

EP58 Series

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

NEW

Features

- Diameter ϕ 58mm flange type
- Applicable to various mounting environments
- Various output code: BCD, Binary, Gray code (Customizable)
- Various and high resolution (720, 1024 divisions)



Applications

Precision machine tool, Fabric machinery, Robot, Parking system

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



Ordering information

EP58SC		10		1024		1		R		P		24	
Series Diameter ϕ 58mm	Shaft diameter			Resolution/1revolution	Output code			Rotating direction			Control output		Power supply
SC: Shaft clamping	External	10	ϕ 10mm	Refer to resolution	1: BCD Code 2: Binary Code 3: Gray Code	F: Output value increases at CW direction R: Output value increases at CCW direction * Shaft based	P: PNP open collector output N: NPN open collector output	5: 5VDC \pm 5% 24: 12-24VDC \pm 5%	1024 division	13bit	10bit	10bit	10bit
SS: Shaft synchro		6	ϕ 6mm										
HB: Hollow built-in	Inner	8	ϕ 8mm										

* Gray code is customizable.

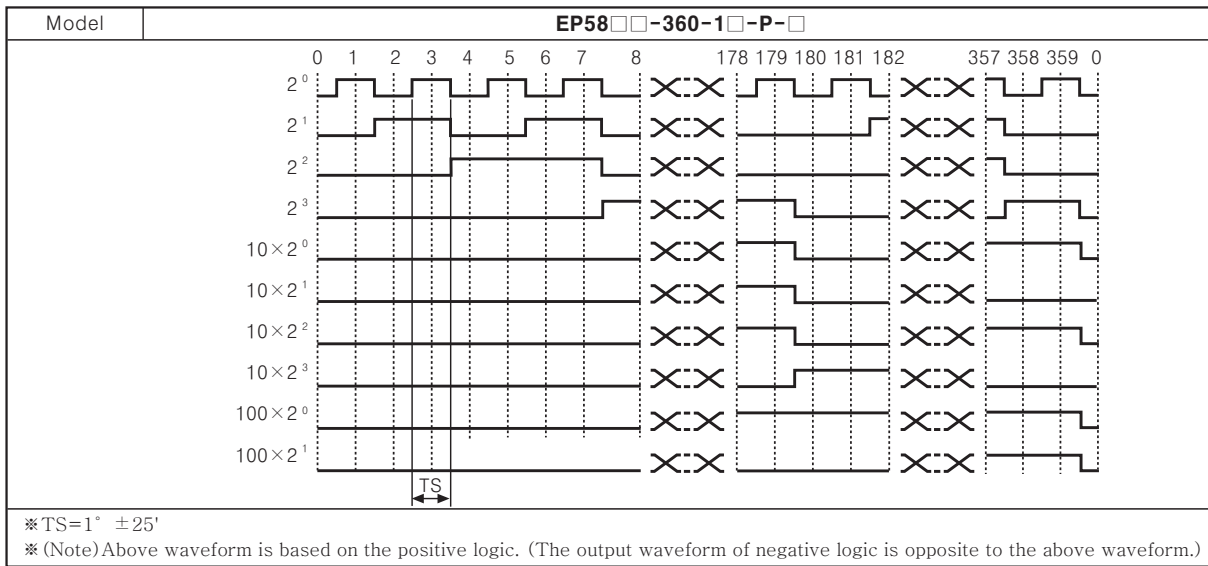
Specifications

Type		Diameter ϕ 58mm absolute rotary encoder										
Resolution		720, 360, 180, 90, 45 division					1024, 512, 256, 128, 64 division					
Output code		BCD Code		Binary Code		Gray Code		BCD Code		Binary Code		Gray Code
Electrical specification	Output phase/ Output angle	720 division	TS: Signal Pulse (11bit) TS: 0.5° \pm 25'	TS: Signal Pulse (10bit) TS: 0.5° \pm 25'	TS: Signal Pulse (10bit) TS: 1° \pm 25'	1024 division	TS: Signal Pulse (13bit) TS: 0.3515° \pm 15'	TS: Signal Pulse (10bit) TS: 0.3515° \pm 15'	TS: Signal Pulse (10bit) TS: 0.703° \pm 15'	TS: Signal Pulse (10bit) TS: 0.703° \pm 15'	TS: Signal Pulse (10bit) TS: 1.406° \pm 15'	
		360 division	TS: Signal Pulse (10bit) TS: 1° \pm 25'	TS: Signal Pulse (9bit) TS: 1° \pm 25'	TS: Signal Pulse (9bit) TS: 2° \pm 25'	512 division	TS: Signal Pulse (11bit) TS: 0.703° \pm 15'	TS: Signal Pulse (9bit) TS: 0.703° \pm 15'	TS: Signal Pulse (9bit) TS: 1.406° \pm 15'	TS: Signal Pulse (8bit) TS: 1.406° \pm 15'	TS: Signal Pulse (8bit) TS: 2.8125° \pm 15'	
		180 division	TS: Signal Pulse (9bit) TS: 2° \pm 25'	TS: Signal Pulse (8bit) TS: 2° \pm 25'	TS: Signal Pulse (8bit) TS: 4° \pm 25'	256 division	TS: Signal Pulse (10bit) TS: 1.406° \pm 15'	TS: Signal Pulse (8bit) TS: 1.406° \pm 15'	TS: Signal Pulse (8bit) TS: 2.8125° \pm 15'	TS: Signal Pulse (7bit) TS: 2.8125° \pm 15'	TS: Signal Pulse (7bit) TS: 5.625° \pm 15'	TS: Signal Pulse (6bit) TS: 11.25° \pm 15'
