


Incremental Side-Mounting Type

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 $\pm 5\%$

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




■ Ordering information

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

*Standard : ENA-□-2-N-24

*Standard : A, B

■ Specifications

Item		Shaft type of encoder to be mounted at the side(Incremental)	
Resolution(P/R)		(Note1) *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	
Electrical specification	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)	
	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 μs
		NPN open collector output	Max. 1 μs
		Voltage output	Max. 1 μs
	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)	
	Insulation resistance	Min. 100M Ω (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 \cdot cm (0.007N \cdot m)	
	Rotor inertia	Max. 80g \cdot cm ² (8×10^{-6} kg \cdot m ²)	
	Shaft loading	Radial : 10kgf, Thrust : 2.5kgf	
	Max. allowable revolution	(Note2)	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 $^{\circ}\text{C}$ (at non-freezing status), Storage : -25 ~ 85 $^{\circ}\text{C}$	
Ambient humidity		35~85%RH, Storage : 35~90%RH	
Protection		IP50 (IEC standard)	
Cable		$\phi 5\text{mm}$, 5P, Length : 2m, Shield cable	
Accessory		$\phi 10\text{mm}$ coupling	
Unit weight		Approx. 345g	
Approval		 (Except for Line driver output)	

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

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

(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

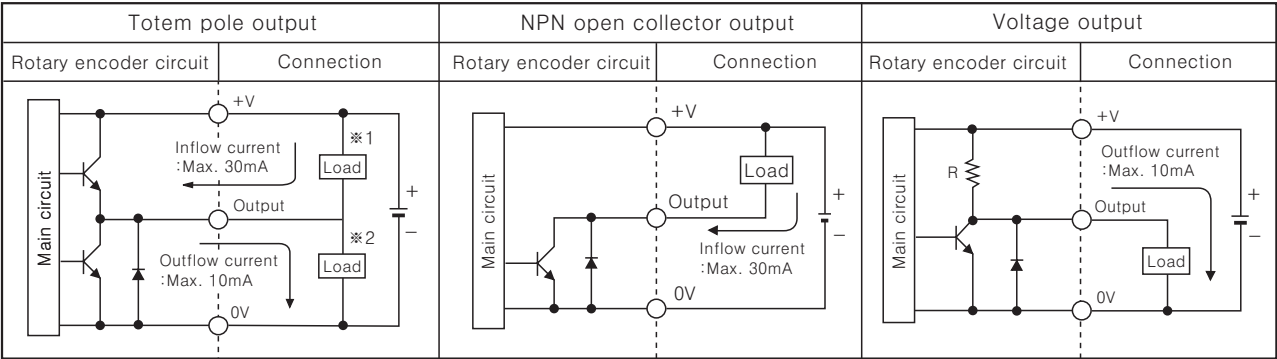
(O) Graphic panel

(P) Field network device

(Q) Production stoppage models & replacement

ENA Series

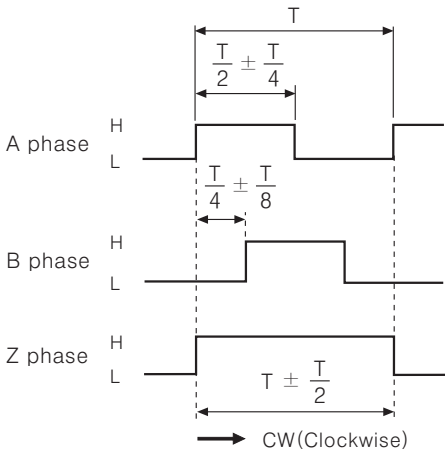
Control output diagram



- 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).

