


# E100H Series

## Hollow Shaft Type Ø100mm Incremental Rotary Encoder

### ■ Features

- Great environmental resistance
- High stability of output
- Exclusive for Elevator

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



### ■ Ordering Information

<b>E100H</b>	<b>35</b>	<b>10000</b>	<b>6</b>	<b>L</b>	<b>5</b>
Series	Shaft diameter	Pulses/revolution	Output phase	Control output	Power supply
Ø100mm, hollow shaft type	Ø35mm	512, 1024, 10000	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 $\pm$ 5% 24: 12-24VDC $\pm$ 5%

### ■ Specifications

Item	Hollow Shaft Type Ø100mm Incremental Rotary Encoder		
Resolution (PPR) <sup>※1</sup>	512, 1024, 10000		
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 (power voltage 5VDC): Min. 2.5VDC, Output voltage (power voltage 12-24VDC): Min. (power voltage-3.0)VDC
	Response time (rise/fall)	Totem pole output	Max. 1 $\mu$ s (cable length: 2m, I sink = 20mA)
		NPN open collector output	
		Voltage output	Max. 0.5 $\mu$ s (cable length: 2m, I sink = 20mA)
		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	Over 100M $\Omega$ (at 500VDC megger between all terminals and case)	
Dielectric strength	750VAC 50/60Hz for 1 minute (between all terminals and case)		
Connection	Radial connector type		
Mechanical specification	Starting torque	Max. 300gf·cm (0.03N·m)	
	Moment of inertia	Max. 800g·cm <sup>2</sup> (8 $\times$ 10 <sup>-5</sup> kg·m <sup>2</sup> )	
	Shaft loading	Radial: 5kgf, Thrust: 2.5kgf	
	Max. allowable revolution <sup>※2</sup>	3,600rpm	
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 (line driver output: 8-wire), 2m, Shield cable (AWG24, core diameter: 0.08mm, number of cores: 40, insulator out diameter: Ø1mm)		
Accessory	Bracket: 2, Connector cable		
Approval	CE (except for line driver output)		
Weight <sup>※3</sup>	Approx. 1400g (approx. 1130g)		

※1: Not indicated resolutions are customizable.

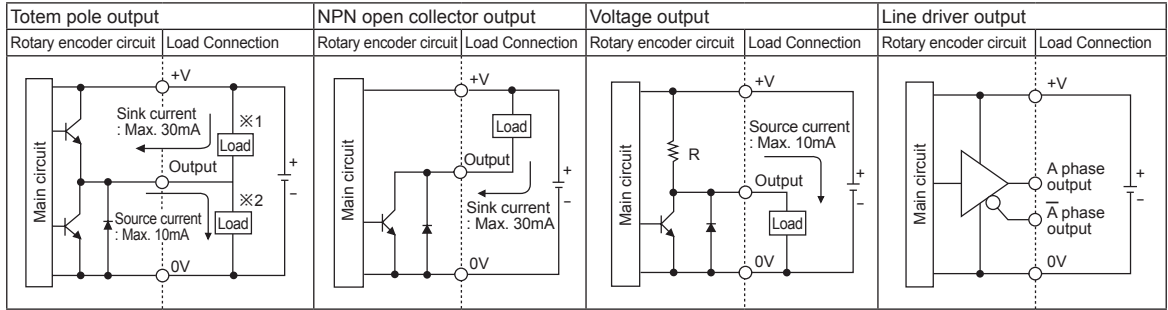
※2: Make sure that max. response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.

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

※3: The weight includes packaging. The weight in parenthesis is for unit only. ※Environment resistance is rated at no freezing or condensation.

# Incremental Ø100mm Hollow Shaft Type

## Control Output Diagram

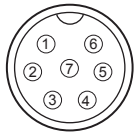


- Totem pole output type can be used for NPN open collector output type (×1) or Voltage output type (×2).
- All output circuits of A, B, Z phase are same. (line driver output is A,  $\bar{A}$ , B,  $\bar{B}$ , Z,  $\bar{Z}$ )

## Connections

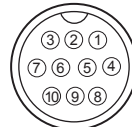
- Totem pole output / NPN open collector output / Voltage output

- Line driver output



SCN-16-7P

Pin No.	Function	Cable color
①	+V	Brown
②	GND	Blue
③	OUT A	Black
④	OUT B	White
⑤	OUT Z	Orange
⑥	F.G.	Shield
⑦	N-C	N.C



SCN-20-10P

Pin No.	Function	Cable color
①	+V	Brown
②	GND	Blue
③	OUT A	Black
④	OUT $\bar{A}$	Red
⑤	F.G.	Shield
⑥	OUT B	White
⑦	OUT $\bar{B}$	Gray
⑧	OUT Z	Orange
⑨	OUT $\bar{Z}$	Yellow
⑩	N-C	N-C

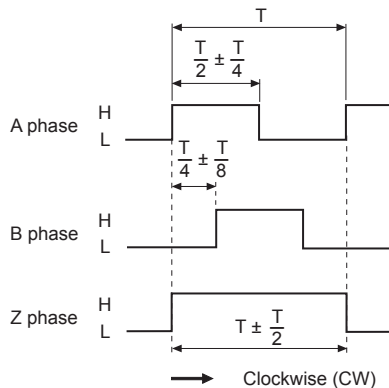
※N-C (not connected)

※Unused wires must be insulated.

