

E40 Series

勝特力材料 886-3-5753170
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Http://www.100y.com.tw

Diameter ϕ 40mm Shaft type/Hollow type/Built-in type Incremental Rotary encoder

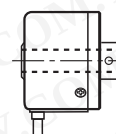
■ Features

- 12-24VDC power supply of line driver output(Line-up)
- Easy installation at narrow space
- Small moment of inertia
- Power supply : 5VDC, 12-24VDC $\pm 5\%$
- Various output types

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

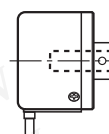


CE



E40H SERIES

Line-up



E40HB SERIES

■ Ordering information

E40	H	8	5000	3	N	24	
Series	Shaft type	Hollow type	Pulse/1 Revolution	Output phase	Output	Power supply	Cable
S: Shaft type	External	Inner	Refer to resolution	2: A, B	T: Totem pole output	5 : 5VDC $\pm 5\%$ 24: 12-24VDC $\pm 5\%$	Blank: Normal type (*) C: Cable outgoing connector type
H: Hollow type		6: ϕ 6mm		3: A, B, Z	N: NPN open collector output		
HB: Hollow built-in type	6: ϕ 6mm 8: ϕ 8mm	8: ϕ 8mm 10: ϕ 10mm 12: ϕ 12mm		4: A, $\bar{A}$, B, $\bar{B}$ 6: A, A, B, $\bar{B}$, Z, $\bar{Z}$	V: Voltage output L: Line driver output		

*Standard : E40S6-PULSE-3-N-24

E40H8-PULSE-3-N-24

E40HB8-PULSE-3-N-24

*Standard: A, B, Z

*Cable length : 250mm

■ Specifications

Item		Diameter ϕ 40mm shaft/hollow shaft/hollow built-in type of 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, 150, 192, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 5000 (Not indicated resolution is customizable.)
Electrical specification	Output phase	A, B, Z phase (Line driver : A, $\bar{A}$, B, $\bar{B}$, Z, $\bar{Z}$ phase)	
	Phase difference of output	Phase difference between A and B : $\frac{T}{4} \pm \frac{T}{8}$ (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 supply 5VDC): Min. (Power supply-2.0)VDC, Output voltage (Power supply 12-24VDC): Min. (Power supply-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
	Response time (Rise/Fall)	Totem pole output	Max. 1 μ s
		NPN open collector output	Max. 1 μ s
		Voltage output	Max. 1 μ s
		Line driver output	Max. 0.5 μ s
	Max. Response frequency	300kHz	
	Power supply	• 5VDC $\pm 5\%$ (Ripple P-P : Max. 5%) • 12-24VDC $\pm 5\%$ (Ripple P-P : Max. 5%)	
Mechanical specification	Current consumption	Max. 80mA (disconnection of the load), Line driver output : Max. 50mA (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, 250mm cable outgoing connector type	
	Starting torque	Shaft Type : Max. 40gf $\cdot$ cm (0.004N $\cdot$ m), Hole Type : Max. 50gf $\cdot$ cm (0.005N $\cdot$ m)	
	Moment of inertia	Max. 40g $\cdot$ cm ² (4×10^{-6} kg $\cdot$ m ²)	
	Shaft loading	Radial : Max. 2kgf, Thrust : Max. 1kgf	
	Max. allowable revolution	(Note2)	5000rpm
	Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours	
	Shock	Max. 50G	
Ambient temperature		-10 to 70 $^{\circ}$ C (at non-freezing status), Storage : -25 to 85 $^{\circ}$ C	
Ambient humidity		35 to 85%RH, Storage : 35 to 90%RH	
Protection		IP50 (IEC standard)	
Cable		ϕ 5mm, 5P, Length : 2m, Shield cable (Line driver output : ϕ 5mm, 8P)	
Accessory		• Shaft type : ϕ 6mm coupling standard, ϕ 8mm coupling (Sold separately) • Hole type : Bracket	
Approval		CE (Except for line driver output)	
Unit weight		Approx. 160g	

