

Incremental rotary encoder(E58 series)





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	10	ϕ 10mm	Refer to resolution	2:A, B 3:A, B, Z (Standard)	T:Totem pole output N:NPN open collector output V:Voltage output L:Line driver output	5:5VDC \pm 5%	No mark:Normal type C:Cable outgoing connector type(250mm) CR:Rear side outgoing connector integrated type CS:Side outgoing connector integrated type
SS:Shaft Synchro	6	ϕ 6mm		4:A, \bar{A} , B, \bar{B} 6:A, \bar{A} , B, \bar{B} , Z, \bar{Z}	24:12-24VDC \pm 5%		
H:Hollow	12	ϕ 12mm					
HB:Hollow built-in							

※Standard cable for shaft/built-in encoder is axial connector type cable.
Standard cable for hollow shaft encoder is radial connector type cable.
※Customizable model specifications are available.

※The power of Line driver is only for 5VDC.

Specifications

Item		Diameter ϕ 58mm Incremental Rotary encoder			
Model	Totem pole output	E58SC10-□□□□-3-T-□	E58SS6-□□□□-3-T-□	E58H12-□□□□-3-T-□	E58HB12-□□□□-3-T-□
	NPN open collector output	E58SC10-□□□□-3-N-□	E58SS6-□□□□-3-N-□	E58H12-□□□□-3-N-□	E58HB12-□□□□-3-N-□
	Voltage output	E58SC10-□□□□-3-V-□	E58SS6-□□□□-3-V-□	E58H12-□□□□-3-V-□	E58HB12-□□□□-3-V-□
	Line driver output	E58SC10-□□□□-6-L-5	E58SS6-□□□□-6-L-5	E58H12-□□□□-6-L-5	E58HB12-□□□□-6-L-5
Appearances & Dimensions		 <small>CE (Except for Line driver output) NEW</small> <small>[ϕ 58mm, L79.5mm]</small>	 <small>CE (Except for Line driver output) NEW</small> <small>[ϕ 58mm, L63.5mm]</small>	 <small>CE (Except for Line driver output) NEW</small> <small>[ϕ 58mm, L55.5mm]</small>	 <small>CE (Except for Line driver output) NEW</small> <small>[ϕ 58mm, L55.5mm]</small>
	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)			
Electrical specification	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		
			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		
	Max. 1 μ s (Cable length:2m, I sink=20mA)				
	Response time (Rise/Fall)	Totem pole output	Max. 0.5 μ s (Cable length:2m, I sink=20mA)		
		NPN open collector output			
		Voltage output			
		Line driver output			
	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	Max. 40gf \cdot cm (0.004N \cdot m)		Max. 90gf \cdot cm (0.009N \cdot m)	
	Moment of inertia	Max. 15g \cdot cm ² (1.5 \times 10 ⁻⁶ kg \cdot m ²)		Max. 20g \cdot cm ² (2 \times 10 ⁻⁶ kg \cdot m ²)	
	Shaft loading	Max. Radial : 10kg \cdot f, Thrust : Max. 2.5kg \cdot f		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				

※(Note1) 1, 2, 5 12 P/R are 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.

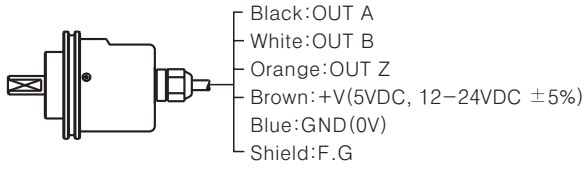
Selection Guide

Incremental rotary encoder(E58 series)

Connections

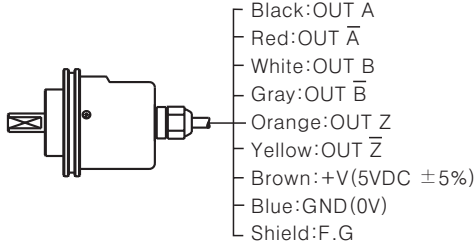
Normal type

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



※ Unused wires must be insulated.

