

E100H Series

Diameter ϕ 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

E100H	35	10000	6	N	5
Series	Shaft diameter	Pulse/1 Revolution	Output phase	Output	Power supply
Diameter ϕ 100mm hollow shaft type	ϕ 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 ϕ 100mm hollow shaft type of incremental rotary encoder	
Resolution(P/R)		(Note1) 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 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%)	
	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	Connector type	
Mechanical specification	Starting torque	Max. 300gf $\cdot$ cm (0.03N $\cdot$ m)	
	Moment of inertia	Max. 800g $\cdot$ cm ² (8×10^{-5} kg $\cdot$ m ²)	
	Shaft loading	Radial : 5kgf, Thrust : 2.5kgf	
	Max. allowable revolution	(Note2) 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		ϕ 5mm, 5P, Length : 5m, Shield cable (Line driver output : ϕ 6mm, 8P)	
Accessory		Spring bracket 2EA	
Approval		 (Except for line driver output)	
Unit weight		Approx. 1200g	

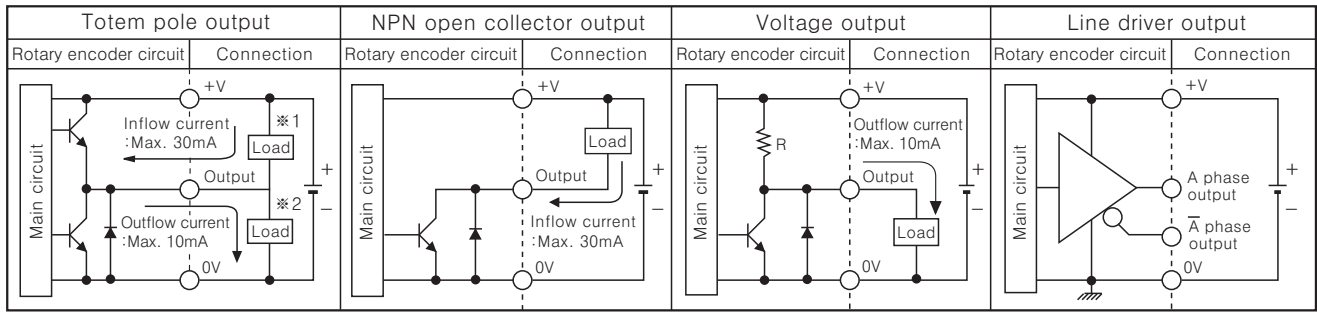
※(★Note1) Not indicated type is customizable.

※(★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 ϕ 100mm Hollow Shaft Type

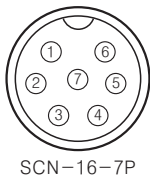
Control output diagram



- 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



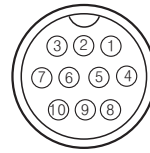
SCN-16-7P

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



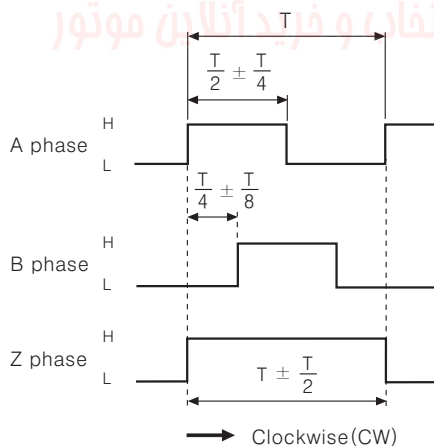
SCN-20-10P

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)

