

# E80H Series Incremental ø80mm Hollow Shaft type

## Diameter ø80mm Hollow shaft type Incremental Rotary Encoder

### ■ Features

- Diameter ø80mm, Inner diameter of shaft ø30mm, ø32mm(Customizable)
- Allows to install directly at motor or machinery without coupling
- Power supply : 5VDC, 12-24VDC ±5%
- Various output types



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



### ■ Ordering information

<b>E80H</b>	<b>30</b>	<b>3200</b>	<b>3</b>	<b>N</b>	<b>24</b>	
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Series	Shaft diameter	Pulse/1 Revolution	Output phase	Output	Power supply	Cable
Diameter ø80mm, hollow shaft type	ø30mm ø32mm	60, 100, 360, 500, 512, 1024, 3200	3 : A, B, Z 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(※)	5 : 5VDC ±5% 24 : 12-24VDC ±5%	No mark: Cable type C: Connector cable type(※)

※Shaft inner diameter ø32mm is customizable

※The power of Line driver is only for 5VDC

※Cable length : 250mm

### ■ Specifications

Item	Diameter ø80mm hollow shaft type of incremental rotary encoder		
Resolution(P/R) <sup>※1</sup>	60, 100, 360, 500, 512, 1024, 3200		
Electrical specification	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 : $\frac{T}{4} \pm \frac{T}{8}$ (T=1 cycle of A phase)	
	Control output	Totem pole output	• Low - Load current:Max. 30mA, Residual voltage : Max. 0.4VDC • High - 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
	Response time (Rise/Fall)	Line driver output	• Low - Load current : Max. 20mA, Residual voltage : Max. 0.5VDC • High - Load current : Max. -20mA, Output voltage : Min. 2.5VDC
		Totem pole output	Max. 1μs
		NPN open collector output	
	Max. Response frequency	Voltage output	Max. 0.5μs
		Line driver output	
	Power supply	• 5VDC ±5%(Ripple P-P:Max. 5%) • 12-24VDC ±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. 100MΩ(at 500VDC megger between all terminals and case)	
Dielectric strength	750VAC 50/60Hz for 1 minute(Between all terminals and case)		
Connection	Cable type, 250mm connector cable type		
Mechanical specification	Starting torque	Max. 200gf·cm(0.02N·m)	
	Moment of inertia	Max. 800g·cm <sup>2</sup> (8×10 <sup>-5</sup> kg·m <sup>2</sup> )	
	Shaft loading	Radial : 5kgf, Thrust : 2.5kgf	
	Max. allowable revolution <sup>※2</sup>	3600rpm	
Vibration	1.5mm amplitude or 300m/s <sup>2</sup> at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours		
Shock	Approx. Max. 75G		
Environment	Ambient temperature	-10 to 70°C, storage : -25 to 85°C	
	Ambient humidity	35 to 85%RH, storage : 35 to 90%RH	
Protection	IP50(IEC standard)		
Cable	ø5, 5-wire, Length : 2m, Shield cable(Line driver output : ø5, 8-wire) (AWG24, Core diameter : 0.08mm, Number of cores : 40, Insulator out diameter : ø1)		
Accessory	Spring bracket		
Approval	CE (Except for line driver output)		
Unit weight	Approx. 560g		

※1: Not indicated type is customizable.

※2: Make sure that. Max response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.

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

※Environment resistance is rated at no freezing or condensation.

(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 mode power supply

(Q) Stepper motor& Driver&Controller

(R) Graphic/Logic panel

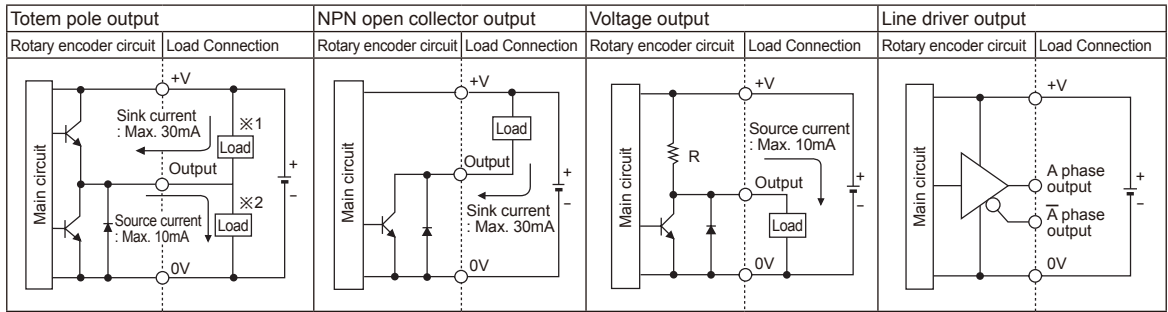
(S) Field network device

(T) Software

(U) Other

# E80H Series

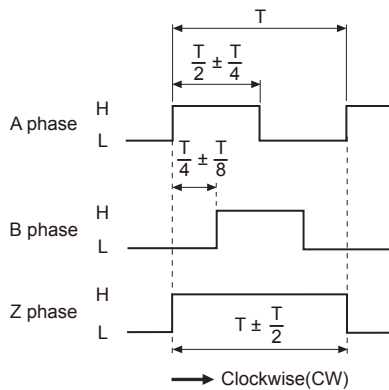
## Control output diagram



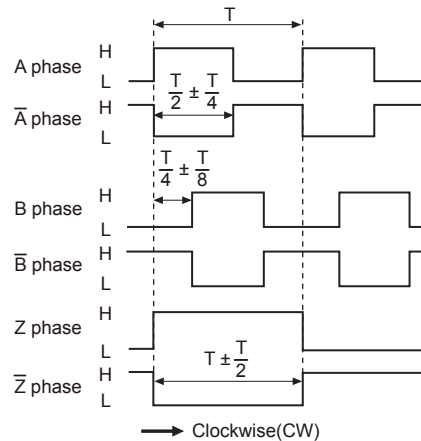
- Totem pole output type can be used for NPN open collector output type(※1) or Voltage output type(※2).
- All output circuits of A, B, Z phase are the same. (Line driver output is A,  $\bar{A}$ , B,  $\bar{B}$ , Z,  $\bar{Z}$ )