Line driver output



Cable outgoing connector type / connector integrated type

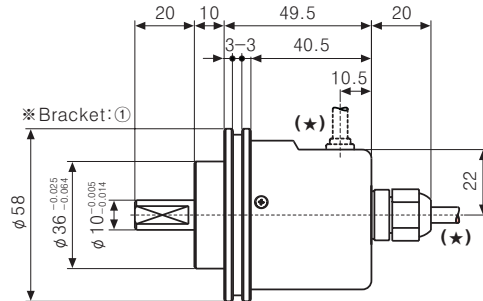
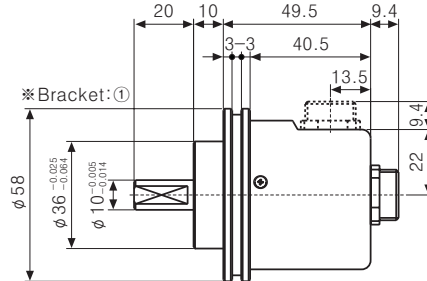
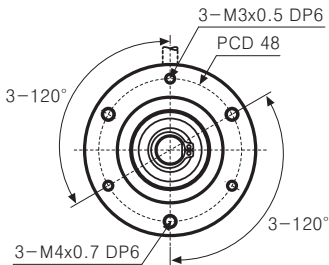
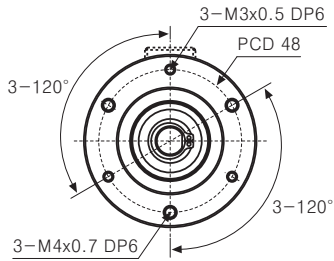


Totem pole output NPN open collector output Voltage output			Line driver output		
Pin No.	Cable color	Function	Pin No.	Cable color	Function
①	Black	OUT A	①	Black	OUT A
②	White	OUT B	②	Red	OUT \bar{A}
③	Orange	OUT Z	③	Brown	+V
④	Brown	+V	④	Blue	GND
⑤	Blue	GND	⑤	White	OUT B
⑥	Shield	F.G	⑥	Gray	OUT \bar{B}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

※ F.G(Field Ground)

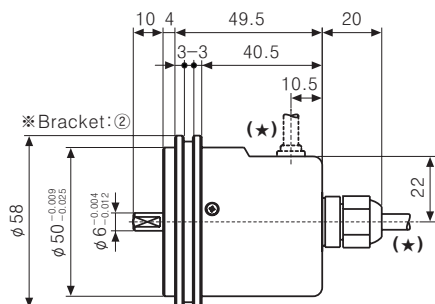
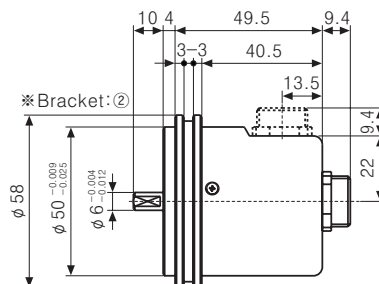
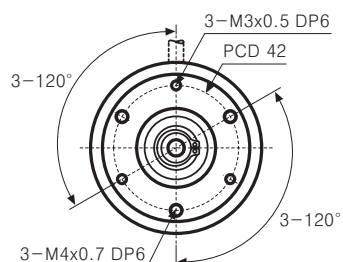
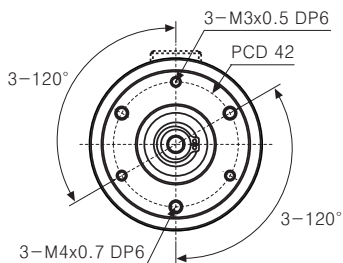
Dimensions

