

# ENA Series

## Side-mounting Shaft type Incremental Rotary encoder

### ■ Features

- Strong die cast structure against external impact
- Convenient structure for direct mounting on the frame
- Connector type
- Power supply : 5VDC, 12-24VDC ±5%



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



### ■ Ordering information

ENA	5000	2	N	24
Series	Pulse/1Revolution	Output phase	Output	Power supply
Shaft type to be mounted at the side (External diameter of shaft : $\phi$ 10mm)	Refer to resolution	2 : A, B 3 : A, B, Z	T : Totem pole output N : NPN open collector output V : Voltage output	5 : 5VDC ±5% 24 : 12-24VDC ±5%

\*Standard : ENA-□-2-N-24

\*Standard : A, B

### ■ Specifications

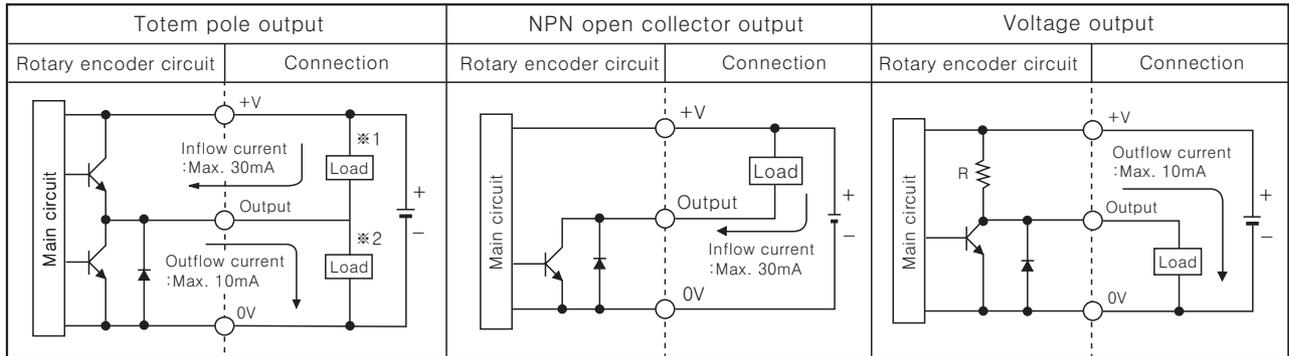
Item		Shaft type of encoder to be mounted at the side(Incremental)	
Resolution(P/R)		<b>(Note1)</b> *1, *2, *5, 10, *12, 15, 20, 23, 25, 30, 35, 40, 45, 50, 60, 75, 100, 120, 150, 192, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 5000	
Output phase		A, B phase (Option : A, B, Z phase)	
Phase difference of output		Phase difference between A and B : $\frac{T}{4} \pm \frac{T}{8}$ (T=1cycle of A phase)	
Electrical specification	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
	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	
Max. Response frequency		300kHz	
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)	
Insulation resistance		Min. 100M $\Omega$ (at 500VDC mega 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. 70gf • cm (0.007N • m)
	Rotor inertia		Max. 80g • cm <sup>2</sup> (8 × 10 <sup>-6</sup> kg • m <sup>2</sup> )
	Shaft loading		Radial : 10kgf, Thrust : 2.5kgf
	Max. allowable revolution		<b>(Note2)</b> 5000rpm
Vibration		1.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours	
Shock		Max. 75G	
Ambient temperature		-10 ~ 70°C (at non-freezing status), Storage : -25 ~ 85°C	
Ambient humidity		35~85%RH, Storage : 35~90%RH	
Protection		IP50 (IEC standard)	
Cable		$\phi$ 5mm, 5P, Length : 2m, Shield cable	
Accessory		$\phi$ 10mm coupling	
Unit weight		Approx. 345g	
Approval		<b>CE</b> (Except for Line driver output)	

\* **(Note1)** Not indicated type is customizable.

\* **(Note2)** Max. allowable revolution  $\geq$  Max. response revolution **[**Max. response revolution (rpm) =  $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$ **]**

# Incremental Side-Mounting Type

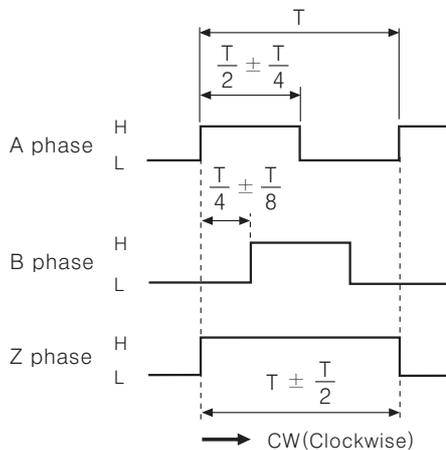
## Control output diagram



- ☞ The output circuit of A, B phase (Option : A, B, Z phase) are same.
- ☞ Totem pole output can be used for NPN open collector type (\*1) or voltage output type (\*2).

