

# 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)
- No coupling needed with direct installation at motor or rotation shaft of machine
- 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>
-------------	-----------	-------------	----------	----------	-----------

Series	Shaft diameter	Pulse/1Revolution	Output phase	Control 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
		Line driver output	• Low - Load current: Max. 20mA, Residual voltage: Max. 0.5VDC • High - Load current: Max. -20mA, Output voltage: Min. 2.5VDC
	Response time (Rise/Fall)	Totem pole output	Max. 1μs (Cable length: 2m, I sink = 20mA)
		NPN open collector output	
		Voltage output	
		Line driver output	Max. 0.5μs
	Max. Response frequency	200kHz	
	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 at frequency of 10 to 55Hz (for 1 min.) in each X, Y, Z direction 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 structure	IP50 (IEC standard)		
Cable	Ø5mm, 5-wire, Length: 2m, Shield cable (Line driver output: Ø5mm, 8-wire) (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator out diameter: Ø1mm)		
Accessory	Spring bracket		
Approval	CE (Except for line driver output)		
Unit weight	Approx. 560g		

※1: Not indicated resolutions are customizable.

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

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

※Environment resistance is rated at no freezing or condensation.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

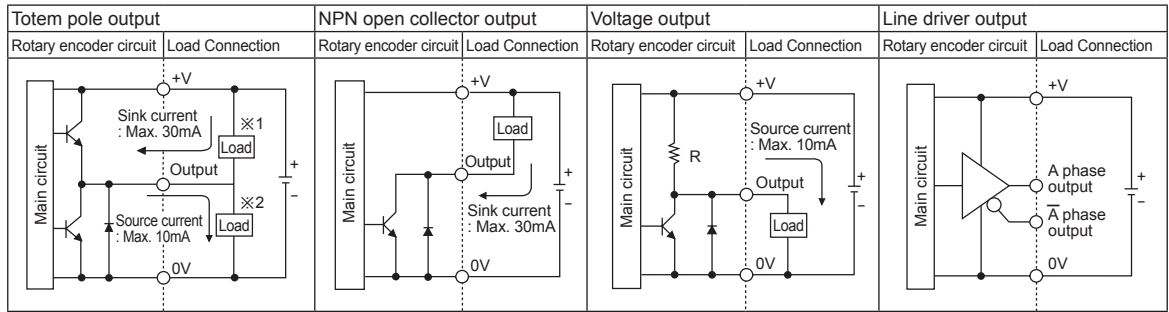
(R) Graphic/ Logic Panels

(S) Field Network Devices

(T) Software

# E80H Series

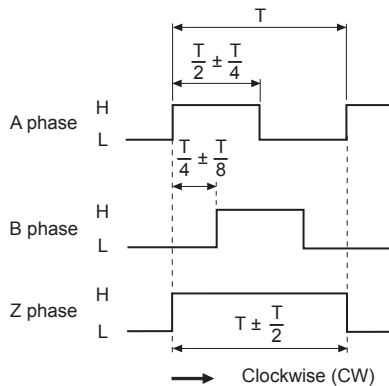
## Control Output Diagram



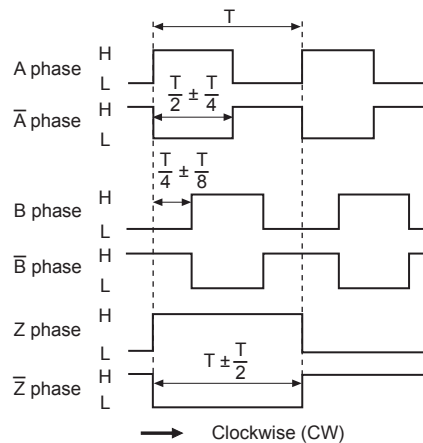
- Totem pole output type can be used for NPN open collector output type (※1) or Voltage output type (※2).
- All output circuits of A, B, Z phase are same. (Line driver output is A,  $\bar{A}$ , B,  $\bar{B}$ , Z,  $\bar{Z}$ )