		90 division	TS: Signal Pulse (8bit) TS: 4° \pm 25'	TS: Signal Pulse (7bit) TS: 4° \pm 25'	TS: Signal Pulse (7bit) TS: 8° \pm 25'	128 division	TS: Signal Pulse (9bit) TS: 2.8125° \pm 15'	TS: Signal Pulse (7bit) TS: 2.8125° \pm 15'	TS: Signal Pulse (6bit) TS: 5.625° \pm 15'	TS: Signal Pulse (6bit) TS: 5.625° \pm 15'	TS: Signal Pulse (6bit) TS: 11.25° \pm 15'	TS: Signal Pulse (6bit) TS: 11.25° \pm 15'
		45 division	TS: Signal Pulse (7bit) TS: 8° \pm 25'	TS: Signal Pulse (6bit) TS: 8° \pm 25'	TS: Signal Pulse (6bit) TS: 16° \pm 25'	64 division	TS: Signal Pulse (7bit) TS: 5.625° \pm 15'	TS: Signal Pulse (6bit) TS: 5.625° \pm 15'	TS: Signal Pulse (6bit) TS: 11.25° \pm 15'	TS: Signal Pulse (6bit) TS: 11.25° \pm 15'	TS: Signal Pulse (6bit) TS: 11.25° \pm 15'	TS: Signal Pulse (6bit) TS: 11.25° \pm 15'
Control output	PNP open collector output	Output voltage : Min. (Power supply - 1.5VDC), Load current : Max. 32mA										
	NPN open collector output	Load current : Max. 32mA, Residual voltage : Max. 1VDC										
Response time (Rising time, Falling time)		Ton=800nsec, Toff=Max. 800nsec (Cable : 2m, I sink = 32mA)										
Max. Response frequency		35kHz										
Power supply		• 5VDC \pm 5% (Ripple P-P : Max. 5%) • 12-24VDC \pm 5% (Ripple P-P : Max. 5%)										
Current consumption		Max. 100mA (disconnection of the load)										
Insulation resistance		Min. 100M Ω (at 500VDC megger between all terminals and case)										
Dielectric strength		750VAC 50/60Hz for 1 minute (Between all terminals and case)										
Connection		Cable outgoing type (Cable gland)										
Mechanical specification	Starting torque	• SC/SS type : Max. 40gf \cdot cm (0.004N \cdot m)					• HB type : Max. 90gf \cdot cm (0.009N \cdot m)					
	Moment of inertia	• SC/SS type : Max. 15g \cdot cm ² (1.5 \times 10 ⁻⁸ kg \cdot m ²)					• HB type : Max. 20g \cdot cm ² (2.0 \times 10 ⁻⁶ kg \cdot m ²)					
	Shaft loading	• SC/SS type : Radial : 10kg \cdot f, Thrust : 2.5kg \cdot f					• HB type : Radial : 2kg \cdot f, Thrust : 1kg \cdot f					
	Max. allowable revolution	3000rpm										
Vibration		1.5mm amplitude at frequency of 10 to 55Hz (for one minute cycle) in each of X, Y, Z direction for 2 hours										
Shock		Max. 50G										
Ambient temperature		-10 to 70°C (at non-freezing status), Storage : -25 to 85°C										
Ambient humidity		35 to 85%RH, Storage : 35 to 90%RH										
Protection		IP50 (IEC standard)										
Cable		ϕ 7mm, 15P, Length : 2m, Shield cable										
Accessories		ϕ 10mm (SC type) / ϕ 6mm (SS type) coupling, Fixing bracket										
Unit weight		• Clamping : Approx. 435g			• Synchro : Approx. 415g			• Built-in : Approx. 410g				
Approval		CE										

