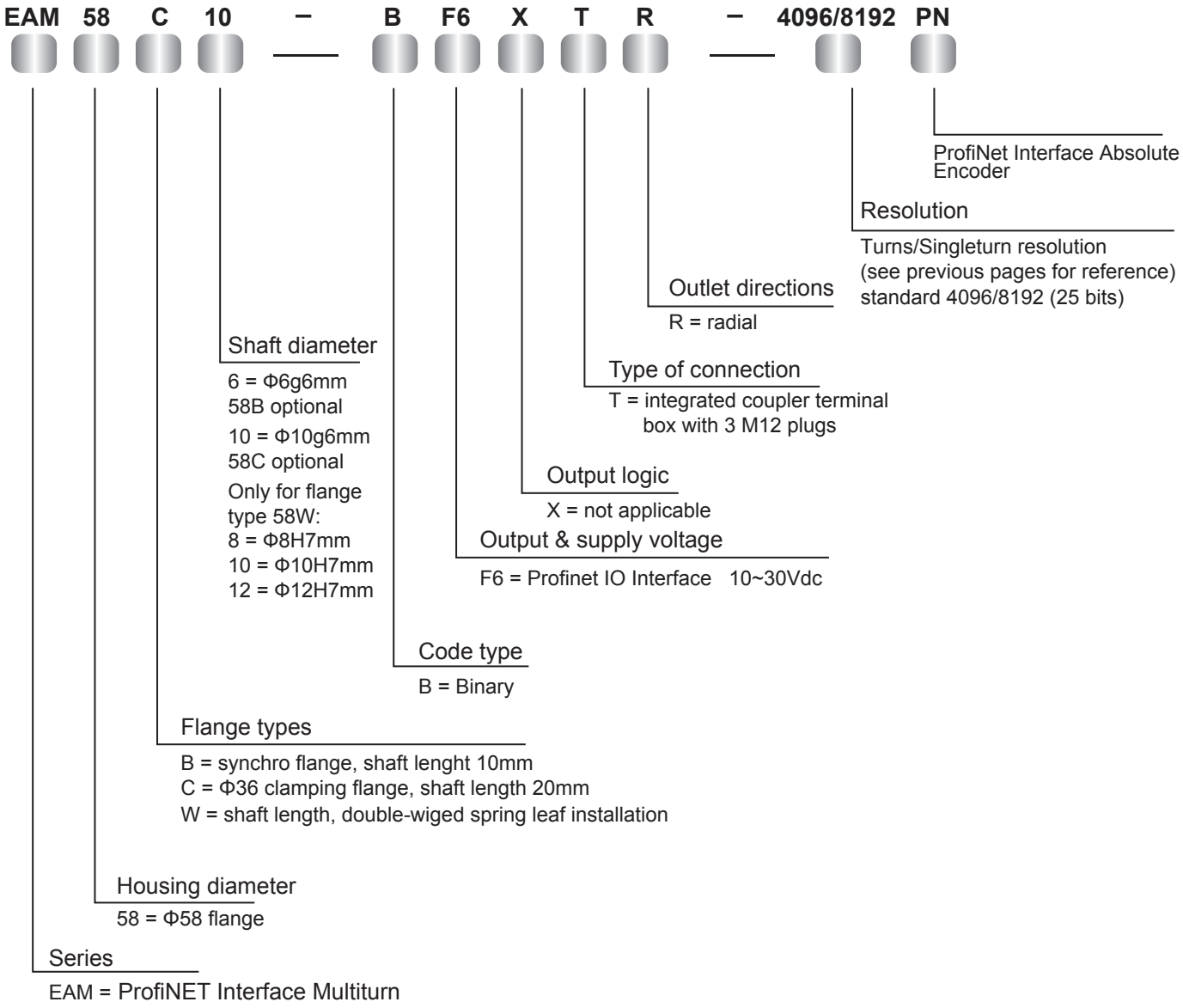
ProfiNet Interface Absolute Multiturn Encoder EAM58

Order Code:



Mating connectors code:
Power supply connector: TMSP 12F-F4
Bus input connector: ES06-52
Bus output connector: ES06-52

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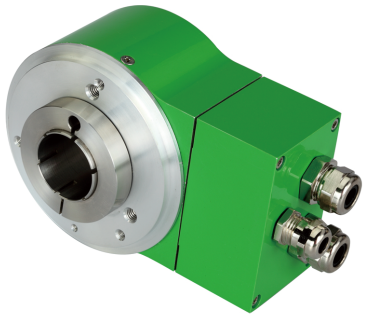
Large Hollow Shaft Profibus-DP Interface Absolute Multiturn Encoder EAM90L



Description

Profibus-DP interface absolute multiturn encoder EAM90L series delivers outstanding performance in withstanding mechanical damages higher axial and radial loads. Through-hole installations and various types of shafts diameters could meet the different requirements of customers. It complies with Profibus protocol and has a maximum resolution of 16384 and revolution of 4096. The resolution and revolution can be programmed on requests. Its high speed communication and anti-interference performance ensure a steady operation.

Features

- Waterproof seal provides greater IP level
- Various types of stainless steel shafts diameters
- Metal housing for better shock resistance
- Direct cable output, convenient for installation and maintenance
- Protection class IP65
- Conforming to the Profibus protocol
  Programmable revolution and resolution

Mechanical Characteristics

Shaft diameter(mm)	Φ12H7/Φ15H7/Φ20H7//Φ24H7/Φ28H7/ Φ(5/8)"H7/Φ1"H7/Φ12g6X30
Protection acc. to EN 60529	IP 65
Speed(r/m)	Max.6000 continuous Max.3000
Max load capacity of the shaft	
axial	40 N
radial	80 N
Shock resistance	2500 m/s^2 6ms
Vibration resistance	100 m/s^2 10~2000 Hz
Bearing life	10^9revolution
Moment of inertia	~72 x 10^{-6}kgm^2
Starting torque	hollow shaft < 0.2 Nm
	shaft < 0.05 Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20˚C ~ +80˚C
Storage temperature	-25˚C ~ +85˚C
Weight	~ 900g

Resolution
4096 (revolution) ×8192 (resolution)
4096 (revolution) ×4096 (resolution)
Revolution and resolution are programmable in PLC (see operation manual for programming steps)

Electrical Characteristics

Supply voltage(+Ub)	10~30 V DC
Power consumption	Max.0.29 A
Linearity	± 1/2 LSB (± 1 LSB 13/14 bit) $_2$
Interface	RS 485
Protocols	Profibus-DP, encoder profile class 2
Baud rate	Max. 12 Mbit/s
Address	programmable via DIP switches

Conforms to CE acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3
Conforms to EMC acc. to EN 61000-4, 5

Profibus Documentations for field bus Encoders:

Please refer to PROFIBUS-DP for detailed information, i.e. DIN 19245-3 and EN 50170, and OVERVIEW for other information.

Programmable parameters:

- Rotation Direction
- Proportional factor
  - Single turn resolution
  - Total resolution
- Preset position
- Diagnostic mode

Encoder with integrated coupler:

- Achieving current isolation through Fieldus DC/DC converter
- Including RS485 driver, max baud rate 12MB
- Configure Fieldbus address through DIP switch
- LED Diagnostic Display
- Equipped with Class1 & Class 2 functions

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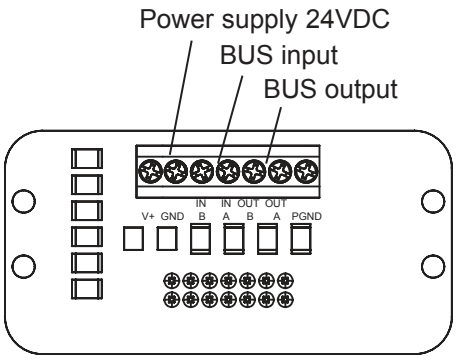
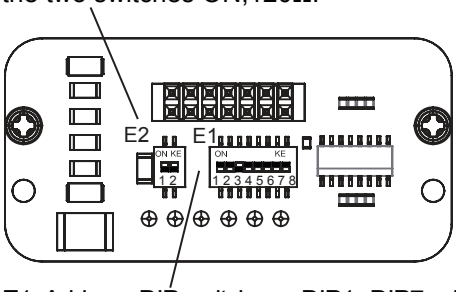
Large Hollow Shaft Profibus-DP Interface Absolute Multiturn Encoder EAM90L



Terminal wiring block of an encoder

E2: Line close DIP switch —— Default OFF DIP1-DIP2, the BUS is closed when setting the two switches ON,120Ω.



E1: Address DIP switch——DIP1- DIP7 address setting switch, binary operation, the default address is 4 as illustrated in the diagram, a maximum number of 126 addresses are acceptable in Profibus network. DIP8: CW/CCW

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)

Introduction

Profibus-DP interface absolute multiturn encoder (Identification number 0x0CCA) complies with the Profibus-DP standards as described on the European Standard EN 50170 volume 2. The encoders also conform to “Profibus Profile for Encoders, Order No. 3062”.

The Profibus-DP interface maintains the same maximum resolution (16384 position per revolution, 16384 revolutions) and the features of a stand-along unit with the bonus of the Profibus-DP network.

Through the Profibus-DP network it is able to:

- Obtain the angular position from the encoder during the periodic data exchange.
- Program the resolution and revolution (refer to corresponding chapters for parameter setup).
- Change the default incremental direction (convert between CW/CCW during parameter setup).
- Perform the Preset operation (program the encoder to read a specific position).
- Read the diagnostic status.
- Obtain info about the code came with the device.

With the device’s class, it is able to:

- TDisplay the ON/OFF status.
- Display the BUS device activity on the bus.
- Reset function
- Configure the device address.
- If required, inserting the terminal resistor into the bus.
- Change the counting direction

Installation

Installing the Profibus-DP encoder in a network requires the execution of a typical procedure necessary for configuring any Profibus-DP slave. The procedure is as follows

1- Commissioning the slave onto the master (see corresponding chapter).

2- Wiring the encoder into the Profibus network using the physical location of the device in the bus.

3- Configuring slave’s address (which must be unique in the network and the same as the device).

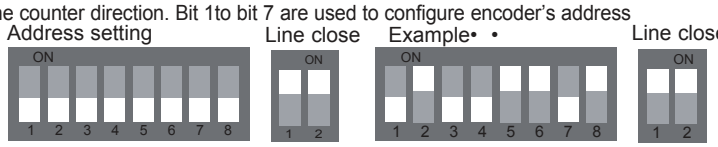
4- Preparing applications from the master and setting up the Profibus networ

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. The red LED only switches off during the periodic data exchange between the Profibus master and the encoder.

Note: To set and configure the slave into the Profibus-DP master it is necessary to use the “gsd” file delivered with the encoder. The file can be found on the CD.

DIP-switches setup (configuring slave address)

Besides the address and the standard position of a terminal DIP switch, a configuration example of Profibus and the devices is illustrated below:
In this example, device’s address is set up as 1001101, with the corresponding decimal address as 77. Bit 7 is the top digit, and bit 1 is the lowest digit Bit 8 is used for changing the counter direction. Bit 1to bit 7 are used to configure encoder’s address



Network Characteristics

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

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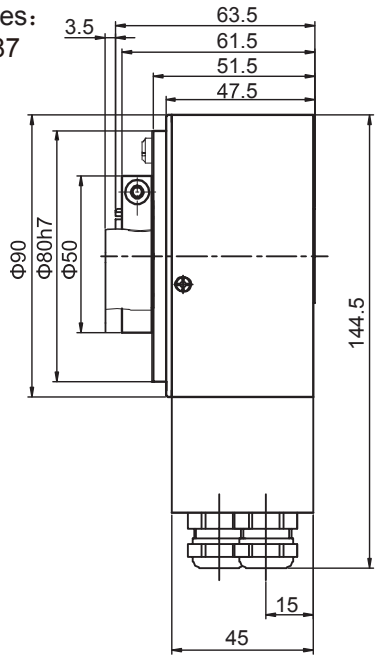
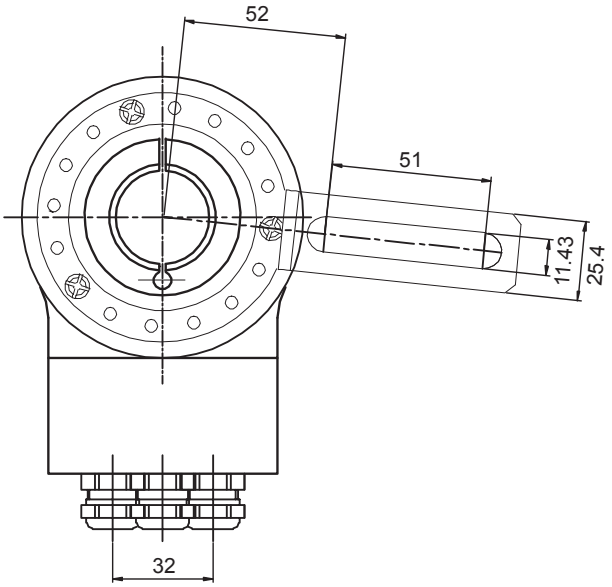
Large Hollow Shaft Profibus-DP Interface Absolute Multiturn Encoder EAM90L

Dimensions(mm)

EAM90L
Accessories：
E41350087





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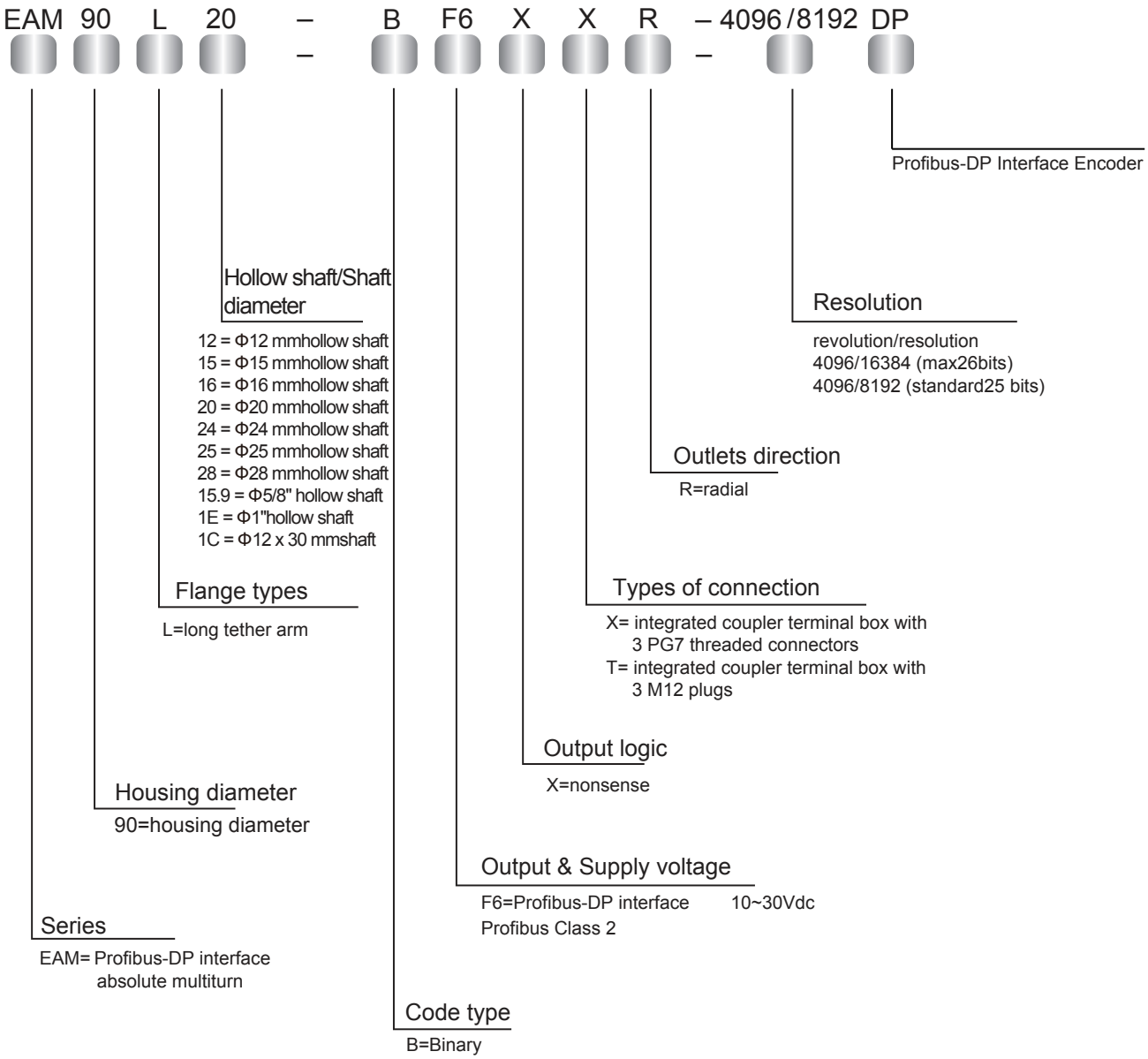
Order Code



Accessories
Installation accessories
Various types of connection

Please see the enclosed CD for GSD documents and operation manual.

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Large Hollow Shaft Absolute Multiturn Encoder EAM90L

Description

Large hollow shaft absolute multiturn encoder EAM90L series delivers good performance in withstanding mechanical damages and higher axial and radial loads. Its unique hollow shaft structure, various types of shafts diameters are available for different applications. It is equipped with resolution up to 16384 (14 bit) and the RESET function.

Features

- Gray or Binary available
- Space-saver hollow shaft design, “C” ring lock
- Durable stainless steel shaft Φ12~Φ28mm
- Waterproof seal provides greater IP level
- Metal housing can withstand higher axial and radial loads.
- Resolution up to 16384
- Protection class IP65
  Equipped with short-circuit and reverse connection protection
- Output cables or connectors are available for easy maintenance

Mechanical Characteristics

Shaft diameter (mm)	Φ12H7/Φ15H7/Φ20H7/Φ24H7/Φ28H7/ Φ(5/8)"H7/Φ1"H7/Φ12g6X30
Protection acc. to EN 60529	IP65
Speed (r/m)	6000
Max load capacity of the shaft	
axial	40N
radial	80N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.1Nm max
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weigh	600g

Available conventional resolution:
Resolution per turn:
1024，2048，4096，8192，16384
Number of turns:
1024，2048，4096，8192

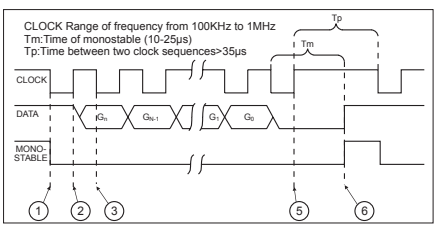
Electrical Characteristics

Output circuit	SSI
Output driver	RS422
Resolution	14 Bits
Supply voltage (Vdc)	10-30V
Power consumption (no load)	≤200mA
Permissible load (channel)	±20mA
Pulse of frequency	Max. 1MHz
Signal level high	Typ. 3.8V
Signal level low	Max. 0.5V
Rise timeTr	Max 100ns
Fall timeTf	Max 100ns

Terminal Configuration

SSI Wiring Guide

Signal	0V	+Ub	+C	-C	+D	-D	ST*	VR*	⏚
Color	WH	BN	GN	YE	GY	PK	BU	RD	
12-pin	1	2	3	4	5	6	7	8	PH



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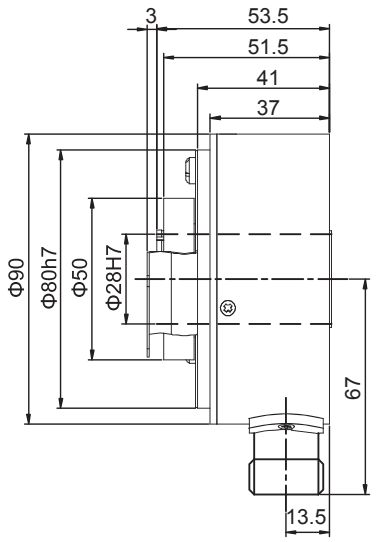
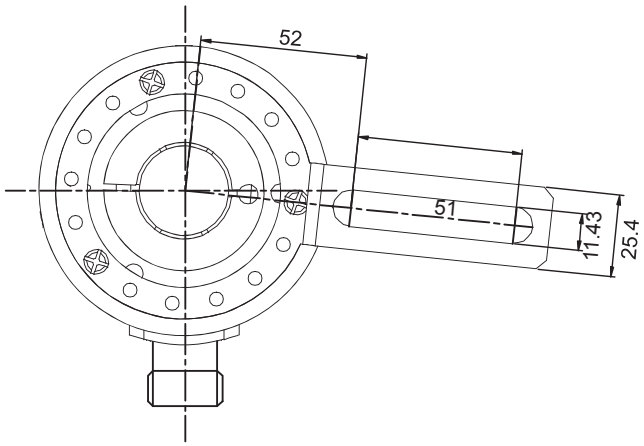
Large Hollow Shaft Absolute Multiturn Encoder EAM90L

Dimensions

EAM90L
Accessories
E41350087





Order Code

EAM 90 P 20 – G S4 X PC R – 4096/8192 SS . XXXX

Series
EAM=standard absolute multiturn

Housing diameter
90= housing dimension

Flange type
L=long tether arm

Shaft/ Hollow shaft diameter
12 = Φ12mmmmhollow shaft
15 = Φ15mmmmhollow shaft
20 = Φ20mmmmhollow shaft
24 = Φ24mmmmhollow shaft
28 = Φ28mmmmhollow shaft
15.9 = Φ5/8"mmmmhollow shaft

Code type
G=Gray
B=Binary

Interface and Power Supply
S4=SSI(synchro serial interface) 5~30Vdc

Output logic
X= N/A (SSI)

Types of connection
PC=12-core cable (SSI)
standard length 1.5m
T=M23, 12-pin connector (SSI)

Outlets direction
R=radial

Resolution
resolution max. 16384 (14 bits)
revolution 4096 (12 bits)

Large Hollow Shaft Absolute Encoder

XXXX=Special code
Customized cable length
CN00XX= cable length
e.g. CN0010=1m
CN0020=2m

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Easydic Series Shaft Incremental Encoder EV28

Description

Small economical shaft encoder EV28 is widely used in light industries where space for sensor installation is a concern. The resolution is up to 600,and with its small size, light weight, and high precision,if fully meets the controlling requirements of the modern light industries. With the different shaft lengths available, the product can be use d in a wide variety of industrial environments. It's one of the most recommended choices when in consideration of performance and cost.

Features

- Flexible coupling connection avoids damage to the encoder
- Stainless steel shaft Φ4、Φ5 ensures high stability and protection
- Metal housing for better shock resistance
- Protection class IP50
- Reverse connection protection
- Short circuit protection
- Cable output, waterproof rubber end

Mechanical Characteristics

Shaft diameter（mm）	Φ4/Φ5g6
Protection acc. to EN 60529	IP50
Speed	6000, continuous
Max load capacity of the shaft	5Naxial，10Nradial
Shock resistance	30G/11ms
Vibration resistance	6G 10~2000HZ
Bearing life	10^9 revolution
Moment of inertia	approx.0.7×10^{-6} kgm^2
Starting torque	<0.01Nm
Body material	AL-alloy UNI9002-5
Housing material	AL-alloy UNI9002-5
Operating temperature	-20~+80°C
Storage temperature	-30~+85°C
Weight	100g

Resolution:
50,100,200,300,360,500,600

Electrical Characteristics

Output circuit	Push-pull	RS422	RS422
Resolution	Max. 600ppr	Max. 600ppr	Max. 600ppr
Supply voltage(VDC)	10-30V/5-30V	5V	10-30V
Power consumption (no load)	≤125mA	≤80mA	≤80mA
Permissible load (channel)	±80mA	±50mA	±50mA
Pulse frequency	Max. 300kHz	Max. 300kHz	Max. 300kHz
Signal level high	Min.Ub-1.5V	Min.3.4V	Min.3.4V
Signal level low	Max.0.8V	Max.0.4V	Max.0.4V
Rise time Tr	Max 1μs	Max 200ns	Max 200ns
Fall time Tr	Max 1μs	Max 200ns	Max 200ns

Terminal Assignment

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	⏚

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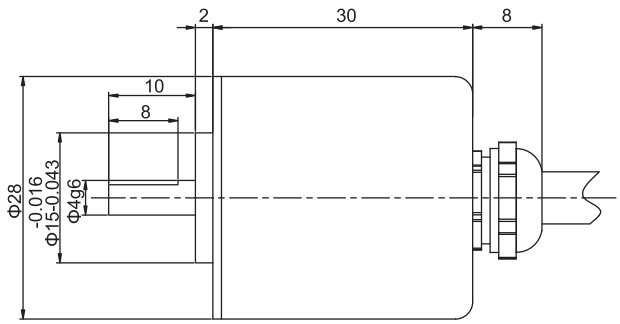
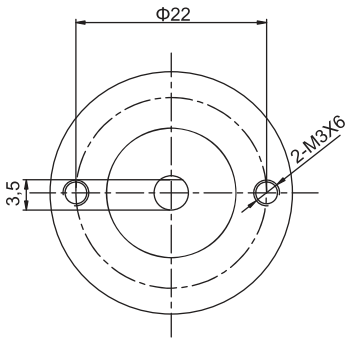
Easydic Series Shaft Incremental Encoder EV28

Dimensions

EV28





Order Code

EV 28 A 4 – L5 P A – 500 . XXXX

Series
EV＝Topydic incremental

Housing diameter
28=housing diameter

Shaft diameter
A=Φ 15 mm clamping flange

Shaft diameter
4=Φ 4 mm
5=Φ 5 mm

Encoder Output & Power Supply [1)]

L5=RS422	5Vdc
L6=RS422	10~30Vdc
H6=Push-pull HTL（with reverse sign）	10~30Vdc
P6=Push-pull HTL（without reverse sign）	10~30Vdc

Please refer to output circuit structure and wiring for output configuration

Standard cable length
P= 0.5m

Outlets direction
A=axial

Resolution
Pulse/r ≤600
Note: for available pulse options please contact the company for further information

XXXX=Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0015=1.5m
CN0020=2m

1)When UB=5V,short-circuit to channel, 0V,or+UB is permitted;
When UB is greater than 5V, short-circuit to channel or 0V is permitted

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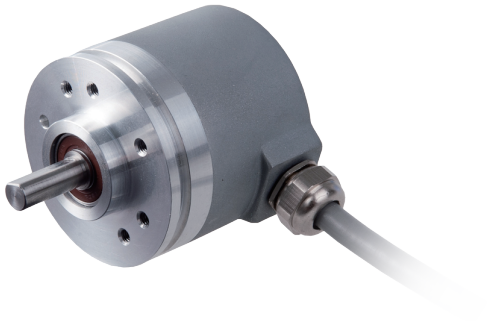
Topydic Small Shaft Incremental Encoder EV40A



Descriptions

Topydic series small shaft incremental encoder-EV40A delivers oustanding performance in mechanical shock-resistance and is capable of withstanding higher axial and radial loads so as to meet variousindustrial environments. Its special position of cabling fits to the limited installation sapce. Combining advanced signal processing technology with multiple types of electrical output, EV40A are capable of matching various upper control computers.

Features

- Stainless steel shaft ensures safety and stability in operation
- Optional types of flange connection offers more flexibility
- Metal casting housing for greater shock resistance
- Side cabling design greatly saves the installation space and simplifies wiring
- Rerverse connection protection; short circuit protection

Mechanical Characteristics

Shaft diameter (mm)	Φ6g6
Protection grade	IP66 standard, IP67 optional
Max. speed/minute	6000
Max. load capacity of the shaft	60N axial
	100N radial
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000HZ
Bearing life	10^9 revolution
Moment of inertia	1.9×10^{-6} kgm^2
Starting torque	<0.08Nm
Body material	Al-alloy
Housing material	Zn-alloy
Operating temperature	-20~+85°C
Storage temperature	-25~+100°C
Weight	110g

Regular resolution: **10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 360, 400, 500, 512, 600, 800, 1000, 1024,** 2000, 4000, 2500, 5000, 2048

Note: Bold part is normally in stock. Other resolution are available only upon request.

