

# Medium Duty Side Mounting Type

## Side fixing type INCREMENTAL Rotary encoder

### ■ Features

- Strong die cast structure against external impact
- Convenient structure for installing with mounting feet
- Connector type
- Power supply : 5VDC, 12-24VDC ±5%



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



### ■ Ordering information

ENA	5000	2	2	24
Series	Pulse/1Revolution	Output phase	Output	Power supply
Shaft type to be mounted at the side	See resolution	2 : A, B 3 : A, B, Z	1 : Totem pole output 2 : NPN open collector output 3 : Voltage output	5 : 5VDC ±5% 24 : 12-24VDC ±5%

※Standard : ENA-□-2-2-24

※Standard : A, B

### ■ Specifications

Item		Shaft type the encoder to be mounted at the side(INCREMENTAL)		
Resolution(P/R)		*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 (Not indicated type is available to customize)		
Electrical specification	Output phase	A, B phase (Option : A, B, Z phase)		
	Phase difference of output	Output between A and B phase : $\frac{T}{4} \pm \frac{T}{8}$ (T=1cycle of A phase)		
	Control output	Totem pole output	<ul style="list-style-type: none"> <li>• Low ⇨ Load current : Max. 30mA, Residual voltage : Max. 0.4VDC</li> <li>• High ⇨ Load current : Max. 10mA, Output voltage : Min. (Power voltage-1.5)VDC</li> </ul>	
		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. 1μs	<ul style="list-style-type: none"> <li>• Measuring condition</li> <li>⇨ Cable length : 2m, I sink = Max. 20mA</li> </ul>
		NPN open collector output	Max. 1μs	
		Voltage output	Max. 1μs	
	Max. Response frequency	180kHz		
	Power supply	<ul style="list-style-type: none"> <li>• 5VDC ±5% (Ripple P-P:Max. 5%)</li> <li>• 12-24VDC ±5% (Ripple P-P:Max. 5%)</li> </ul>		
Current consumption	Max. 60mA (disconnection of the load)			
Insulation resistance	Min. 100MΩ (at 500VDC)			
Dielectric strength	750VAC 50/60Hz for 1 minute (Between all terminals and case)			
Connection	Connector connection			
Mechanical specification	Starting torque	Max. 70gf · cm (0.007N · m)		
	Moment of inertia	Max. 80g · cm <sup>2</sup> (8 × 10 <sup>-6</sup> kg · m <sup>2</sup> )		
	Shaft loading	Radial : 10kgf, Thrust : 2.5kgf		
	Deviation of shaft position	Radial : Max. 0.1mm, Thrust : Max. 0.2mm		
	Max. allowable revolution	<b>(★Note1)</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 specification)			
Cable	5P, φ 5mm, Length : 2m, Shield cable			
Accessory	φ 10mm coupling			
Weight	Approx. 345g			
Approval	CE (Except Line driver output)			

※ (★Note1) Max. allowable revolution ≥ Max. response revolution 【Max. response revolution (rpm) =  $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$ 】

Please select the resolution to make lower max. revolution than max. allowable revolution.