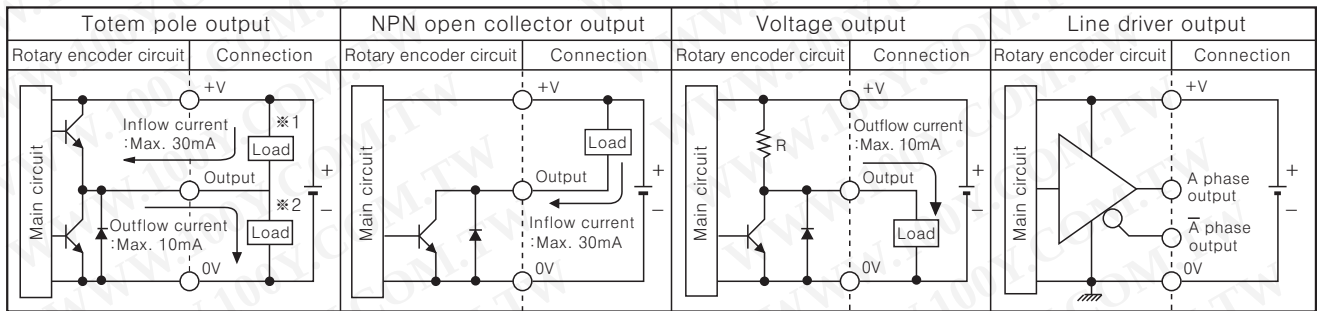
* (Note1) ' * ' pulse is only for A, B phase (Line Driver output is for A, $\bar{A}$, B, $\bar{B}$ phase)

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

Make sure that max. response revolution should be lower than max. allowable revolution when selecting the resolution.

Incremental ø 40mm Shaft/Hollow Shaft/Built-in Type

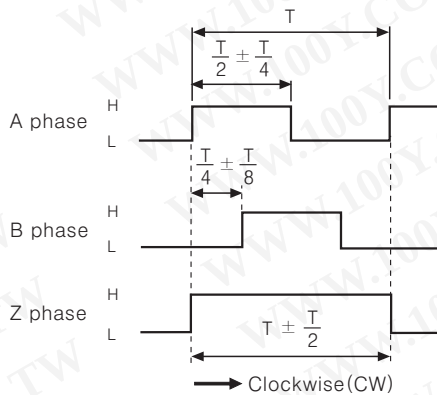
Control output diagram



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

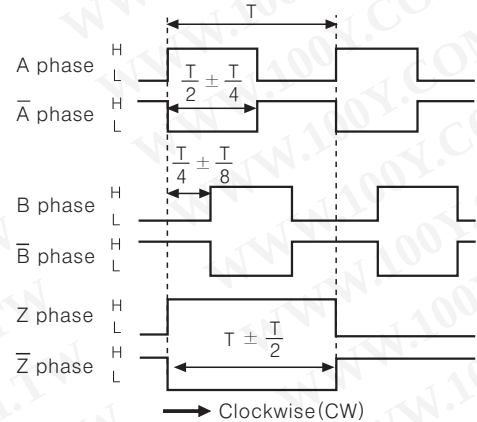
Output waveform

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



※CW : Right turn as from the shaft

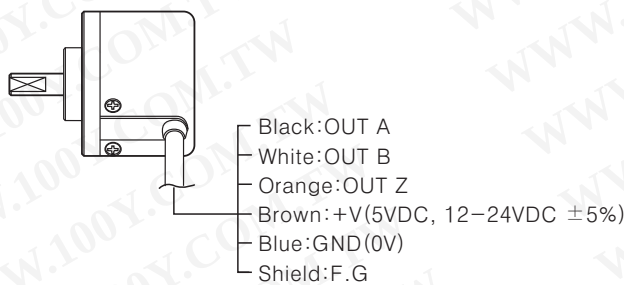
- Line driver output



Connections

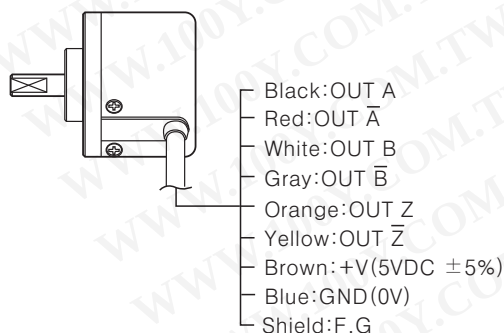
Normal type

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



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

- Line driver output



Cable outgoing connector type

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

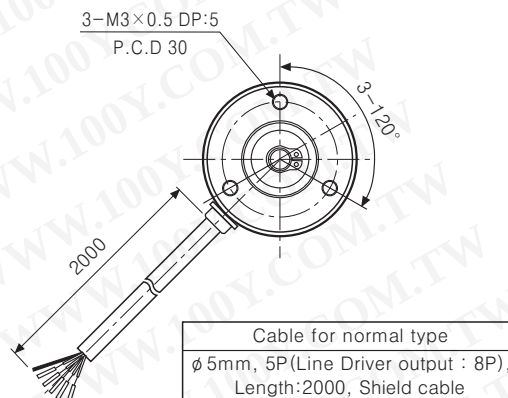
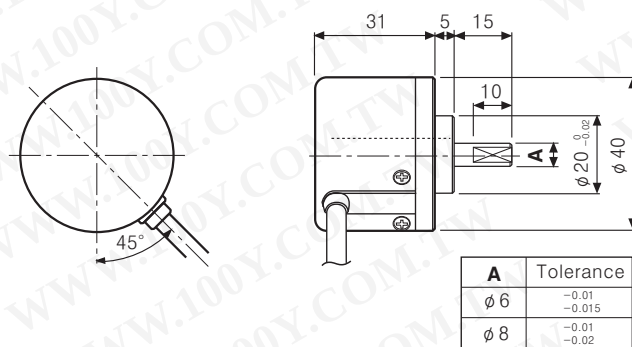
E40 Series