Electrical Characteristics

Output circuit	RS422	Push-pull
Resolution	Max.5000ppr	Max.5000ppr
Supply voltage(VDC)	5±0.25 or 10-30	10-30
Power consumption(no load)	≤80mA	≤125mA
Permissible load(channel)	±50mA	±80mA
Pulse frequency	Max.800kHz	Max. 800kHz
Signal level high	Min. 3.4V	Min.Ub-1.8
Signal level low	Max. 0.4V	Max. 2.0V
Rise time Tr	Max. 200ns	Max 1μs
Fall time Tf	Max. 200ns	Max 1μs

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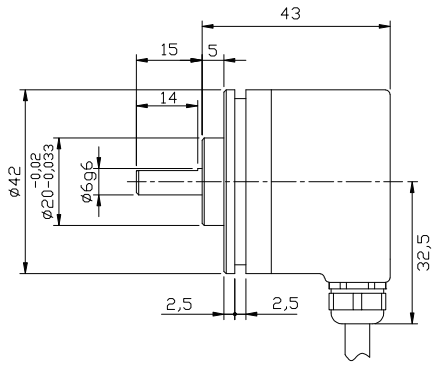
Topydic Small Shaft Incremental Encoder EV40A

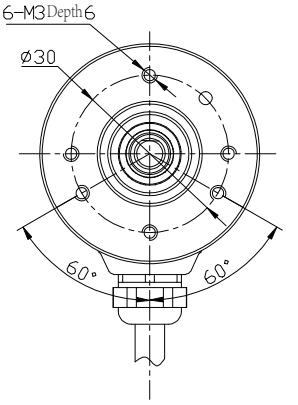
Terminal Configuration

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	GY/PK	RD/BU	⏚
Pin	10	12	5	6	8	1	3	4	11	2	PH

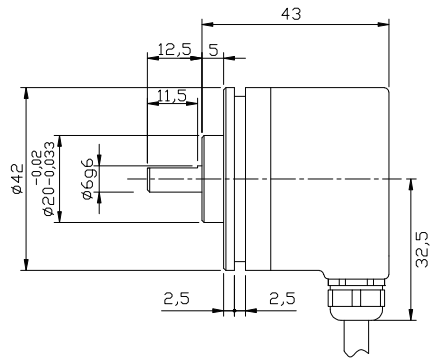
Dimensions

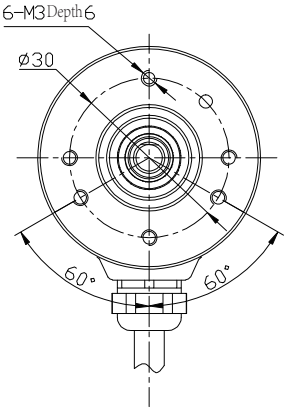
EV40A





EV40B





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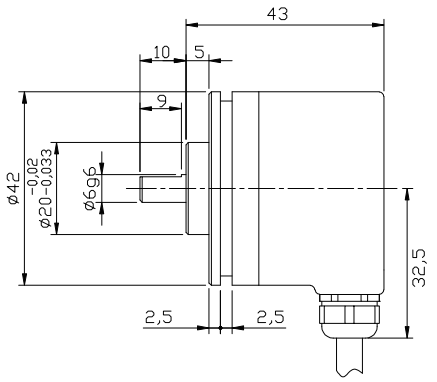
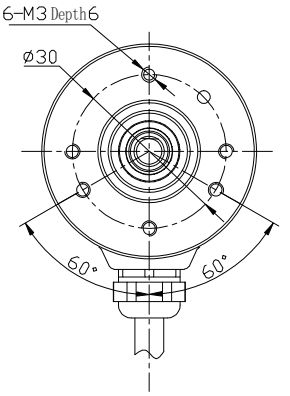
Topydic Small Shaft Incremental Encoder EV40A

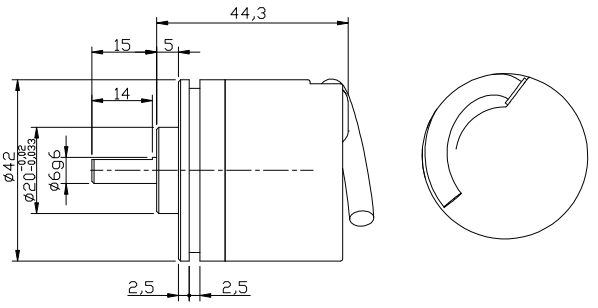
Dimensions

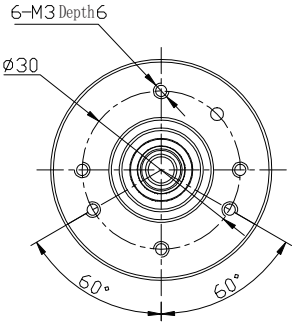
EV40C





EV40A side pre-wired cable





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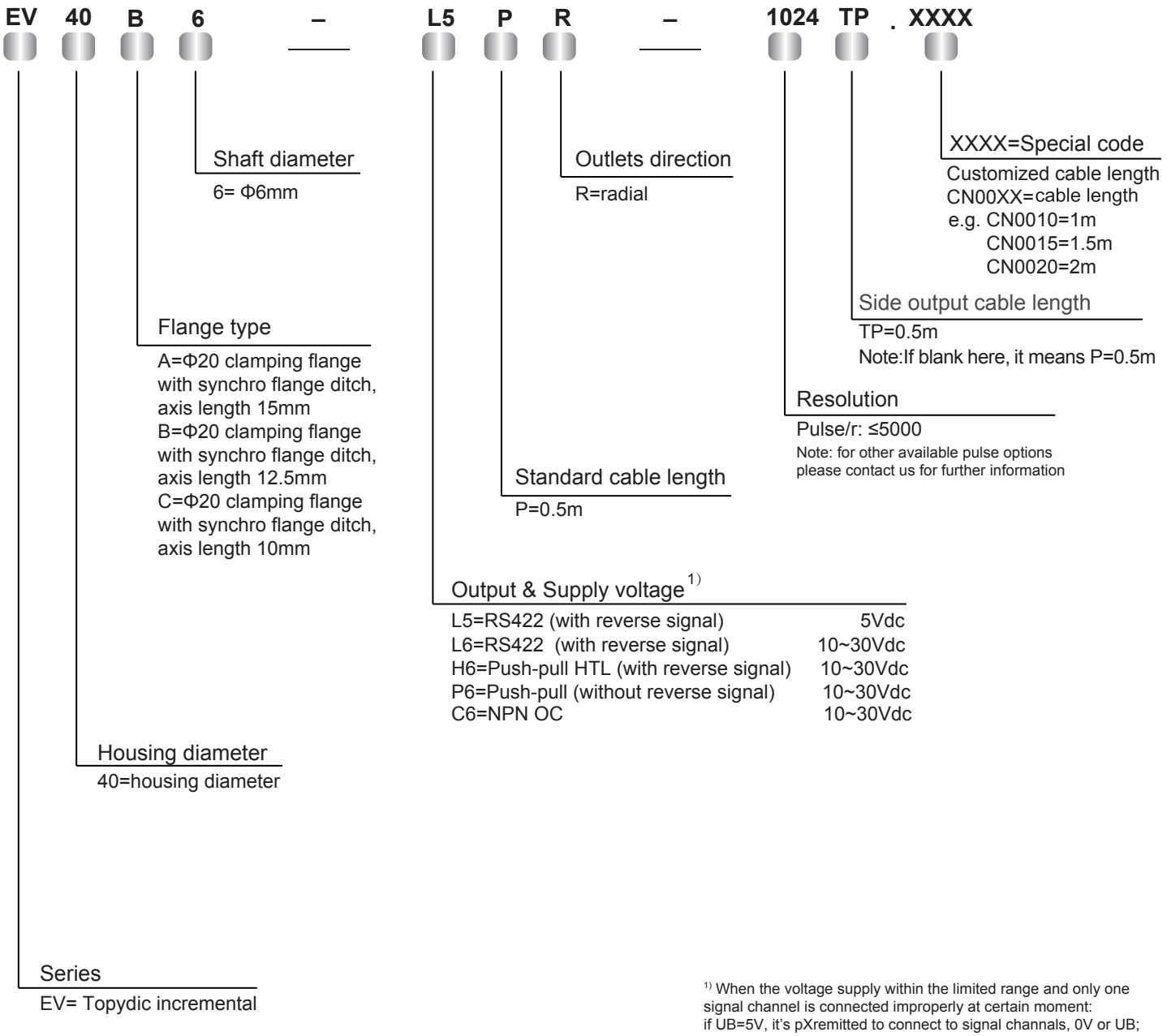
Topydic Small Shaft Incremental Encoder EV40A

Order Code:



1) When the voltage supply within the limited range and only one signal channel is connected improperly at certain moment:
if UB=5V, it's pXremitted to connect to signal channals, 0V or UB;
if UB＞5V, it's premitted to connect to signal channals or 0V.

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Topydic Small Hollow Shaft Incremental Encoder EV40P

Descriptions

Topydic series small shaft incremental encoder-EV40P delivers oustanding performance in mechanical shock-resistance and is capable of withstanding higher axial and radial loads so as to meet variousindustrial environments. Its special position of cabling fits to the limited installation sapce. Combining advanced signal processing technology with multiple types of electrical output, EV40P are capable of matching various upper control computers.

Features

- Stainless steel shaft ensures safety and stability in operation
- Optional types of flange connection offers more flexibility
- Metal casting housing for greater shock resistance
- Side cabling design greatly saves the installation space and simplifies wiring
- Rerverse connection protection; short circuit protection

Mechanical Characteristics

Shaft diameter (mm)	Φ6H7/Φ8H7
Protection grade	IP66 standard, IP67 optional
Max. speed/minute	6000
Max. load capacity of the shaft	60N axial
	100N radial
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000HZ
Bearing life	10^9 revolution
Moment of inertia	1.9×10^{-6} kgm^2
Starting torque	<0.08Nm
Body material	Al-alloy
Housing material	Zn-alloy
Operating temperature	-20~+85°C
Storage temperature	-25~+100°C
Weight	110g

Regular resolution: **10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1250,** 2000, **2500,** 4000, 5000

Note: Bold part is normally in stock. Other resolution are available only upon request.

Electrical Characteristics

Output circuit	RS422	Push-pull
Resolution	Max.5000ppr	Max.5000ppr
Supply voltage(VDC)	5±0.25 or 10-30	10-30
Power consumption(no load)	≤80mA	≤125mA
Permissible load(channel)	±50mA	±80mA
Pulse frequency	Max.800kHz	Max. 800kHz
Signal level high	Min. 3.4V	Min.Ub-1.8
Signal level low	Max. 0.4V	Max. 2.0V
Rise time Tr	Max. 200ns	Max.1μs
Fall time Tf	Max. 200ns	Max.1μs

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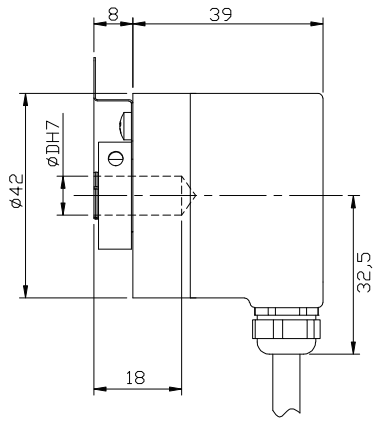
Topydic Small Hollow Shaft Incremental Encoder EV40P

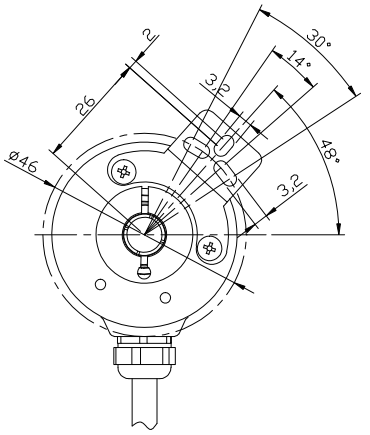
Terminal Configuration

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	GY/PK	RD/BU	⏚
Pin	10	12	5	6	8	1	3	4	11	2	PH

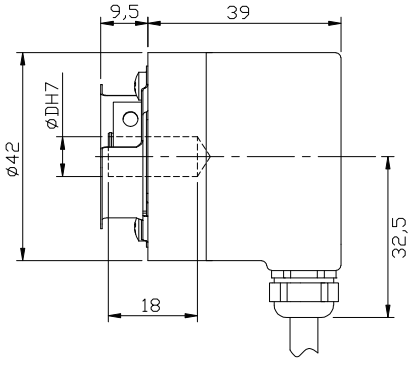
Dimensions

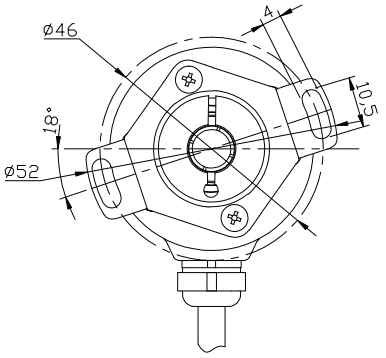
EV40P





EV40W





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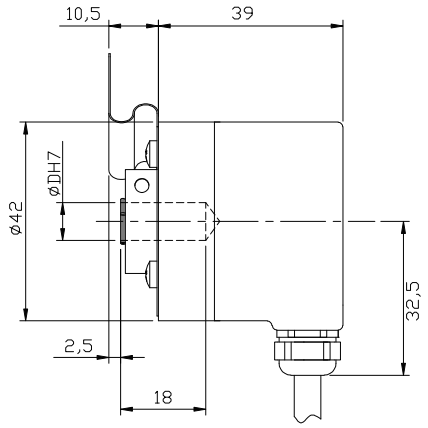
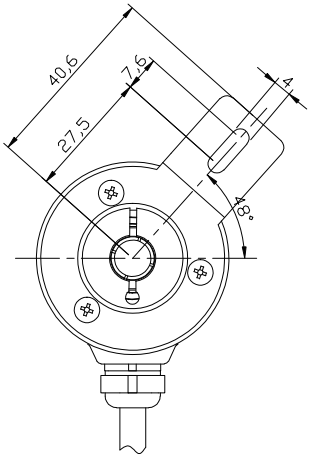
Topydic Small Hollow Shaft Incremental Encoder EV40P

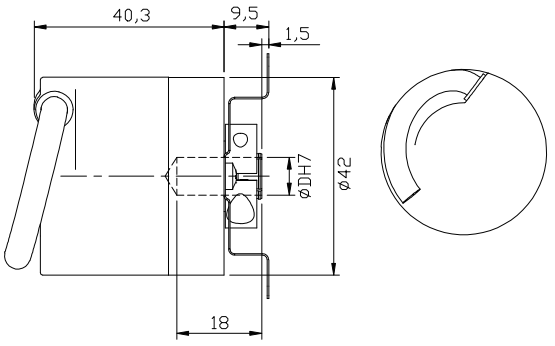
Dimensions

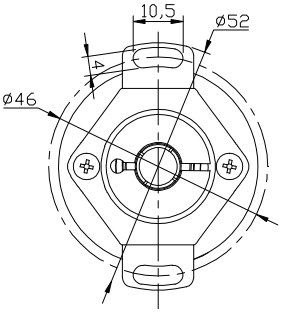
EV40H





EV40W side pre-wired cable





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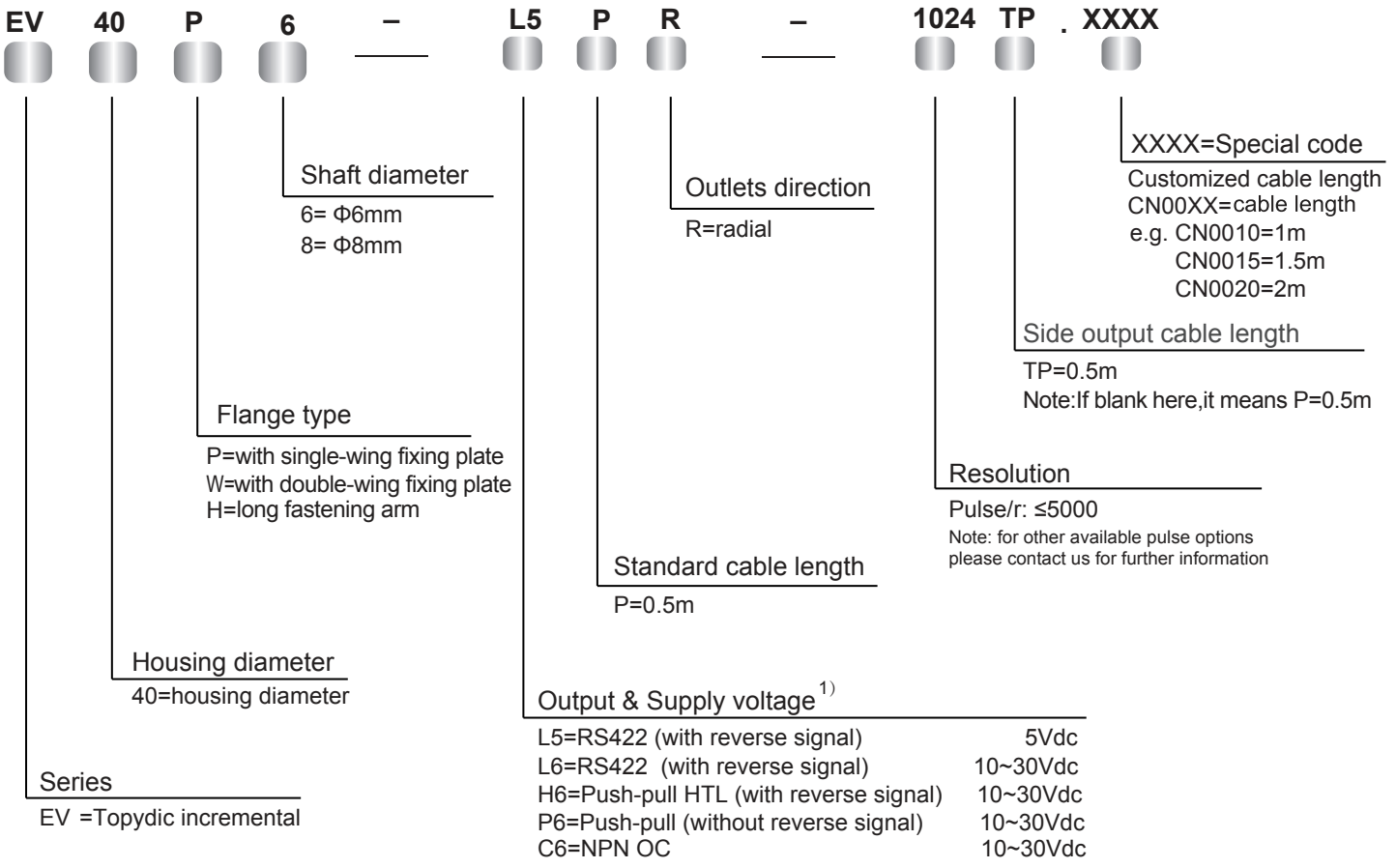
Topydic Small Hollow Shaft Incremental Encoder EV40P

Order Code:



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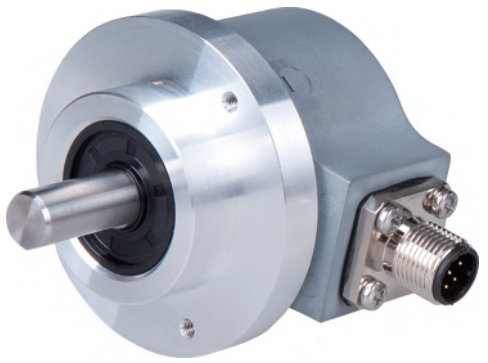
Topydic Series Shaft Incremental EV50A



Descriptions

Topydic series shaft incremental encoder EV50A, with double-bearing and casting housing, owns excllent performance to resist mechanical shocks and can be used in various industrial environments; being compatible with standard flange types-50mm and 58mm, it can meet different application requirements;its wide voltage range, reverse connection and short circuit protection can effectively prevent the impact to the encoder due to mis-wiring.

Features

- Resolution up to 5000ppr; pulse frequency up to 300kHz
- Hollow shaft diameter, Φ6~Φ12mm
- Be compatible with standard flange types-50mm and 58mm
- Φ50mm metal casting housing for limited installation space
- Operating temperature, -40~+85℃; IP67 protection grade for outdoors application
- Multi signal output interfaces to meet different types of data aquisition of upper computer
- The power indicator on the back cover ensures correct power supply
- Optional output types-with cable, M12 connector and M23 connector
- Reverse connection and short circuit protection to ensure the safety [1)]

Mechanical Characteristics

Shaft diameter	Φ6/Φ8/Φ10/Φ12/Φ1/4"/Φ3/8"
Protection Grade	IP65 (without oil seal)
	IP67 (with oil seal)
Speed	12000 rpm (without oil seal)
	6000 rpm (with oil seal)
Max. load capacity of the shaft	40N axial
	80N radial
Shock resistance	50G/11ms
Vibration resistance	10G 10～2000HZ
Bearing life	10^9 revolution
Moment of inertia	$1.9\chi10^{-6}$ kgm²
Starting torque	<0.01Nm (IP65)
	<0.05Nm (IP67)
Body material	Al-alloy
Housing material	Al-alloy
Operating temperature	-40～+85°C
Storage temperature	-45～+90°C
	approx. 400g
Weight	

Resolution: 100, 200, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1250, 2000, 2048, 2500, 3600, 4096, 5000
Attention: the products with above resolutions are standing inventory; others on request.

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull 7272	NPN open collector
Supply voltage (VDC)	5±0.25 or 5~30	10~30	5~30	5~30
Power consumption (no load)	typ. 40mA	typ. 50mA	typ. 50mA	typ. 40mA
	max. 90mA	max. 100mA	max. 100mA	max. 90mA
Permissible load (channel)	max. ±20mA	max. ±30mA	max. ±20mA	max. ±20mA
Pulse frequency	max. 300kHz	max. 300kHz	max. 300kHz	max. 300kHz
Signal level high	min. 2.5V	min. Ub-1V	min. Ub-1V	min. Ub-2.5V
Signal level low	max. 0.5V	max. 0.5V	max. 0.5V	max. 0.5V
Rise time Tr	max. 200ns	max. 1μs	max. 1μs	max. 1μs
Fall time Tf	max. 200ns	max. 1μs	max. 1μs	max. 1μs

Terminal Configuration

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	GY/PK	RD/BU	⏚
Pin (12-pin)	10	12	5	6	8	1	3	4	11	2	PH
Pin (5-pin)	1	2	3	-	4	-	5	-			PH
Pin (8-pin)	1	2	3	4	5	6	7	8			PH

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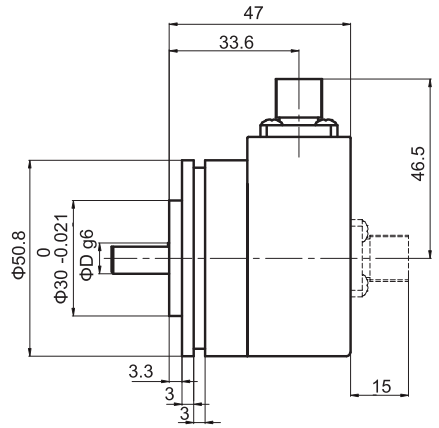
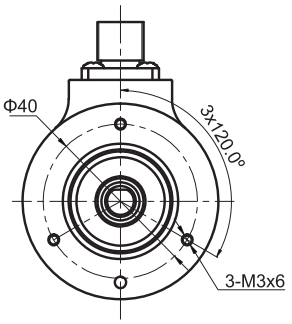
Topydic Series Shaft Incremental EV50A

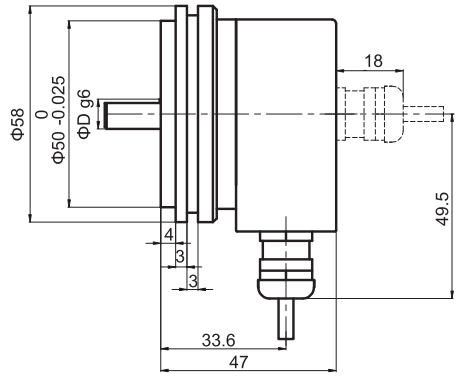
Dimensions (mm)

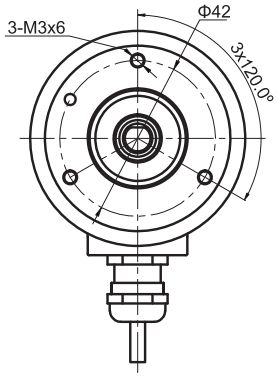
EV50A



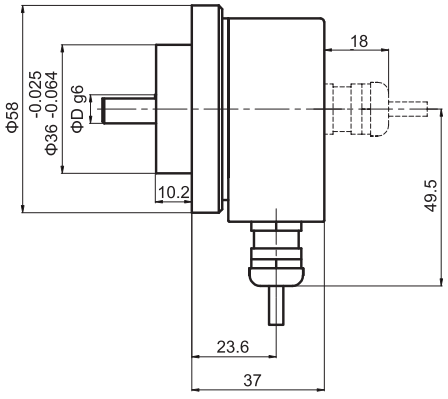


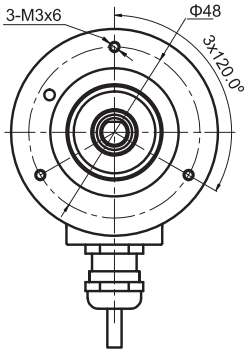
EV50B



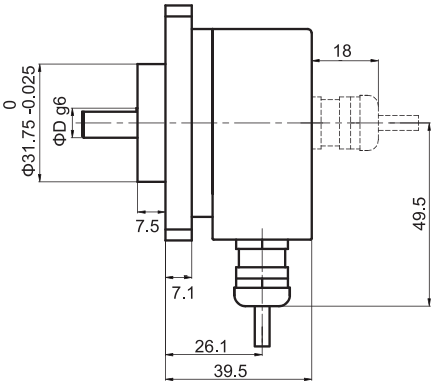


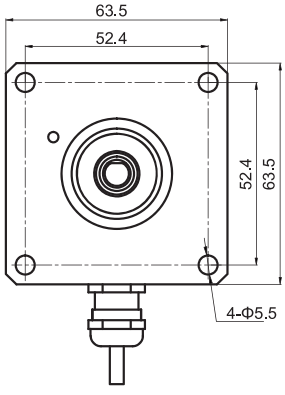
EV50C





EV50D





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Topydic Series Shaft Incremental EV50A

Order Code:

EV 50 B 6 – L5 P R – 1024 XX . XXXX

Shaft diameter
6= Φ6mm x 10mm
7= Φ1/4" x 5/8"
8= Φ8mm x 15mm
9= Φ3/8" x 5/8"
10= Φ10mm x 20mm
12= Φ12mm x 20mm
(8R,9R,10R,12R=IP67)

Flange type
A=Φ50.8 synchro flange
B=Φ58 synchro flange
C=Φ58 clamping flange
D=Φ63.5 square flange

Housing diameter
50=Housing diameter

Series
EV=Topydic incremental

Output & Supply voltage[1)]

L5=RS422 (with reverse signal)	5Vdc
L6=RS422 (with reverse signal)	10~30Vdc
H6= Push-pull HTL (with reverse signal)	10~30Vdc
P6= Push-pull HTL (without reverse signal)	10~30Vdc
E4= Push-pull 7272 HTL (with reverse signal)	5~30Vdc
C6= NPN OC	10~30Vdc

Standard cable length
P=1.5m

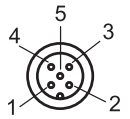
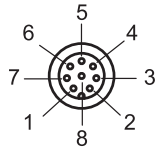
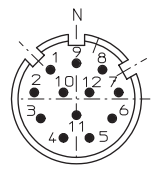
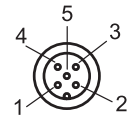
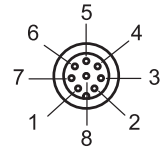
Outlets direction
R= radial
A=axial

Resolution
Pulse/r: 1-5000

Optional functions
M5=M12, 5-pin plug without connector
M8=M12, 8-pin plug without connector
T=M23, 12-pin plug without connector
(for other cable length, it's on requested)

XXXX= Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

Top view of pin plug:

Connector Type	5-pin M12 Connector	8-pin M12 Connector	12-pin M23 Connector	5-pin M12 Connector	8-pin M12 Connector
Pin plug					
Matched connector	M125PSF-0020-W 5-core pre-molded connector with 2m PUR cable	M128PSF-0020-W 5-core pre-molded connector with 2m PUR cable	TMSP1612F Field attachable connector	TMSP125PF Field attachable connector	TMSP128PF Field attachable connector

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Topydic Series Shaft Incremental EV50P

Descriptions

Topydic series shaft incremental encoder EV50P, with double-bearing and casting housing, owns excllent performance to resist mechanical shocks and can be used in various industrial environments; stainless steel through-hole, diameter of which up to 15mm; its wide voltage range, reverse connection and short circuit protection can effectively prevent the impact to the encoder due to mis-wiring.

Features

- Resolution up to 5000ppr; pulse frequency up to 300kHz
- Wide range of shaft diameter, Φ6~Φ15mm
- Hollow shaft installation, robust metal casting housing
- Operating temperature, -40~+85℃; IP67 protection grade for outdoors application
- Housing thickness up to 46.3mm for limited installation space
- Multi signal output interfaces to meet different types of data aquisition of upper computer
- The power indicator on the back cover ensures correct power supply
- Optional output types-with cable, M12 connector and M23 connector
- Reverse connection and short circuit protection to ensure the safety

Mechanical Characteristics

Shaft diameter (mm)	Φ6/Φ8/Φ10/Φ12/Φ14/Φ15/Φ1/4"/Φ3/8"/Φ1/2"/Φ5/8"
Protection grade	IP65 (without oil seal)
	IP67 (with oil seal)
Speed	12000 (without oil seal)
	6000 (with oil seal)
Max. load capacity of the shaft	40N axial
	80N radial
Shock resistance	50G/11ms
Vibration resistance	10G 10～2000HZ
Bearing life	10^9 revolution
Moment of inertia	$6x10^{-6}kgm^2$
Starting torque	<0.03Nm (IP65)
	<0.08Nm (IP67)
Body material	Al-alloy
Housing material	Al-alloy
Operating temperature	-40～+85°C
Storage temperature	-45～+90°C
Weight	Approx. 400g

Regular resolution: 100，200，300，360，400，500，512，600，800，1000，1024，1200，1250，2000，2048，2500，3600，4096，5000

Note: other resolutions on request

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull 7272	NPN OC
Supply voltage(VDC)	5±0.25 or 5~30	10~30	5~30	5~30
Power consumption(no load)	typ. 40mA	typ. 50mA	typ. 50mA	typ. 40mA
	max. 90mA	max. 100mA	max. 100mA	max. 90mA
Permissible load(channel)	max. ±20mA	max. ±30mA	max. ±20mA	max. ±20mA
Pulse frequency	max. 300kHz	max. 300kHz	max. 300kHz	max. 300kHz
Signal level high	min. 2.5V	min. Ub-1V	min. Ub-1V	min. Ub-2.5V
Signal level low	max. 0.5V	max. 0.5V	max. 0.5V	max. 0.5V
Rise time Tr	max. 200ns	max. 1μs	max. 1μs	max. 1μs
Fall time Tf	max. 200ns	max. 1μs	max. 1μs	max. 1μs

1) When the voltage supply within the limited range and only one signal channel is connected improperly at certain moment:
if U_B=5V, it's premitted to connect to signal channals, 0V or UB;
if U_B＞5V, it's premitted to connect to signal channals or 0V.

