

E58 Series

Diameter ϕ 58mm Shaft type/Hollow type/Built-in type Incremental Rotary encoder

NEW

Features

- Diameter ϕ 58mm flange type
- Suitable for measuring Angle, Position, Revolution, Speed, Acceleration and Distance
- Power supply : 5VDC, 12–24VDC \pm 5%

⚠ Please read "Caution for your safety" in operation manual before using.



Ordering information

E58SC - **10** - **8000** - **3** - **N** - **24** -

Series Diameter ϕ 58mm	Shaft diameter		Pulse/ 1 Revolution	Output phase	Output	Power supply	Cable
SC: Shaft Clamping	External	10 ϕ 10mm	Refer to resolution	2:A, B 3:A, B, Z (Standard) 4:A, \bar{A} , B, \bar{B} 6:A, \bar{A} , B, \bar{B} , Z, \bar{Z}	T: Totem pole output N: NPN open collector output V: Voltage output L: Line driver output (The power of Line driver is only for 5VDC.)	5: 5VDC \pm 5% 24: 12–24VDC \pm 5%	No mark: Normal type C: Cable outgoing connector type (250mm) CR: Axial connector integrated type CS: Radial connector integrated type
SS: Shaft Synchro		6 ϕ 6mm					
H: Hollow	Inner	12 ϕ 12mm					
HB: Hollow Built-in							

*Standard: E58SC10-PULSE-3-N-24 *Customizable model specifications are available.

*Standard cable for shaft/built-in encoder is axial connector type cable.
Standard cable for hollow shaft encoder is radial connector type cable.

Specifications

Item	Diameter ϕ 58mm Incremental Rotary encoder	
Resolution (P/R)	(Note1) *1, *2, *5, 10, *12, 15, 20, 23, 25, 30, 35, 40, 45, 50, 60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 5000, 6000, 8000	
Output phase	A, B, Z phase (Line driver output : A, \bar{A} , B, \bar{B} , Z, \bar{Z} phase)	
Phase difference of output	Phase difference between A and B phase : $\frac{T}{4} \pm \frac{T}{8}$ (T=1 cycle of A phase)	
Control output	Totem pole output	●Low \Rightarrow Load current : Max. 30mA, Residual voltage : Max. 0.4VDC ●High \Rightarrow Load current : Max. 10mA, Output voltage (Power voltage 5VDC) : Min. (Power voltage-2.0)VDC, Output voltage (Power voltage 12–24VDC) : Min. (Power voltage-3.0)VDC
	NPN open collector output	Load current : Max. 30mA, Residual voltage : Max. 0.4VDC
	Voltage output	Load current : Max. 10mA, Residual voltage : Max. 0.4VDC
	Line driver output	●Low \Rightarrow Load current : Max. 20mA, Residual voltage : Max. 0.5VDC ●High \Rightarrow Load current : Max. -20mA, Output voltage : Min. 2.5VDC
Res- ponse time (Rise/ Fall)	Totem pole output	Max. 1 μ s (Cable length: 2m, I sink=20mA)
	NPN open collector output	
	Voltage output	
	Line driver output	Max. 0.5 μ s (Cable length: 2m, I sink=20mA)
Max. Response frequency	300kHz	
Power supply	●5VDC \pm 5% (Ripple P-P: Max. 5%) ●12–24VDC \pm 5% (Ripple P-P: Max. 5%)	
Current consumption	Max. 80mA (disconnection of the load), Line driver output : Max. 50mA (disconnection of the load)	
Insulation resistance	Min. 100M Ω (at 500VDC mega for all terminals and case)	
Dielectric strength	750VAC 50/60Hz for 1 minute (all terminals and case)	
Connection	Cable outgoing type, Cable outgoing connector type, Connector integrated type (axial, radial)	
Mechanical specification	Starting torque	●SC/SS type : Max. 40gf \cdot cm (0.004N \cdot m) ●HB/H type : Max. 90gf \cdot cm (0.009N \cdot m)
	Moment of inertia	●SC/SS type : Max. 15g \cdot cm ² (1.5 \times 10 ⁻⁶ kg \cdot m ²) ●HB/H type : Max. 20g \cdot cm ² (2 \times 10 ⁻⁶ kg \cdot m ²)
	Shaft loading	●SC/SS type \Rightarrow Max. Radial : 10kg \cdot f, Thrust : Max. 2.5kg \cdot f ●HB/H type \Rightarrow Max. Radial : 2kg \cdot f, Thrust : Max. 1kg \cdot f
	Max. allowable revolution	(Note2) 5000rpm
Vibration	1.5mm amplitude at frequency of 10~55Hz (for one minute cycle) in each of X, Y, Z directions for 2 hours	
Shock	Max. 75G	
Ambient temperature	-10 ~ 70 $^{\circ}$ C (at non-freezing status), Storage : -25 ~ 85 $^{\circ}$ C	
Ambient humidity	35 ~ 85%RH, Storage : 35~90%RH	
Protection	IP50 (IEC standard)	
Cable	ϕ 5mm, 5P, Length: 2m, Shield cable (Line driver output: ϕ 5mm, 8P)	
Accessory	ϕ 10mm (SC type) / ϕ 6mm (SS type) coupling, Fixing bracket	
Unit weight	●SC-CS/CR type: Approx. 230g, SS-CS/CR type: Approx. 205g, HB-CS/CR type: Approx. 200g ●SC type: Approx. 310g, SS type: Approx. 285g, HB type: Approx. 270g, H type: Approx. 270g	
Approval	CE (Except Line driver output)	