## Output waveform

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



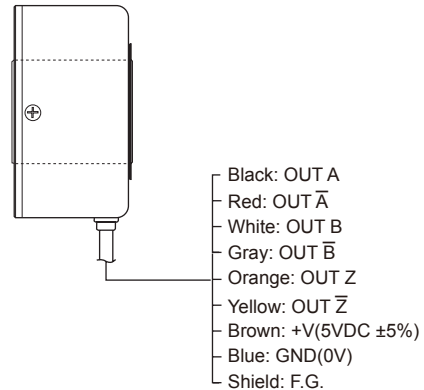
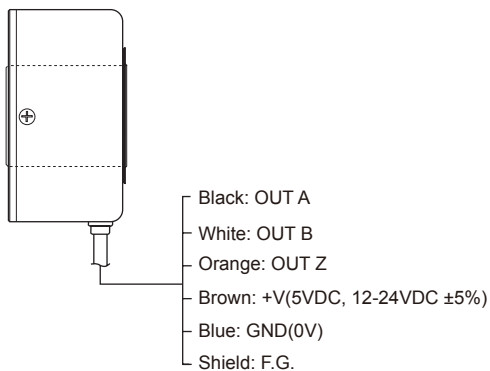
※CW : Right turn as from the shaft



## Connections

### ◎ Cable type

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



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

# Incremental ø80mm Hollow Shaft type

## ■ Connection

### ◎ Connector cable type

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



- Line driver output



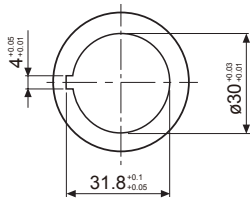
Totem pole output NPN open collector output Voltage output			Line driver output		
Pin No	Function	Cable color	Pin No	Function	Cable color
①	OUT A	Black	①	OUT A	Black
②	OUT B	White	②	OUT A	Red
③	OUT Z	Orange	③	+V	Brown
④	+V	Brown	④	GND	Blue
⑤	GND	Blue	⑤	OUT B	White
⑥	F.G.	Shield	⑥	OUT B	Gray
			⑦	OUT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

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

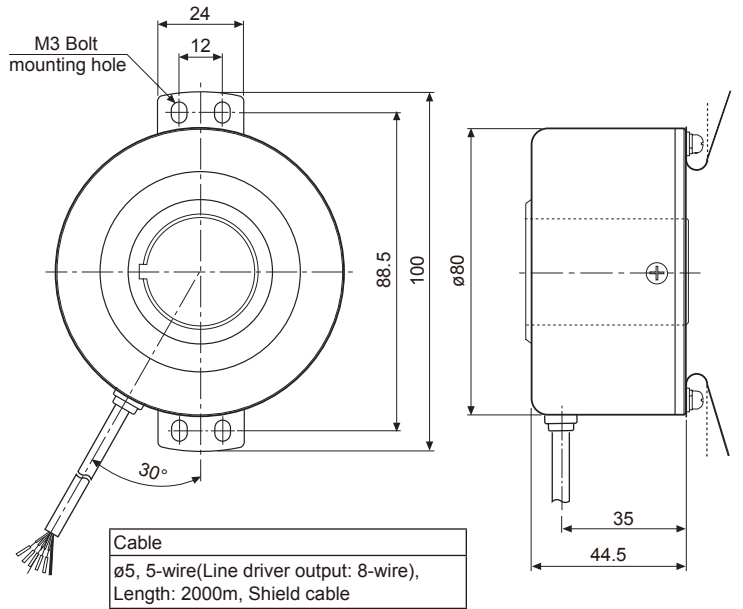
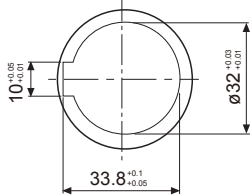
## ■ Dimensions

### ◎ Cable type

- Shaft inner diameter standard

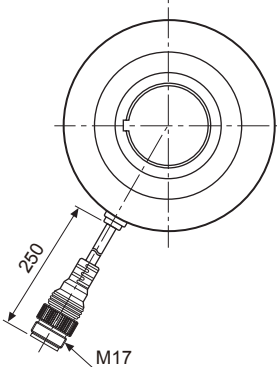


- Shaft inner diameter(Option)

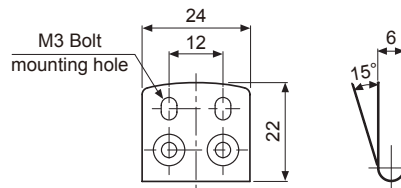


(unit: mm)

### ◎ Connector cable type



- Bracket



※Connector cable is sold separate and refer to the G-10 for specifications.

(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
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(L)	Panel meter
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