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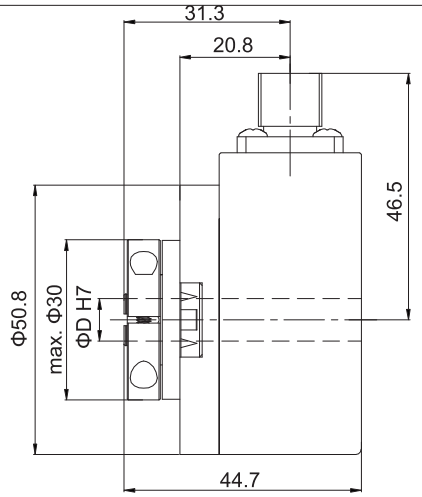
Topydic Series Shaft Incremental EV50P

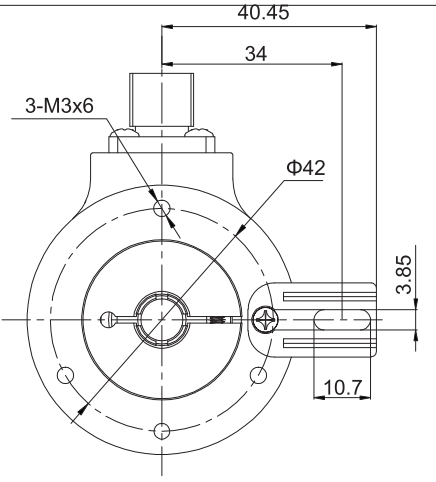
Terminal Configuration

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	GY/PK	RD/BU	⏚
Pin(12-pin)	10	12	5	6	8	1	3	4	11	2	PH
Pin(5-pin)	1	2	3	-	4	-	5	-			PH
Pin(8-pin)	1	2	3	4	5	6	7	8			PH

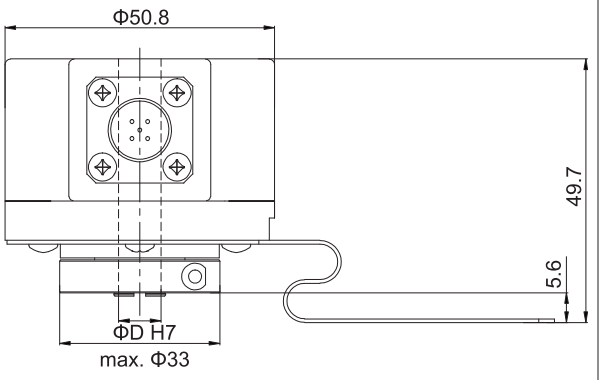
Dimensions

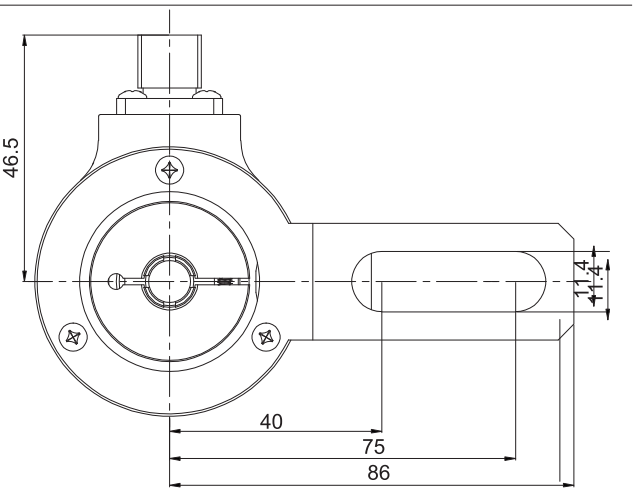
EV50K



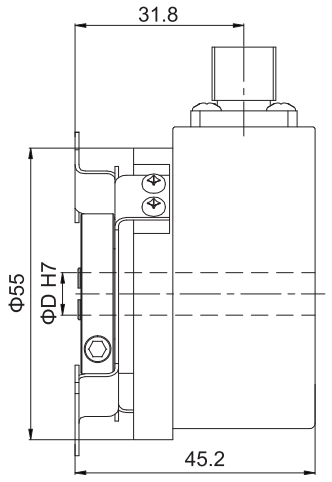


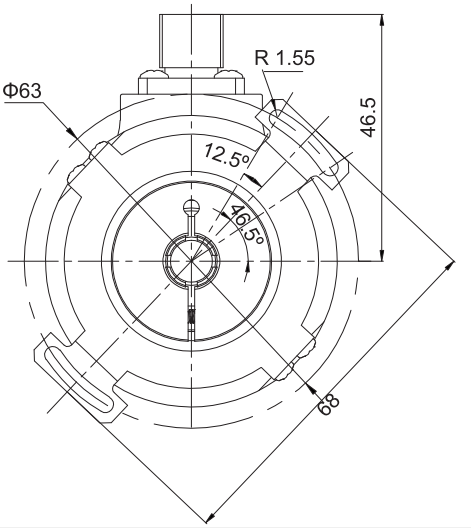
EV50H





EV50W





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Topydic Series Shaft Incremental EV50P

Order Code:

EV 50 W 10 – L5 P R – 1024 XX . XXXX

Series
EV=Topydic incremental

Housing diameter
50= housing diameter

Flange type
K= long torque support slot
H= long fastening arm
W=double-wing fixing plate

Shaft diameter
6= Φ6mm
7= Φ1/4"
8= Φ8mm
9= Φ3/8"
10= Φ10mm
12= Φ12mm
13= Φ1/2"
14= Φ14mm
15= Φ15mm
16= Φ5/8"
(8R,9R,10R,12R=IP67)

Output & Supply voltage[1)]

L5=RS422 (with reverse signal)	5Vdc
L6=RS422 (with reverse signal)	10~30Vdc
H6= Push-pull HTL (with reverse signal)	10~30Vdc
P6= Push-pull HTL (without reverse signal)	10~30Vdc
E4= Push-pull 7272 HTL (with reverse signal)	5~30Vdc
C6= NPN OC	10~30Vdc

Standard cable length
P=1.5m

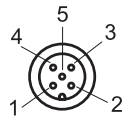
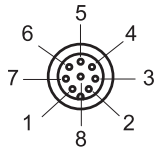
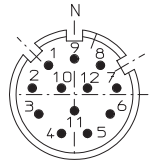
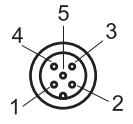
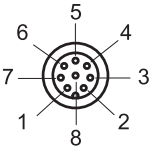
Outlets direction
R= radial

Resolution
Pulse/r: 1-5000

Optional functions
TP=tangential output cable length 1.5m (only applicable to L5,L6)
M5=M12, 5-pin plug without connector
M8=M12, 8-pin plug without connector
T=M23, 12-pin plug without connector
(for other cable length, it's on requested)

XXXX= Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

Top view of pin plug:

Connector type	5-pin M12 connector	8-pin M12 connector	12-pin M23 connector	5-pin M12 connector	8-pin M12 connector
Pin plug					
Matched connector	M125PSF-0020-W 5-core pre-molded connector with 2m PUR cable	M128PSF-0020-W 8-core pre-molded connector with 2m PUR cable	TMSP1612F Field attachable connector	TMSP125PF Field attachable connector	TMSP128PF Field attachable connector

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Topydic Series Shaft Incremental Encoder EV58A

Descriptions

Topydic series encoders EV58A are widely used in industrial environments. It delivers outstanding performance in mechanical shock resistance and is capable of withstanding higher axial and radial loads. Its flexible and variant mechanical structure & electrical circuit designs ensure perfect matches with multiply types of flanges or servo motors. They are compatible with all control computers.

Features

- Max resolution is up to 5000pulse/r, output frequency is up to 300 kHz
- Stainless steel shaft Φ6/Φ8/Φ10, flexible coupling connection ensures encoder safety during operation
- Various types of flanges, including imperial sizes
- Metal housing for greater shock resistance; compact structure is suited for confined space mounting
- Protection class IP65
- Direct cable output or connector is more flexible and easy for maintenance
  The waterproof rubber ends ensure safety during operation
- Reverse connection protection Short circuit protection

Mechanical Characteristics

Shaft diameter (mm)	Φ6g6/Φ8g6/Φ10g6
Protection grade	IP65
Speed	6000
Max. load capacity of the shaft	60N axial
	120N radial
Shock resistance	50G/11ms
Vibration resistance	10G 10～2000HZ
Bearing life	10^9 revolution
Moment of inertia	$1.9X10^{-6}kg\,m^2$
Starting torque	<0.01Nm IP65
Body material	Al-alloy
Housing material	Al-alloy
Operating temperature	-20～+90°C
Storage temperature	-40～+100°C
Weight	300g

Regular resolution: 360，400，500，512，600，800，1000，
1024，2000，2500，4000，2048，4096，5000

Note: other resolutions on request

Electrical Characteristics

Output circuit	RS422	Push-pull
Resolution	Max.5000ppr	Max.5000ppr
Supply voltage(VDC)	5±0.25 or 10-30	10-30
Power consumption(no load)	≤80mA	≤125mA
Permissible load(channel)	±50mA	±80mA
Pulse frequency	Max.300kHz	Max.300kHz
Signal level high	Min.3.4V	Min. Ub-1.8
Signal level low	Max.0.4V	Max.2.0V
Rise time Tr	Max 200ns	Max 1μS
Fall time Tf	Max 200ns	Max 1μS

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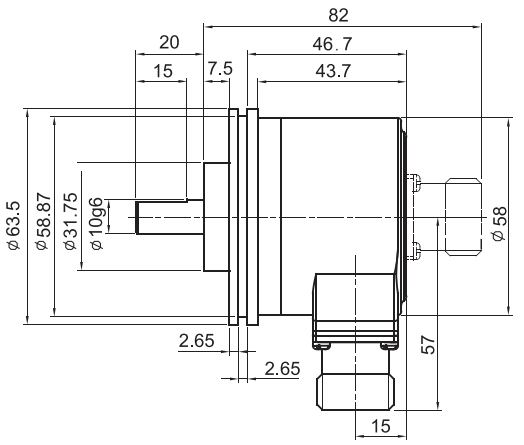
Topydic Series Shaft Incremental Encoder EV58A

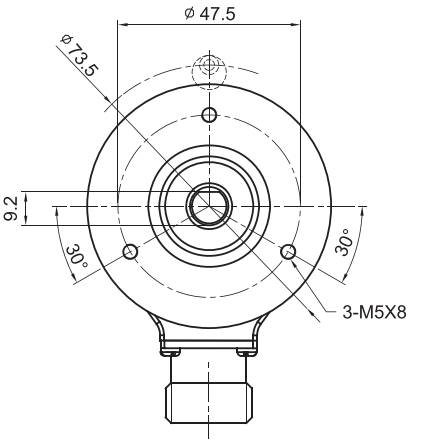
Terminal Configuration

Signal	0V	$+U_b$	A	$\overline{A}$	B	$\overline{B}$	Z	$\overline{Z}$	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	⏚
Pin	10	12	5	6	8	1	3	4	PH

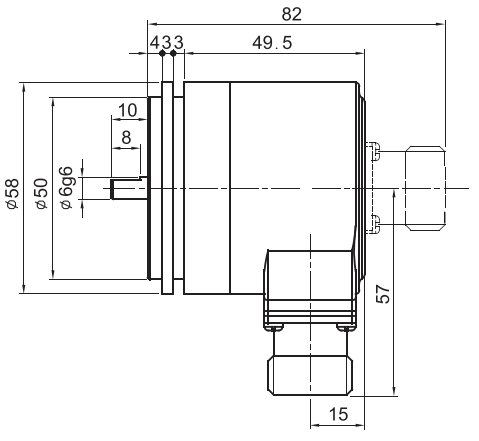
Dimensions

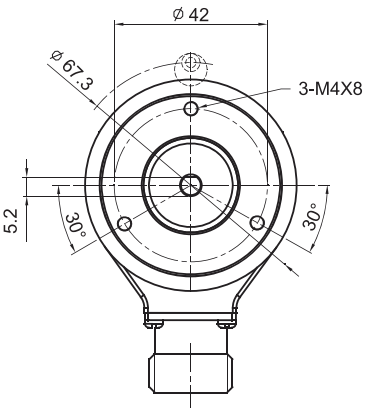
EV58A





EV58B





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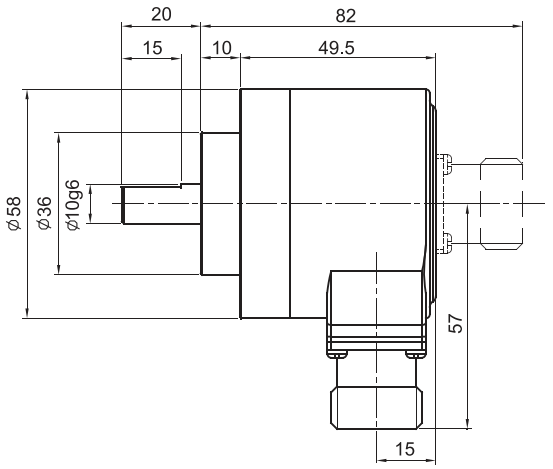
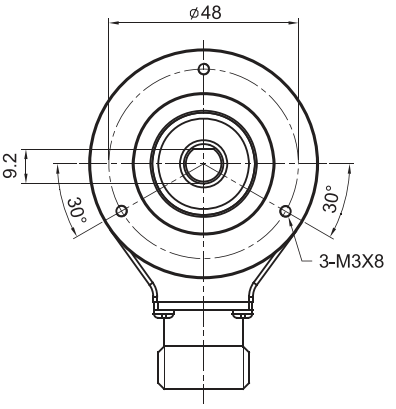
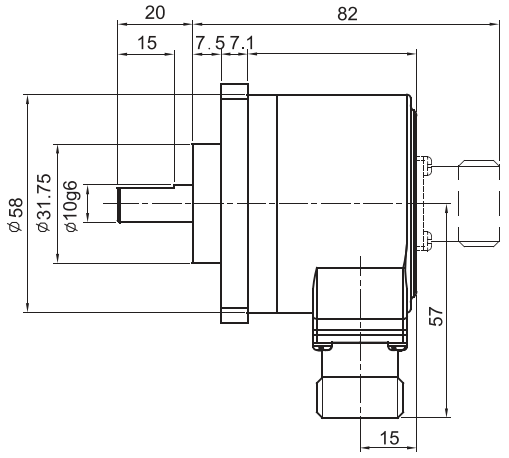
Dimensions

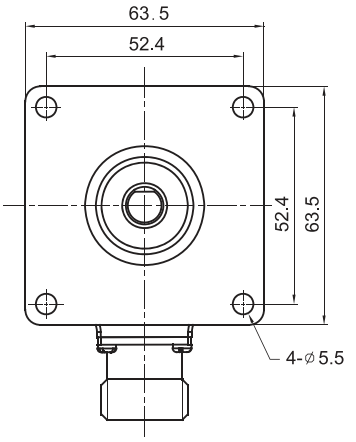
EV58C



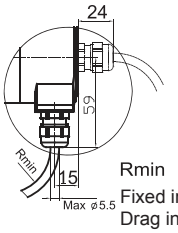


EV58D





Cable output



Rmin
Fixed installation: 55mm
Drag installation: 70mm

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Topydic Series Shaft Incremental Encoder EV58A

Order Code:

EV 58 B 6 – L5 T R – 1024 . XXXX

Series
EV= Topydic incremental

Housing diameter
58= housing diameter

Flange type
A=Φ31.75 clamping flange, shaft length 20mm
B=synchro flange, only for shaft Φ6, shaft length 10mm
C=Φ36 clamping flange, shaft length 20mm
D=Φ63.5 square flange, shaft Φ31.75, shaft length 20mm

Shaft diameter
6=Φ6mm
(only for EIC58B)
8=Φ8mm
9=Φ9.52mm (3/8"×7/8")
10=Φ10mm

Output & Supply voltage[1)]

L5=RS422 (with reverse signal)	5Vdc
L6=RS422 (with reverse signal)	10~30Vdc
H6=Push-pull HTL (with reverse signal)	10~30Vdc
P6=Push-pull HTL (without reverse signal)	10~30Vdc

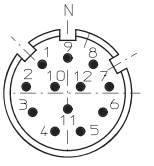
Standard cable length
P=1.5m
T=M23, 12-pin plug without connector

Outlets direction
R=radial
A=axial

Resolution
Pulse/r: ≤5000
Note: for other available pulse options please contact us for further information

XXXX=Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

Topview of 12-pin Connector



[1)] When the voltage supply within the limited range and only one signal channel is connected improperly at certain moment:
if U_B=5V, it's pXremitted to connect to signal channals, 0V or U_B;
if U_B＞5V, it's premitted to connect to signal channals or 0V.

Matched connector:
For connection type "T": TMSP1612F

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Topydic Series Hollow Shaft Incremental Encoder EV58P

Descriptions

Topydic series encoders EV58P, with double-bearing design, are widely used in industrial environments. It delivers outstanding preformance in mechanical shock resistance. It adopts stainless steel hollow shaft design with max. shaft diameter of Φ15mm and is able to withstand higher axial and radial loads. requirements. Its wide voltage range, reverse connection and short circuit protection can effectively

Features

- Resolution up to 5000ppr; pulse frequency up to 300kHz
- Wide range of shaft diameter, Φ8~Φ15mm
- Operating temperature, -20~+80℃; IP65
- Thickness of 34.5mm, applicable for installation with limited space
- Multi signal output interfaces to meet diferent types of data aquisition of upper computer
- Reverse connection and short circuit protection to ensure the safety [1)]

Mechanical Characteristics

Shaft diameter (mm)	Φ8/Φ10/Φ12 /Φ14/Φ15
Protection Grade	IP65
Speed	6000rpm
Max. load capacity of the shaft	40N axial
	80N radial
Shock resistance	50G/11ms
Vibration resistance	10G 10～2000HZ
Bearing life	10^9 revolution
Moment of inertia	approx. $6x10^{-6}kgm^2$
Starting torque	<0.03Nm
Body material	Al-alloy
Housing material	Al-alloy
Operating temperature	-20～+80°C
Storage temperature	-40～+95°C
Weight	approx. 400g

Regular resolution: 256，300，360，400，500，512，600，800，1000，1024，1200，1250，2000，2048，2500，3600，4096，5000

Note: other resolutions on request

Electrical Characteristics

Output circuit	RS422	Push-pull
Supply voltage (VDC)	5±0.25 or 10~30	10~30
Power consumption (no load)	typ. 40mA	typ. 50mA
	max. 90mA	max. 100mA
Permissible load	max. ±20mA	max. ±30mA
Pulse frequency	max. 300kHz	max. 300kHz
Signal level high	min. 2.5V	min. Ub-1V
Signal level low	max. 0.5V	max. 0.5V
Rise time Tr	max. 200ns	max. 1μs
Fall time Tf	max. 200ns	max. 1μs

1) When the voltage supply within the limited range and only one signal channel is connected improperly at certain moment:

if U_B=5V, it's premitted to connect to signal channals, 0V or U_B;

if U_B＞5V, it's premitted to connect to signal channals or 0V.

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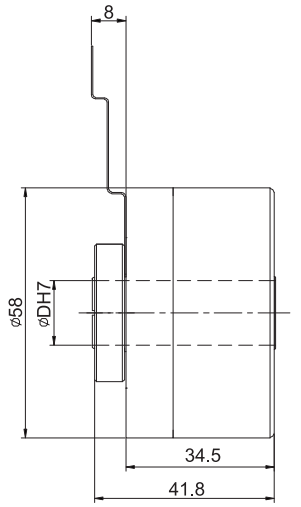
Topydic Series Hollow Shaft Incremental Encoder EV 58P

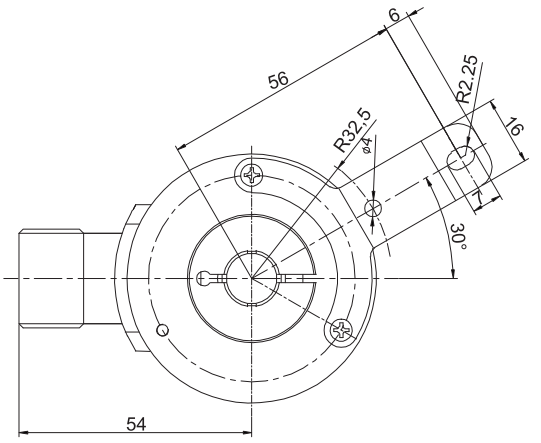
Terminal Assignment

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	GY/PK	RD/BU	⏚
12-pin	10	12	5	6	8	1	3	4	11	2	PH

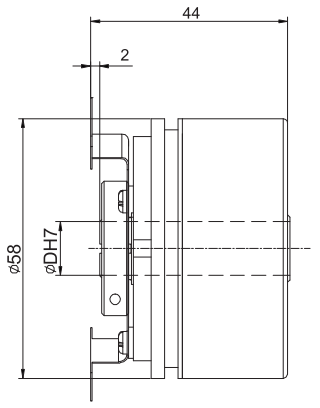
Dimensions (mm):

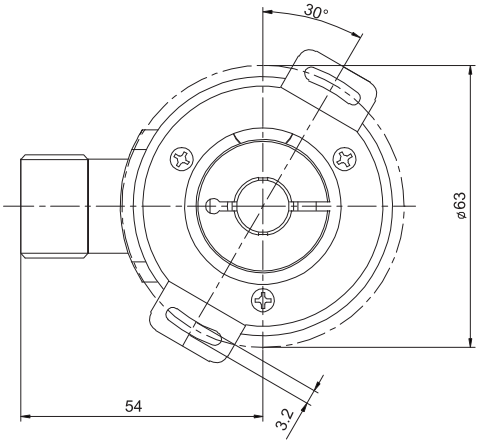
EV58P





EV58W





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Topydic Series Hollow Shaft Incremental Encoder EV 58P

Order Code:

EV 58 P 10 – L5 T R – 1024 . XXXX

Series
EV=Topydic incremental

Housing diameter
58=Housing diameter

Flange type
P=hollow shaft with fixing sheet
W=double-winged fixing sheet

Shaft diameter
8= Φ8mm
10=Φ10mm
12=Φ12mm
14=Φ14mm
15=Φ15mm

Output & Supply voltage[1)]

L5=RS422 (with reverse signal)	5Vdc
L6=RS422 (with reverse signal)	10~30Vdc
H6=Push-pull HTL (with reverse signal)	10~30Vdc
P6=Push-pull HTL (with reverse signal)	10~30Vdc

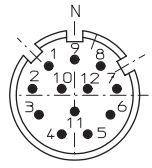
Standard cable length
P=1.5m
T=M23, 12-pin plug without connector

Outlets direction
R=radial

Resolution
Pulse/r: ≤5000
Note: for other available pulse options please contact us for further information

XXXX=Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

T type connection:
12-pin M23 Connector



TMSP1612F
Field attachable connector

[1)] When provided power voltage is correct:
Short-circuit to channel, 0V, or +UB is permitted when UB=5V;
Short-circuit to channel or 0V is permitted when UB=10…30V.

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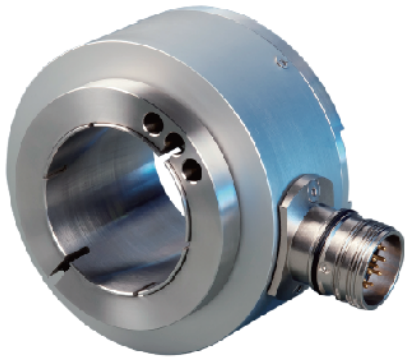
Heavydic Large Hollow Shaft Incremental Encoder EV90P



Descriptions

Heavydic large hollow shaft incremental encoder EV90P are specially designed for heavy industries and heavy-loaded shaft applications. It delivers perfect perfornance of mechanical shock resistance, and is capable of withstanding higher axial and radial loads. It can be directly installed onto the drive shaft with crutch arm or fixing sheet for flexible connection. Its resolution is up to 4096ppr, which ensures accurate control and application safety.

Features

- Robust metal housing against greater shock; compact structure for limited installation space
- Resolution up to 4096ppr; protection grade of IP65
- Compact hollow shaft design to save both space and cost
- Crutch arm and fixing sheet provide greater flexibility
- Stainless steel hollow shaft with diameter of Φ25/Φ30/Φ38/Φ45; installed by "C" lock ring
- Flexible connecting with cable or connector for easy maintemance; water-proof design to ensure safety
- Reverse connection / short circuit protection

Mechanical Characteristics

Hollow shaft diameter (mm)	Φ25/Φ30/Φ38/Φ45H7
Protection Grade	IP65
Speed	3500 rpm
Max. load capacity of the shaft	80N axial
	140N radial
Shock resistance	50G/11ms
Vibration resistance	10G 10～2000HZ
Bearing life	10^9 revolution
Moment of inertia	approx.15×10^{-6} kgm^2
Starting torque	<0.1Nm with oil seal
Body material	Al-alloy
Housing material	Al-alloy
Operating temperature	-20～+80°C (-40～+80°C optional)
Storage temperature	-45～+85°C
Weight	approx. 900g

Regular resolution: 1024, 2048

Note: other resolutions on request

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull 7272
Resolution	Max 2500ppr	Max 2500ppr	Max 2500ppr
Supply voltage (VDC)	5±0.25 or 10-30	10-30	5-30
Power consumption (no load)	≤80mA	≤125mA	≤125mA
Permissible load	±20mA	±40mA	±40mA
Pulse frequency	Max 300kHz	Max 300kHz	Max 300kHz
Signal level high	Min 3.4V	Min Ub-1.8	Min Ub-2.5
Signal level low	Max 0.4V	Max 2.0V	Max 0.4V
Rise time Tr	Max 200ns	Max 1μS	Max 1μS
Fall time Tf	Max 200ns	Max 1μS	Max 1μS

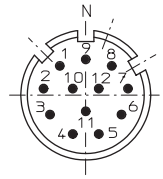
Terminal Configuration

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color Code	WH	BN	GN	YE	GY	PK1	BU	RD	GY/PK	RD/BU	⏚
Pin	10	12	5	6	8	1	3	4	11	2	PH

1）When the voltage supply within the limited range and only one signal channel is connected improperly at certain moment:
if U_B=5V, it's premitted to connect to signal channals, 0V or U_B ;
if U_B>5V, it's premitted to connect to signal channals or 0V.

Matched connector:
the compatible connector with type of connection "T" is TMS1612F.

Topview of 12-pin plug



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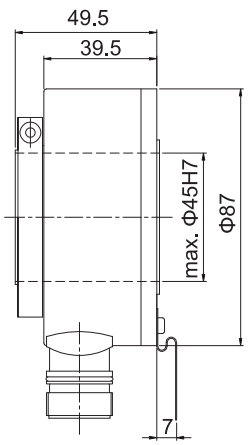
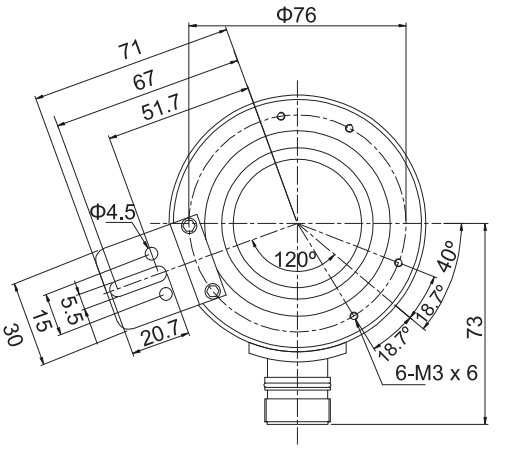
Heavydic Large Hollow Shaft Incremental Encoder EV90P

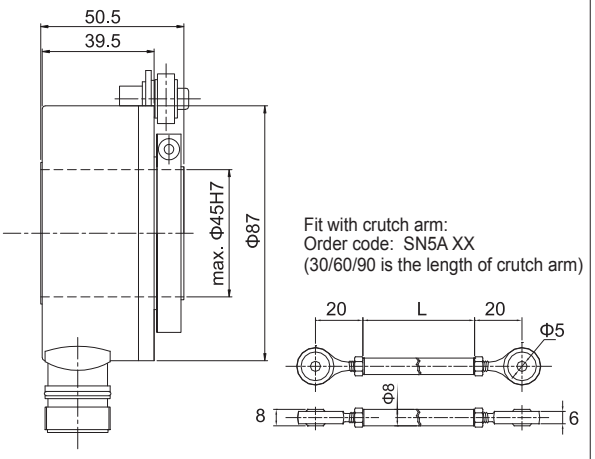
Dimensions (mm)

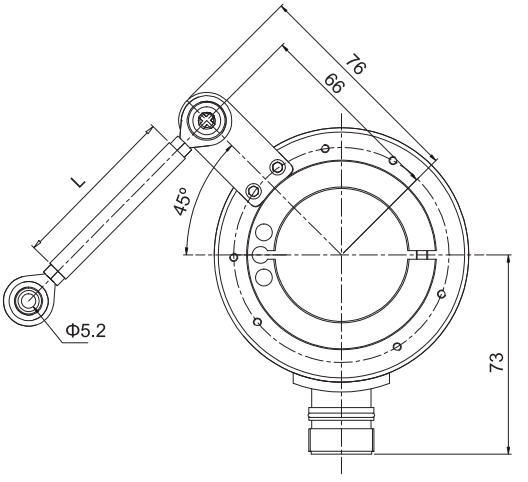
EV90P





EV90R





Order Code:

EV 90 P 30 _ L5 T R _ 1024 . XXXX

Series
EV = heavydic incremental

Housing diameter
90= housing diameter

Flange type
P= fixing sheet
R= crutch arm

Hollow shaft diameter
25=Φ25H7
30=Φ30H7
38=Φ38H7
45=Φ45H7

Output & Supply voltage

L5=RS422 (with reverse signal)	5Vdc
L6=RS422 (with reverse signal)	10~30Vdc
H6=Push-pull HTL (with reverse signal)	10~30Vdc
P6=Push-pull HTL (without reverse signal)	10~30Vdc
E4=Push-pull 7272 HTL (with reverse signal)	5~30Vdc

Standard cable length
P=1.5m
T= M23, 12-pin plug with connector
(order code for connector: TMSP1612F)

Outlets direction
R=radial

Resolution
Pulse/r: ≤5000

XXXX=Special code

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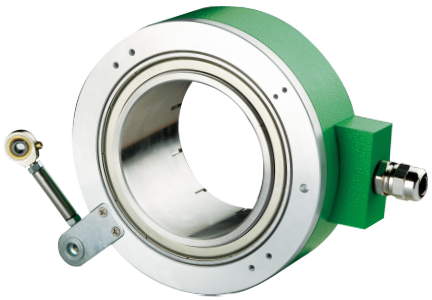
Topydic Series Large Hollow Shaft Incremental Encoder EV150P



Description

Topydic series large hollow shaft encoders EV150P are widely used in industrial environments in which direct installation on the drive shaft for speed feedback is required. It delivers excellent performance in withstanding mechanical shock and higher axial and radial loads. Hollow shaft structure could be directly installed onto the drive shaft, and crutch arm or block-pin accessories provide greater flexibility to prolong the usability of the encoder. EV150P delivers resolution up to 2048ppr, and guaranteen both precise measurement control and safety in loading. It is the most recommended product for its high quality and affordability.

