

ENA Series 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 ±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
Side-mounting shaft type (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

■ Specifications

Item			Side-mounting shaft type incremental rotary encoder	
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 μ s (Cable length : 2m, I sink = 20mA)	
		NPN open collector output		
		Voltage output		
	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 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. 70gf $\cdot$ cm (0.007N $\cdot$ m)	
	Moment of inertia		Max. 80g $\cdot$ cm ² (8 $\times$ 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 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours	
Shock			Max. 75G	
Ambient temperature			-10 to 70℃ (at non-freezing status), Storage : -25 to 85℃	
Ambient humidity			35 to 85%RH, Storage : 35 to 90%RH	
Protection			IP50 (IEC standard)	
Cable			ϕ 5mm, 5P, Length: 2m, Shield cable (AWG 24, Core wire diameter: 0.08mm, No. of core wire: 40, Insulator out diameter: ϕ 1mm)	
Accessory			ϕ 10mm coupling	
Approval			CE	
Unit weight			Approx. 345g	

※ **(★Note1)** '*' pulse is only for A, B phase

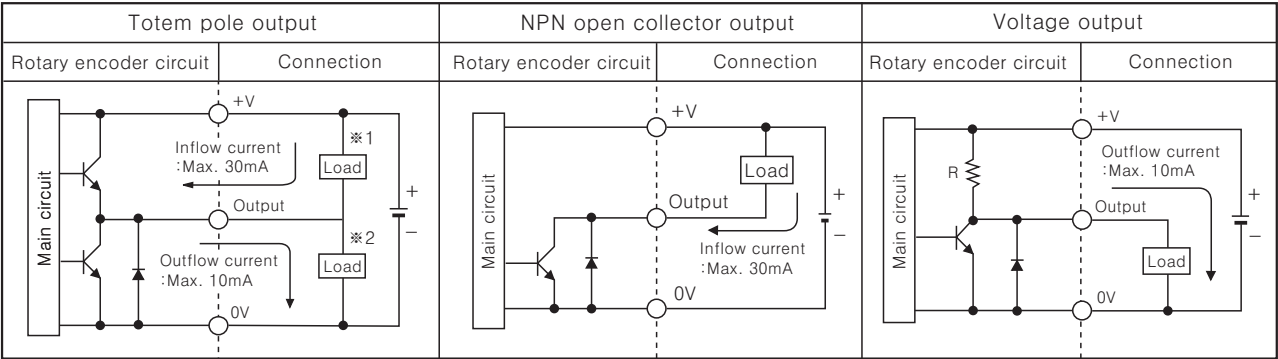
※ **(★Note2)** Make sure that max. response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.

