

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/1 Revolution	Output phase	Output	Power supply
Shaft type to be mounted at the side (External diameter of shaft : ϕ 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

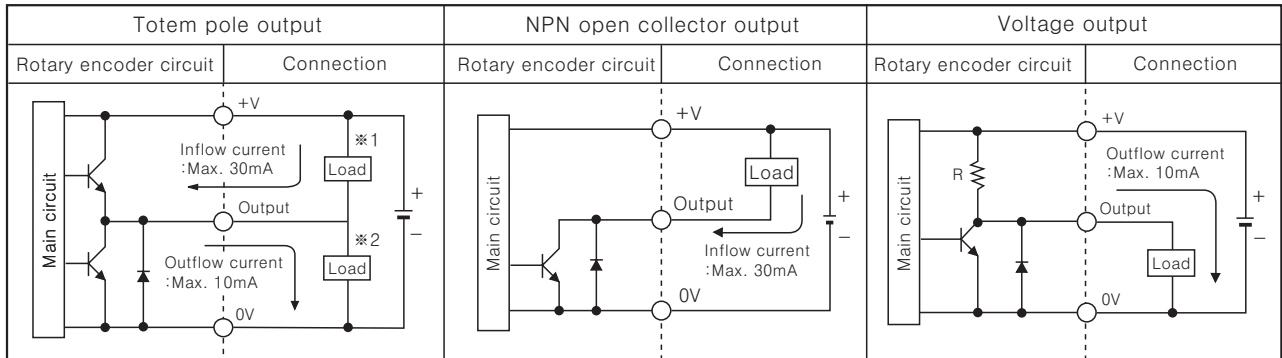
Item		Shaft type of encoder to be mounted at the side(Incremental)		
Resolution(P/R)		(Note1) *1, *2, *5, 10, *12, 15, 20, 23, 25, 30, 35, 40, 45, 50, 60, 75, 100, 120, 150, 192, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 5000		
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 μ s	• Measuring condition \Rightarrow Cable length : 2m, I sink = Max. 20mA
		NPN open collector output	Max. 1 μ s	
		Voltage output	Max. 1 μ 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 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 • cm (0.007N • m)	
	Rotor inertia		Max. 80g • cm ² (8 × 10 ⁻⁶ kg • 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°C (at non-freezing status), Storage : -25 ~ 85°C		
Ambient humidity		35~85%RH, Storage : 35~90%RH		
Protection		IP50 (IEC standard)		
Cable		ϕ 5mm, 5P, Length : 2m, Shield cable		
Accessory		ϕ 10mm coupling		
Unit weight		Approx. 345g		
Approval		CE (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

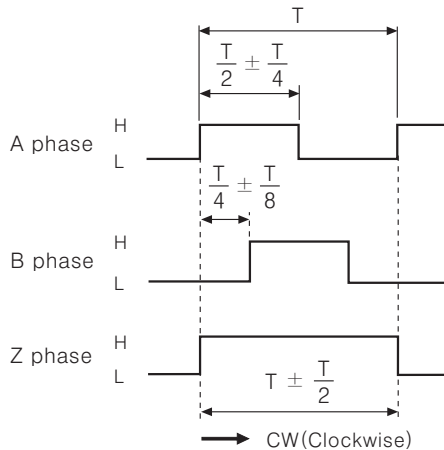
Control output diagram



- ☞ 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).

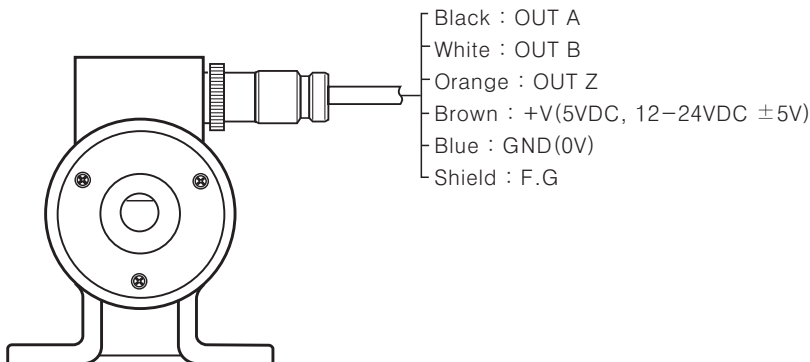
Output waveform

- 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

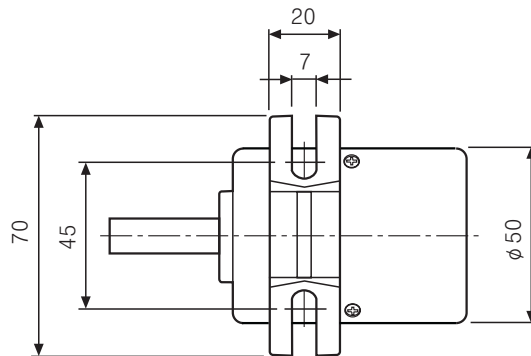
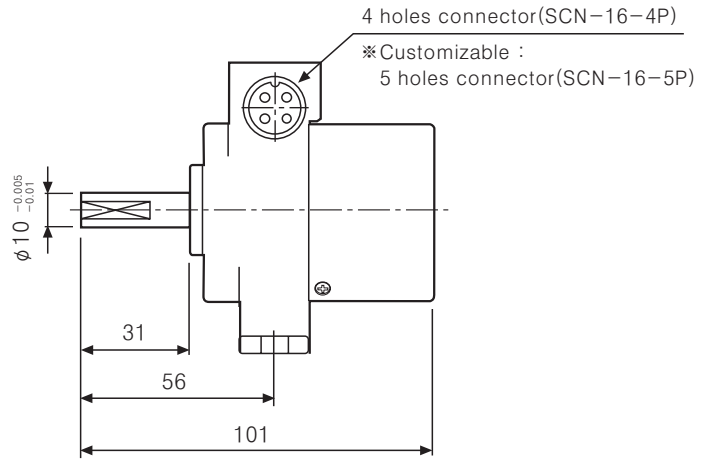
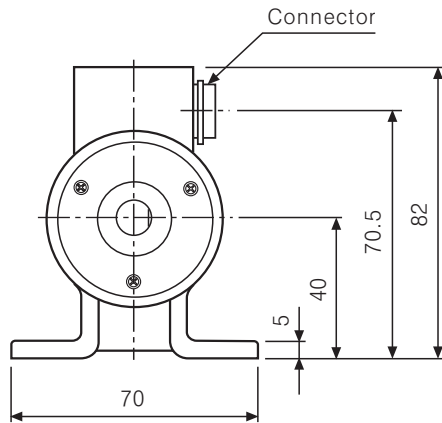
- ※ Z phase output is customizable.
- ※ Unused wires must be insulated.
- ※ The metal case and shield cable of encoder should be grounded(F.G).

- (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

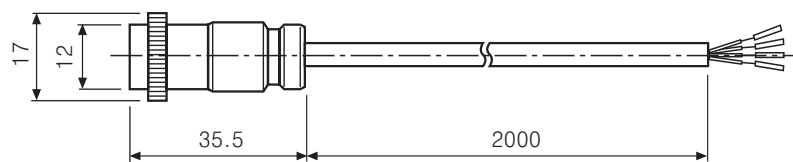
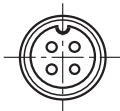
Dimension

(Unit:mm)

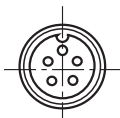


◎Connector cable (Sold separately)

- ENA-□ - 2 - □ (Standard)



- ENA-□ - 3 - □ (Customizable)



◎Coupling