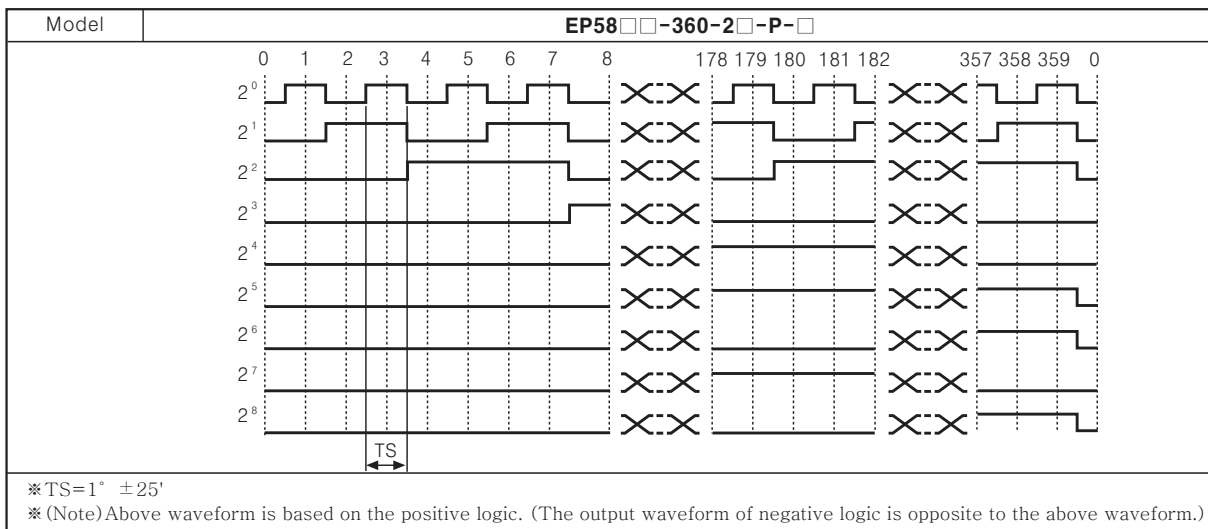
∅ 58mm Shaft/Hollow Built-in Absolute Type

Output waveform

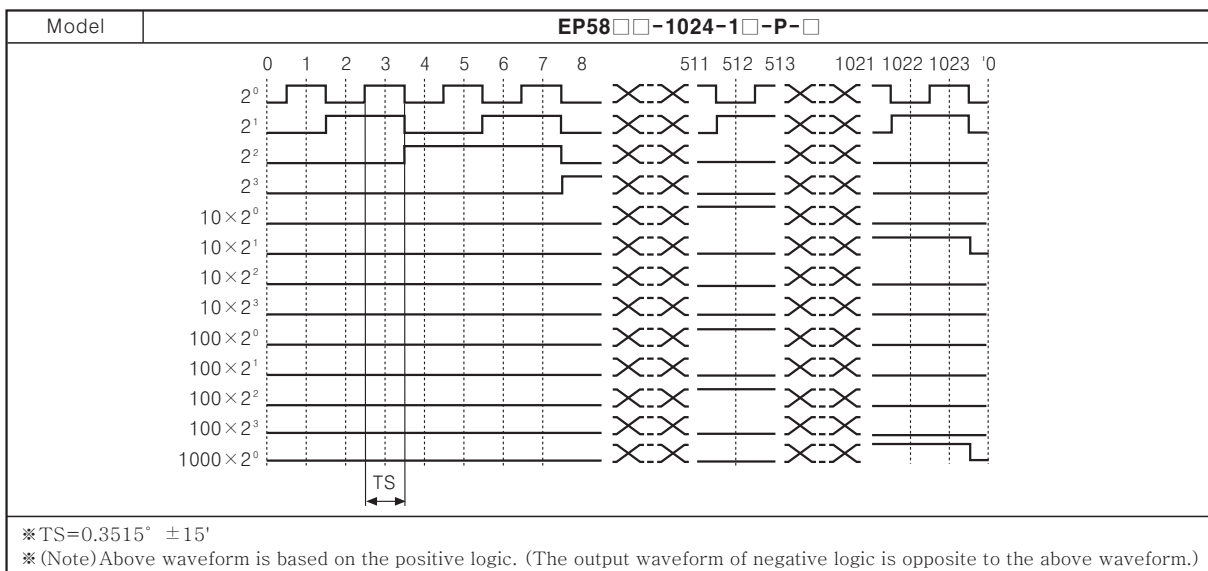
●360 division (BCD CODE output)