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

(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

ENA Series

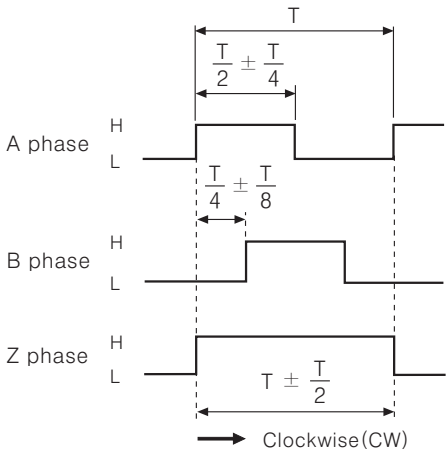
Control output diagram



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

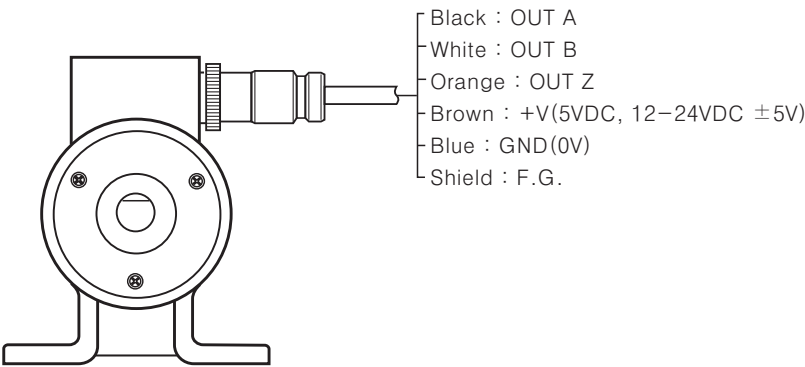
Output waveform

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



- ※Z phase output is option.
- ※CW : Right turn as from the shaft

Connections



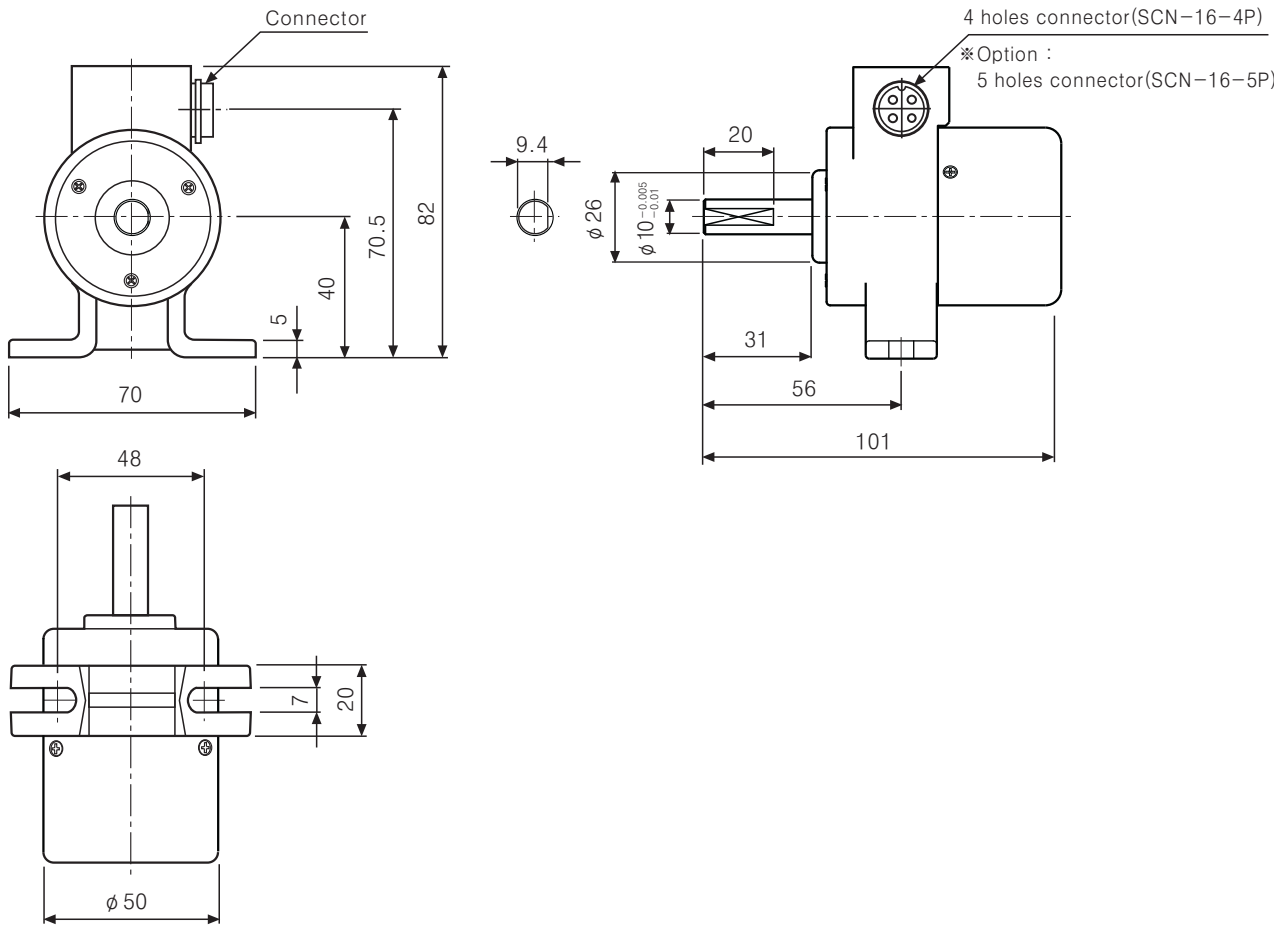
	Pin No	Cable color	Function
	1	Black	OUT A
	2	White	OUT B
	3	Brown	+V
	4	Blue	GND
	1	Black	OUT A
	2	White	OUT B
	3	Orange	OUT Z
	4	Brown	+V
	5	Blue	GND

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

Incremental Side-Mounting Type

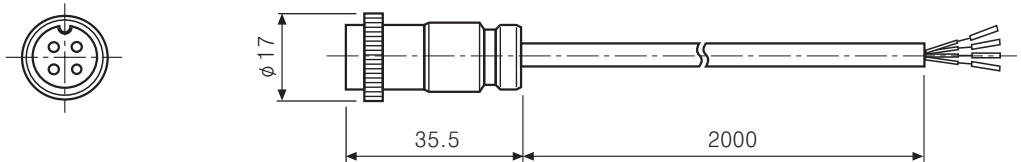
■ Dimensions

(Unit:mm)

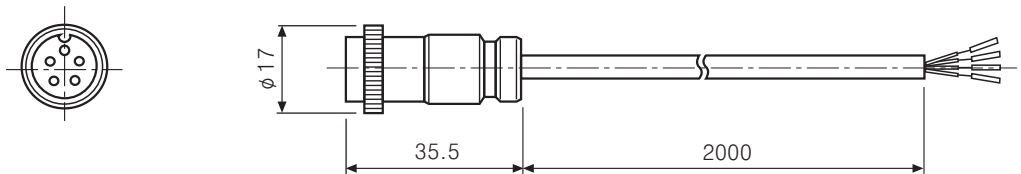


◎Connector cable

● ENA-□-2-□ (Standard)

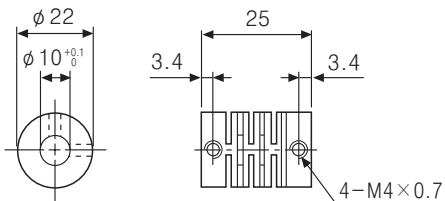


● ENA-□-3-□ (Option)



*Connector cable is sold separately and see G-6 for specifications.

◎Coupling(ENA)



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