Features

- Crutch are or block-pin accessories provide the greatest flexibilty
- Resolution 2048ppr,IP64 guarantees precision and safety
- Compact hollow shaft design is both a space and cost-saver
- Metal housing for greater shock resistance,compact structure is suited for confined mounting space
- Stainless steel hollow shaft Φ60H7 — Φ80H7 ,"C"lock ring
- Cable output or connector is flexible and easy for maintenance
  The waterproof rubber ends ensures safety
- Reverse connection protection.Short circuit protection

Mechanical Characteristics

Hollow shaft diameter(mm)	Φ60H7 — Φ80H7
Protection acc. to EN 60529	IP64
Speed	3000RPM
Max load capacity of the shaft	100N axial
	200N radial
Shock resistance	50G/11ms
Vibration resistance	10 G 10~2000Hz
Bearing life	10^9 revolution
Moment of inertia	<15 x 10^{-6}kgm^2
Starting torque	<0.25Nm max.
Body material	AL-alloy
Housing material	AL-alloy + green paint
Operating temperature	-20~+90°C
Storage temperature	-40~+100°C
Weight	1800g

Resolution: 1000，1024，2048
Attention: Bold part is in stock, others on request

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull	Push-pull7272
Resolution	Max.2048ppr	Max.2048ppr	Max.2048ppr	Max.2048ppr
Supply voltage(VDC)	5±0.25 or 5(10)-30	10-30	5-30	5-30
Power consumption (no load)	≤80mA	≤125mA	≤125mA	≤125mA
Permissible load (channel)	±50mA	±80mA	±80mA	±80mA
Pulse frequency	Max.800kHz	Max.800kHz	Max.800kHz	Max.800kHz
Signal level high	Min.3.4V	Min.Ub-1.8	Min.Ub-1.8	Min.Ub-2.5
Signal level low	Max.0.4V	Max.2.0V	Max.0.4V	Max.0.4V
Rise timeTr	Max 200ns	Max 1μs	Max 1μs	Max 1μs
Fall timeTf	Max 200ns	Max 1μs	Max 1μs	Max 1μs

Terminal Assignment

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	GY/ PK	RD/ BU	⏚
Pin	10	12	5	6	8	1	3	4	11	2	PH

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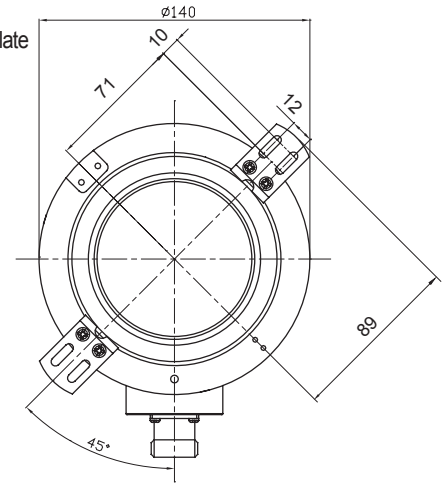
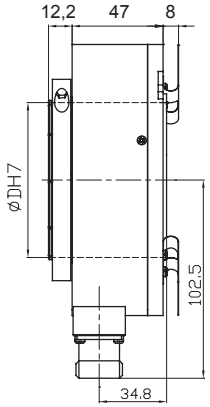
Topydic Series Large Hollow Shaft Incremental Encoder EV150P

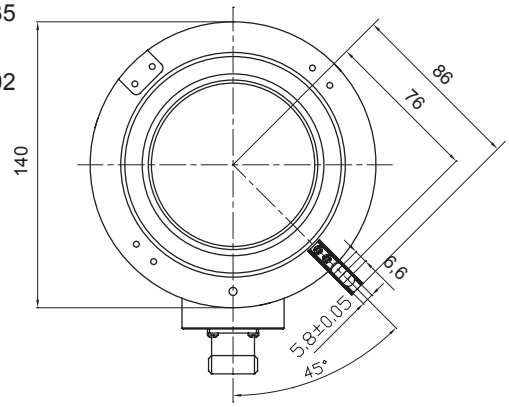
Dimensions

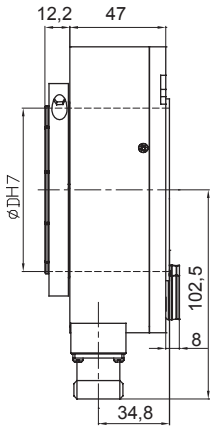
EV150P
Double-wing fixing plate
E41350013



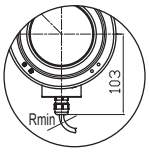


EV150K
Long torque support slot:
E41350035
Block pin:
E41220002



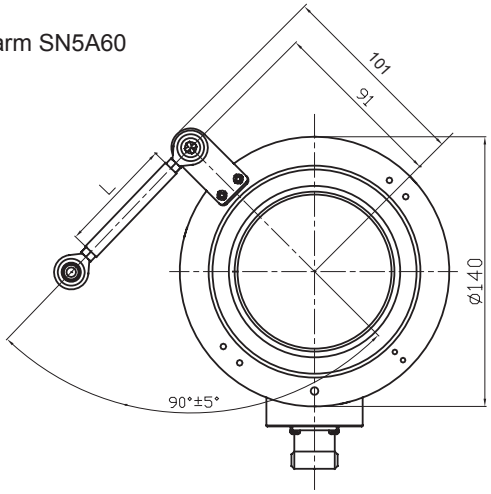


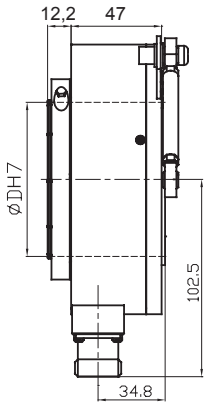
Cable output



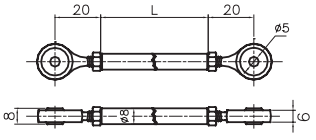
Rmin
Fix installation: 55mm
Draw installation: 70mm

EV150R
Torque arm SN5A60





Crutch arm order
SN5A XX
(30,60,90means length)



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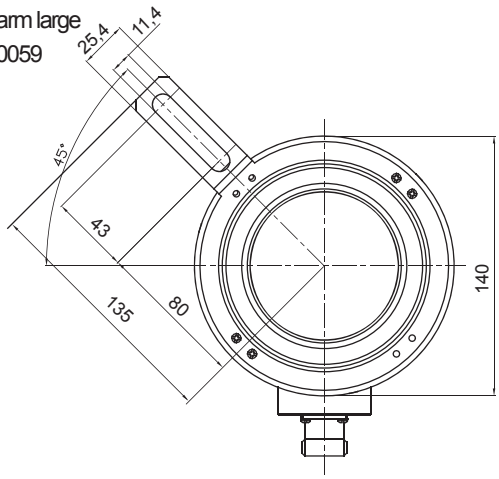
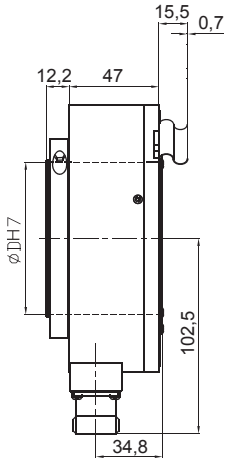
Topydic Series Large Hollow Shaft Incremental Encoder EV150P

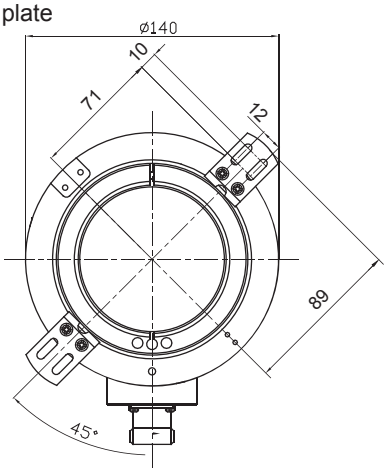
Dimensions

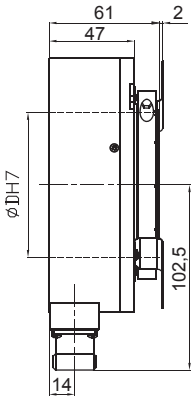
EV150H
Tether arm large
E41350059



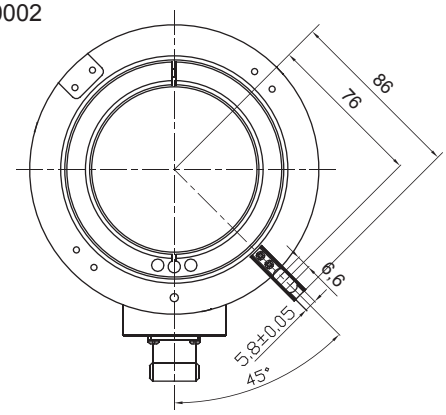


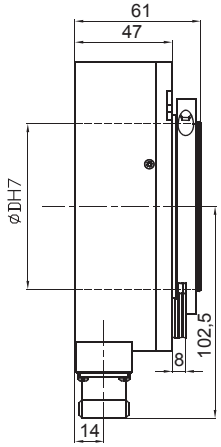
EV150RP
Double-wing fixing plate
E41350013



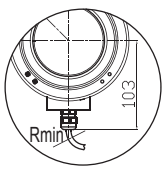


EV150RK
Long torque support slot:E41350035
Block pin:E41220002





Cable output



Rmin
Fix installation: 55mm
Draw installation: 70mm

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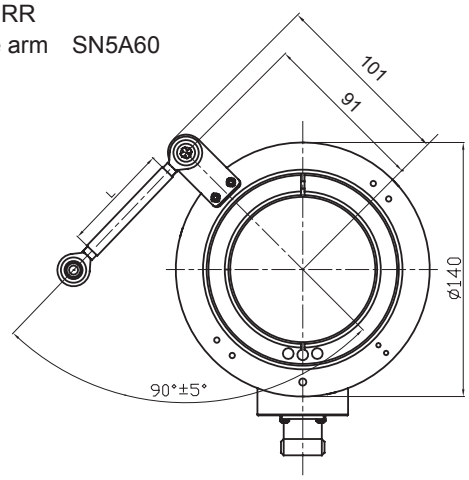
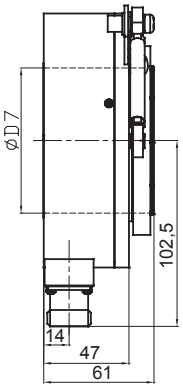
Topydic Series Large Hollow Shaft Incremental Encoder EV150P

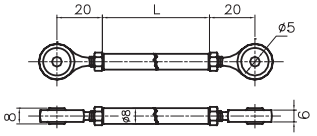
Dimensions

EV150RR
Torque arm SN5A60

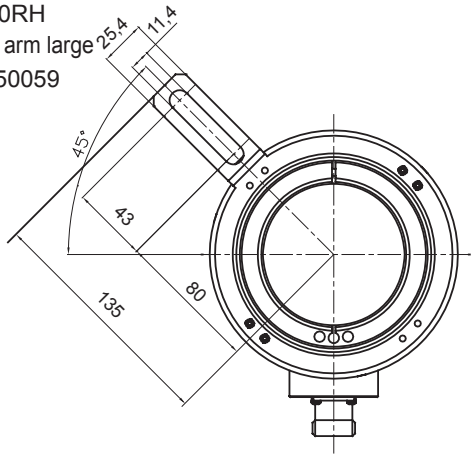


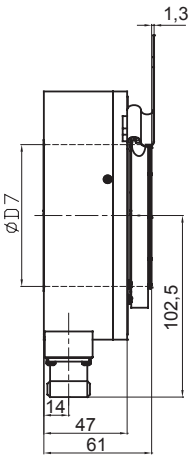


Crutch arm order:
SN5A XX
(30,60,90 means length)

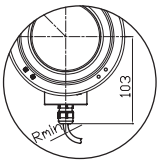


EV150RH
Tether arm large
E41350059



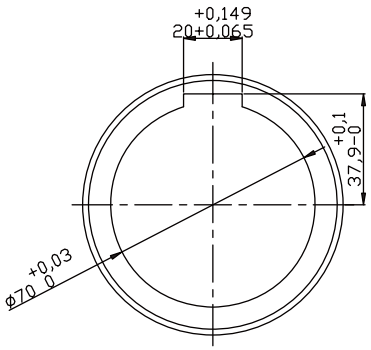


Cable output



Rmin
Fix installation: 55mm
Draw installation: 70mm

Keyway shaft



EV150P Keyway

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Topydic Series Large Hollow Shaft Incremental Encoder EV150P

Order Code:

EV 150 P 70 – L5 T R – 1024 . XXXX

Series
EV = Topydic incremental

Housing diameter
150=housing diameter

Flange type
P=hollow shaft with spring
K=long torque support slot
R=universal torque arm (SN5A60)
H=tether arm large
RP=hollow shaft with spring
RK=long torque support slot
RR=universal torque arm (SN5A60)
RH=tether arm large

Shaft diameter
60=Φ60H7
65=Φ65H7
70=Φ70H7
75=Φ75H7
80=Φ80H7
Adding "K" to a shaft diameter means it is a hollow shaft with keyway, eg. 60K=Φ60F7 keyway (≤70) without fixed lock ring for keyway mounting

Output & Supply voltage [1)]

L5=RS422 (with reverse sign)	5Vdc
L6=RS422 (with reverse sign)	10~30Vdc
H6=Push-pull HTL (with reverse sign)	10~30Vdc
P6=Push-pull (without reverse sign)	10~30Vdc
E4=Push-pull7272 HTL (with reverse sign)	5~30Vdc

Type of connection
P=Cable length 1.5m
T=M23,12-pin plug without connector
(other cable length are available upon request)

Outlets direction
R=radial

Resolution
Pulse/r ≤2048
Attention: for pulse scale pls contact our company

XXXX=Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

Diameter	Lock ring	Screw
Φ60	E41230053	M4×16
Φ65	E41230059	M4×16
Φ70	E41230058	M4×16
Φ75	E41230057	M4×16
Φ80	E41230056	M4×16

1) When the provided power voltage is correct:
Short-circuit to channel, 0V, or +UB is permitted when UB=5V;
Short-circuit to channel or 0V is permitted when UB=10…30V.

Connector order:
matching "T" connector: TMSP1612F

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Topydic Series Stainless Steel Encoder EX58P

Description

Topydic series stainless steel encoders EX58P hollow shaft series are designed for the applications in highly corrosive environments. It possesses outstanding mechanical shock resistant capacity, and is capable of withstanding higher axial and radial loads. It is mostly used in the pickling lines in the metallurgical industry, offshore petrochemical industry, and etc. The compact hollow shaft structure is convenience in facilitating installation and maintenance. Various electrical outputs are compatible with all control computers.

Features

- Screw lock ring, safe and stable
- Durable stainless steel hollow shaft Φ8/Φ9/Φ10/Φ12
- Various accessories available, convenient for installation
- Metal housing for better shock resistance
- Resolution up to 1500ppr
- Protection class IP66
- Metal fixed wiring, promotes greater IP level
- Reverse connection protection

  Short circuit protection

Mechanical Characteristics

Hollow shaft diameter(mm)	Φ8/Φ9/Φ10/Φ12g6
Protection acc. to EN 60529	IP66
Speed(r/m)	3000
Max load capacity of the shaft	
Axial load capacity	70N
Radial load capacity	130N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	330g

Resolution 10，20，30，40，50，60，70，80，90，100，200，300，360，400，500，512，600，800，1000，1024，1200，1250，1440，1500

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull	Push-pull7272
Resolution	Max.1500ppr	Max.1500ppr	Max.1500ppr	Max.1500ppr
Supply voltage(VDC)	5V/10-30V	10-30V	5-30V	5-30V
Power consumption (no load)	≤80mA	≤125mA	≤125mA	≤125mA
Permissible load (channel)	±50mA	±80mA	±80mA	±80mA
Pulse frequency	Max. 800 kHz	Max. 300 kHz	Max. 300 kHz	Max. 300 kHz
Signal level high	Min.3.4V	Min.Ub-1.8V	Min.Ub-1.8V	Min. Ub-2.5V
Signal level low	Max. 0.4V	Max. 2.0V	Max. 2.0V	Max. 2.0V
Rise timeTr	Max 200ns	Max 1μs	Max 1μs	Max 1μs
Fall timeTf	Max 200ns	Max 1μs	Max 1μs	Max 1μs

Terminal Assegnment

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	GY/PK	RD/BU	⏚

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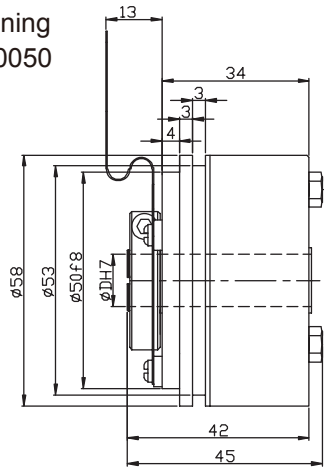
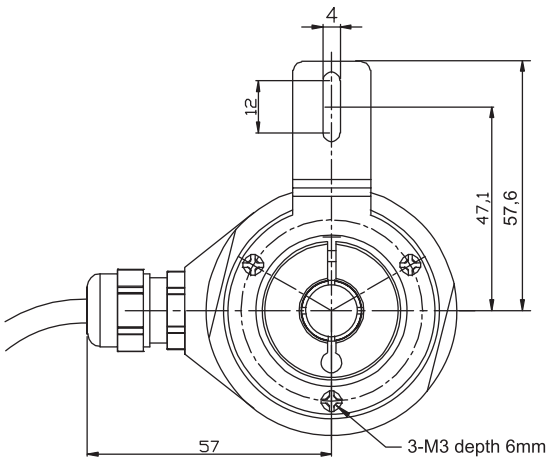
Topydic Series Stainless Steel Encoder EX58P

Dimensions

EX58H

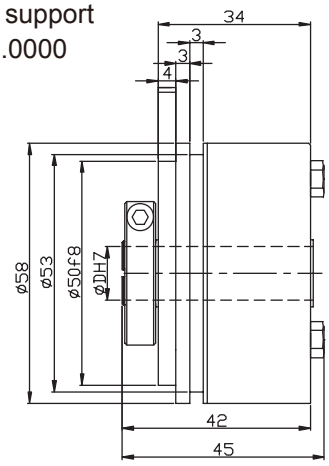
Flexible fastening arm: E41350050

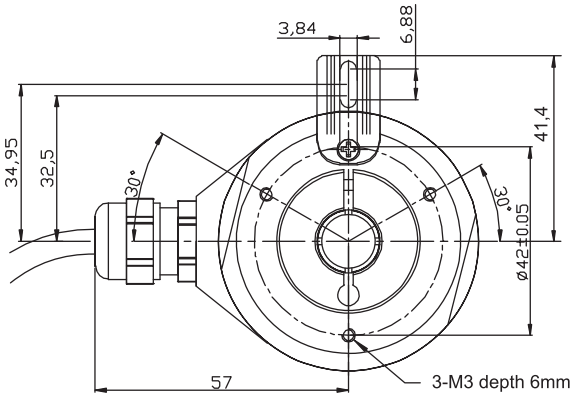




EX58K

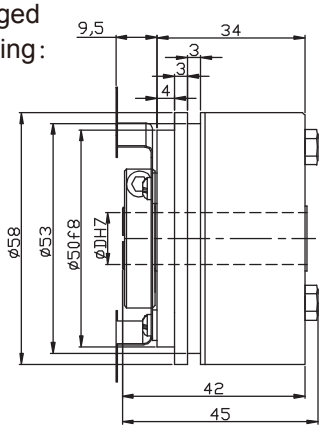
Long torque support slot: E4700.0000

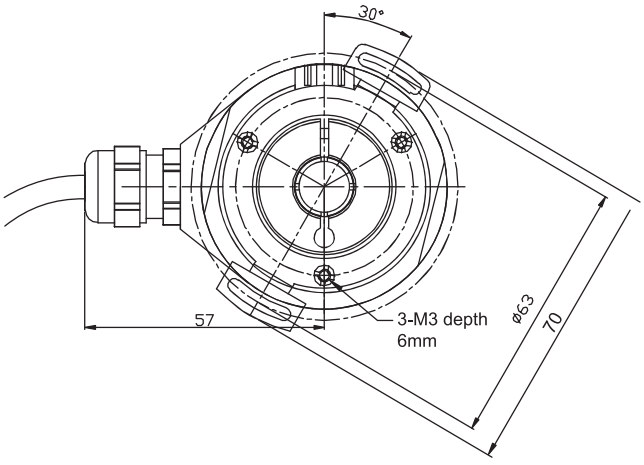




EX58W

Double-winged stator coupling: E41350042





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Topydic Series Stainless Steel Encoder EX58P

Order Code：

XXXX=Special code

Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

Outlets direction
R=radial

Standard cable length
P=1.5m

Resolution
pulse/r 1-1500
Note:for available pulse ranges
please contact us for further information

Output & Supply voltage [1)]

L5=RS422（with reverse sign）	5Vdc
L6=RS422（with reverse sign）	10~30Vdc
H6=Push-pull HTL（with reverse sign）	10~30Vdc
P6=Push-pull （without reverse sign）	10~30Vdc
E4=Push-pull 7272 HTL（with reverse sign）	5~30Vdc

Shaft diameter

8=Φ 8mm， with oil seal
9=Φ 9.52mm，with oil seal
10=Φ 10mm，with oil seal
12=Φ 12mm，with oil seal

Flange type

H=tether arm
K=long torque support slot
W=double-winged stator coupling

Housing diameter

58=Housing diameter

Series

EX ＝Topydic series stainless steel

Diameter	Locking ring	Screw
Φ 8	E41230034	M3×8
Φ 9.52	E41230033	M3×8
Φ 10	E41230032	M3×8
Φ 12	E41230031	M3×8
Φ 14	E41230030	M3×8
Φ 15	E41230029	M3×8

1) When the provided power voltage is correct:
Short-circuit to channel, 0V, or +UB is permitted when UB=5V
short-circuit to channel or 0V is permitted when UB=10.. .30V.

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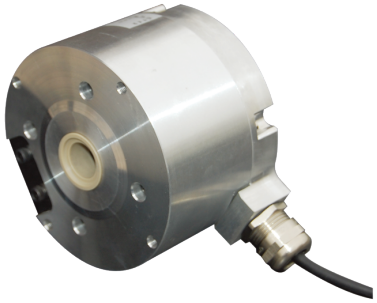
Heavydic Series Heavy Duty Encoder EX90



Description

Heavydic series heavy duty encoders EX90 are specially used in heavy industries and heavy-load applications. It provides excellent performance in withstanding mechanical shocks and higher axial and radial loads. Many mechanical mounting accessories are available. Various electrical circuit designs are available to match the mainframe control computers. Its resolution is up to 2048ppr, and it guarantees precision controls and heavy load safety.

Features

- Crutch arm or various accessories provide greater flexibility in connection
- Metal housing for greater shock resistance
- Stainless steel hollow shaft Φ16,PEEK dielectric could insulate the electromagnetic interference effectively
- Protection class IP65
- Resolution up to 2048ppr
- Integral cables, convenient for installation and maintenance
- Reverse connection protection

  Short circuit protection

Mechanical Characteristics

Shaft diameter(mm)	Φ16G7
Protection acc. to EN 60529	IP65
Speed(r/m)	3000
Max load capacity of the shaft	
Axial load capacity	100N
Radial load capacity	200N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy+PEEK
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	1330g

Resolution: 1024，2048
Note: Other resolutions are available upon request.