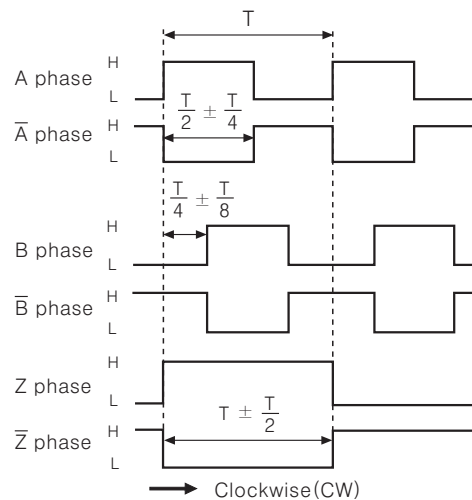
Output waveform

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



※ CW : Right turn as from the shaft

- Line driver output

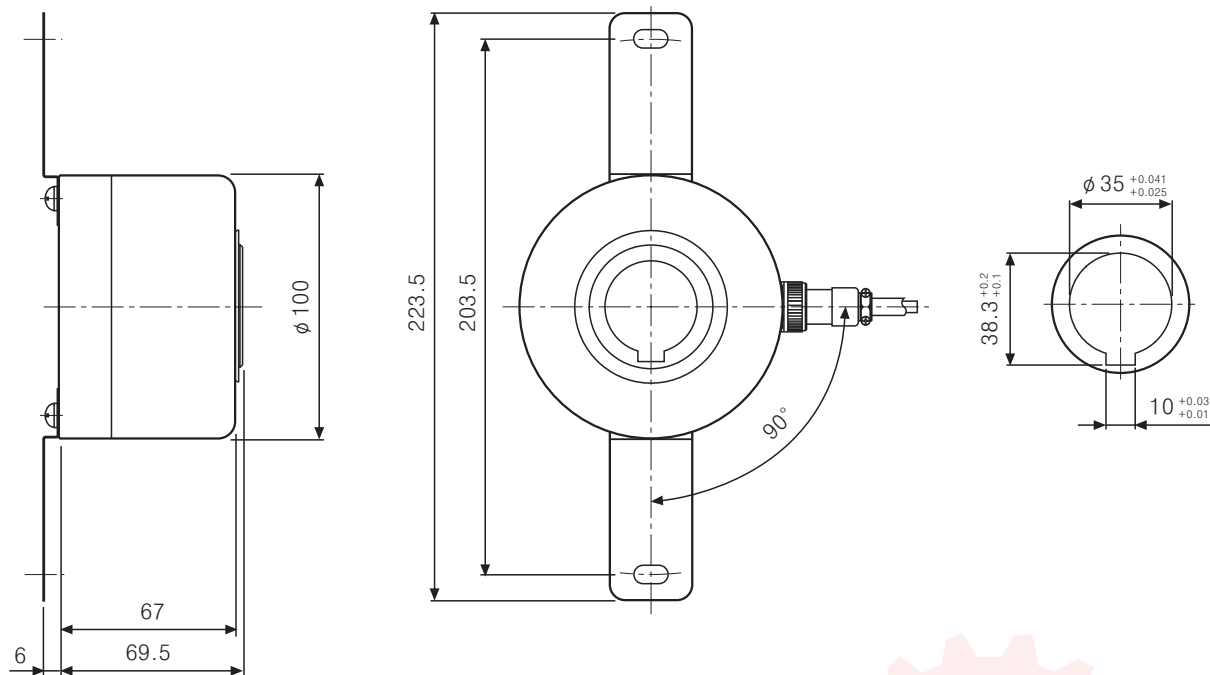


(A)	Photo electric sensor
(B)	Fiber optic sensor
(C)	Door/Area sensor
(D)	Proximity sensor
(E)	Pressure sensor
(F)	Rotary encoder
(G)	Connector/Socket
(H)	Temp. controller
(I)	SSR/Power controller
(J)	Counter
(K)	Timer
(L)	Panel meter
(M)	Tacho/Speed/Pulse meter
(N)	Display unit
(O)	Sensor controller
(P)	Switching power supply
(Q)	Stepping motor & Driver & Controller
(R)	Graphic/Logic panel
(S)	Field network device
(T)	Production stoppage models & replacement

E100H Series

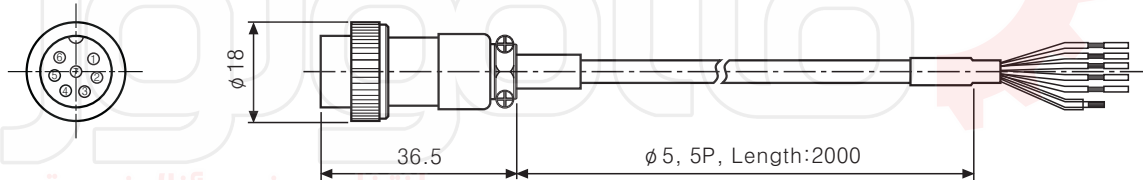
■ Dimensions

(Unit:mm)

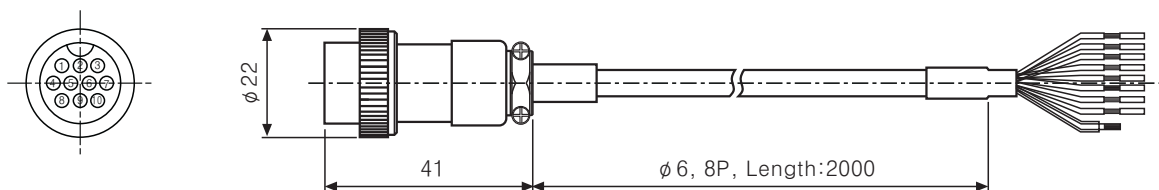


◎ Connector cable

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



- Line driver output



※10m connector cable is customizable.

※Cable outgoing type is customizable.

- Bracket