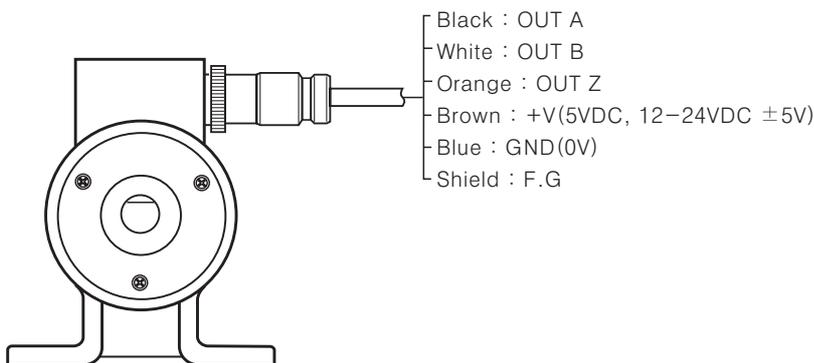
## Output waveform

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



- ※ Z phase output is customizable.
- ※ CW : As viewed from the shaft

## Connections



Pin No	Function	Cable color
①	A phase	Black
②	B phase	White
③	+V	Brown
④	0V	Blue
①	A phase	Black
②	B phase	White
③	Z phase	Orange
④	+V	Brown
⑤	0V	Blue

- ※ Z phase output is customizable.
- ※ Unused wires must be insulated.
- ※ The metal case and shield cable of encoder should be grounded (F.G).

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Switching power supply

(J) Proximity sensor

(K) Photo electric sensor

(L) Pressure sensor

(M) Rotary encoder

(N) Stepping motor & Driver & Controller

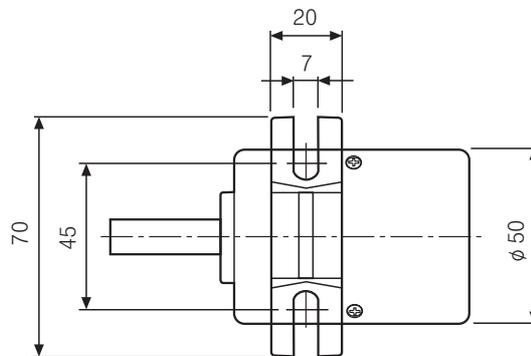
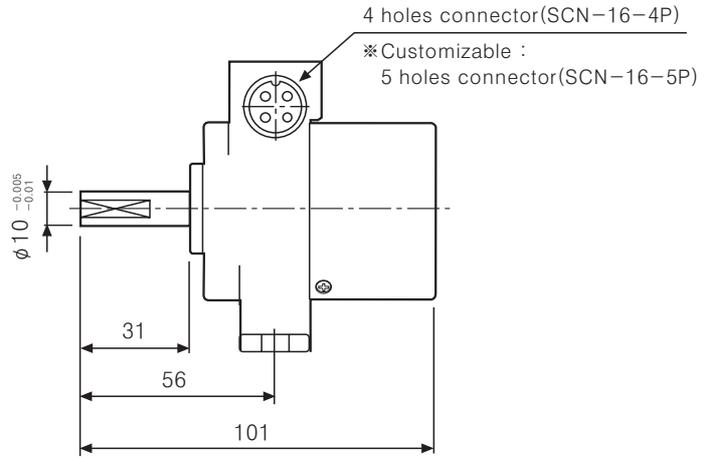
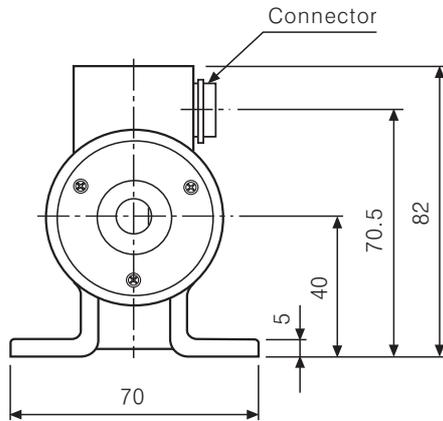
(O) Graphic panel

(P) Production stoppage models & replacement

# ENA Series

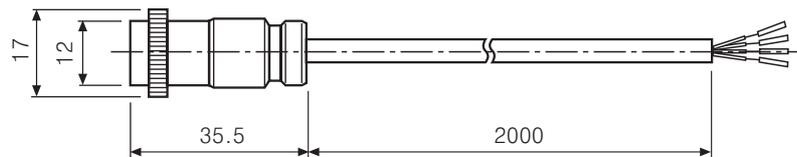
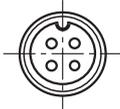
## Dimension

(Unit:mm)

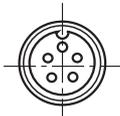


### ◎Connector cable (Sold separately)

- ENA-□ - 2 - □ (Standard)



- ENA-□ - 3 - □ (Customizable)



### ◎Coupling