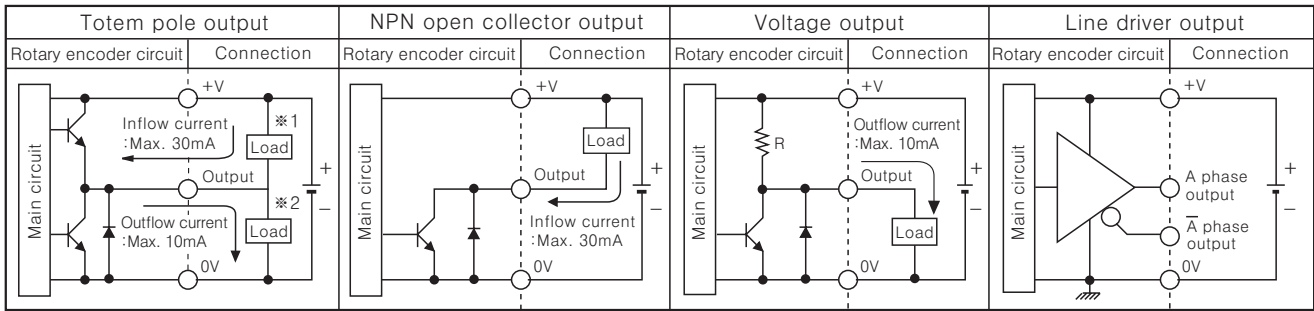
***(Note1)** 1, 2, 5 12 P/R output A and B phase only. (But Line driver output : A, \bar{A} , B, \bar{B} phase) [In case of hollow shaft type, 6000, 8000 P/R excluded]

***(Note2)** Max. allowable revolution \geq Max. response revolution **[Max. response revolution (rpm) = $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$]**

Please select the resolution to make max. revolution lower than max. allowable revolution.

Incremental ϕ 58mm Shaft/Hollow Shaft/Built-in Type

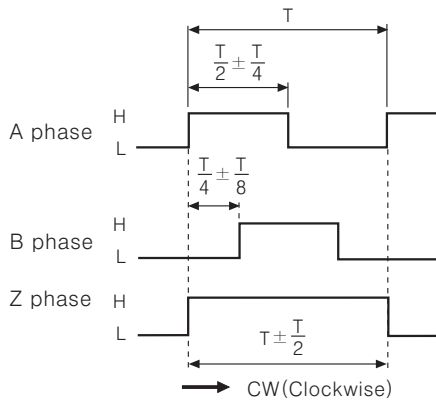
Control output diagram



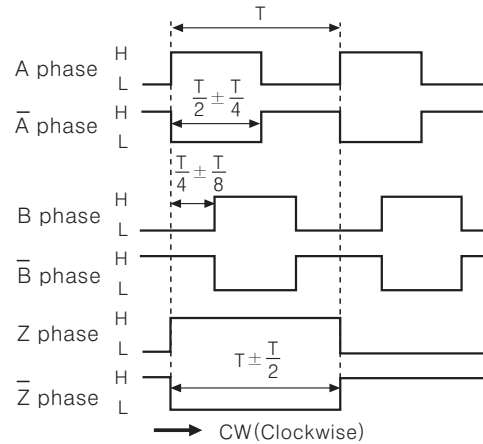
⇒ Totem pole output type can be used for NPN open collector output type(*1) or Voltage output type(*2).
 ⇒ Output circuits of A, B, Z phase are the same. (Line driver output is for A, \bar{A} , B, \bar{B} , Z, \bar{Z})

Output waveform

- Totem pole output / NPN open collector output / Voltage output
- Line driver output