●360 division (BINARY CODE output)



●1024 division (BCD CODE output)

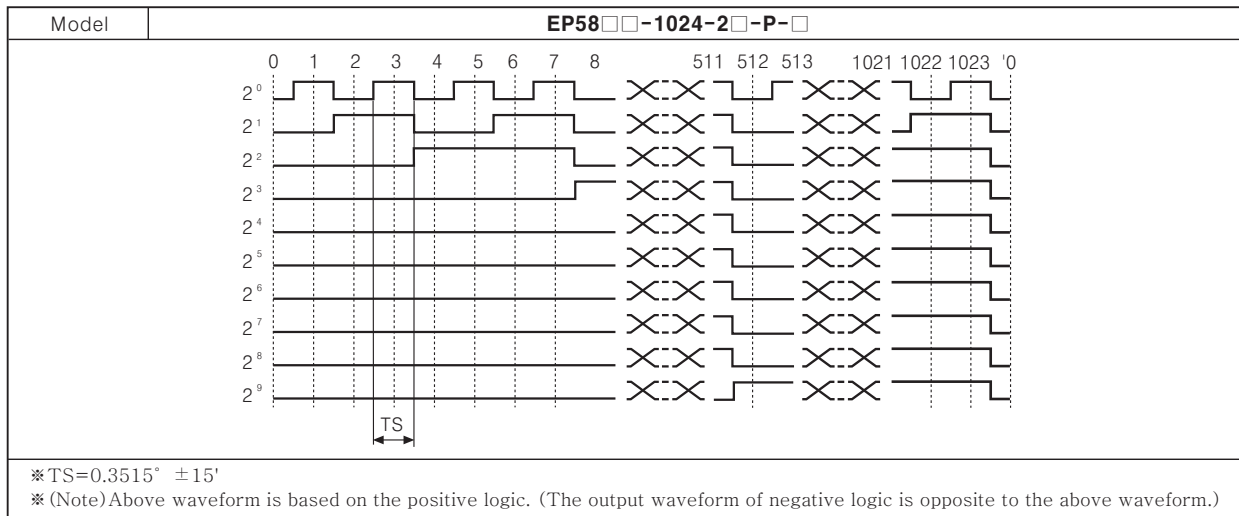


- (A) Photo electric sensor
- (B) Fiber optic sensor
- (C) Door/Area sensor
- (D) Proximity sensor
- (E) Pressure sensor
- (F) Rotary encoder**
- (G) Connector/Socket
- (H) Temp. controller
- (I) SSR/Power controller
- (J) Counter
- (K) Timer
- (L) Panel meter
- (M) Tacho/Speed/Pulse meter
- (N) Display unit
- (O) Sensor controller
- (P) Switching power supply
- (Q) Stepping motor & Driver & Controller
- (R) Graphic/Logic panel
- (S) Field network device
- (T) Production stoppage models & replacement

