


# E100H Series

## Diameter $\phi$ 100mm Hollow shaft type 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>N</b>	<b>5</b>
Series	Shaft diameter	Pulse/1Revolution	Output phase	Output	Power supply
Diameter $\phi$ 100mm hollow shaft type	$\phi$ 35mm	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%

※The power of Line driver is only for 5VDC

### ■ Specifications

Item	Diameter $\phi$ 100mm hollow shaft type of incremental rotary encoder		
Resolution(P/R)	<b>(Note1)</b> 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=1cycle 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 $\mu$ s
		NPN open collector output	Max. 1 $\mu$ s
		Voltage output	Max. 1 $\mu$ s
		Line driver output	Max. 0.5 $\mu$ s
	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	Min. 100M $\Omega$ (at 500VDC megger between all terminals and case)	
Dielectric strength	750VAC 50/60Hz for 1 minute (Between all terminals and case)		
Connection	Connector type		
Mechanical specification	Starting torque	Max. 300gf $\cdot$ cm (0.03N $\cdot$ m)	
	Moment of inertia	Max. 800g $\cdot$ cm <sup>2</sup> (8 $\times$ 10 <sup>-5</sup> kg $\cdot$ m <sup>2</sup> )	
	Shaft loading	Radial : 5kgf, Thrust : 2.5kgf	
	Max. allowable revolution	<b>(Note2)</b> 3600rpm	
Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours		
Shock	Max. 75G		
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	$\phi$ 5mm, 5P, Length : 5m, Shield cable (Line driver output : $\phi$ 6mm, 8P)		
Accessory	Spring bracket 2EA		
Approval	<b>CE</b> (Except for line driver output)		
Unit weight	Approx. 1200g		

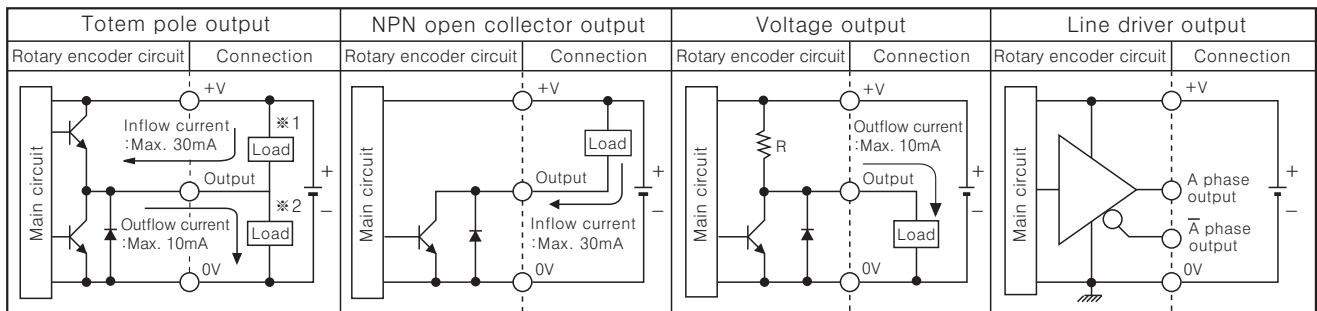
※(★Note1) Not indicated type is customizable.

※(★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 $\phi$ 100mm Hollow Shaft Type

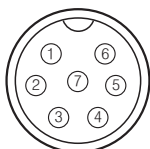
## Control output diagram



- 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

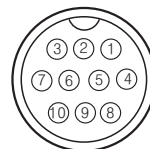


SCN-16-7P

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

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

- Line driver output



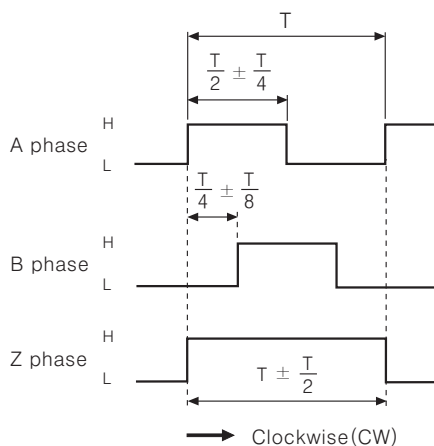
SCN-20-10P

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)