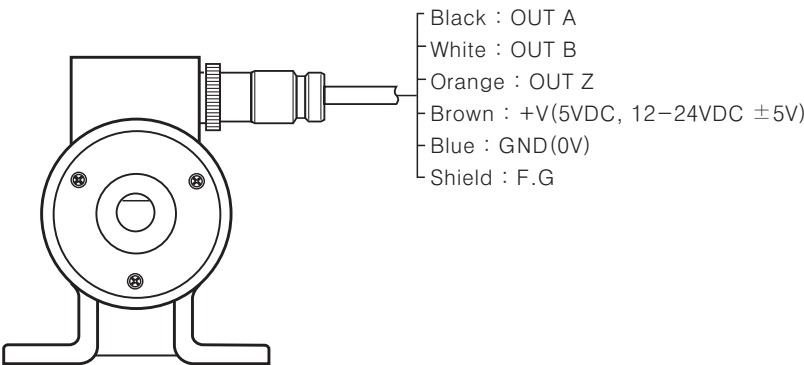
Output waveform

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



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

Connections



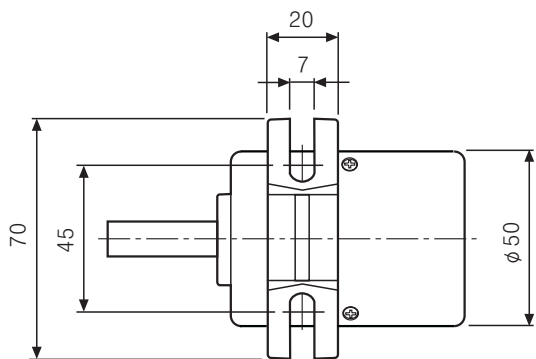
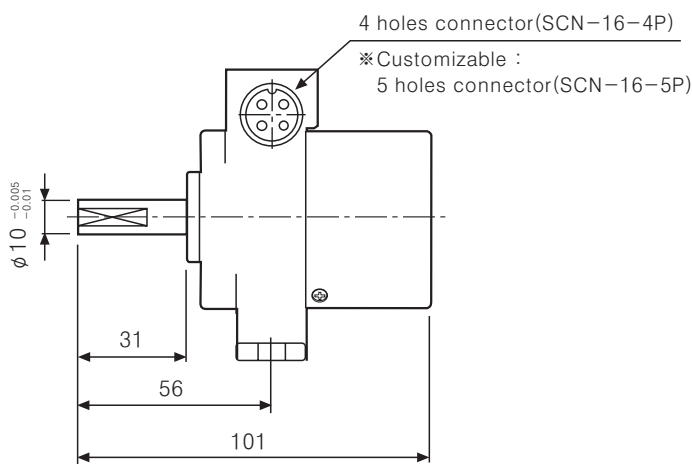
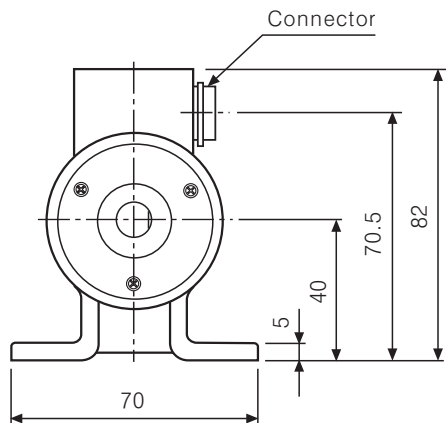
	Pin No	Function	Cable color
	①	A phase	Black
	②	B phase	White
	③	+V	Brown
	④	0V	Blue
	①	A phase	Black
	②	B phase	White
	③	Z phase	Orange
	④	+V	Brown
	⑤	0V	Blue

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

Incremental Side-Mounting Type

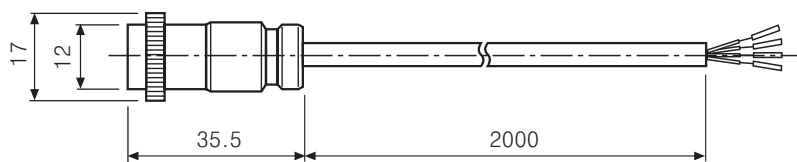
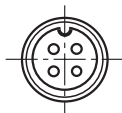
Dimension

(Unit:mm)

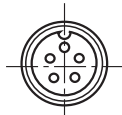


◎Connector cable (Sold separately)

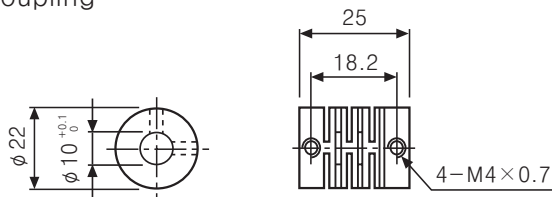
●ENA-□-2-□ (Standard)



●ENA-□-3-□ (Customizable)



◎Coupling



(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 &
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(O)
Graphic
panel

(P)
Field
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device

(Q)
Production
stoppage
models &
replacement