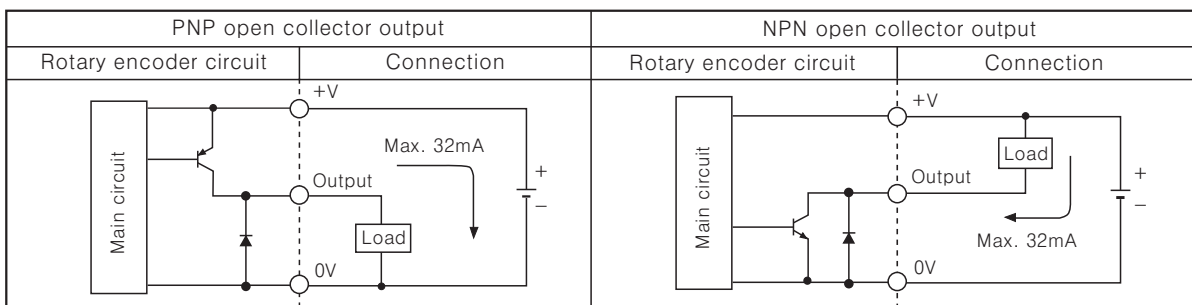
EP58 Series

Output waveform

1024 division (BINARY CODE output)



Control output diagram



*Output circuits of all phase are the same.

Connections

BCD code

Resolution (Division)	45	64	90	128	180	256	360	512	720	1024	
Color											
Power	White	+V									
	Black	GND(0V)									
Output wire	Brown	2 ⁰									
	Red	2 ¹									
	Orange	2 ²									
	Yellow	2 ³									
	Blue	(2 ⁹ × 10)									
	Purple	(2 ¹ × 10)									
	Gray	(2 ² × 10)									
	White/Brown	N.C	(2 ³ × 10)								
	White/Red	N.C	(2 ⁰ × 100)								
	White/Orange	N.C			(2 ¹ × 100)						
	White/Yellow	N.C						(2 ² × 100)			
	White/Blue	N.C								(2 ³ × 100)	
	White/Purple	N.C								(2 ⁰ × 1000)	
Shield wire	F.G										

Binary code / Gray code

Resolution (Division)	45	64	90	128	180	256	360	512	720	1024	
Color											
Power	White	+V									
	Black	GND(0V)									
Output wire	Brown	2 ⁰									
	Red	2 ¹									
	Orange	2 ²									
	Yellow	2 ³									
	Blue	2 ⁴									
	Purple	2 ⁵									
	Gray	N.C	2 ⁶								
	White/Brown	N.C			2 ⁷						
	White/Red	N.C						2 ⁸			
	White/Orange	N.C								2 ⁹	
	White/Yellow	N.C									
	White/Blue	N.C									
	White/Purple	N.C									
Shield wire	F.G										

*Unused wires must be insulated.

*Encoder case and shield wire must be grounded (F.G).

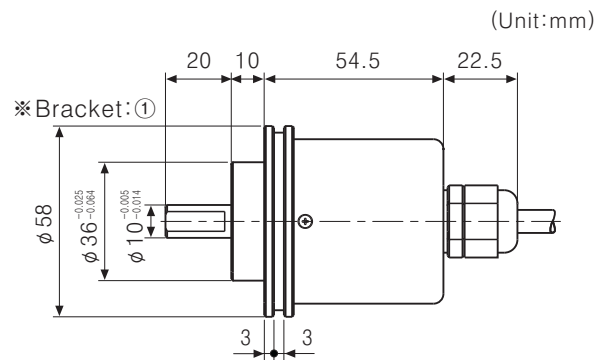
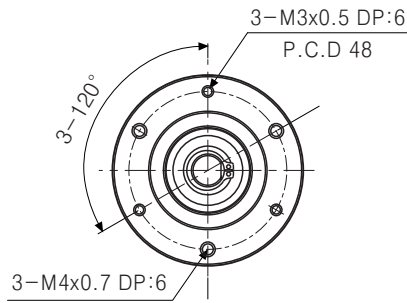
*N.C : Not connected.

*Output cable must not be short-circuited, because Driver IC is used in output circuit.