PEEK Poly (ether-ether-ketone): possesses high mechanical strength, rigidity and hardness, high wear resistance, good frictional behavior, heat resistance, resistance to chemical attack, hydrolysable, ultravioresistant, radioresistance, non inflammability

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull	Push-pull7272
Resolution	Max. 2048ppr	Max. 2048ppr	Max. 2048ppr	Max. 2048ppr
Supply voltage(Vdc)	5V/10-30V	10-30V	5-30V	5-30V
Power consumption (no load)	≤80mA	≤125mA	≤125mA	≤125mA
Permissible load (channel)	±50mA	±80mA	±80mA	±80mA
Pulse frequency	Max. 300 kHz	Max. 300 kHz	Max. 300 kHz	Max. 300 kHz
Signal level high	Min.3.4V	Min.Ub-1.8V	Min.Ub-1.8V	Min.Ub-2.5V
Signal level low	Max.0.4V	Max.2.0V	Max.2.0V	Max.2.0V
Rise timeTr	Max 200ns	Max 1μs	Max 1μs	Max 1μs
Fall timeTf	Max 200ns	Max 1μs	Max 1μs	Max 1μs

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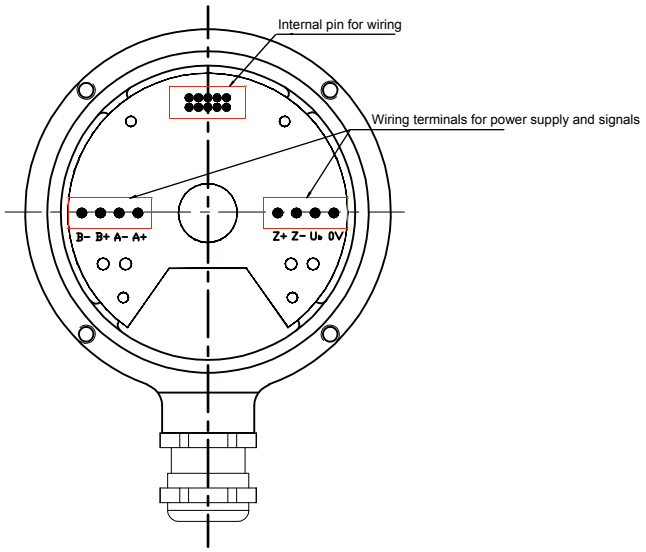
Heavydic Series Heavy Duty Encoder EX90

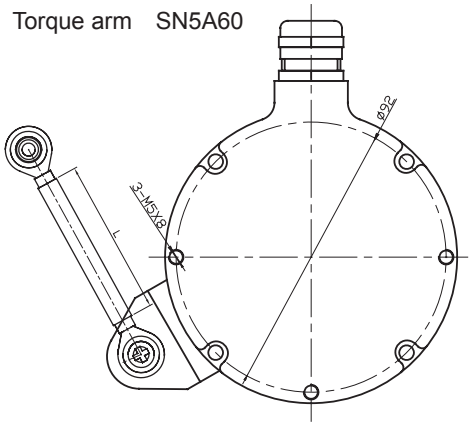
Terminal assignment

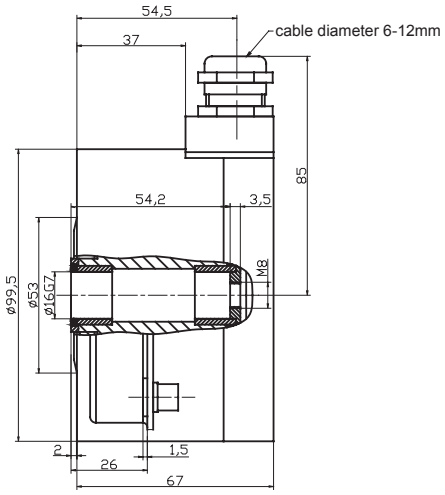


Dimensions

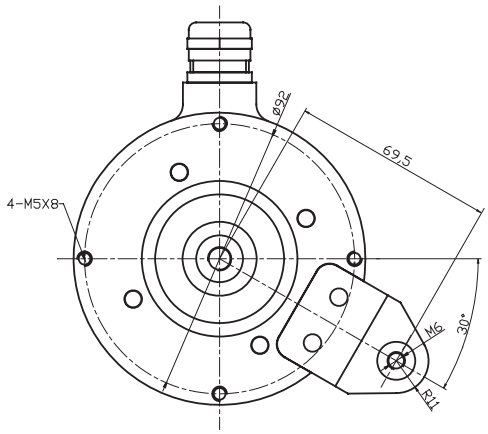
EX90

Torque arm SN5A60

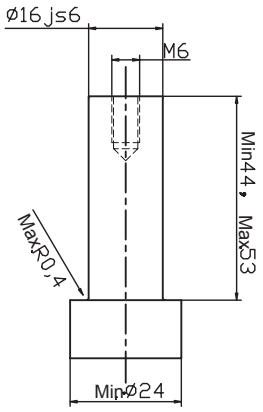




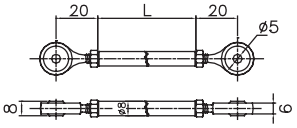
EX90



Customers' shaft



Crutch arm order
SN5A XX
(30,60,90means length)



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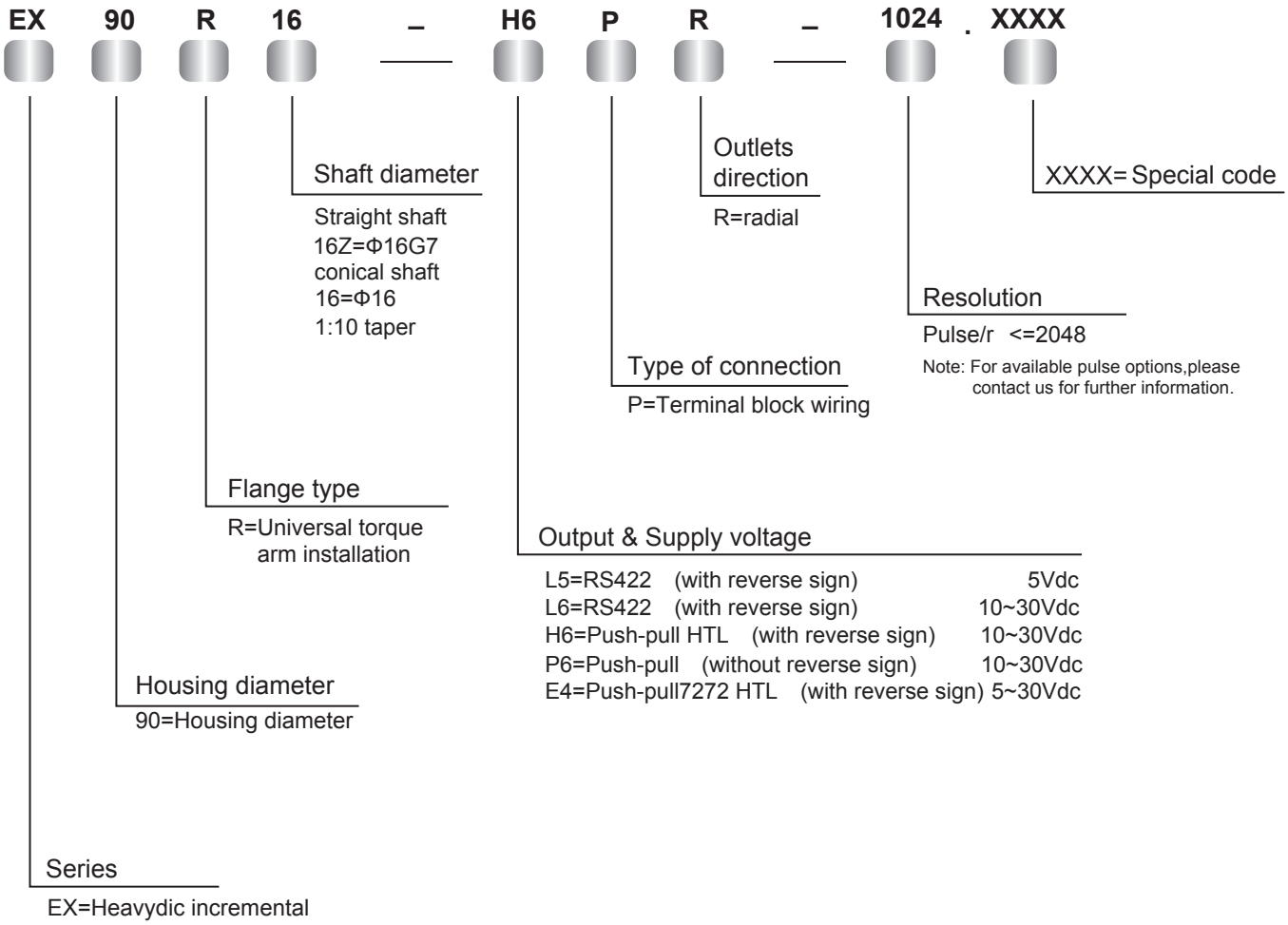
Heavydic Series Heavy Duty Encoder EX90

Order Code:



Accessory

E23310044	lock-ring 17X2
E23231020	M6X16bolt
E23231210	elastic gasket-M6
E23220002	SN5A60torque arm

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Heavydic Series Hollow Shaft Encoder with Overspeed Switch EX100P-WS

Description

Heavydic series heavy duty encoders EX100P-WS are specifically designed to be used in various heavy industries and heavy-loaded shaft applications. It has perfect mechanical shock resistance, and is capable of withstanding higher axial and radial loads. It can be directly installed onto the drive shaft, with crutch arm or block-pin accessories for flexible connection. EX100P-WS series provide both incremental and speed limited switch output, which ensure not only precise control requirement but also heavy load safety.

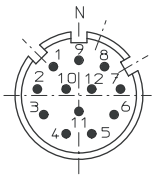
Features

- Crutch arm or block-pin accessories provide greater flexibility in connection
- Optional stainless steel hollow shaft, "C" lock ring
- Compact hollow shaft design is both a space and cost-saver
- Heavydic design for better vibration-absorption performance
- Overspeed warning switch to ensure safety during operation
- Reverse connection protection

Mechanical Characteristics

Shaft diameter(mm)	Φ25H7/Φ30H7/Φ38H7/Φ40H7/Φ45H7
Protection acc. to EN 60529	IP64
Speed	3000
Max load capacity of the shaft	100Naxial
	200Nradial
Shock resistance	50G/11ms
Vibration resistance	10G 10～2000HZ
Bearing life	10^9revolution
Moment of inertia	approx.15χ10 kg㎡
Starting torque	<0.05Nm(without oil seal);<0.1Nm with oil seal
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20～+90℃
Storage temperature	-40～+100℃
Weight	approx.1800g

12-pin plug



Resolution:

1024, 2048

Attention: Others on request

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull	Push-pull7272
Resolution	Max. 2048ppr	Max. 2048ppr	Max. 2048ppr	Max. 2048ppr
Supply voltage (VDC)	5±0.25or 5(10)-30	10-30	5-30	5-30
Power consumption (no load)	≤80mA	≤125mA	≤125mA	≤125mA
Permissible load (channel)	±50mA	±80mA	±80mA	±80mA
Pulse frequency	Max. 800kHz	Max. 800kHz	Max. 800kHz	Max. 800kHz
Signal level high	Min.3.4V	Min.Ub-1.8	Min.Ub-1.8	Min.Ub-2.5
Signal level low	Max.0.4V	Max.2.0V	Max.0.4V	Max.0.4V
Rise time T_r	Max 200ns	Max 1μS	Max 1μS	Max 1μS
Fall time T_f	Max 200ns	Max 1μS	Max 1μS	Max 1μS

Terminal Assignment

Signal	0V	+U_b	A	$\overline{A}$	$\overline{B}$	B	$\overline{Z}$	Z	0$\overline{V}$ Sen	+U_b Sen	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	GY/ PK	RD/ BU	⏚
Pin	10	12	5	6	8	1	3	4	11	2	PH

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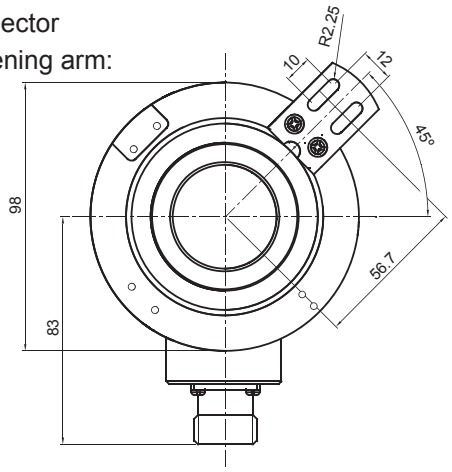
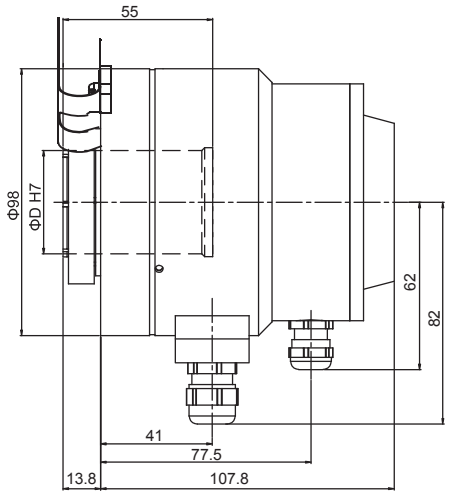
Heavydic Series Hollow Shaft Encoder with Overspeed Switch EX100P-WS

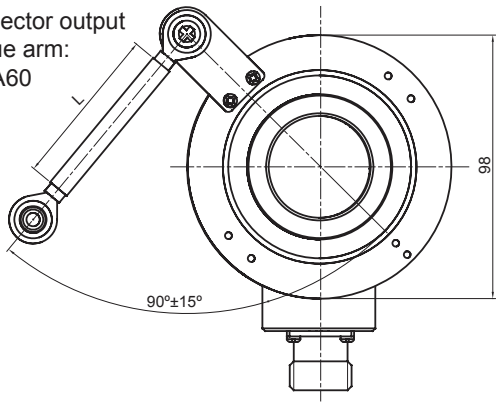
Dimensions

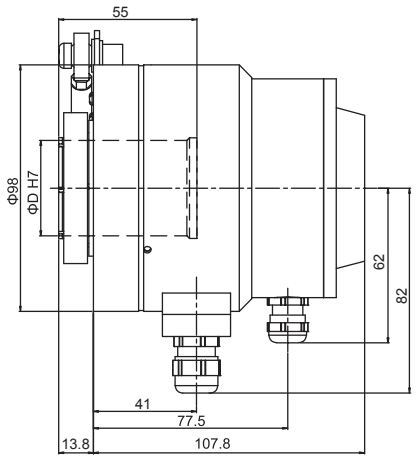
EX100P-WS
Integral connector
Flexible fastening arm:
E41350013





EX100R-WS
Connector output
Torque arm:
SN5A60





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Heavydic Series Hollow Shaft Encoder with Overspeed Switch EX100P-WS

Order Code:

EX 100 P 30 – L5 P R – 1024 + 1500 WS . XXXX

Series
EX= Incremental with overspeed switch output heavydic

Housing diameter
100=Housing diameter

Flange type
P=hollow shaft with spring
R=universal torque arm (SN5A60)

Shaft diameter
25=Φ25H7
30=Φ30H7
38=Φ38H7
40=Φ40H7
42=Φ42H7
45=Φ45H7

Output & Supply voltage

L5=RS422(with reverse sign)	5Vdc
L6=RS422(with reverse sign)	10~30Vdc
H6=Push-pull HTL(with reverse sign)	10~30Vdc
P6=Push-pull (without reverse sign)	10~30Vdc
E4=Push-pull7272 HTL(with reverse sign)	5~30Vdc

Type of connection
Cable length 1.5m

Resolution
Pulse/r S2048
Note: for available pulse options please contact us for further information

Outlets direction
R=radial

Alarm setting
Overspeed switch
=max. resolution (rpm)
eg.+ 1500
Overspeed switch range
Range: 450-2300rpm

Heavydic Series Hollow Shaft Encoder with Overspeed Switch

XXXX= Special code
Customized cable length
CN00XX=cable length
e.g. CN0010=1m
CN0020=2m

Diameter	Lock ring	Screw
Φ25	E41230036	M3×8
Φ30	E41230040	M3×8
Φ38	E41230042	M3×8
Φ40	E41230038	M3×8
Φ42	E41230049	M3×8
Φ45	E41230039	M3×8

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Heavydic Series Double Output Encoder EX100R-WD

Description

Heavydic Series Double Output Encoders EX100R-WD are specifically designed for various heavyduty industries and heavy load shaft applications. It delivers excellent mechanical shock absorption, and is also capable of withstanding higher axial and radial loads. The series' variant and flexible mechanical and electrical circuit designs enable it to match all control computers. The double electrical outputs can satisfy any special requirements. The resolution is up to 2048ppr, and both precise control and load safety are guaranteed.

Features

- Metal housing for greater shock resistance
- PEEK dielectric insulates the electromagnetic interference effectively
- Durable stainless steel hollow shaft Φ16H6
- Crutch arm connection
- Protection class IP66
- Resolution up to 2048ppr
- Integral cables, convenient for installation and maintenance
- Double outputs could meet special requirements

Mechanical Characteristics

Hollow shaft diameter(mm)	Φ16H6
Protection acc. to EN 60529	IP66
Speed(r/m)	3000
Max load capacity of the shaft	
Axial load capacity	100N
Radial load capacity	200N
Shock resistance	50G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9 revolution
Moment of inertia	$1.8\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy +PEEK
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	1253g

Resolution: 1024, 2048

Note: for other resolutions please contact us for further information

PEEK: Poly (ether-ether-ketone): possesses high mechanical strength, rigidity and hardness, high wear resistance, good frictional beh avior, heat resistance, resistance to chemical attack, hydrolysable, ultravioresistant, radioresistance, non inflammability

Electrical Characteristics

Output circuit	RS422	Push-pull	Push-pull	Push-pull7272
Resolution	Max. 2048ppr	Max. 2048ppr	Max. 2048ppr	Max. 2048ppr
Supply voltage(Vdc)	5V/10-30V	10-30V	5-30V	5-30V
Power consumption (no load)	≤80mA	≤125mA	≤125mA	≤125mA
Permissible load (channel)	±50mA	±80mA	±80mA	±80mA
Pulse frequency	Max. 800kHz	Max. 300kHz	Max. 300kHz	Max. 300kHz
Signal level high	Min.3.4V	Min.Ub-1.8V	Min.Ub-1.8V	Min.Ub-2.5V
Signal level low	Max.0.4V	Max.2.0V	Max.2.0V	Max.2.0V
Rise timeTr	Max 200ns	Max 1μs	Max 1μs	Max 1μs
Fall timeTf	Max 200ns	Max 1μs	Max 1μs	Max 1μs

Terminal Assignment

Signal	0V	$+U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	0V Sen	$+U_b$ Sen	Shield
Color	WH	BN	GN	YE	GY	PK	BU	RD	GY/ PK	RD/ BU	⏚
Pin	10	12	5	6	8	1	3	4	11	2	PH

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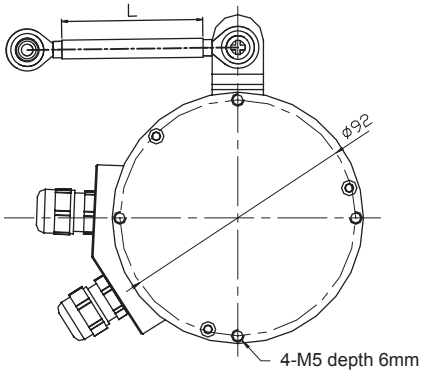
Heavydic Series Double Output Encoder EX100R-WD

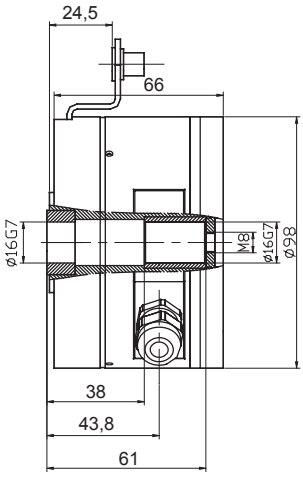
Dimensions

EX100R-WD

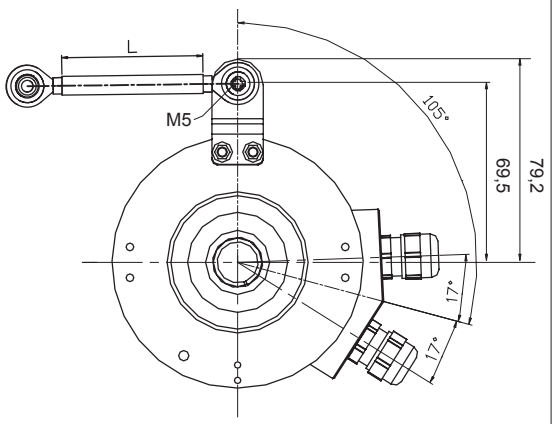
Torque arm SN5A60



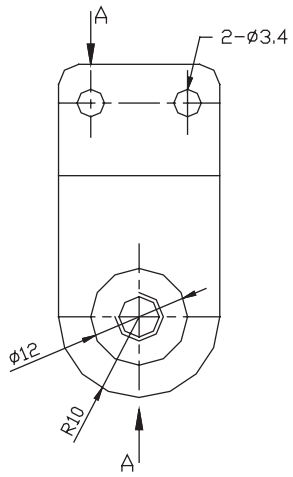
EX100R-WD



EX100R-WD



E44020053



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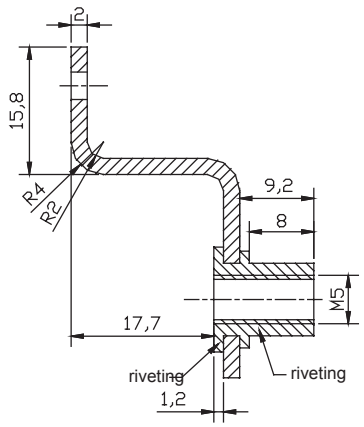

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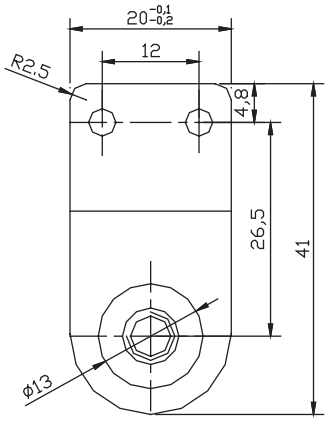
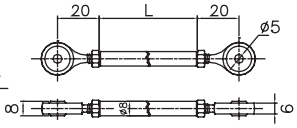


Crutch arm order code:
SN5A XX
(30, 60, 90 represent the length of crutch arm)



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Heavydic Series Double Output Encoder EX100R-WD

Order Code:

EX 100 R 16 – H6 P R – 2048 + H6 P R – 2048 WD

Series
EX = Heavydic incremental double output

Housing diameter
100=housing diameter

Flange type
R=torque arm (SN5A60)

Shaft diameter

straight shaft	conical shaft
16Z=Φ16G7	16=Φ16 1:10taper

Output & Supply voltage [1)]

L5=RS422 (with reverse sign)	5Vdc
L6=RS422 (with reverse sign)	10~30Vdc
H6=Push-pull HTL (with reverse sign)	10~30Vdc
H4=Push-pull HTL (with reverse sign)	5~30Vdc
P6=Push-pull (without reverse sign)	10~30Vdc
P4=Push-pull (without reverse sign)	5~30Vdc
E4=Push-pull7272 HTL (with reverse sign)	5~30Vdc

Standard cable length
P=1.5m

Resolution
pulse/r <=2048
Attention: for pulse scale pls contact our company

Outlets direction
R=radial

Output & Supply voltage [1)]

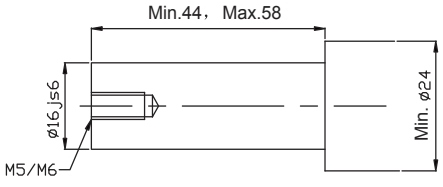
L5=RS422 (with reverse sign)	5Vdc
L6=RS422 (with reverse sign)	10~30Vdc
H6=Push-pull HTL (with reverse sign)	10~30Vdc
P6=Push-pull (without reverse sign)	10~30Vdc
E4=Push-pull7272 HTL (with reverse sign)	5~30Vdc

Standard cable length
P=1.5m

Outlets direction
R=radial

Resolution
pulse/r <=2048
Attention: for pulse scale pls contact our company

Heavydic Series Double Output Encoder



EX100R-WD user's shaft

[1)] When the provided power voltage is correct:
short-circuit to channel, 0V, or +UB is permitted when UB=5V,
short-circuit to channel or 0V is permitted when UB=10…30V.

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Heavydic Series Heavy Duty Encoder EX115A

Application

Heavydic series heavy duty encoders EX115A are specifically designed for various heavyduty industries and heavy load shaft applications. It combines the two most advanced European electrical and mechanical designs while delivering outstanding mechanical shock absorption capacity, and is also capable of withstanding higher axial and radial loads. It can be directly installed onto the drive shaft with keyway connection. The twin encoder with splitting systems can satisfy any special requirements. The speed limiting switch is provided, which allows speed configuration based on on-site requirements. It guarantees both precision controls and a safe operation.

Features

- Waterproof seal promotes greater IP level
- Pre-screwed holes for the convenience of customer
- Durable Φ11 stainless steel shaft
- Heavydic structure for greater shock resistance
- Protection class IP66
- Twin encoder with splitting systems.Mechanical and digital speed limiting switch is optional.
- Waterprooffixed wiring, promotes greater IP level

Mechanical Characteristics

Shaft diameter（mm）	Φ11g6
Protection acc.to EN 60529	IP66
Speed （r/m）	3000
Max load capacity of the shaft	
Axial load capacity	150N
Radial load capacity	250N
Shock resistance	400G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Moment of inertia	$3.4\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	approx.1.8kg
	approx.2.4kg（speed limited switch or twin encoder）

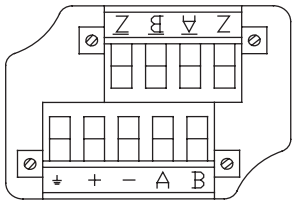
EVH115A Resolution：1024，2000，2048

Electrical Characteristics

Output circuit	Push-pull	Push-pull
Resolution	Max.2048ppr	Max.2048ppr
Supply voltage(Vdc)	10-30VDC	5-30VDC
Power consumption (no load)	125mA	125mA
Permissible load (channel)	250mA	250mA
Pulse frequency	200kHz	200kHz
Signal level high	Min.Ub-1.8	Min.Ub-1.8
Signal level low	Max.2.0V	Max.2.0V
Rise timeTr	Max.1μs	Max.1μs
Fall timeTf	Max.1μs	Max.1μs

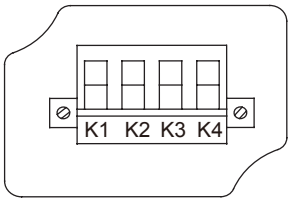
Terminal Assignment

Encoder Terminal Assignment



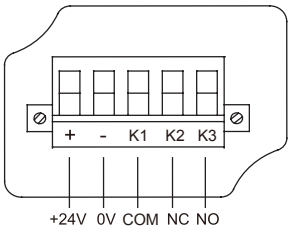
It determines the direction of rotation using signal A and B. If the quality of the signal is required to strengthening, you can simply link $\bar{A}$ and B.$\bar{Z}$ and $\bar{Z}$ are used to check for any errors from each circle.

Terminal Assignment for Mechanical Speed Limiting Switch



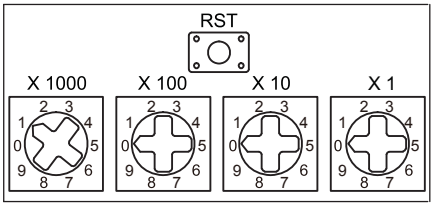
K1 and K4 are the ports of the speed limiting switch. When the motor's speed exceeds the settings, K1 and K4 are activated from close to open.

Terminal Assignment for Digital Speed Limiting Switch



Uses 24V DC power supply, K1 and K4 are the ports of the speed limiting switch. When the motor's speed exceeds the settings, K1 and K4 are from close to open.

Digital Speed Limiting Switch Speed DIP Switch



Setup

1. Power on after setting the speed using DIP switch when it is off;
2. Press RST after setting the speed using DIP switch when it is on.

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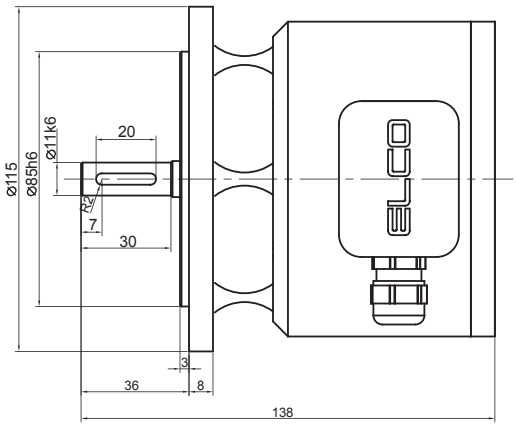
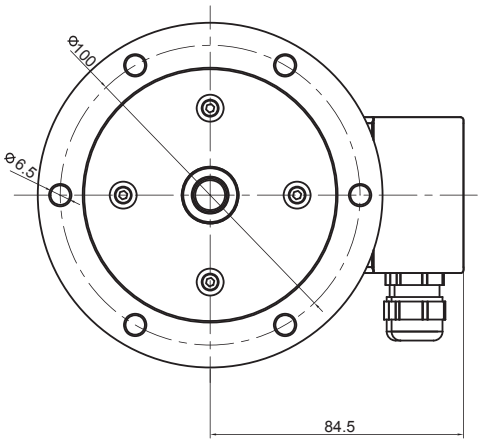
Heavydic Series Heavy Duty Encoder EX115A

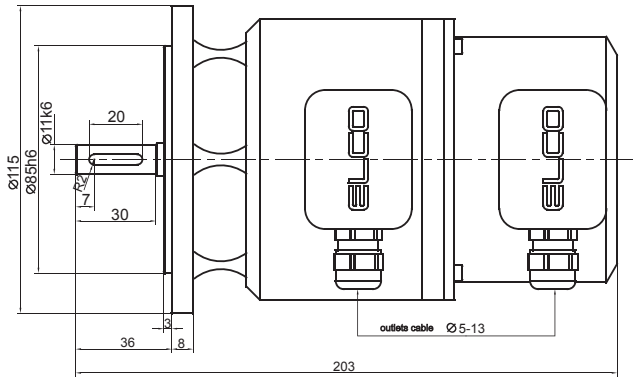
Dimensions

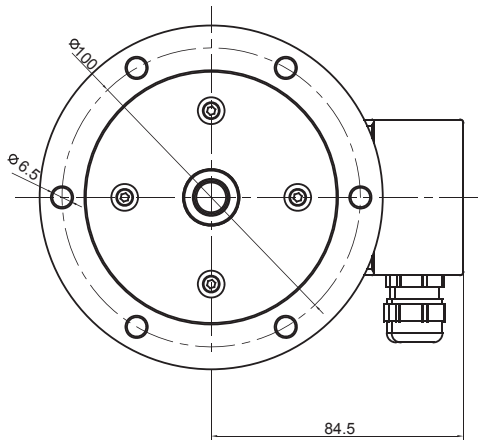
EX115A



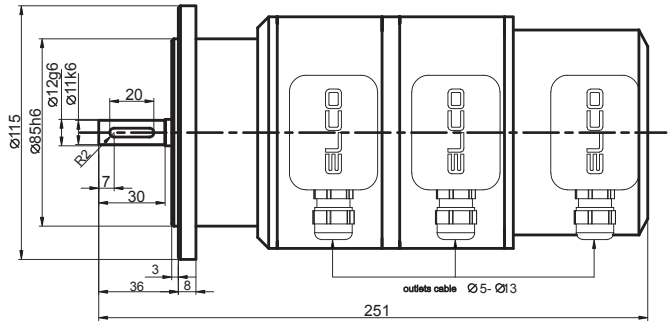


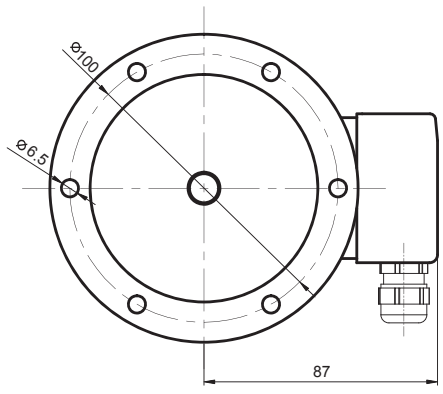
EX115A (overspeed switch or twin encoder)





EX115A (twin encoder with overspeed switch)





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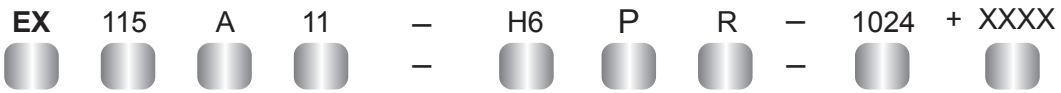
Heavydic Series Heavy Duty Encoder EX115A

Order Code:



Special code

without special requirement,
= leave as "empty"
overspeed switch
= alarming speed
eg.+1500
speed limited range
range 450–2300rpm
twin encoder with separate systems
=2nd electrical and resolution
eg.+H6PR-1024
twin encoder with overspeed switch
=2nd electrical and resolution+alarming speed
eg.+H6PR-1024+1500D

Shaft diameter

11=Φ11mm×30mm
with keyway

Flange type

A=A type standard flange

Resolution

1024
2000
2048

Outlets direction

R=radial

Housing diameter

115=housing diameter

Type of connection

P= wiring terminal, metal fixing

Series

EX = Incremental heavydic with
speed limiting switch output

Output & Supply voltage [1)]

H6=Push-pull HTL (with reverse sign)	10~30Vdc
L5=RS422	5Vdc
L6=RS422	10~30Vdc

1) When the provided power voltage is correct:
short-circuit to channel, 0V, or +UB is permitted when UB=5V,
short-circuit to channel or 0V is permitted when UB=10…30V.