(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) Proximity sensor

(J) Photo electric sensor

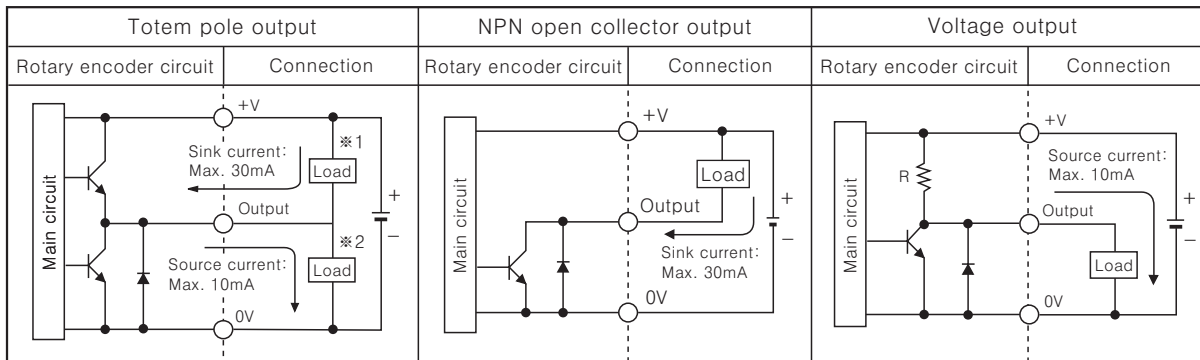
(K) Pressure sensor

(L) Rotary encoder

(M) 5-Phase stepping motor & Driver & Controller

# ENA Series

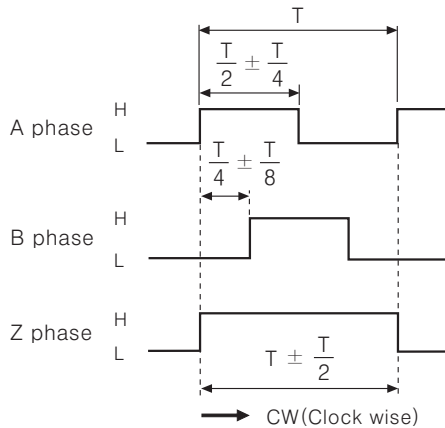
## Control output diagram



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

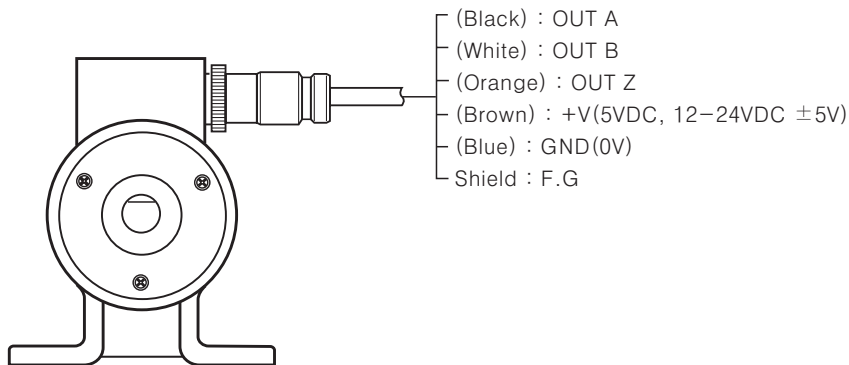
## Output waveform

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



- \*Z phase output is optional.
- \*CW : In a view of shaft

## Connections

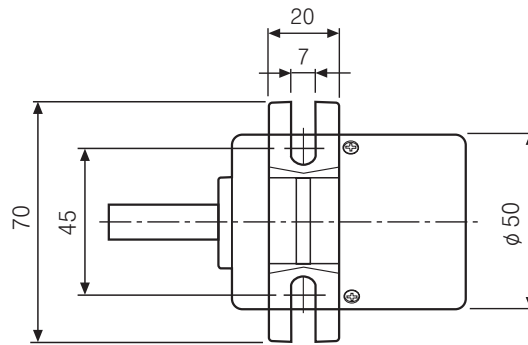
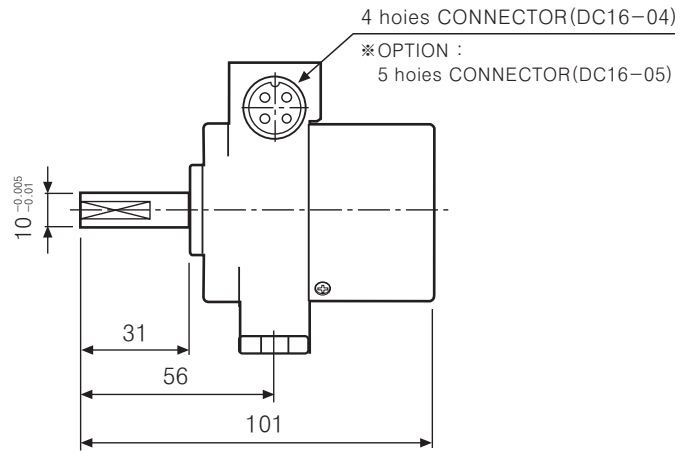
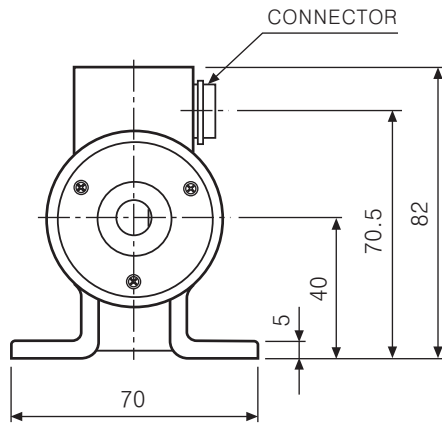


No	Connection	Color
①	A phase	Black
②	B phase	White
③	+V	Brown
④	0V	Blue
①	A phase	Black
②	B phase	White
③	Z phase	Orange
④	+V	Brown
⑤	0V	Blue

- \*The shield cable and metal case of encoder must be grounded(F.G).

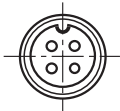
# Medium Duty Side Mounting Type

## ■ Dimensions

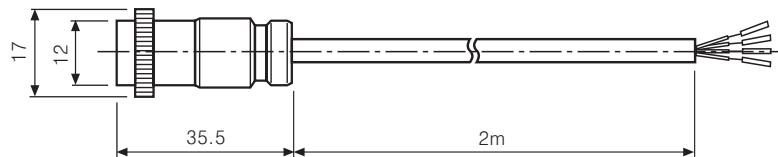
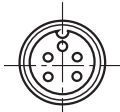


### ◎ Connection cable

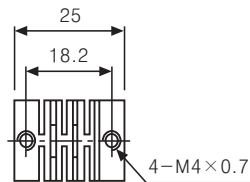
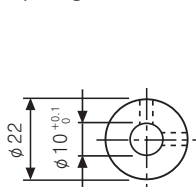
● ENA-□-2-□



● ENA-□-3-□



### ◎ Coupling



Unit:mm

(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)  
Proximity  
sensor

(J)  
Photo  
electric  
sensor

(K)  
Pressure  
sensor

(L)  
Rotary  
encoder

(M)  
5-Phase  
stepping  
motor &  
Driver &  
Controller