

# 58 mm Diameter Incremental Rotary Encoders



## E58 Series CATALOG

**For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.**

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

### Features

- Ø 58 mm flange incremental rotary encoders
- Accurate measurement of angle, position, revolution, speed, acceleration, and distance
- Shaft, hollow shaft, blind hollow shaft models available
- Cable type, cable connector type, axial / radial connector types available
- Various resolutions: 1 to 8000 pulses per revolution
- Various control output options
- Power supply: 5 VDC  $\pm$  5%, 12 - 24 VDC  $\pm$  5%

### Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

**E58 ① ② - ③ - ④ - ⑤ - ⑥ - ⑦**

**① Shaft type**

SC: Shaft clamping type  
SS: Shaft synchro type  
H: Hollow type  
HB: Hollow Built-in type

**② Shaft outer diameter / Shaft inner diameter**

6: Ø 6 mm  
10: Ø 10 mm  
12: Ø 12 mm

**③ Resolution**

Number: Refer to resolution in 'Specifications'

**④ Output phase**

2: A, B  
3: A,  $\bar{B}$ , Z  
4: A,  $\bar{A}$ , B,  $\bar{B}$   
6: A,  $\bar{A}$ , B,  $\bar{B}$ , Z,  $\bar{Z}$

**⑤ Control output**

T: Totem pole output  
N: NPN open collector output  
V: Voltage output  
L: Line driver output

**⑥ Power supply**

5: 5 VDC  $\pm$  5%  
24: 12 - 24 VDC  $\pm$  5%

**⑦ Connection**

**Shaft type, Hollow Built-in type**

No mark: Axial cable type  
C: Axial cable connector type  
CR: Axial connector type  
CS: Radial connector type

**Hollow type**

No mark: Radial cable type  
C: Radial cable connector type

### Product Components

Shaft type	Shaft Clamping type	Shaft Synchro type	Hollow type	Hollow Built-in type
<b>Product Components</b>	Product, Instruction manual		Product (+ bracket), Instruction manual	
<b>Bolt</b>	× 10	× 8	× 4	× 4
<b>Coupling</b>	× 1	× 1	-	-
<b>Bracket</b>	× 1	× 2	-	-

## Specifications

Model	E58□□-□-□-□-□-□ □-□-□-□-□	E58□□-□-□-□-□-□ □-□-□-□-□	E58□□-□-□-□-□-□ □-□-□-□-□	E58□□-□-□-□-□-□ □-□-□-□-□
<b>Resolution</b>	1/2/5/12 PPR <sup>(01)</sup> 10 to 8,000 PPR model			
<b>Control output</b>	Totem pole output	NPN open collector output	Voltage output	Line driver output
Output phase	A, B, Z	A, B, Z	A, B, Z	A, $\bar{A}$ , B, $\bar{B}$ , Z, $\bar{Z}$
Inflow current	≤ 30 mA	≤ 30 mA	-	≤ 20 mA
Residual voltage	≤ 0.4 VDC $\equiv$	≤ 0.4 VDC $\equiv$	≤ 0.4 VDC $\equiv$	≤ 0.5 VDC $\equiv$
Outflow current	≤ 10 mA	-	≤ 10 mA	≤ -20 mA
Output voltage (5 VDC $\equiv$ )	≥ (power supply -2.0) VDC $\equiv$	-	-	≥ 2.5 VDC $\equiv$
Output voltage (12 - 24 VDC $\equiv$ )	≥ (power supply -3.0) VDC $\equiv$	-	-	≥ (power supply -3.0) VDC $\equiv$
<b>Response speed</b> <sup>(02)</sup>	≤ 1 μs			
<b>Max. response freq.</b>	300 kHz			
<b>Max. allowable revolution</b> <sup>(03)</sup>	5,000 rpm			
<b>Approval</b>	CE EAC	CE EAC	CE EAC	EAC

01) Depending on the control output, only A, B or A,  $\bar{A}$ , B,  $\bar{B}$  are output.

02) Based on cable length: 2 m, I sink: 20 mA

03) Select resolution to satisfy Max. allowable revolution ≥ Max. response revolution.

$$(\text{max. response revolution (rpm)}) = \frac{\text{max. response frequency}}{\text{resolution}} \times 60 \text{ (sec)}$$

Shaft type	Shaft clamping type	Shaft synchro type	Hollow type	Hollow Built-in type
<b>Starting torque</b>	≤ 0.004 N m		≤ 0.009 N m	
<b>Inertia moment</b>	≤ 15 g·cm <sup>2</sup> (1.5 × 10 <sup>-6</sup> kg·m <sup>2</sup> )		≤ 20 g·cm <sup>2</sup> (2 × 10 <sup>-6</sup> kg·m <sup>2</sup> )	
<b>Allowable shaft load</b>	Radial: ≤ 10 kgf, Thrust: ≤ 2.5 kgf		Radial: ≤ 2 kgf, Thrust: ≤ 1 kgf	
<b>Unit weight (packaged)</b>	Varies according to connection type			
Cable type, cable connector type	≈ 310 g (≈ 420 g)	≈ 285 g (≈ 395 g)	≈ 270 g (≈ 380 g)	≈ 270 g (≈ 380 g)
Connector type	≈ 230 g (≈ 340 g)	≈ 205 g (≈ 315 g)	-	≈ 200 g (≈ 310 g)