Examples:

Increment: EX115A11-H6PR-1024
Increment incidental speeding relay type: EX115A11-H6PR-1024+1500
Redundancy double increment : EX115A11-H6PR-1024+H6PR-2048
Twin encoder with speed limiting switch: EX115A11-H6PR-1024+H6PR-1024+1500

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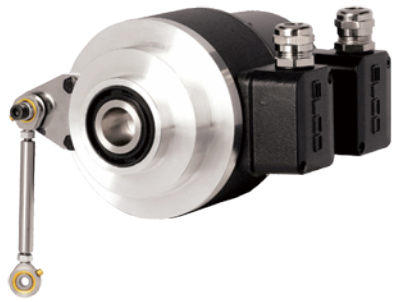
Heavydic Series Heavy Duty Encoder EX115R



Description

Heavydic series heavy duty encoders EX115R are specifically designed for various heavyduty industries and heavy loaded shaft applications. It combines the two most advanced European electrical and mechanical designs, while delivering outstanding mechanical shock absorption capacity. It is also capable of withstanding higher axial and radial loads. It can be directly installed onto the drive shaft with hollow shaft or subulate hollow shaft connection. The speed limiting switch is provided, and speed adjustment can be done based on on-site requirements. One speed is available for the mechanical model, and three speeds are available for the electromagnetic model. It guarantees both precision controls and safe operations. The twin encoder with splitting systems can satisfy higher safety requirements.

Features

- Standard European flange
- Waterproof seal promotes greater IP level
- Crutch arm instalaltion
- Durable stainless steel hollow shaft Φ16/Φ17/Φ20(hollow shaft,subulate hollow shaft ,taper1:10)
- Metal housing for better shock resistance
- Protection class IP66
- The twin encoder with splitting systems. Speed limiting switch output, range: 450rpm-2300rpm
- Waterproof fixed wiring, promotes greater IP level

Mechanical Characteristics

Hollow shaft diameter(mm)	Φ16/Φ17/Φ20H7(hollow shaft,subulate hollow shaft ,taper1:10)
Protection acc. to EN 60529	IP66
Speed(r/m)	3000
Max load capacity of the shaft	
Axial load capacity	150N
Radial load capacity	250N
Shock resistance	400G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Moment of inertia	$3.4\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	approx.1.5kg
	approx.2.2kg（speed limited switch or twin encoder）

EVH115R Resolution:
1024, 2000, 2048

Electrical Characteristics

Output circuit	Push-pull	Push-pull
Resolution	Max.2048ppr	Max.2048ppr
Supply voltage(Vdc)	10-30VDC	5-30VDC
Power consumption (no load)	125mA	125mA
Permissible load(channel)	250mA	250mA
Pulse frequency	200kHz	200kHz
Signal level high	Min.Ub-1.8	Min.Ub-1.8
Signal level low	Max.2.0V	Max.2.0V
Rise timeTr	Max.1μs	Max.1μs
Fall timeTf	Max.1μs	Max.1μs

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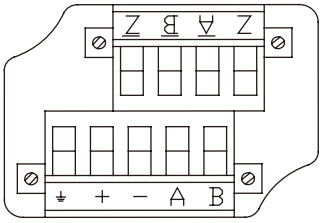
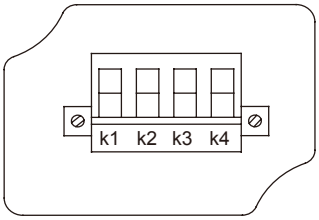
Heavydic Series Heavy Duty Encoder EX115R

Terminal Assignment



Signals Ā and B̄ are used to determine the direction of roation If signal strengthening isrequired, simply link up signals A and B.Z and Z̄ are used to check for any errors from each circle.

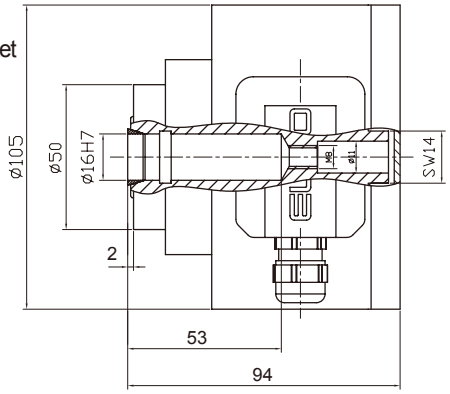


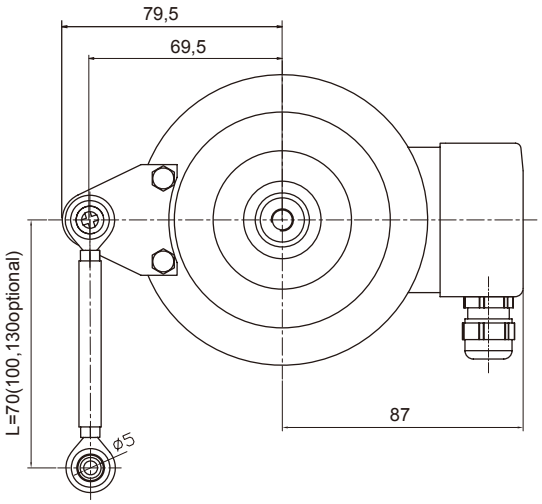
K1 and K4 are the ports of the speed limiting switch. when the motor's speed exceeds the settings, K1 and K4 are activated from close to open.
Electromagnetic speed limiting switch with 3 output relays

Dimensions

EX115R (hollow shaft)

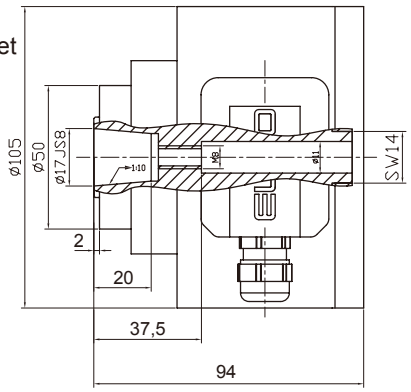
Torque arm installation
SN5A60
Torque arm bracket
E44020049A/0

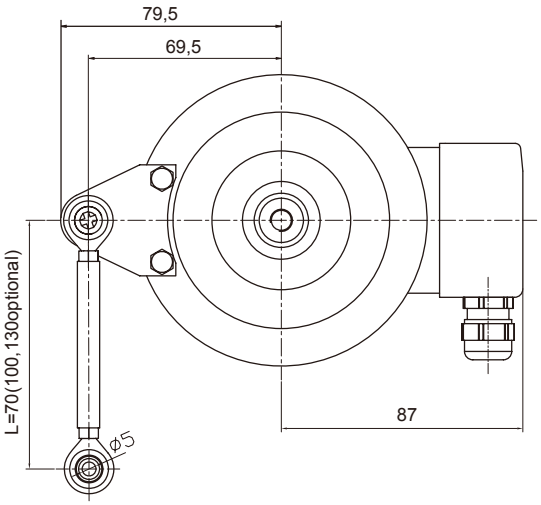




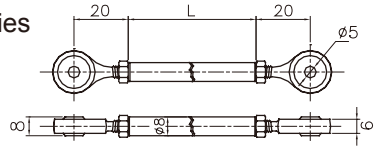
EX115R (subulate hollow shaft)

Torque arm installation
SN5A60
Torque arm bracket
E44020049A/0





Accessories



Torque arm length L=30, 60, 90mm, optional
Order Code: SN5AXX (30, 60, 90 represents available torque arm lengths)
Torque arm operation: two-sided rotational universal stub, adjustment can be done according to the requirements; lock counter-rotating nut, max lengths are 70,100 and 130mm.

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Heavydic Series Heavy Duty Encoder EX115R

Dimensions:

EX115R (overspeed switch or twin encoder, hollow shaft)

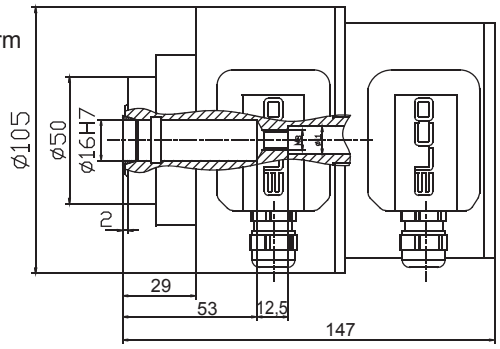
Torque arm bracket

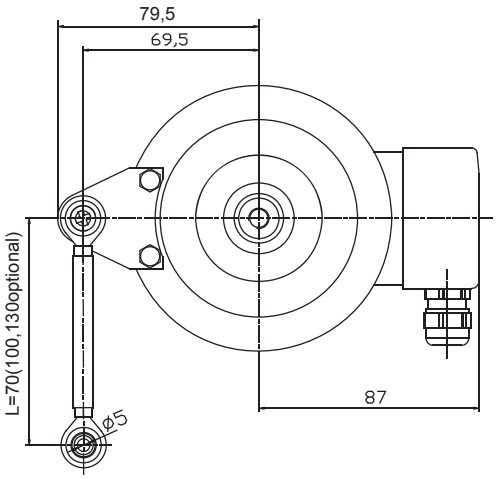
SN5A60

Torque arm bracket

E4402

0049A/0





EX115R (overspeed switch or twin encoder, subulate hollow shaft)

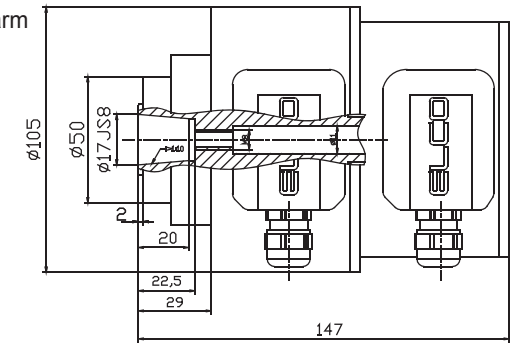
Torque arm installation

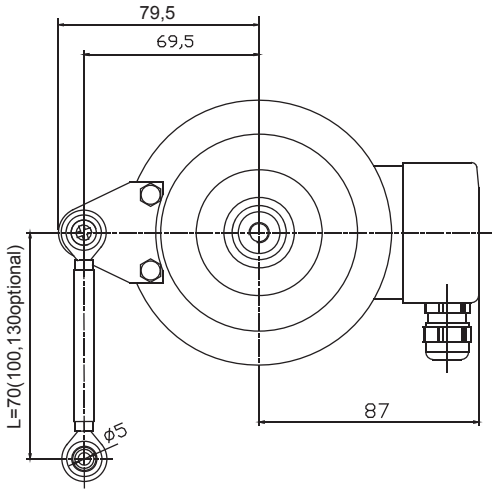
SN5A60

Torque arm bracket

E4402

0049A/0





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Heavydic Series Heavy Duty Encoder EX115R

Order Code

EX 115 R 17 _ H6 P R _ 1024 + XXXX

Series
EX＝Incremental heavydic with speed limited switch output

Housing diameter
115=housing diameter

Flange type
R=R type European standard hollow shaft flange

Shaft diameter
hollow shaft
16Z=Φ16
17Z=Φ17

subulate hollow shaft
16=Φ16
17=Φ17
20=Φ20
1: 10taper

Output & Supply voltage [1)]

H6=Push-pullHTL	(with reverse sign)	5-30Vdc
L5=RS422	(with reverse sign)	5Vdc
L6=RS422	(with reverse sign)	10-30Vdc

Type of connection
P=wiring terminal, waterproof lock ring output

Outlets direction
R=radial

Resolution
1024
2000
2048

Special code
Without special requirement, = leave "empty"
Overspeed switch
=Max. speed
eg.＋1500
Overspeed range
Range: 450-2300rpm
Electromagnetic speed limiting switch
=speed limit 1E-speed limit 2E-speed limit 3E
limited 2E-speed limited 3E
eg.: +850E-900E-950E
twin encoder with split systems
=2nd electrical and resolution
eg.＋H6PR-1024

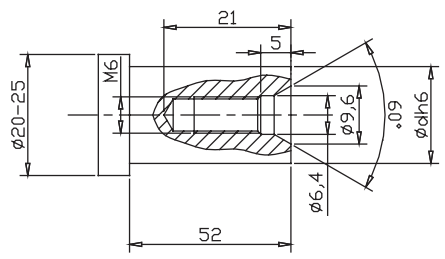
EVH115R accessories

E23230805	M6×25 bolt (stainless steel)
E23231210	elastic washer M6
E23231606	5mm hex key wrench (extension)
E23240071A/0	demolition bolt
E23240072A/0	retaining wrench
E23220002	SN5A60 crutch arm
EVH115R16Z	
E41230068A/0	locking-ring (Φ16)
EVH115R17Z	
E41230069A/0	locking-ring (Φ17)

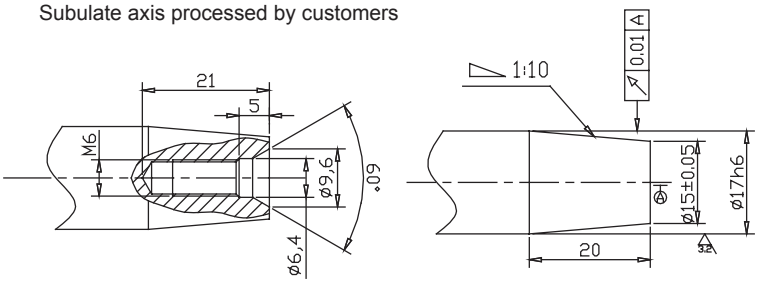
Model ordering example:

Overspeed switch, hollow shaft: EX115R17Z-H6PR-1024+1500
Twin encoder, subulate hollow shaft: EX115R17-H6PR-1024+H6PR-2048
Without overspeed switch, subulate hollow shaft: EX115R17Z-H6PR-1024
Without speed limited switch, subulate hollow shaft: EX115R17-H6PR-1024

Axis processed by customers



Subulate axis processed by customers



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Heavydic Series Heavy Duty Encoder EX115A

Application

Heavydic series heavy duty encoders EX115A are specifically designed for various heavyduty industries and heavy load shaft applications. It combines the two most advanced European electrical and mechanical designs while delivering outstanding mechanical shock absorption capacity, and is also capable of withstanding higher axial and radial loads. It can be directly installed onto the drive shaft with keyway connection. The twin encoder with splitting systems can satisfy any special requirements. The speed limiting switch is provided, which allows speed configuration based on on-site requirements. It guarantees both precision controls and a safe operation.

Features

- Waterproof seal promotes greater IP level
- Pre-screwed holes for the convenience of customer
- Durable Φ11 stainless steel shaft
- Heavydic structure for greater shock resistance
- Protection class IP66
- Twin encoder with splitting systems.Mechanical and digital speed limiting switch is optional.
- Waterprooffixed wiring, promotes greater IP level

Mechanical Characteristics

Shaft diameter（mm）	Φ11g6
Protection acc.to EN 60529	IP66
Speed （r/m）	3000
Max load capacity of the shaft	
Axial load capacity	150N
Radial load capacity	250N
Shock resistance	400G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Moment of inertia	$3.4\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	approx.1.8kg
	approx.2.4kg（speed limited switch or twin encoder）

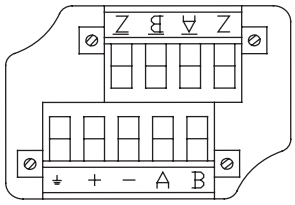
EVH115A Resolution：1024，2000，2048

Electrical Characteristics

Output circuit	Push-pull	Push-pull
Resolution	Max.2048ppr	Max.2048ppr
Supply voltage(Vdc)	10-30VDC	5-30VDC
Power consumption (no load)	125mA	125mA
Permissible load (channel)	250mA	250mA
Pulse frequency	200kHz	200kHz
Signal level high	Min.Ub-1.8	Min.Ub-1.8
Signal level low	Max.2.0V	Max.2.0V
Rise timeTr	Max.1μs	Max.1μs
Fall timeTf	Max.1μs	Max.1μs

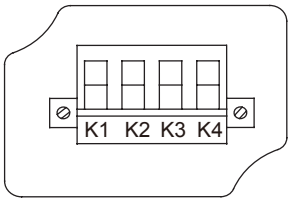
Terminal Assignment

Encoder Terminal Assignment



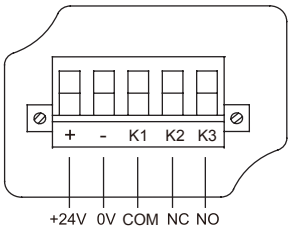
It determines the direction of rotation using signal A and B. If the quality of the signal is required to strengthening, you can simply link Ā and B.Z¯ and Z¯ are used to check for any errors from each circle.

Terminal Assignment for Mechanical Speed Limiting Switch



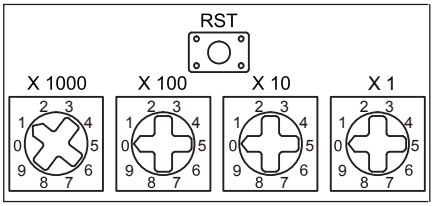
K1 and K4 are the ports of the speed limiting switch. When the motor's speed exceeds the settings, K1 and K4 are activated from close to open.

Terminal Assignment for Digital Speed Limiting Switch



Uses 24V DC power supply, K1 and K4 are the ports of the speed limiting switch. When the motor's speed exceeds the settings, K1 and K4 are from close to open.

Digital Speed Limiting Switch Speed DIP Switch



Setup

1. Power on after setting the speed using DIP switch when it is off;
2. Press RST after setting the speed using DIP switch when it is on.

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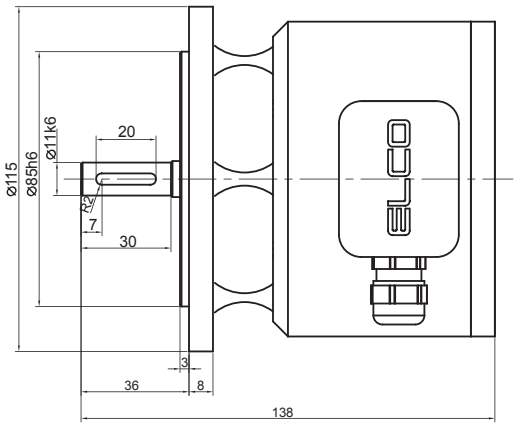
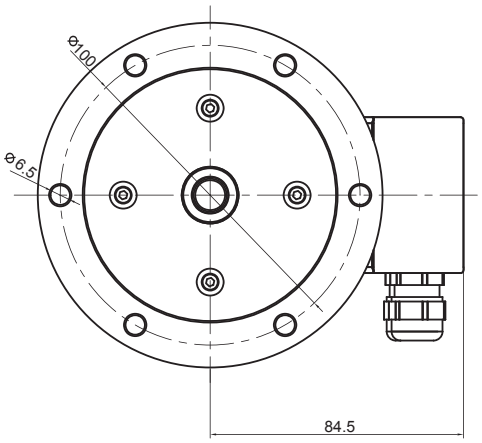
Heavydic Series Heavy Duty Encoder EX115A

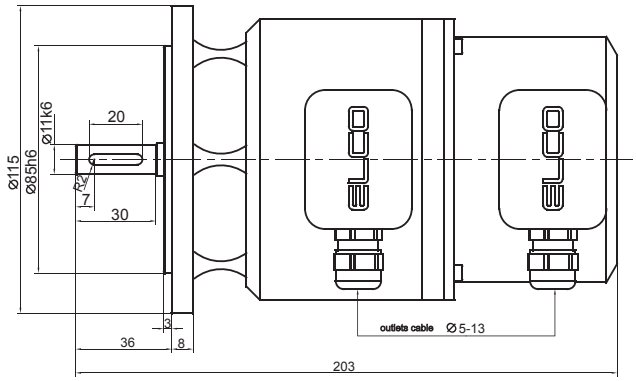
Dimensions

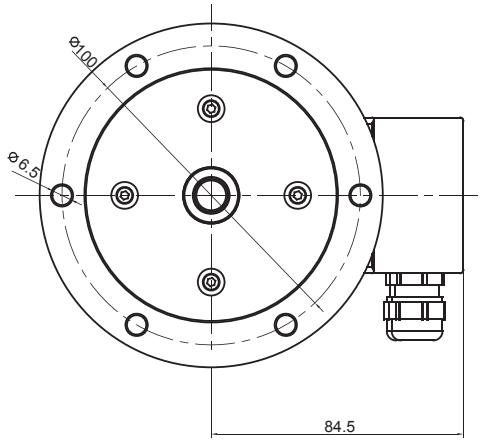
EX115A



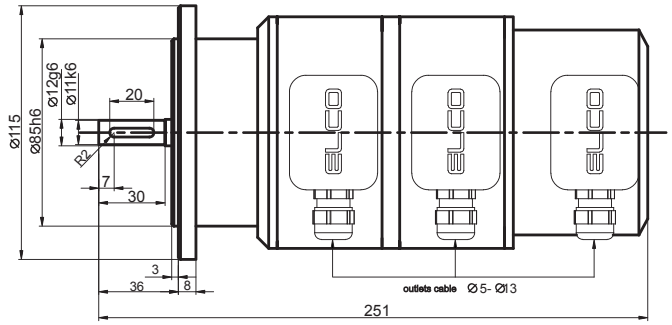


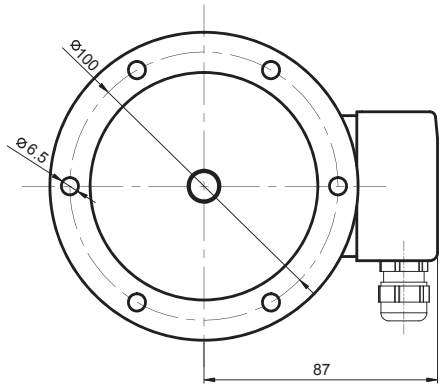
EX115A (overspeed switch or twin encoder)





EX115A (twin encoder with overspeed switch)





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Heavydic Series Heavy Duty Encoder EX115A

Order Code:

Special code

without special requirement,
= leave as "empty"
overspeed switch
= alarming speed
eg.＋1500
speed limited range
range 450–2300rpm
twin encoder with separate systems
=2nd electrical and resolution
eg.+H6PR-1024
twin encoder with overspeed switch
=2nd electrical and resolution+alarming speed
eg.+H6PR-1024+1500D

Shaft diameter

11=Φ11mm×30mm with keyway

Flange type

A=A type standard flange

Resolution

1024
2000
2048

Outlets direction

R=radial

Housing diameter

115=housing diameter

Type of connection

P= wiring terminal, metal fixing

Series

EX＝Incremental heavydic with speed limiting switch output

Output & Supply voltage [1)]

H6=Push-pull HTL (with reverse sign)	10~30Vdc
L5=RS422	5Vdc
L6=RS422	10~30Vdc

1) When the provided power voltage is correct:
short-circuit to channel, 0V, or +UB is permitted when UB=5V,
short-circuit to channel or 0V is permitted when UB=10…30V.

Examples:

Increment: EX115A11-H6PR-1024
Increment incidental speeding relay type: EX115A11-H6PR-1024+1500
Redundancy double increment : EX115A11-H6PR-1024+H6PR-2048
Twin encoder with speed limiting switch: EX115A11-H6PR-1024+H6PR-1024+1500

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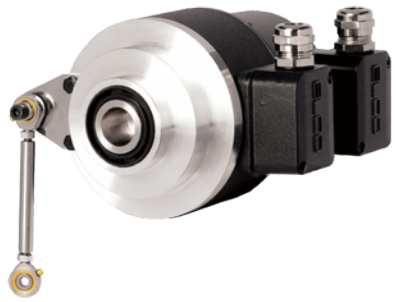
Heavydic Series Heavy Duty Encoder EX115R



Description

Heavydic series heavy duty encoders EX115R are specifically designed for various heavyduty industries and heavy loaded shaft applications. It combines the two most advanced European electrical and mechanical designs, while delivering outstanding mechanical shock absorption capacity. It is also capable of withstanding higher axial and radial loads. It can be directly installed onto the drive shaft with hollow shaft or subulate hollow shaft connection. The speed limiting switch is provided, and speed adjustment can be done based on on-site requirements. One speed is available for the mechanical model, and three speeds are available for the electromagnetic model. It guarantees both precision controls and safe operations. The twin encoder with splitting systems can satisfy higher safety requirements.

Features

- Standard European flange
- Waterproof seal promotes greater IP level
- Crutch arm instalaltion
- Durable stainless steel hollow shaft Φ16/Φ17/Φ20(hollow shaft,subulate hollow shaft ,taper1:10)
- Metal housing for better shock resistance
- Protection class IP66
- The twin encoder with splitting systems. Speed limiting switch output, range: 450rpm-2300rpm
- Waterproof fixed wiring, promotes greater IP level

Mechanical Characteristics

Hollow shaft diameter(mm)	Φ16/Φ17/Φ20H7(hollow shaft,subulate hollow shaft ,taper1:10)
Protection acc. to EN 60529	IP66
Speed(r/m)	3000
Max load capacity of the shaft	
Axial load capacity	150N
Radial load capacity	250N
Shock resistance	400G/11ms
Vibration resistance	10G 10~2000Hz
Bearing life	10^9revolution
Moment of inertia	$3.4\times10^{-6}kgm^2$
Starting torque	<0.01Nm
Body material	AL-alloy
Housing material	AL-alloy
Operating temperature	-20°C~~+80°C
Storage temperature	-25°C~~+85°C
Weight	approx.1.5kg
	approx.2.2kg（speed limited switch or twin encoder）

EVH115R Resolution:
1024, 2000, 2048

Electrical Characteristics

Output circuit	Push-pull	Push-pull
Resolution	Max.2048ppr	Max.2048ppr
Supply voltage(Vdc)	10-30VDC	5-30VDC
Power consumption (no load)	125mA	125mA
Permissible load(channel)	250mA	250mA
Pulse frequency	200kHz	200kHz
Signal level high	Min.Ub-1.8	Min.Ub-1.8
Signal level low	Max.2.0V	Max.2.0V
Rise timeTr	Max.1μs	Max.1μs
Fall timeTf	Max.1μs	Max.1μs

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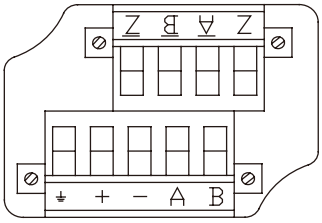
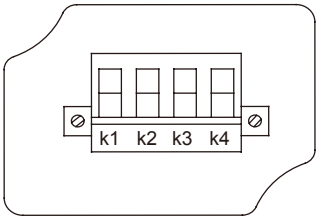
Heavydic Series Heavy Duty Encoder EX115R

Terminal Assignment



Signals Ā and B̄ are used to determine the direction of roation If signal strengthening isrequired, simply link up signals A and B.Z and Z̄ are used to check for any errors from each circle.

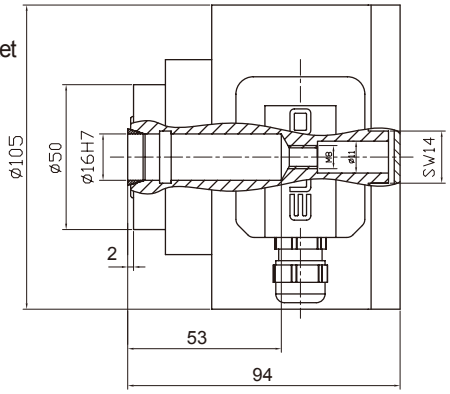


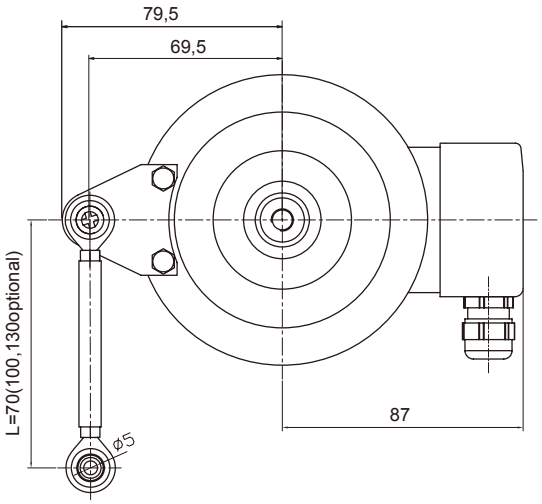
K1 and K4 are the ports of the speed limiting switch. when the motor's speed exceeds the settings, K1 and K4 are activated from close to open.
Electromagnetic speed limiting switch with 3 output relays

Dimensions

EX115R (hollow shaft)

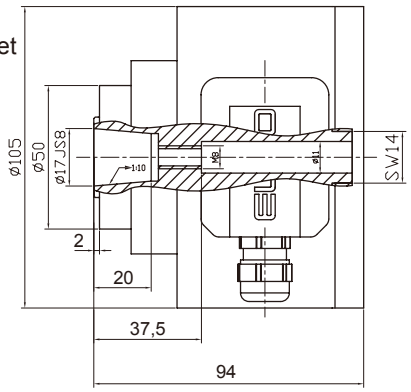
Torque arm installation
SN5A60
Torque arm bracket
E44020049A/0

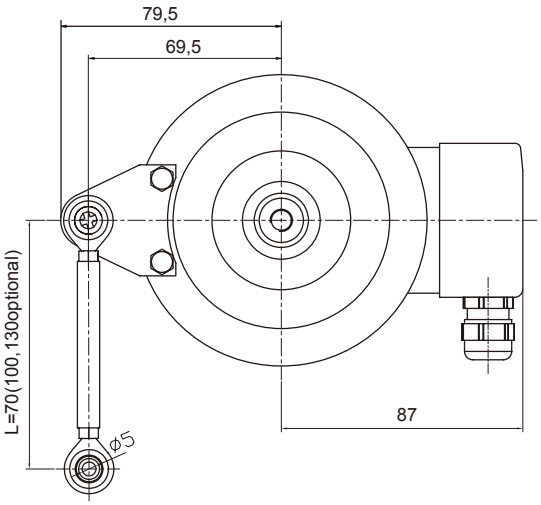




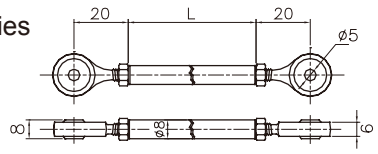
EX115R (subulate hollow shaft)

Torque arm installation
SN5A60
Torque arm bracket
E44020049A/0





Accessories



Torque arm length L=30, 60, 90mm, optional
Order Code: SN5AXX (30, 60, 90 represents available torque arm lengths)
Torque arm operation: two-sided rotational universal stub, adjustment can be done according to the requirements; lock counter-rotating nut, max lengths are 70,100 and 130mm.