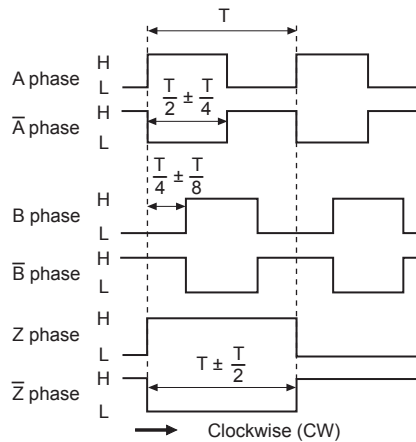
※The metal case and shield cable should be grounded (F.G.).

## Output Waveform

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



- Line driver output

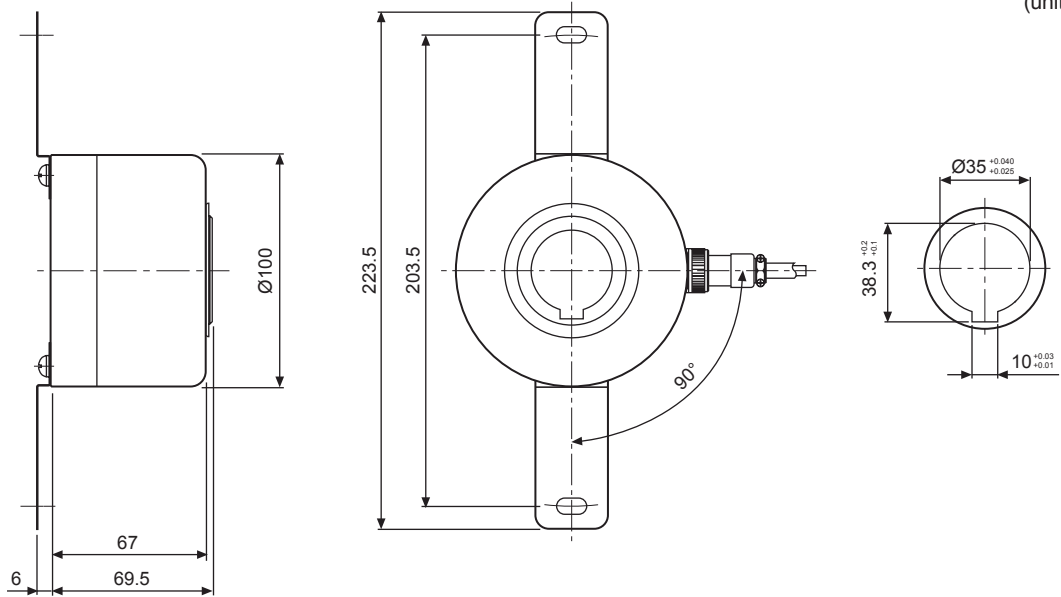


(A)	Photoelectric Sensors
(B)	Fiber Optic Sensors
(C)	Door/Area Sensors
(D)	Proximity Sensors
(E)	Pressure Sensors
(F)	Rotary Encoders
(G)	Connectors/ Connector Cables/ Sensor Distribution Boxes/Sockets
(H)	Temperature Controllers
(I)	SSRs / Power Controllers
(J)	Counters
(K)	Timers
(L)	Panel Meters
(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

# E100H Series

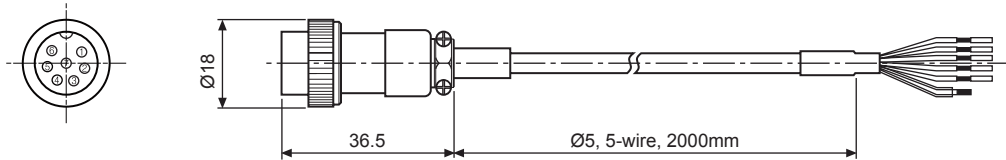
## ■ Dimensions

(unit: mm)

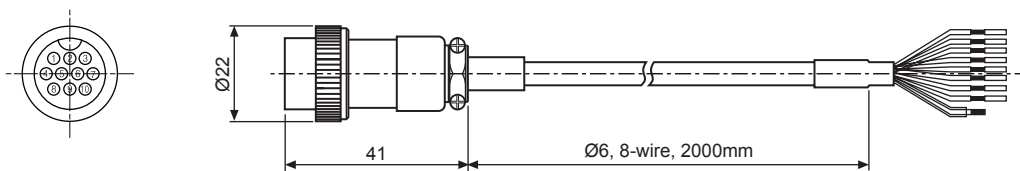


## ◎ Connector cable

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



- Line driver output



※10m connector cable is customizable.

※Cable type is customizable.

- Bracket