<b>Power supply</b>	5 VDC $\equiv$ ± 5% (ripple P-P: ≤ 5%) / 12 - 24 VDC $\equiv$ ± 5% (ripple P-P: ≤ 5%) model
<b>Current consumption</b>	Totem pole, NPN open collector, Voltage output: ≤ 80 mA (no load) / Line driver output: ≤ 50 mA (no load)
<b>Insulation resistance</b>	Between all terminals and case: ≥ 100 MΩ (500 VDC $\equiv$ megger)
<b>Dielectric strength</b>	Between all terminals and case: 750 VAC ~ 50 / 60 Hz for 1 minute
<b>Vibration</b>	1 mm double amplitude at frequency 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 2 hours
<b>Shock</b>	≤ 75 G
<b>Ambient temp.</b>	-10 to 70 °C, storage: -25 to 85 °C (no freezing or condensation)
<b>Ambient humi.</b>	35 to 85%RH, storage: 35 to 90%RH (no freezing or condensation)
<b>Protection rating</b>	IP50 (IEC standard)
<b>Connection</b>	Shaft type, Hollow Built-in type : Axial cable type / Axial cable connector type / Axial connector type / Radial connector type model Hollow type: Radial cable type / Radial cable connector type model
<b>Cable spec.</b>	Ø 5 mm, 5-wire (Line driver output: 8-wire), shield cable cable type: 2 m, cable connector type: 250 mm
<b>Wire spec.</b>	AWG24 (0.08 mm, 40-core), insulator diameter: Ø 1 mm
<b>Connector spec.</b>	Totem pole, NPN open collector, Voltage output: M17 6-pin socket type / Line driver output: M17 9-pin socket type

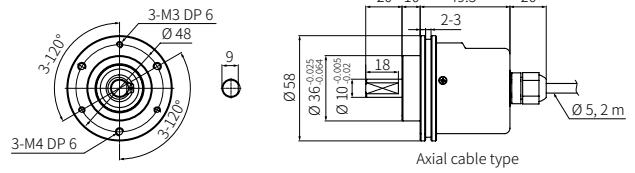
## Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

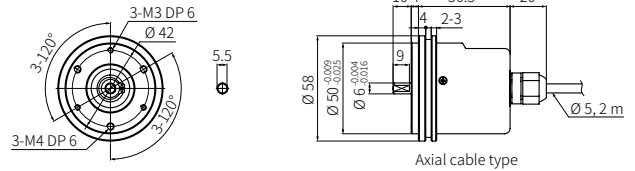
• Following items are based on cable type.

Refer to 'Specifications' for detailed specifications of cable, wire and connector.

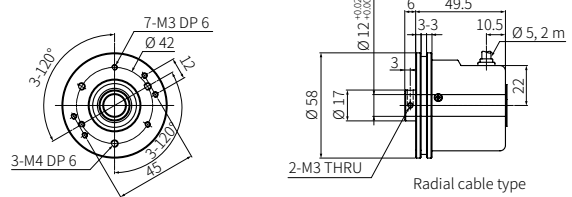
### ■ Shaft clamping type



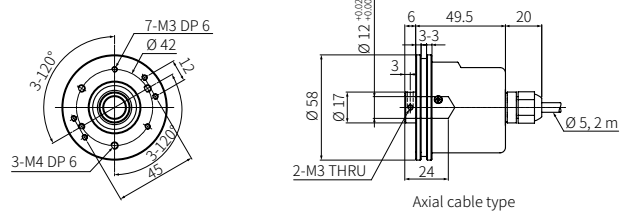
### ■ Shaft synchro type



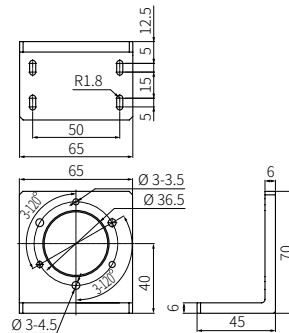
### ■ Hollow type



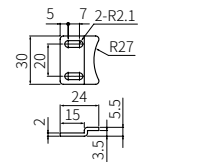
### ■ Hollow Built-in type



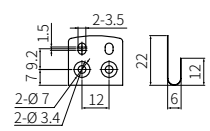
### ■ Bracket (E58C)



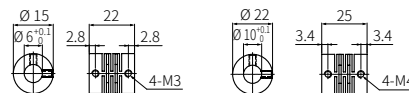
### ■ Bracket (E58SS)



### ■ Bracket (E58H / HB)



### ■ Coupling



- Parallel misalignment: ≤ 0.25 mm
- Angular misalignment: ≤ 5°
- End-play: ≤ 0.5 mm

## Sold Separately

- Connector cable: CID6S-□, CID9S-□