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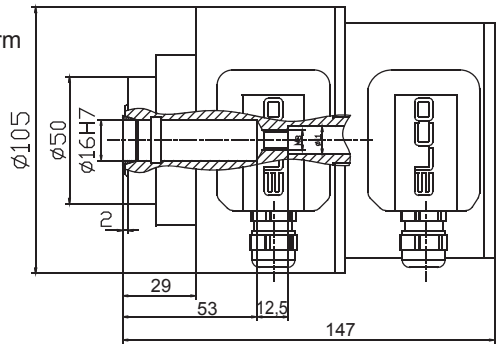
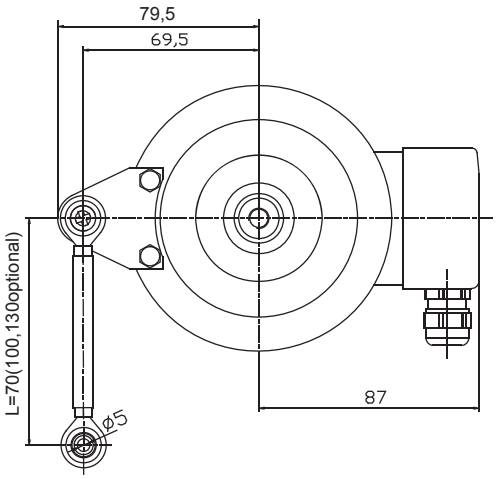
Heavydic Series Heavy Duty Encoder EX115R

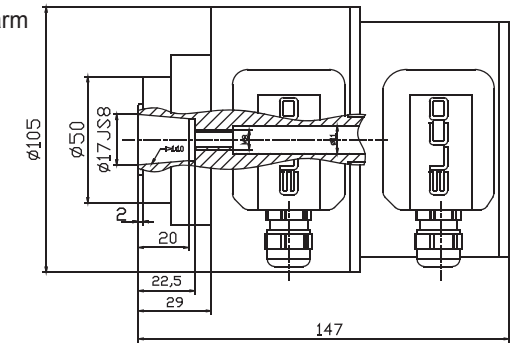
Dimensions:

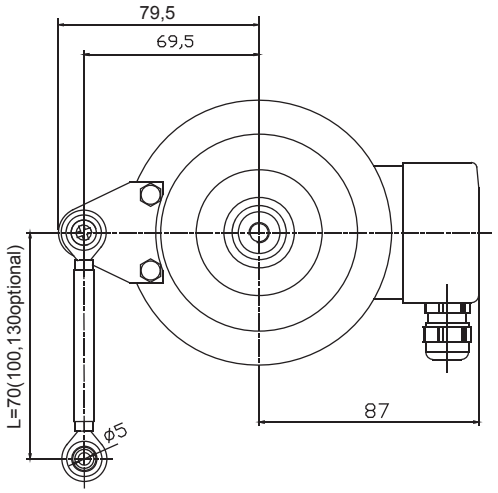
EX115R (overspeed switch or twin encoder, hollow shaft)
Torque arm bracket
SN5A60
Torque arm bracket
E4402
0049A/0





EX115R (overspeed switch or twin encoder, subulate hollow shaft)
Torque arm installation
SN5A60
Torque arm bracket
E4402
0049A/0





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Heavydic Series Heavy Duty Encoder EX115R

Order Code

EX 115 R 17 _ H6 P R _ 1024 + XXXX

Series
EX＝Incremental heavydic with speed limited switch output

Housing diameter
115=housing diameter

Flange type
R=R type European standard hollow shaft flange

Shaft diameter
hollow shaft
16Z=Φ16
17Z=Φ17

subulate hollow shaft
16=Φ16
17=Φ17
20=Φ20
1: 10taper

Output & Supply voltage [1)]

H6=Push-pullHTL	(with reverse sign)	5-30Vdc
L5=RS422	(with reverse sign)	5Vdc
L6=RS422	(with reverse sign)	10-30Vdc

Type of connection
P=wiring terminal, waterproof lock ring output

Outlets direction
R=radial

Resolution
1024
2000
2048

Special code
Without special requirement, = leave "empty"
Overspeed switch
=Max. speed
eg.＋1500
Overspeed range
Range: 450-2300rpm
Electromagnetic speed limiting switch
=speed limit 1E-speed limit 2E-speed limit 3E
limited 2E-speed limited 3E
eg.: +850E-900E-950E
twin encoder with split systems
=2nd electrical and resolution
eg.＋H6PR-1024

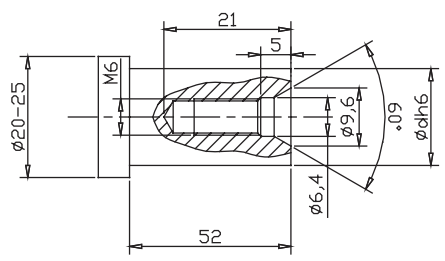
Model ordering example:

Overspeed switch, hollow shaft: EX115R17Z-H6PR-1024+1500
Twin encoder, subulate hollow shaft: EX115R17-H6PR-1024+H6PR-2048
Without overspeed switch, subulate hollow shaft: EX115R17Z-H6PR-1024
Without speed limited switch, subulate hollow shaft: EX115R17-H6PR-1024

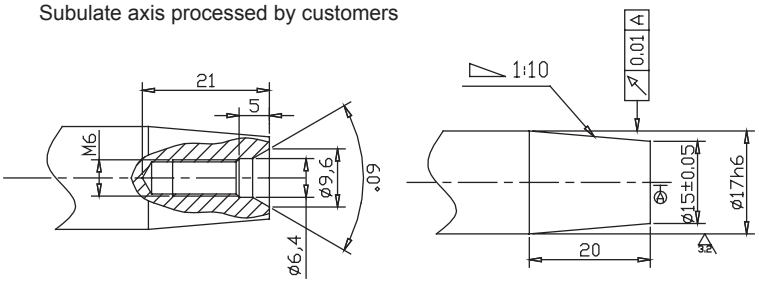
EVH115R accessories

E23230805	M6×25 bolt (stainless steel)
E23231210	elastic washer M6
E23231606	5mm hex key wrench (extension)
E23240071A/0	demolition bolt
E23240072A/0	retaining wrench
E23220002	SN5A60 crutch arm
EVH115R16Z	
E41230068A/0	locking-ring (Φ16)
EVH115R17Z	
E41230069A/0	locking-ring (Φ17)

Axis processed by customers



Subulate axis processed by customers



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Heavydic Series High Protection Overspeed Switch EX115-XXXX

Description

Heavydic series high protection switch EX115-XXXX is designed for applications in rough working conditions. It provides the highest protection level in the range of high-speed switches. It delivers excellent performance in anti-mechanical damage, and the speed limiter could be used to guarantee safety requirements. Mechanically it adapts European standard flange, and the space saving hollow shaft. Hollow or subulate hollow shafts are available for customer requirements.

Features

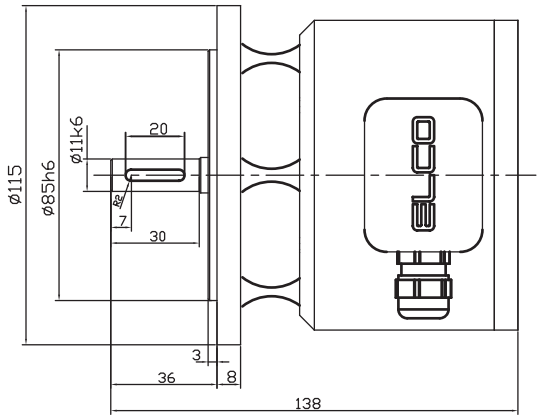
- European standard flange
- Waterproof seal promotes greater IP level
- Protection class IP66
- Metal housing for better shock resistance
- Speed limited range: 450rpm--2300rpm
- Waterproof fixed wiring, promotes greater IP level

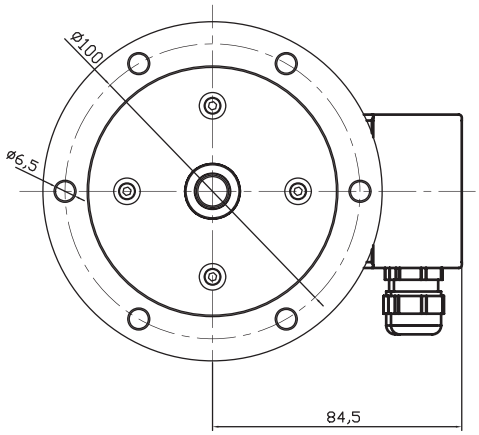
Mechanical Characteristics

Type	EX115A-XXXX	EX115R-XXXX
Shaft diameter(mm)	Φ11g6	Φ16/Φ17/Φ20H6(hollow shaft,subulate hollow shaft, taper1:10)
Protection acc. to EN 60529	IP66	IP66
Speed(r/m)	3000	3000
Max load capacity of the shaft		
Axial load capacity	150N	150N
Radial load capacity	250N	250N
Shock resistance	400G/11ms	400G/11ms
Vibration resistance	10G 10~2000Hz	10G 10~2000Hz
Bearing life	10^9revolution	10^9revolution
Moment of inertia	$3.4\times10^{-6}kgm^2$	$3.4\times10^{-6}kgm^2$
Starting torque	<0.01Nm	<0.01Nm
Body material	AL-alloy	AL-alloy
Housing material	AL-alloy	AL-alloy
Operating temperature	-20°C~~+80°C	-20°C~~+80°C
Storage temperature	-25°C~~+85°C	-25°C~~+85°C
Weight	approx.1.8kg	approx.1.5kg

Dimensions

EX115A-XXXX





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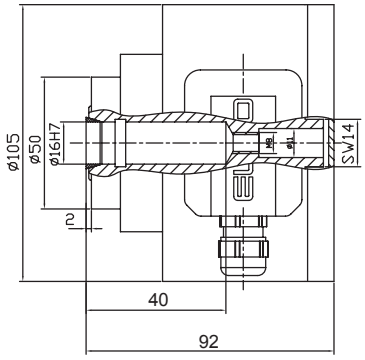
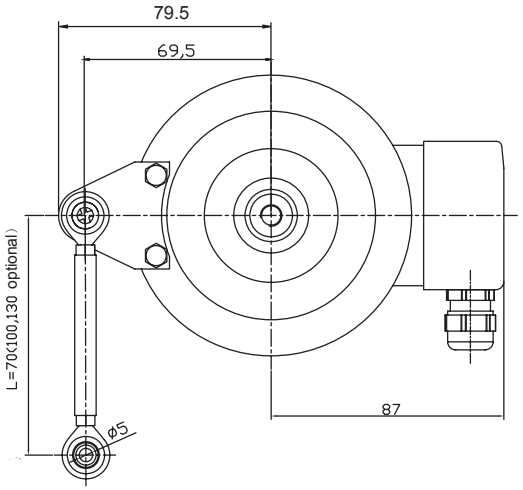
Heavydic Series High Protection Overspeed Switch EX115-XXXX

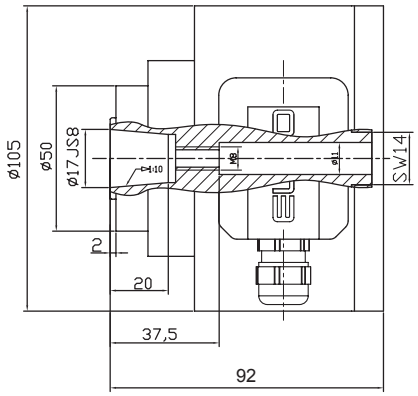
Dimensions

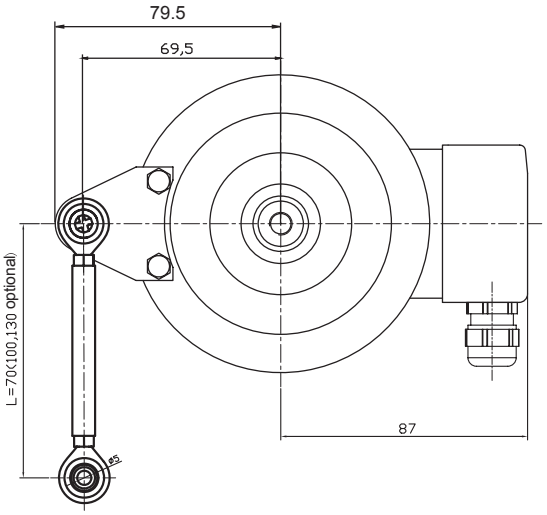
EX115R-XXXX (hollow shaft)

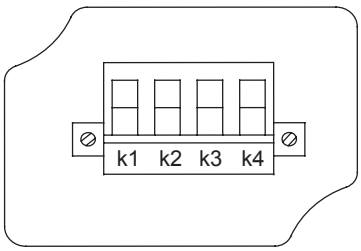




EX115R-XXXX (subulate hollow shaft)







Terminal boxes for Type B and C. K1 and K4 are the ports of the speed switch. When the motor's speed is over the default setting, K1 and K4 will turn from close to open.

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Heavydic Series High Protection Overspeed Switch EX115-XXXX

Order Code：

EX 115 A 11 + 1500

Speed limit

1500=Max. speed limit (rpm)

Note: speed limit can be modified range: 450-2300rpm

Shaft diameter

11=Φ11mm×30mm with keyway (EX 115A)

EX 115R optional

hollow shaft	subulate hollow shaft
16Z=Φ16	16=Φ16
17Z=Φ17	17=Φ17
20Z=Φ20	20=Φ20
	1：10taper

Flange type

A=A type standard flange
R=R type European standard flange

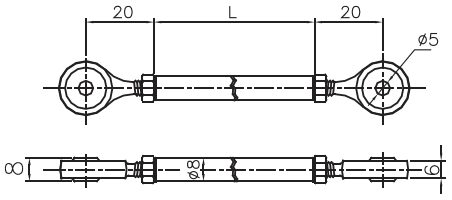
Housing diameter

115=housing diameter

Series

EX＝Heavydic series high protection switch

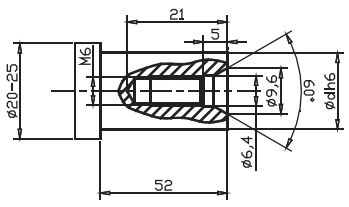
Accessories:



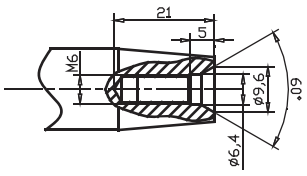
Torque arm length L=30,60,90mm,optional
Order: SN5AXX (30, 60, 90 represents the torque arm lengths)
Usage：rotate the universal stub from both sides and adjust the length to the required length; to lock, counter rotate the nut and the max lengths are 70,100,130mm.

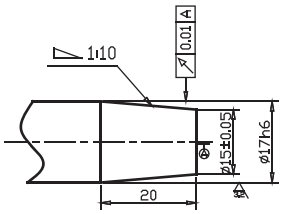
1) When the provided power voltage is correct:
short-circuit to channel, 0V, or +UB is permitted when UB=5V,
short-circuit to channel or 0V is permitted when UB=10.. .30V.

Axis processed by customers



Subulate axis processed by customers





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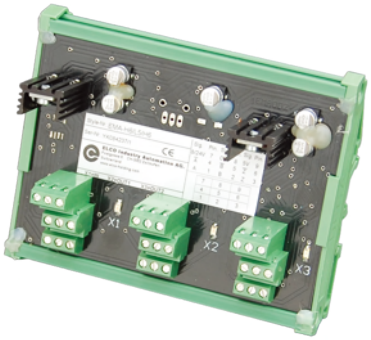
ECI Adapter Signal Splitter



Description

The splitter is used when it is necessary to adapt the encoder electronic characteristics to the controller. Main functions of ECI are output signal splitting and output adaptation. ECI must be installed in the junction box. Each channel can resist impulse voltage up to 7500V, and the insulation resistance must be greater than 10ohm. Supply voltage for the insulation board is 10~30Vdc, Max. 1A.

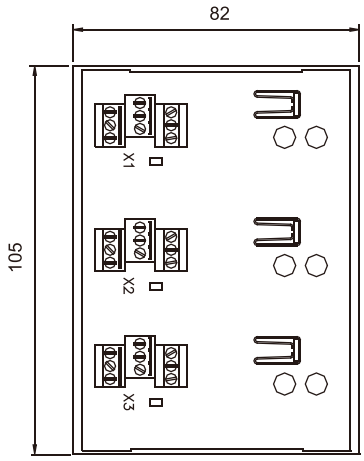
Featuers

- Power between input and output signals is insulated.
- IIndependent power supply for each group of signals, noise-insulating signals
- Optical coupling principle is used to ensure the noise signal insulation
- Easy conversion between variety of circuit outputs, easy to match host computers
- Compact,space-saving,easy installation
- Various general-purpose guiding rails are available for easy dismantling

Mechanical Characteristics

Input voltage	10～30 VDC or 5VDC，Imax=1A
Output voltage	10～30 VDC or 5VDC，Imax=80mA
Max. current of each channel	20mA
Max. operating frequency	250kHz
Operating temperature	-20°C to +70°C
Storage temperature	-45°C to +90°C
Fixing on the frame	DIN 46277/3(OMEGA)GUIDE DIN 46277/2 GUIDE

Dimensions



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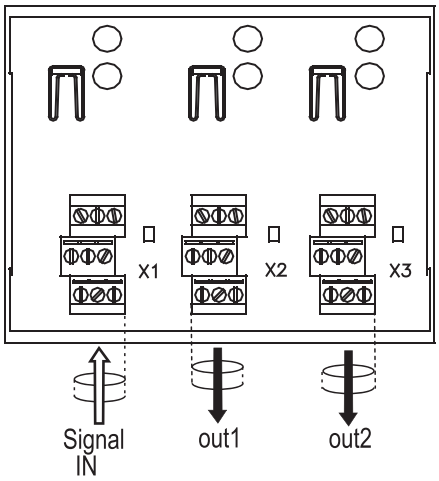
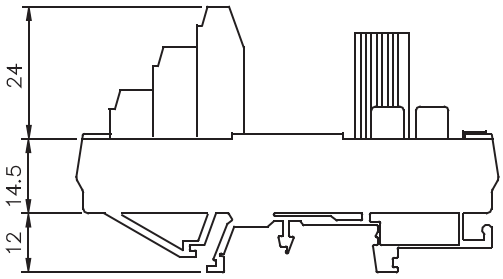
ECI Adapter Signal Splitter

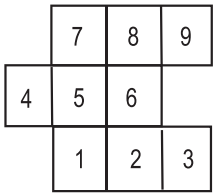
Principle and Wiring Guide



External Dimensions



Terminal AssignmentX1,X2,X3



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ECI Adapter Signal Splitter

Wiring Guide

Input X1	A	B	Z	$\bar{A}$	$\bar{B}$	$\bar{Z}$	10-30 V	GND	5 V
Output X2/X3	A	B	Z	$\bar{A}$	B	Z	10-30 V	GND	5 V
Serial number	1	2	3	4	5	6	7	8	9

Order Code

Input Output 1 Output 2

ECI - L5 / H6 / L5 . XXXX

XXXX=Special code

Input voltage out 2 (Vdc) terminal board ×3

L5=RS422	(with reverse sign)	5Vdc
L6=RS422	(with reverse sign)	10~30Vdc
H4=Push-pull HTL	(with reverse sign)	5~30Vdc
H6=Push-pull HTL	(with reverse sign)	10~30Vdc
P4=Push-pull HTL	(without reverse sign)	5~30Vdc
P6=Push-pull HTL	(without reverse sign)	10~30Vdc

Input voltage out 1 (Vdc) terminal board ×2

L5=RS422	(with reverse sign)	5Vdc
L6=RS422	(with reverse sign)	10~30Vdc
H4=Push-pull HTL	(with reverse sign)	5~30Vdc
H6=Push-pull HTL	(with reverse sign)	10~30Vdc
P4=Push-pull HTL	(without reverse sign)	5~30Vdc
P6=Push-pull HTL	(without reverse sign)	10~30Vdc

Input voltage (Vdc) terminal board ×1

L5=RS422	(with reverse sign)	5Vdc
L6=RS422	(with reverse sign)	10~30Vdc
H4=Push-pull HTL	(with reverse sign)	5~30Vdc
H6=Push-pull HTL	(with reverse sign)	10~30Vdc

ECI=adapter signal splitter

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ECX Adapter Signal Splitter

Description

The ECX adapter signal splitter is used when it is necessary to adapt the encoder electronic characteristics to the controller. Main functions of ECX are output signal splitting and adaptation of output stages.

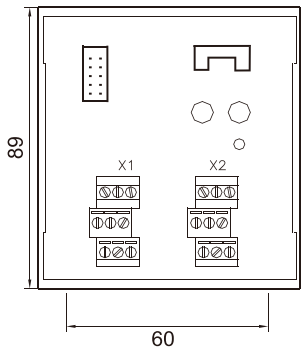
Features

- Solve the problem of signals conversions
- Optical coupling principle used to ensure the noise signal isolation
- One input/one output structure, which could be assessed by modular output module
- Easy conversion between variety of circuit outputs to meet host computers requirements
- Compact, space-saving, easy installation
- Types of general-purpose guiding rails for dismantling purpose

Mechanical Characteristics

Input and output voltage	5Vdc or 10~30Vdc
Current consumption (no load)	70mA
Max. output current of each channel	RS422 20mA, Push-pull 40mA
Max. input current of each channel	10mA
Max. operating frequency	100kHz
Full load conditions, absorption current (A)	Imax=0.12(Vx1+Vx2+…Vxn+Vx4)/Vx4
	VX1=input voltageX1 VX2…VXn=output voltageX2…Xn
	VX4=board input voltage
Operating temperature	0~+50°C
Fixing on the frame	DIN 46277/3(OMEGA) DIN 46277/2

Dimensions



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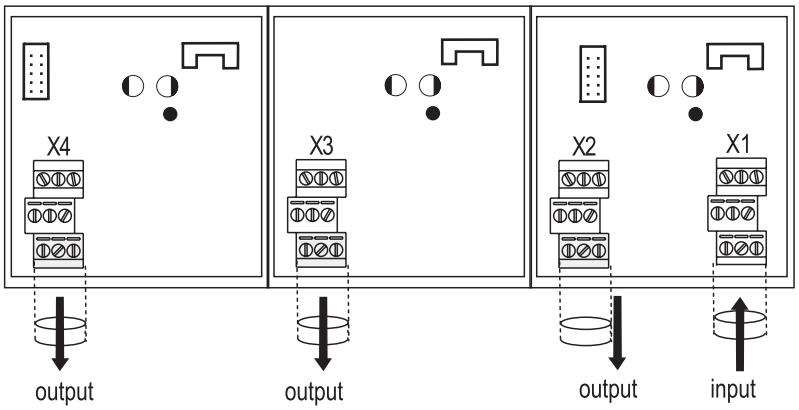
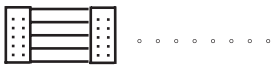
ECX Adapter Signal Splitter

Principle and Wiring Guide

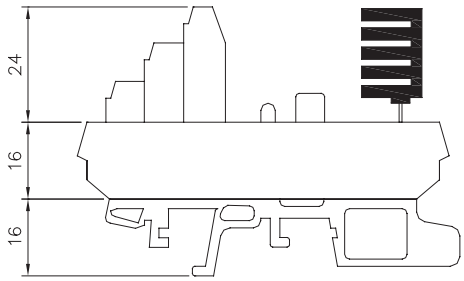


Cable & connector wiring
Input & output modular

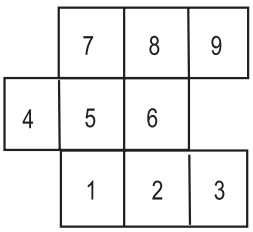


Cable & connector wiring
Input & output modular

External Dimensions



Terminal Assignment X1,X2,X3



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ECX Adapter Signal Splitter

Wiring Guide

Input X1	A	B	Z	-A	-B	-Z	+V	GND	⏚
OutputX2	A	B	Z	-A	-B	-Z	+V	GND	⏚
Output X3/X4...	A	B	Z	-A	-B	-Z	+V	GND	⏚
Serial number	1	2	3	4	5	6	7	8	9

Combination: 1 input and 8 outputs for signal distribution

Order Code

		Input		Output 1		Output N			
ECX	**-**	**L5**	**/**	**P6**	**...**	**(L5)**	**-**	**V6**	**. XXXX**

XXXX=Special code

Supply voltage [1)]

V5=5Vdc（Only input and output are both L5）
V6=10~30Vdc

Output voltage (Vdc) terminal board ×3

L5=RS422	(with reverse sign)	5Vdc
L6=RS422	(with reverse sign)	10~30Vdc
H4=Push-pull HTL	(with reverse sign)	5~30Vdc
H6=Push-pull HTL	(with reverse sign)	10~30Vdc
P4=Push-pull HTL	(without reverse sign)	5~30Vdc
P6=Push-pull HTL	(without reverse sign)	10~30Vdc
N4=NPN		5~30Vdc
N6=NPN		10~30Vdc
C4=NPNOC		5~30Vdc
C6=NPNOC		10~30Vdc

Output voltage (Vdc) terminal board ×2

L5=RS422 (with reverse sign)	5Vdc
L6=RS422 (with reverse sign)	10~30Vdc
H4=Push-pull HTL (with reverse sign)	5~30Vdc
H6=Push-pull HTL (with reverse sign)	10~30Vdc
P4=Push-pull HTL (without reverse sign)	5~30Vdc
P6=Push-pull HTL (without reverse sign)	10~30Vdc
N4=NPN	5~30Vdc
N6=NPN	10~30Vdc
C4=NPNOC	5~30Vdc
C6=NPNOC	10~30Vdc

Output voltage (Vdc) terminal board ×1

L5=RS422 (with reverse sign)	5Vdc
L6=RS422 (with reverse sign)	10~30Vdc
H4=Push-pull HTL (with reverse sign)	5~30Vdc
H6=Push-pull HTL (with reverse sign)	10~30Vdc
P4=Push-pull HTL (without reverse sign)	5~30Vdc
P6=Push-pull HTL (without reverse sign)	10~30Vdc
N4=NPN	5~30Vdc
N6=NPN	10~30Vdc
C4=NPNOC	5~30Vdc
C6=NPNOC	10~30Vdc

ECX=adapter signal splitter

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Draw Wire Mechanics ECD/EVD Series

Descriptions

Draw wire mechanics used together with encoders is designed for checking the mechanical action at some distance away. It converts the rotating movement of cable into linear movement to match up encoder's counting, and the signal is ultimately transmitted to the host computers. The standard type flange 58B facilitates the connection to the encoder. The high repitition accuracy is up to 0.05mm. Its max. measurement distance reaches to 15m, which is suitable for working in high-loaded harsh industrial environments.

- Multi-direction guiding head reduces friction and increases speed
- Encoder with optional 58B flange easy for installing
- Compatible with a variety of encoders
- Waterproof seal to enhance IP level
- High repitition accuracy up to 0.05mm
- Aluminum alloy shell, robust and durable
- Max, measurement range up to 40m

Mechanical Characteristics

ECD series:	EVD series:
High mechanical strength of the industrial grade product	High mechanical strength of the industrial grade product
Measuring range: 0-2000mm	Measuring range: 0-8000mm
Max. measuring range: 2000mm	Max. measuring range: 8000mm
Repitition accuracy: 0.05mm	Repitition accuracy: 0.05mm
High mechamical strength of aluminum alloy shell	High mechamical strength of aluminum alloy shell
Reliable round wire winding system	Reliable round wire winding system
Available to connect all types of flange plate	Available to connect all types of flange plate
Measuring range	Measuring range
Available length of SD: 2m	Available length of MD: 3m, 4m, 6m, 8m

Encoder connnection:

Draw wire mechanics of SD/MD series is available to absolute sigle-ture and multi-turn encoders. When used for single-turn encoder, the two can be connected with gear sets. By increasing the ratio of gear sets, the resolution of single turn will be increased.