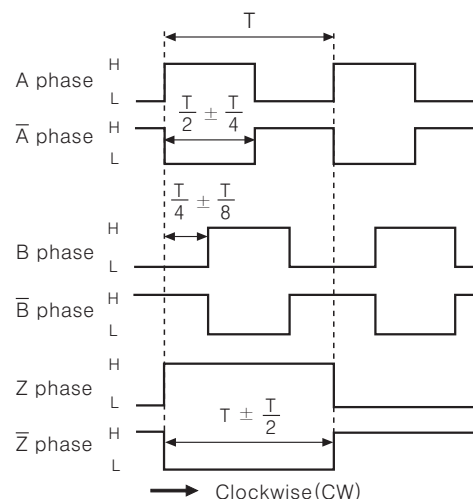
## Output waveform

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



※CW : Right turn as from the shaft

- Line driver 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

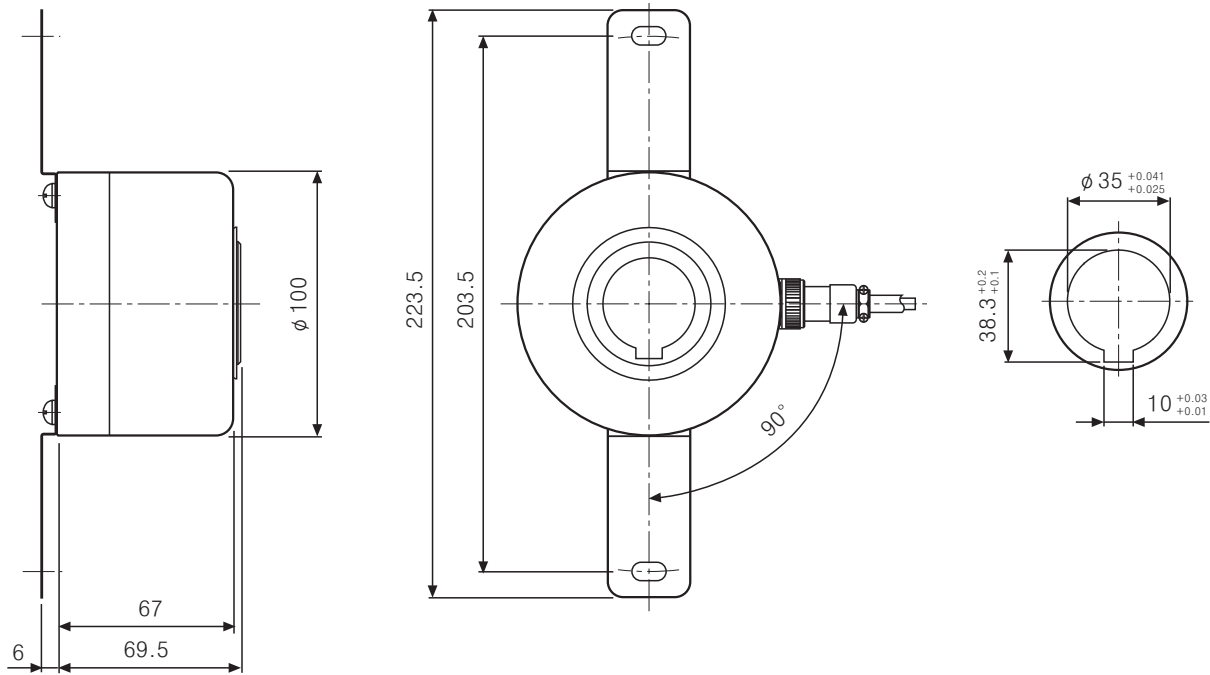
(S) Field network device

(T) Production stoppage models & replacement

# E100H Series

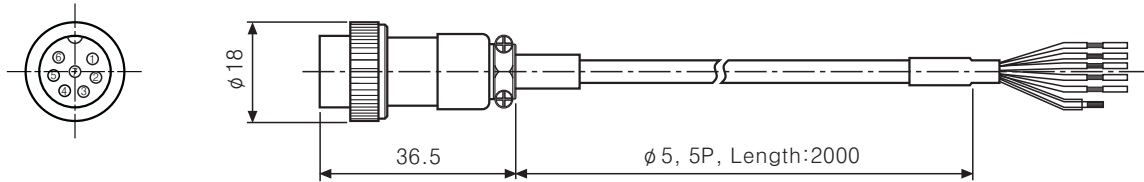
## ■ Dimensions

(Unit:mm)

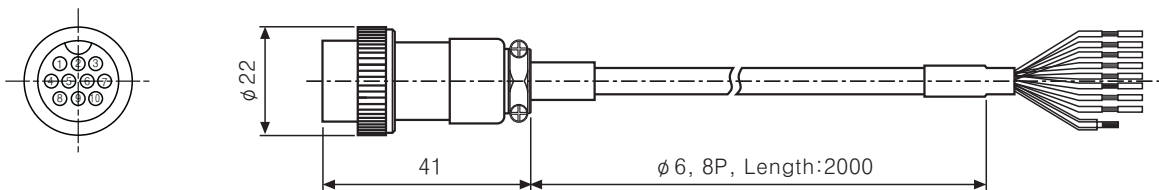


## ◎ Connector cable

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



- Line driver output



※10m connector cable is customizable.

※Cable outgoing type is customizable.

- Bracket