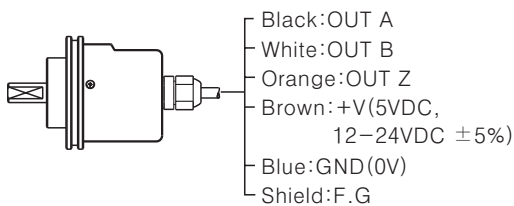
*CW : As viewed from the shaft



Connections

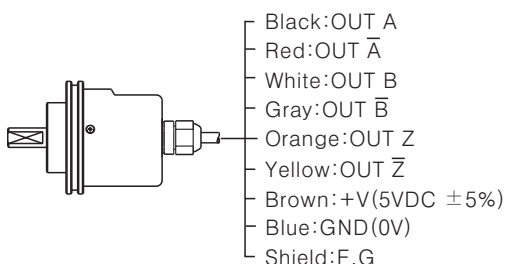
Normal type

- Totem pole output / NPN open collector output / Voltage output



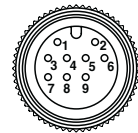
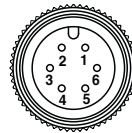
- ※ Unused wires must be insulated.
- ※ The metal and shield cable of encoder should be grounded(F.G)

- Line driver output



Cable outgoing connector/ Connector integrated type

- Totem pole output
- Line driver output
- NPN open collector output
- Voltage output



Totem pole output NPN open collector output Voltage output			Line driver output		
Pin No	Function	Cable color	Pin No	Function	Cable color
①	OUT A	Black	①	OUT A	Black
②	OUT B	White	②	OUT \bar{A}	Red
③	OUT Z	Orange	③	+V	Brown
④	+V	Brown	④	GND	Blue
⑤	GND	Blue	⑤	OUT B	White
⑥	F.G	Shield	⑥	OUT \bar{B}	Gray
			⑦	OUT Z	Orange
			⑧	OUT \bar{Z}	Yellow
			⑨	F.G	Shield

*F.G(Field Ground):It should be grounded separately.

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/ Speed/ Pulse meter

(G) Display unit

(H) Sensor controller

(I) Switching power supply

(J) Proximity sensor

(K) Photo electric sensor

(L) Pressure sensor

(M) Rotary encoder

(N) Stepping motor & Driver & Controller

(O) Graphic panel

(P) Field network device

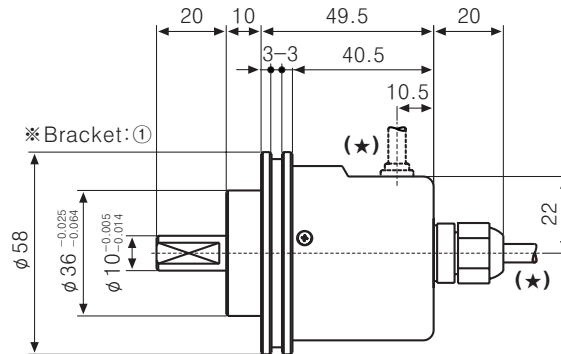
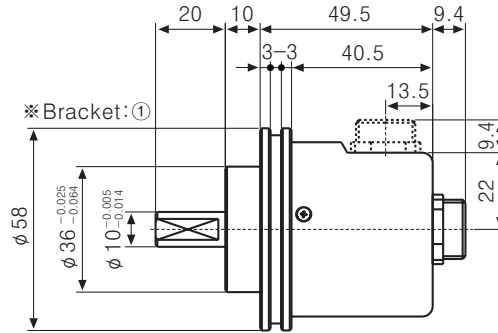
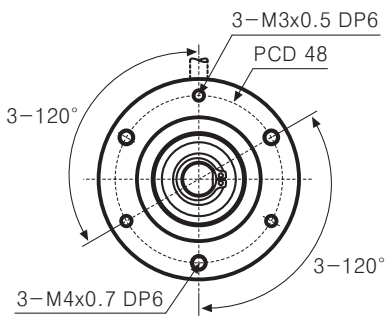
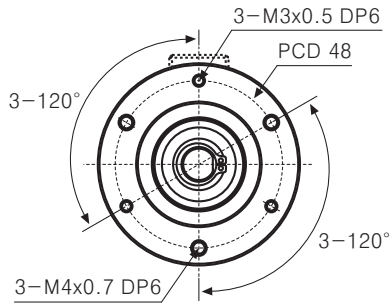
(Q) Production stoppage models & replacement