ECD Series Characteristics:

High mechamical strength of aluminum alloy shell
Reliable round wire winding system
Available to connect all types of flange plate

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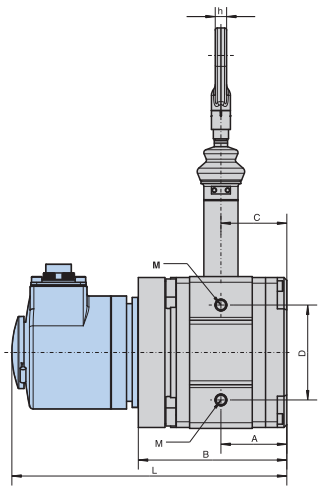
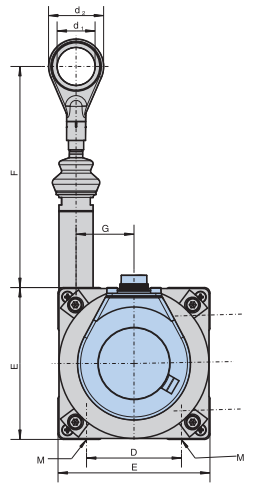
Draw Wire Mechanics ECD/EVD Series

Mechanical Characteristics

Measuring range	2m
Dimensions	80x80mm
Drawed length/turn	198.45mm
Wire diameter	0.8mm
Device accuracy	±0.05%
Adjustable speed	4m/s
Telescopic spring force	6-14N
Body material	aluminium
Protection acc.to EN 60 529	IP65
Wire material	stainless steel
Weight (no encoder)	1.3kg
Parameters (mm)	
A	45
B	105
C	45
D	50
E	80
F	65
G	31.8
M	M8x8
h	6
d_1	20
d_2	29

Dimensions (mm)





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Draw Wire Mechanics ECD/EVD Series

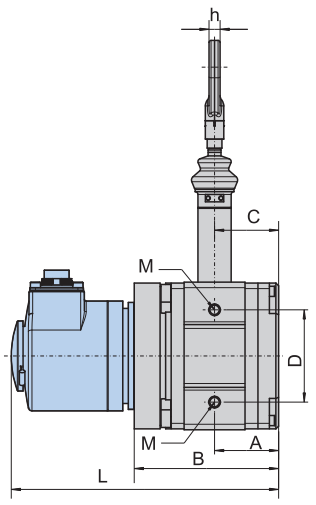
EVD Series Characteristics:

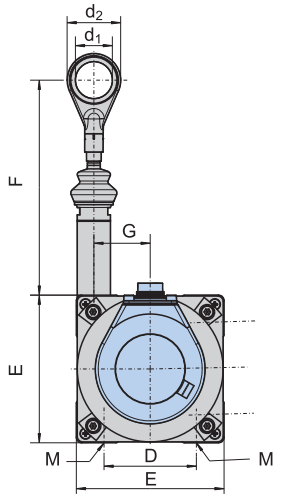
High mechamical strength of aluminum alloy shell
Reliable round wire winding system
Available to connect all types of flange plate

Mechanical Characteristics

Measuring range	3m - 8m
Dimensions	130x130mm
Drawed length/turn	333.94mm
Wire diameter	1.35mm
Device accuracy	±0.05%
Adjustable speed	4m/s
Telescopic spring force	10 - 24N
Body material	aluminium
Protection acc.to EN 60 529	IP65
Wire material	stainless steel
Weight (no encoder)	4.5kg
Parameters (mm)	
A	85
B	166
C	50
D	80
E	130
F	48
G	50
M	M8x8
h	6
d_1	20
d_2	29

Dimensions (mm)





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Draw Wire Mechanics ECD/EVD Series

Order Code:

EVD 5000 A - XX58B ····· . XXXX

XXXX= Special code

Encoder performance code

Depends on the selected encoder;
Specific models, see Encoder Selection part

Encoder series code

XX58B =Installation type of 58B

Draw wire type

A= Square series
AR= Square series with anti-dust cover

Operating range

2000=2.0 M(ECD)
5000=5.0 M(EVD)

Series

ECD/EVD= Draw wire mechanics

Note: It's recommended to use the accessories supplied by ELCO; don't execute rigid connection between drive shaft, flange and encoder, otherwise the encoder shaft could be damaged due to overload.

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All-metal Mini Rope Length Transmitter

Descriptions:

All-metal mini rope length transmitter-ECM series adopts compact design and metal housing. Its measuring distance is up to 2m. Output types of incremental and analogue are applicable to different environment. It is compatible to kinds of upper PCs on site.

Features:

- Compact design
- Incremental and analogue output
- Measuring distance up to 2,000mm
- All-metal housing, optional encoder series
- Robust structure
- Optional mounting bracket

Mechanical Characteristics:

Housing size	50×50mm
Drawing distance/revolution	100mm
Measuring distance	UP to 2000 mm
Absolute accuracy	±0,35 % of the whole measuring range
Repeated accuracy	±0,15 mm of each direction
Reciprocating movement speed	Approx. 800 mm/s
Drawing force	Approx. 10N (on the wire end)
Material	Housing: AL-alloy
	Wire: stainless steel Φ0.45mm
Weight	Approx.0.4kg

Electrical Characteristics:

COutput circuit	Push-pull	RS422	RS422	NPN open collector	4...20mA
Supply voltage (VDC)	10-30V	5V	10-30V	5-30V	15-28V
Power consumption (no load)	≤125mA	≤ 80mA	≤ 80mA	≤80mA	
Permissible currentload	±80mA	±50mA	±50mA	±50mA	
Signal level high	Min. Ub-1.5V	Min.3.4V	Min.3.4V	Min.Ub*70%*)	
Signal level low	Max0.8V	Max.0.4V	Max.0.4V	Max.0.4V*)	
Rise time Tr	Max 1μs	Max 200ns	Max 200ns	Max 1μs **)	
Fall time Tf	Max 1μs	Max 200ns	Max 200ns	Max 1μs **)	
Permissible load					500Ω

Terminal Configuration:

Incremental

Signal	0V	$+U_b$	A	$\overline{A}$	B	$\overline{B}$	Z	$\overline{Z}$	Shield
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	⏚

4...20mA:

Signal	+ I	– I	–
Color Code	RD	WH	⏚

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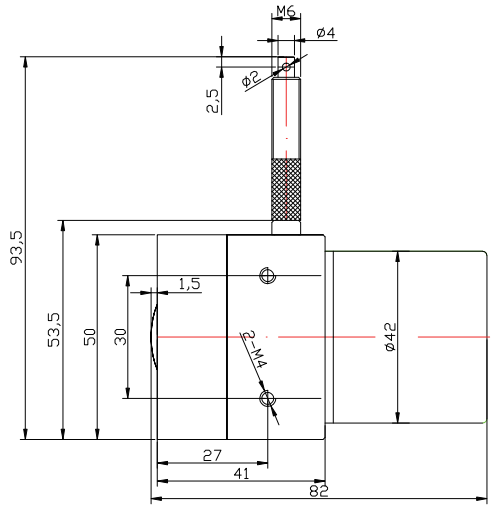
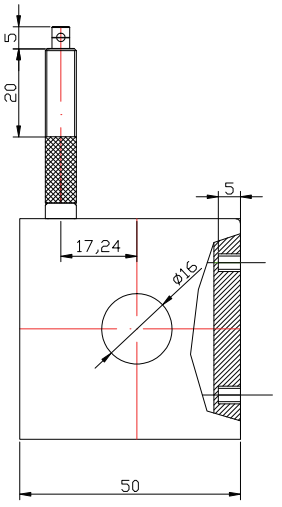
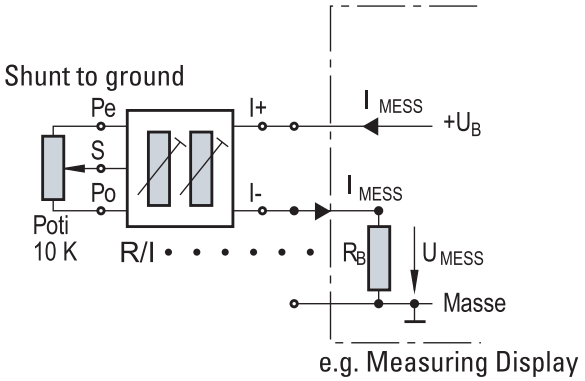
All-metal Mini Rope Length Transmitter

Dimensions





Electric drawing (4...20mA)



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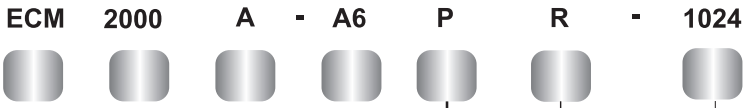
All-metal Mini Rope Length Transmitter

Order Code:



Resolution
Pulse/r ≤ 2500

Outlets direction
R= radial

Type of connection
P=output cable length 1.5m

Output & Supply voltage

A6=4...20mA	15-28V
L5=RS422	5V
L6=RS422	10-30V
P6=push-pull HTL	10-30V
H6=Push-pull HTL (with reverse signal)	10-30V
C4=NPNopen collector	5-30V

Housing type
A= Square metal housing

Measuring distance
2000=2M
1000=1M

Series
ECM=All-metal mini rope length transmitter

e. g. :
4...20mA analogue ECM2000A-A6PR
Incremental push-pull with reverse signal ECM2000A-H6PR-1024

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EVL Support

EVL support:

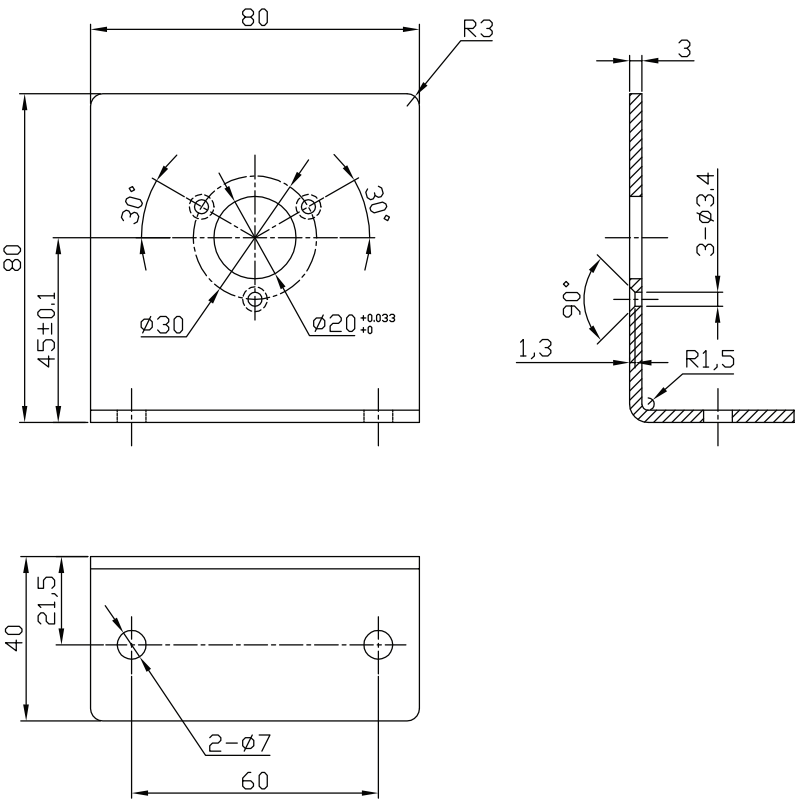
Type: EVL-L38A

Material: carbon steel

Surface treatment: zinc plating

Applicable for: shaft encoder 38 series

Installation: with flange



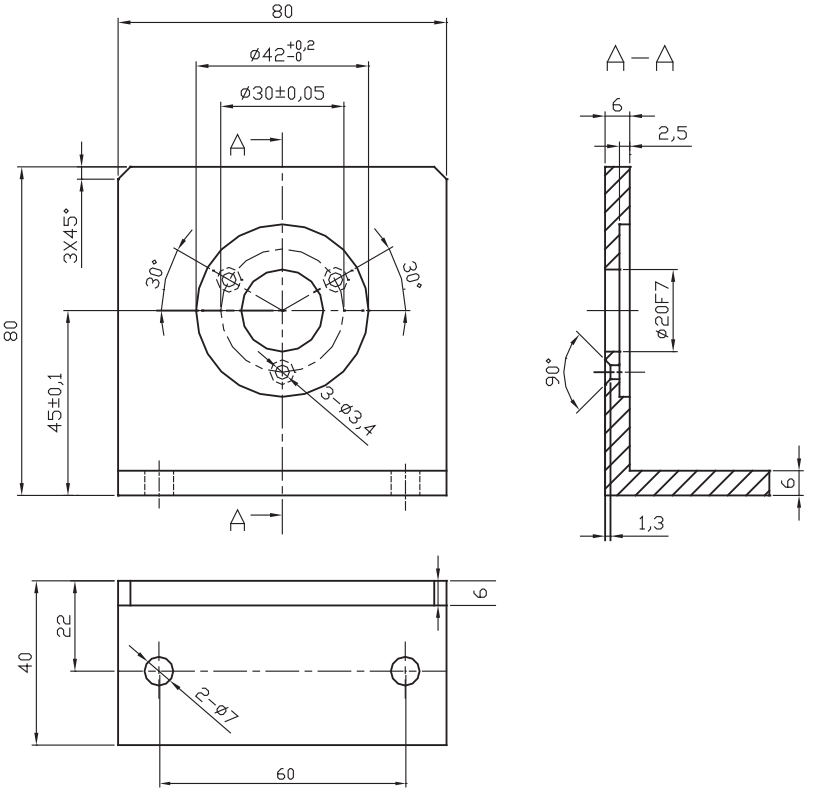
EVL support:

Applicable for shaft encoder 40 with clamping flange

Material: Al

Type:

EVL-L40A



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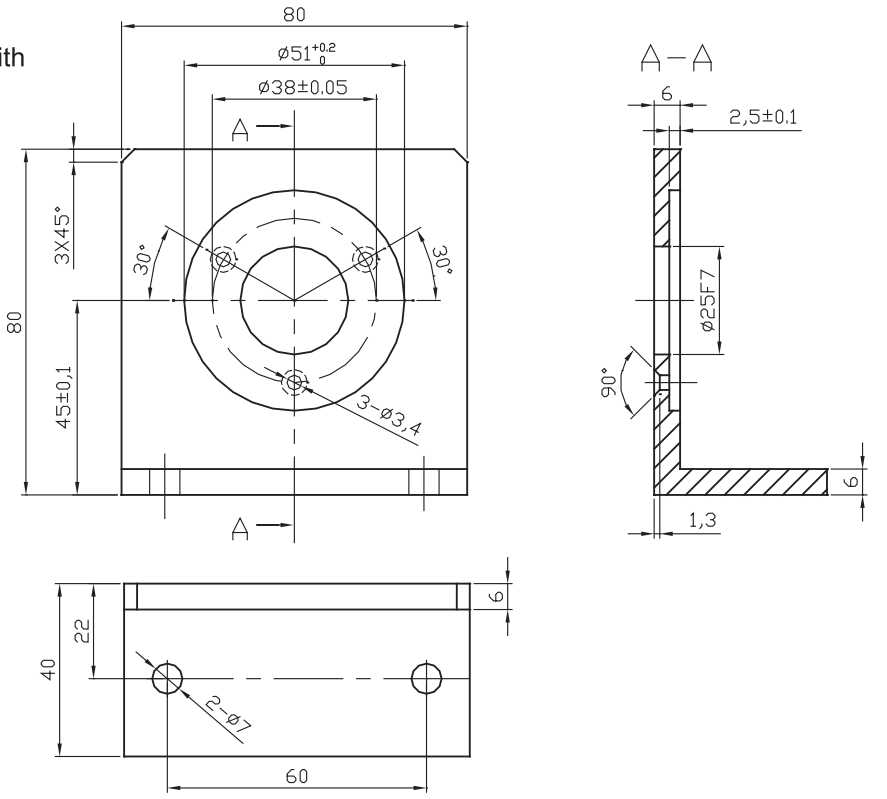
EVL Support

EVL support:

Applicable for shaft encoder 50A with clamping flange

Material: Al

Type:
EVL -L50A

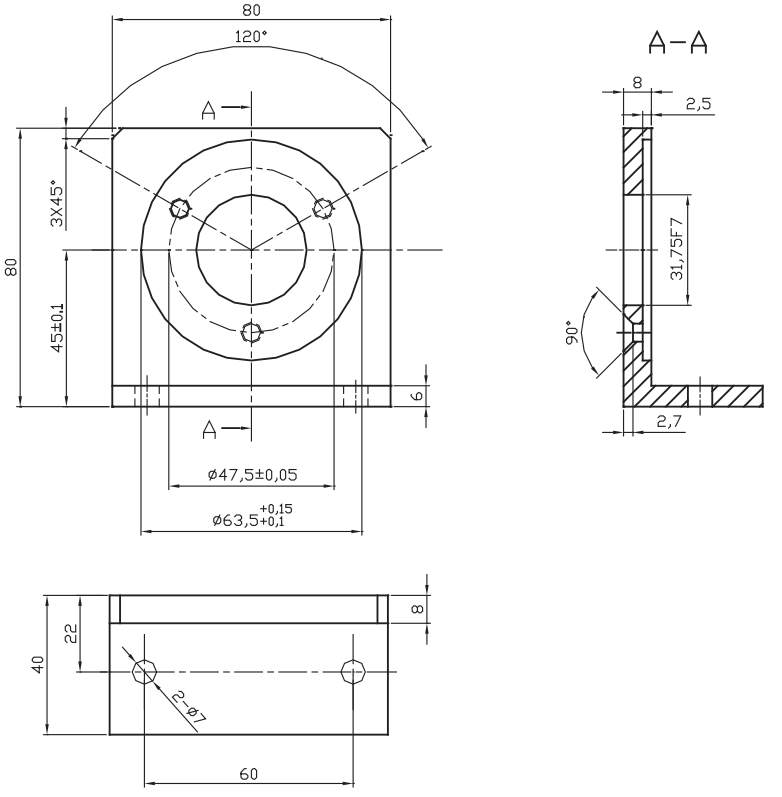


EVL support:

Applicable for shaft encoder 58A with clamping flange

Material: Al

Type:
EVL-L58A



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EVL Support

EVL support:

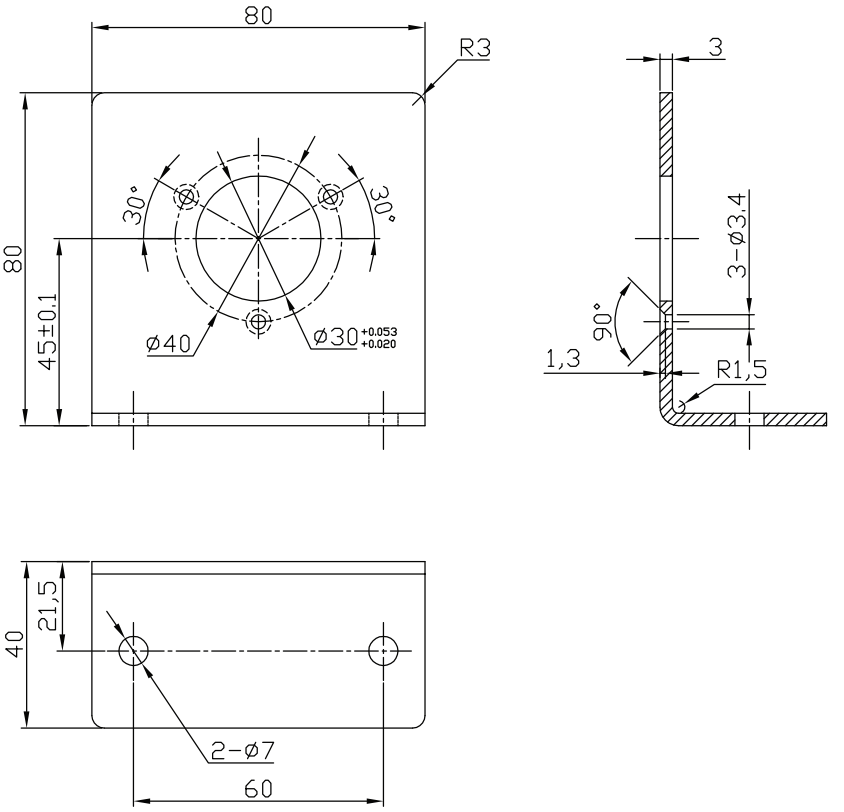
Type: EVL -L50B

Material: carbon steel

Surface treatment: zinc plating

Applicable for: shaft encoder 50B

Installation: with flange

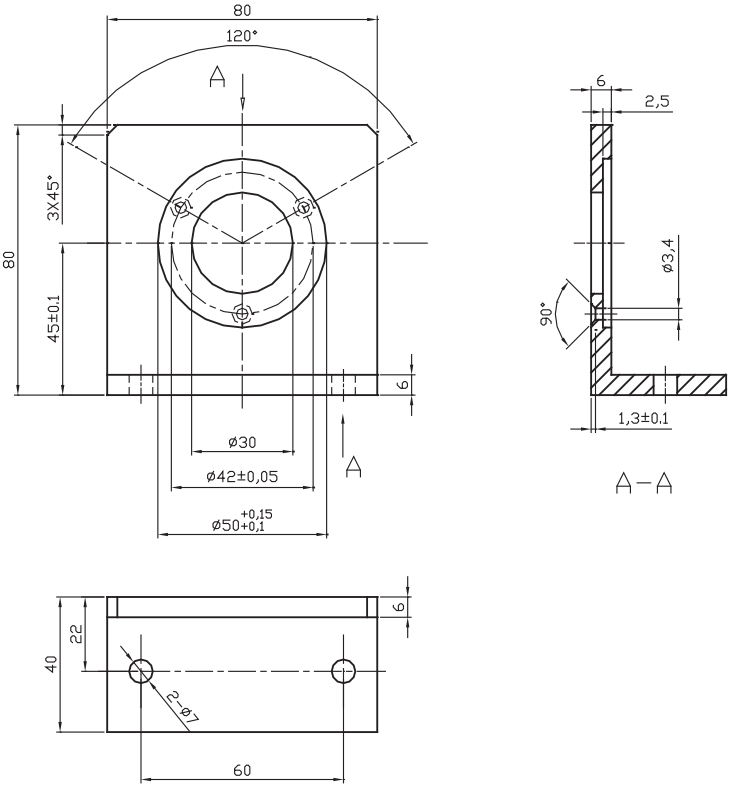


EVL support:

Applicable for shaft encoder 58B with clamping flange

Material: Al

Type:
EVL-L58B



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EVL Support

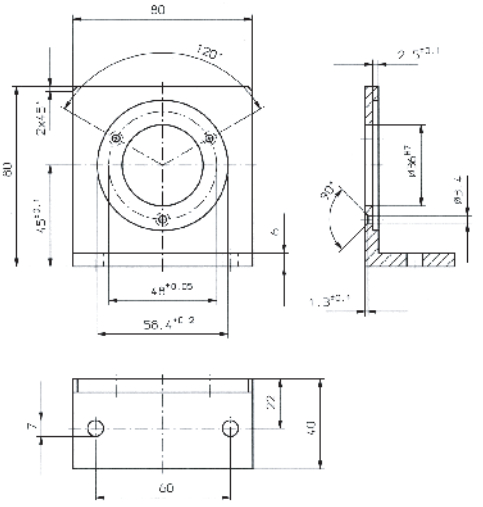
EVL support:

Applicable for shaft encoder 58 with clamping flange

Material: Al

Type:

EVL-L58C



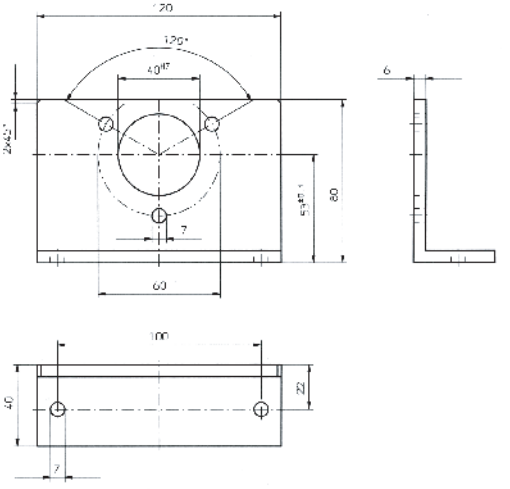
EVL support:

Applicable for shaft encoder 90 with clamping flange

Material: Al

Type:

EVL-L90A



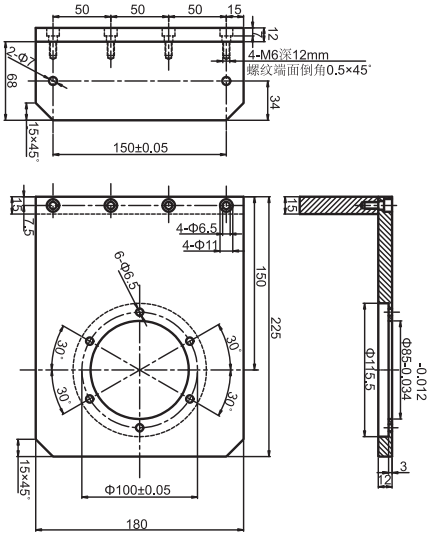
EVL support:

Applicable for shaft encoder 115 with clamping flange

Material: Al

Type:

EVL-L115A



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Coupling

Description

Flexible precision couplings are essential parts for the transmission of rotational motion to the encoder shaft. Couplings are designed in AL-alloy and are composed by a cylindrical body on which there is a helicoidal groove. With the perfect balancing of the rotating body, the couplings do not have critical points subject to breakage and are completely frictionless. Moreover, they perfectly transmit the rotation motion, even in the case of axial misadjustment and misalignment. The couplings do not require any maintenance. The internal drain allows the coupling to have the minimum distance of 6.12mm between the shafts.

Features

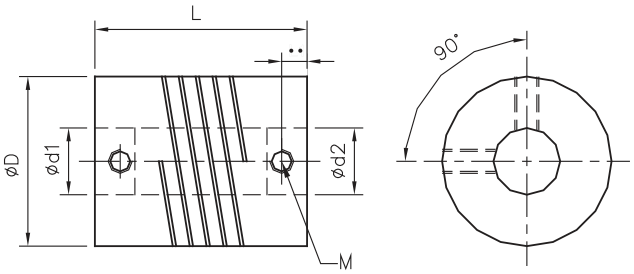
- Torsional rigidity
- Ability to support slight shaft misadjustments
- Ability to absorb small axial shift of the shaft

Note: Metric and Imperial sizes: A1=6.35mm A2=9.525mm A3=12.7mm

Screw flexible coupling:

Code	Φd1/Φd2Shaft diameter	ΦD	L	L1	Twisting moment	Max. angular displacement	Max. speed	Screw (M)	Material
EBG20/20A□□□□	3 4 5 6 6.35(A1)	20	20	2.55	0.8N.m	1°	8000r/min	M3	AL-alloy
EBG25/25A□□□□	5 6 6.35(A1) 8 9.525(A2) 10	25	25	3.55	1.8N.m	1°	8000r/min	M4	AL-alloy
EBG30/30A□□□□	6 8 9.525(A2) 10 12 12.7(A3)	30	30	4.15	2.7N.m	1°	8000r/min	M5	AL-alloy
EBG38/38A□□□□	8 9.525(A2) 10 12 12.7(A3) 14 15	38	38	4.15	6.3N.m	1°	8000r/min	M5	AL-alloy
EBG50/50A□□□□	12 12.7(A3) 14 15 16 18 19	50	50	5.25	19.5N.m	1°	8000r/min	M6	AL-alloy

Coupling Dimensions:



Order Code

EBG 30 / 30 A 6 / 8

d2diameter
refer to forms

d1diameter
refer to forms
Note: if d1=d2, no need to specify d2 diameter

A
A=fixed with screws

Outer diameter De
20=Φ20
25=Φ25
30=Φ30

Coupling length L
20
25
30

Series
EBG=Screw-type flexible coupling

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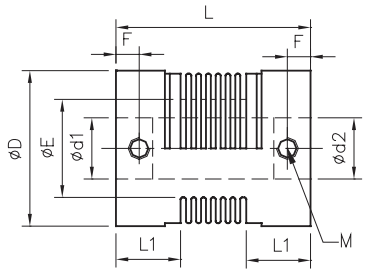
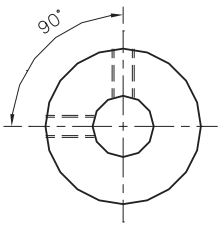
Coupling

Bellow flexible coupling

Code	Φd1/Φd2 Shaft diameter	ΦD	L	L1	F	E	Twisting moment	Max. angular displacement	Max. speed	Screw (M)	Material
ECS27/16A □□□□	4 5 6 6.35(A1) 8	16	27	8.5	3	9.5	0.5N.m	2°	6000r/min	M3	AL-alloy
ECS29/20A □□□□	5 6 6.35(A1) 8 9.525(A2) 10 12	20	29	8.5	3	12.5	0.6N.m	2°	6000r/min	M3	AL-alloy
ECS34/25A □□□□	6 6.35(A1) 8 9.525(A2) 10 12	25	34	10.5	4	15	1.7N.m	2°	6000r/min	M4	AL-alloy
ECS38/32 □□□□	6 8 9.525(A2) 10 12	32	38	11.5	4	21	1.7N.m	2°	6000r/min	M4	AL-alloy
ECS49/32 □□□□	6 8 9.525(A2) 10 12	32	49	11.5	4	21	1.7N.m	2°	6000r/min	M4	AL-alloy
ECS51/40 □□□□	10 11 12 14 15 16	40	51	12.5	4.5	27	3.5N.m	2°	6000r/min	M5	AL-alloy
ECS57/55A □□□□	12 14 15 16	50	57	13.5	5	40	9.0N.m	2°	6000r/min	M6	AL-alloy

Coupling Dimensions





Order Code

ECS 49 / 23 A 10 / 12

- d2diameter — refer to forms
- d1diameter — refer to forms
  Note: if d1=d2, no need for marking d2
- A — A=fixed with screws
- Outer diameter De — refer to forms
- Coupling length L — refer to forms
- Series — ECS=Bellows flexible coupling

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