■ Dimensions

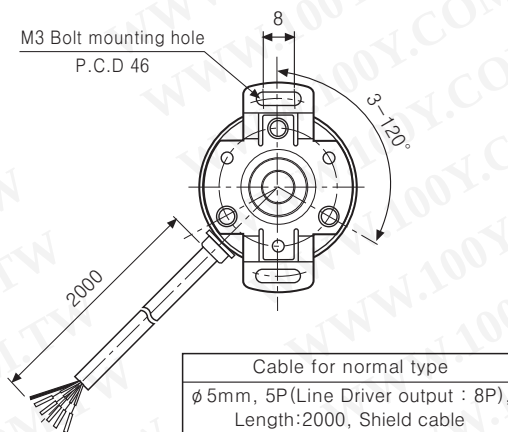
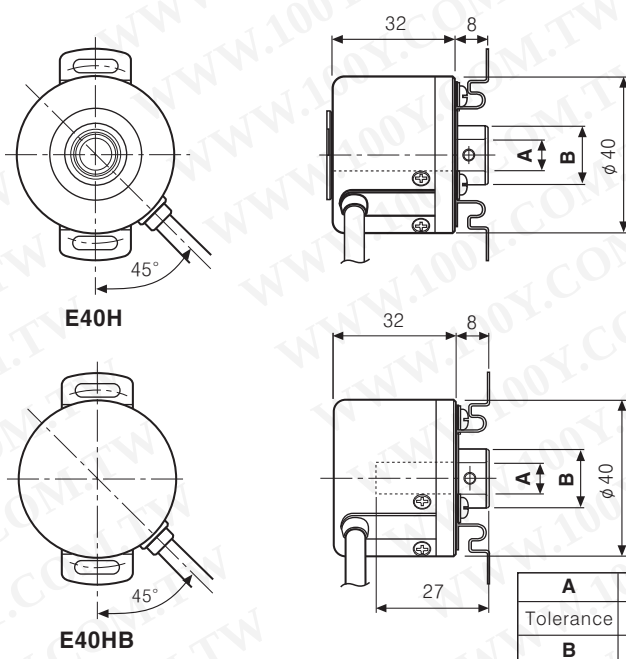
■ Normal type

● Shaft type

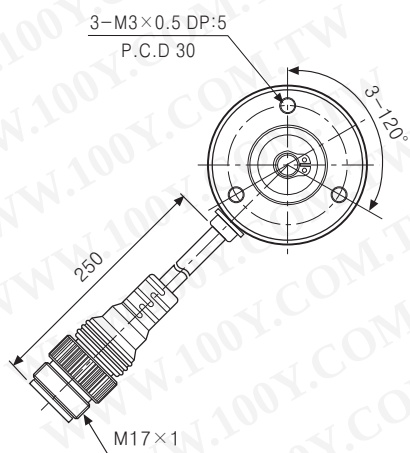
(Unit:mm)



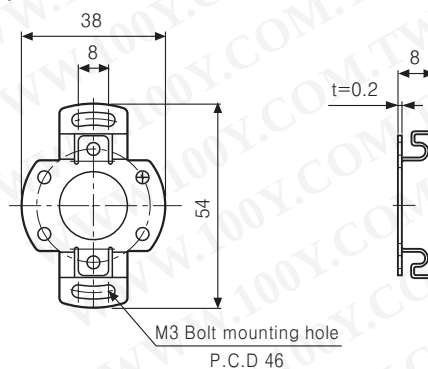
● Hollow shaft / Hollow shaft built-in type



■ Cable outgoing connector type

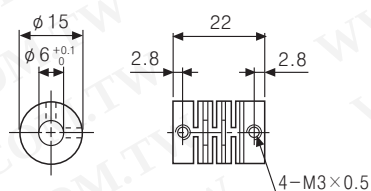


◎ Bracket(E40H, E40HB)

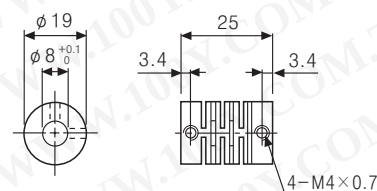


◎ Coupling(E40S)

● $\phi 6$ Coupling



● $\phi 8$ Coupling



※Connector cable is customizable and see G-6 for specifications.