E58 Series

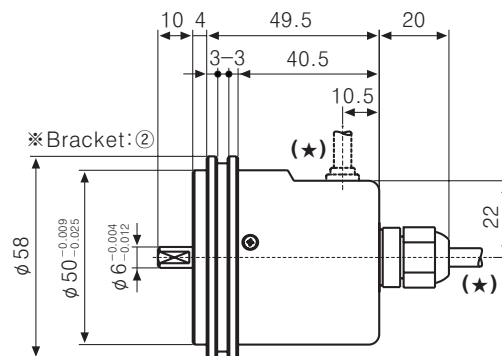
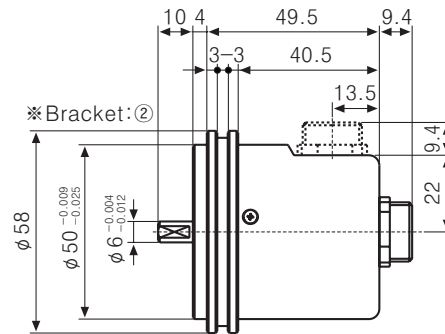
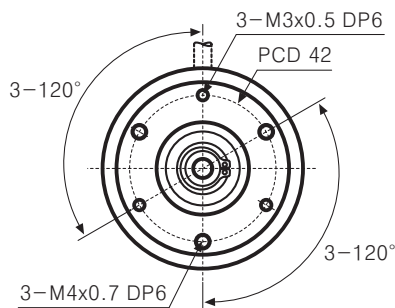
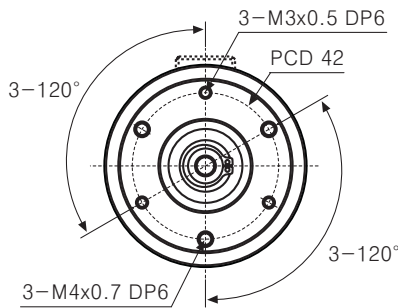
Dimensions

(Unit:mm)

Shaft Clamping type

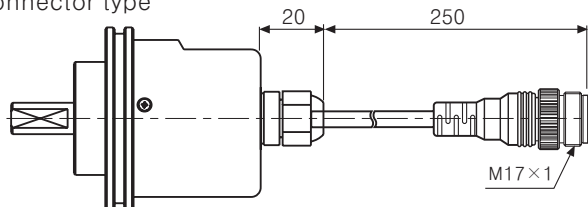


Shaft Synchro type



※ (★) Cable for normal type
 φ 5mm, 5P(Line driver output:8P),
 Length:2000, Shield cable

Cable outgoing connector type

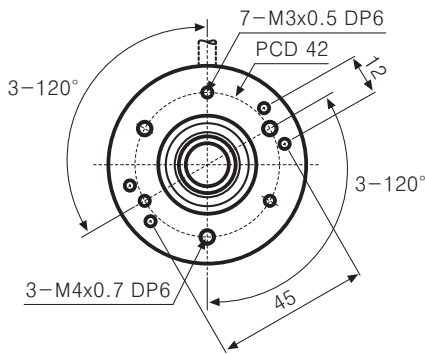
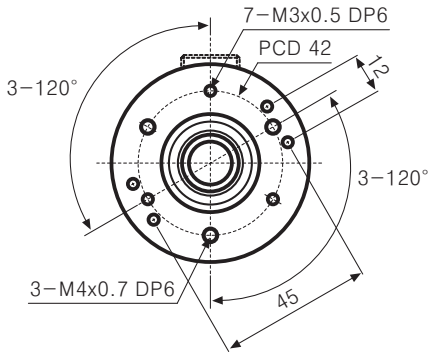


※ Connector cable is customizable and see M-57 for specifications.