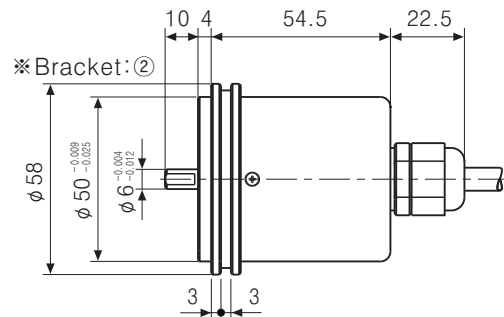
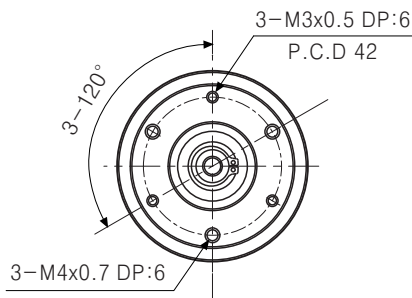
∅ 58mm Shaft/Hollow Built-in Absolute Type

■ Dimensions

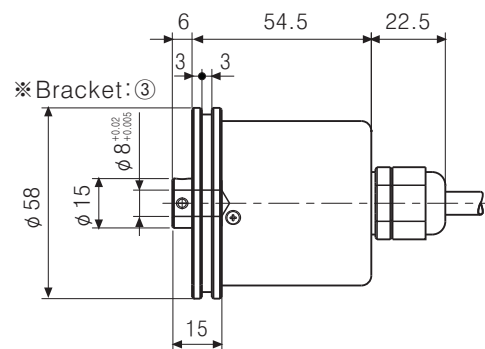
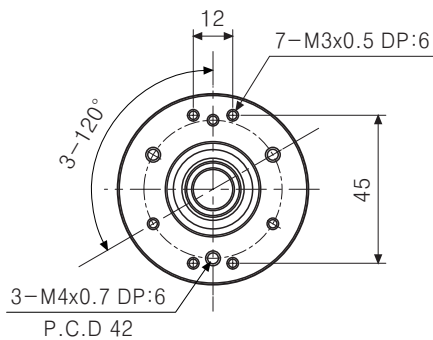
■ Shaft clamping type



■ Shaft synchro type

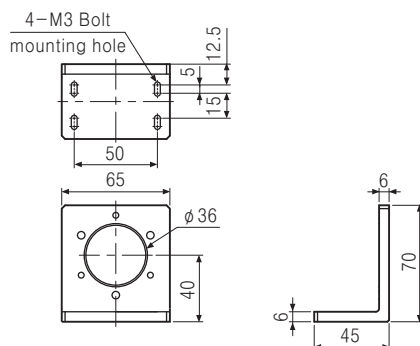


■ Hollow built-in type

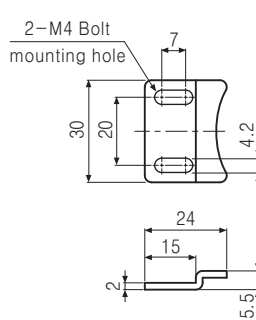


● Bracket

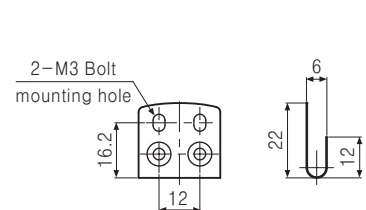
※SC type:①



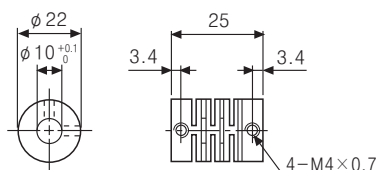
※SS type:②



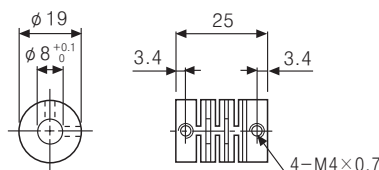
※HB/H type:③



● ∅ 10 Coupling (EP58SC10 Series)



● ∅ 8 Coupling (EP58SS6 Series)



(A)	Photo electric sensor
(B)	Fiber optic sensor
(C)	Door/Area sensor
(D)	Proximity sensor
(E)	Pressure sensor
(F)	Rotary encoder
(G)	Connector/Socket
(H)	Temp. controller
(I)	SSR/Power controller
(J)	Counter
(K)	Timer
(L)	Panel meter
(M)	Tacho/Speed/Pulse meter
(N)	Display unit
(O)	Sensor controller
(P)	Switching power supply
(Q)	Stepping motor & Driver & Controller
(R)	Graphic/Logic panel
(S)	Field network device
(T)	Production stoppage models & replacement