Shaft Clamping



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

Shaft Synchro



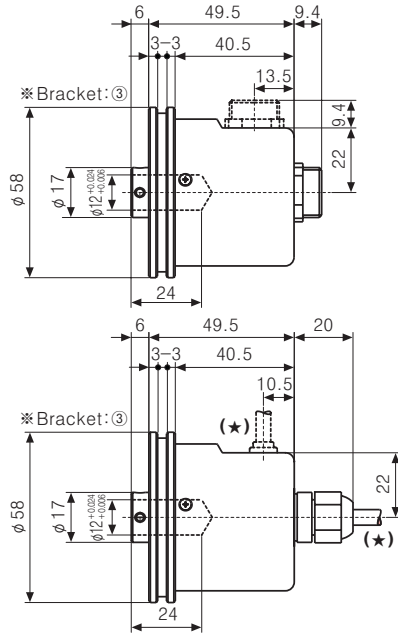
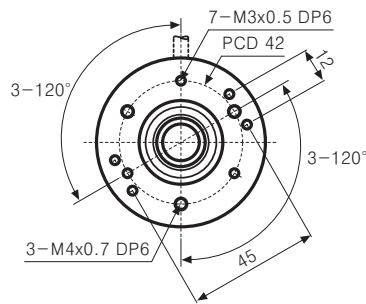
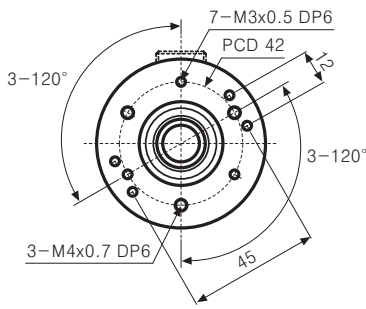
※ (★) Cable for normal type
φ 5, 5P(Line driver output:8P),
Length:2000, Shield cable

Unit:mm

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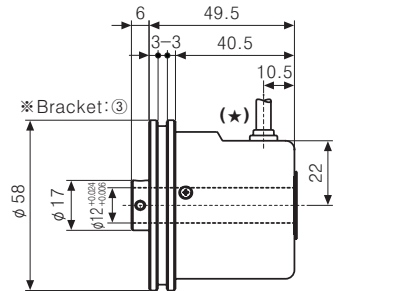
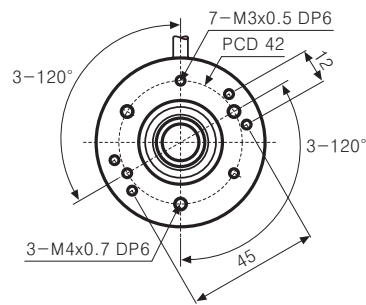
■ Dimensions

○ Hollow type



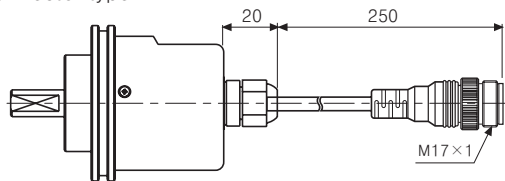
※(★) Cable for normal type
 φ 5, 5P(Line driver output:8P),
 Length:2000, Shield cable

○ Hollow built-in type



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

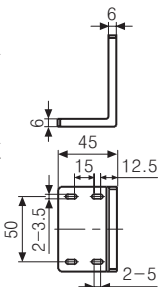
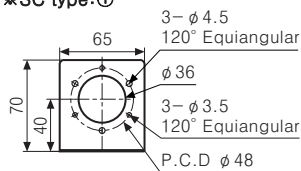
● Cable outgoing connector type



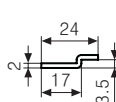
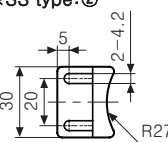
*The connector cable is customizable.

● Bracket

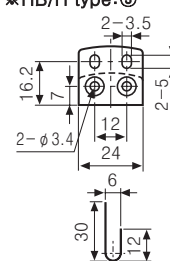
※SC type:①



※SS type:②

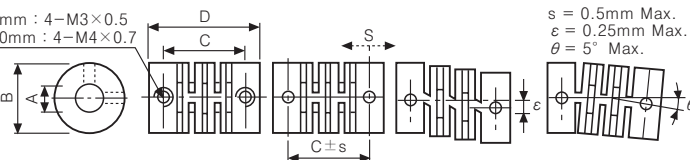


※HB/H type:③



● Coupling(E58SC10/E58SS6 Series)

φ 6mm : 4-M3×0.5
 φ 10mm : 4-M4×0.7



(Unit:mm)

Type	Item	A	B	C	D
E58SS6 φ 6mm	φ 6 ^{+0.1}	φ 15	16.5	22	
E58SC10 φ 10mm	φ 10 ^{+0.1}	φ 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

Counter
Timer
Temp. controller
Power controller
Temp./ Humidity transducer
Thermo couples & RTD
Panel meter
Tacho/ Speed/ Pulse meter
Display unit
Serial converter module
Graphic panel
Sensor controller/ Switching power supply
Proximity sensor
Photo electric sensor
Pressure sensor
Rotary encoder
Stepping motor & Driver & Controller