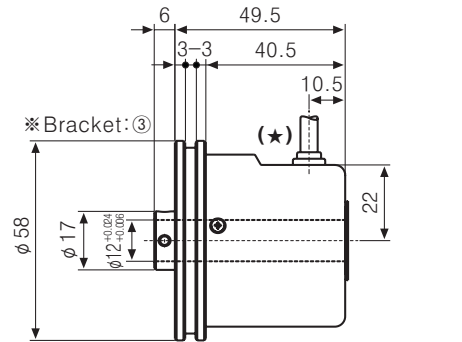
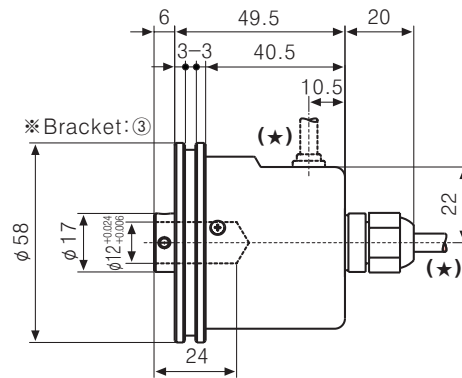
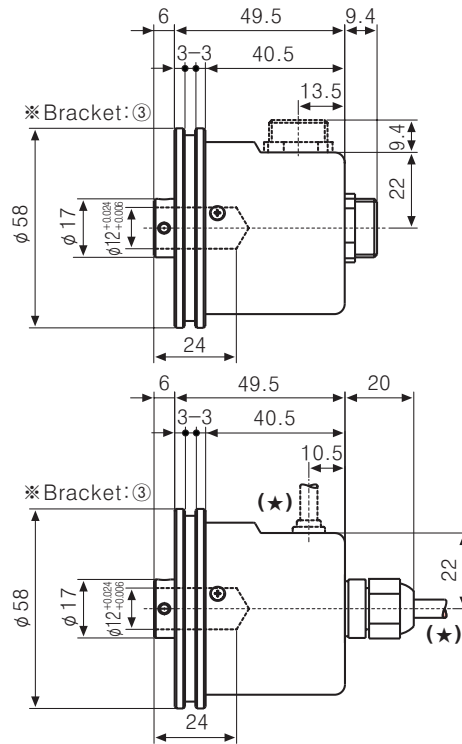
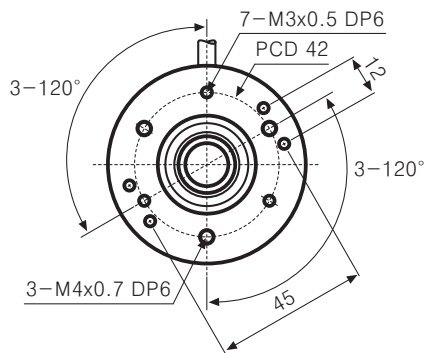
Incremental $\phi 58\text{mm}$ Shaft/Hollow Shaft/Built-in Type

Dimensions

Hollow type



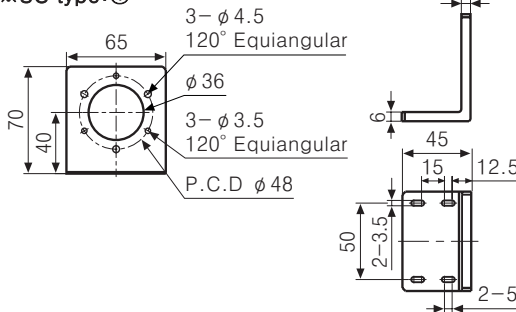
Hollow Built-in type



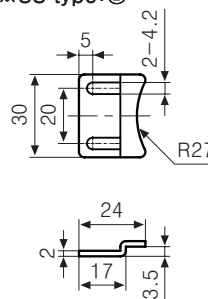
※(★) Cable for normal type
 $\phi 5\text{mm}$, 5P(Line driver output:8P),
 Length:2000, Shield cable

Bracket

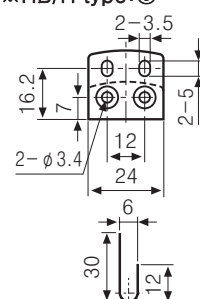
※SC type:①



※SS type:②

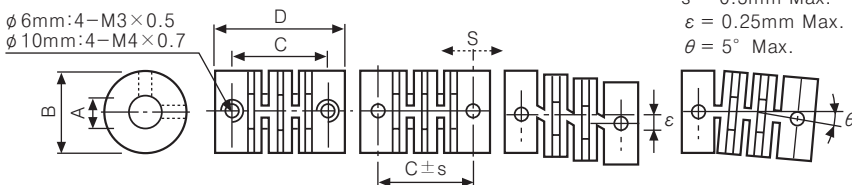


※HB/H type:③



Coupling (E58SC10/E58SS6 Series)

$\phi 6\text{mm}$:4-M3 \times 0.5
 $\phi 10\text{mm}$:4-M4 \times 0.7



$s = 0.5\text{mm Max.}$
 $e = 0.25\text{mm Max.}$
 $\theta = 5^\circ \text{ Max.}$

Type	Item	A	B	C	D
E58SS6 $\phi 6\text{mm}$		$\phi 6^{+0.1}$	$\phi 15$	16.5	22
E58SC10 $\phi 10\text{mm}$		$\phi 10^{+0.1}$	$\phi 22$	18.2	25

※ When mounting the coupling to encoder shaft, if there is big eccentricity or bend between rotating encoder shaft and mate shaft, it may cause encoder and coupling's life cycle to shorten.
 ※ Do not load overweight on the shaft.

(Unit:mm)

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

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(H) Sensor controller

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