## Output Waveform

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



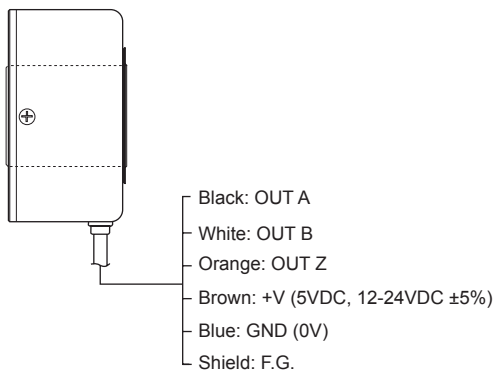
- Line driver output



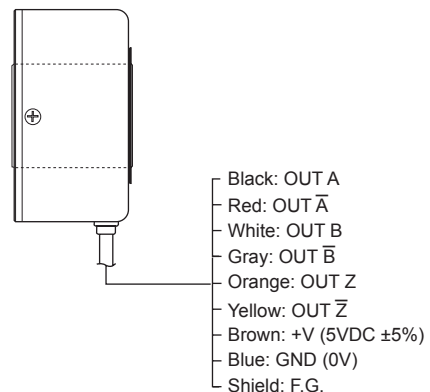
## Connections

### ⊙ 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



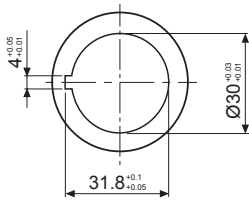
Totem pole output NPN open collector output Voltage output			Line driver output		
Pin No	Function	Cable color	Pin No	Function	Cable color
①	OUT A	Black	①	OUT A	Black
②	OUT B	White	②	OUT $\bar{A}$	Red
③	OUT Z	Orange	③	+V	Brown
④	+V	Brown	④	GND	Blue
⑤	GND	Blue	⑤	OUT B	White
⑥	F.G.	Shield	⑥	OUT $\bar{B}$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

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

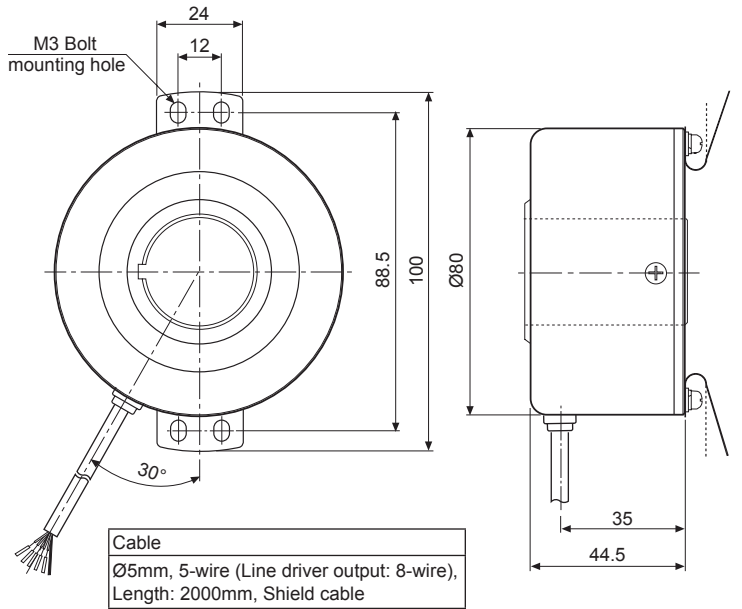
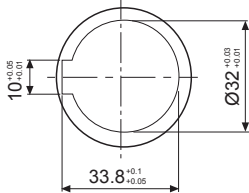
## ■ Dimensions

### ◎ Cable type

- Shaft inner diameter standard

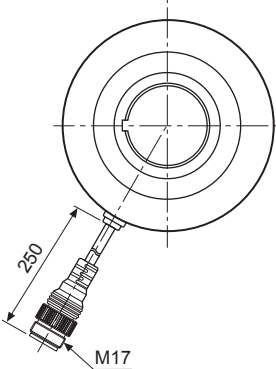


- Shaft inner diameter (Option)

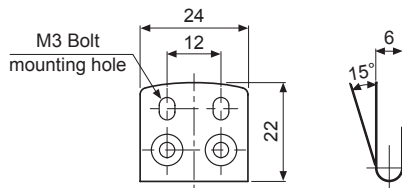


(unit: mm)

### ◎ Connector cable type



- Bracket



※Connector cable is sold separately and refer to page G-10 for specifications.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels

(S) Field Network Devices

(T) Software