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.**

CE

▣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 : ϕ10mm)	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

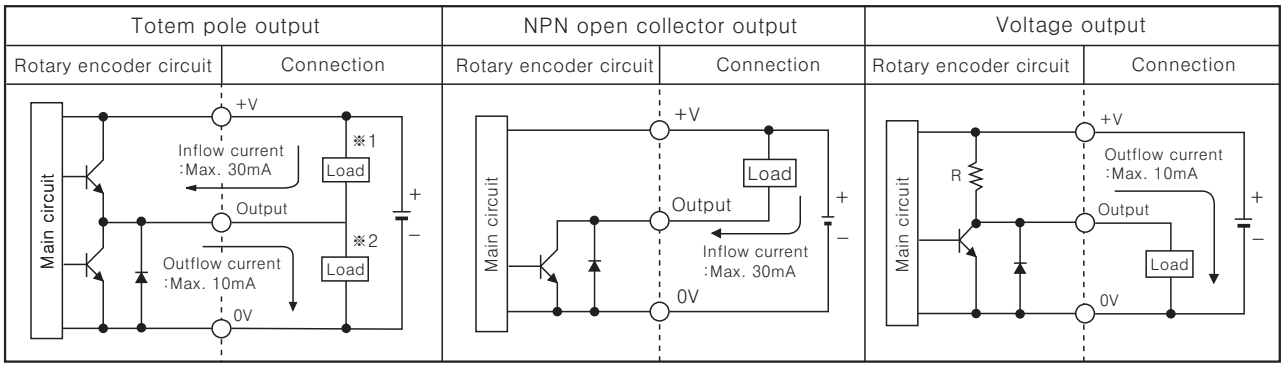
▣Specifications

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	
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 ☞ Load current:Max. 30mA, Residual voltage : Max. 0.4VDC • High ☞ 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. 1μs	• Measuring condition ☞ Cable length : 2m, I sink = Max. 20mA
		NPN open collector output	Max. 1μs	
		Voltage output	Max. 1μs	
	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. 100MΩ(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 · cm(0.007N · m)	
	Moment of inertia		Max. 80g · cm²(8×10⁻⁶ kg · m²)	
	Shaft loading		Radial : 10kgf, Thrust : 2.5kgf	
	Max. allowable revolution		(★Note2) 5000rpm	
Vibration			1.5mm amplitude at frequency of 10 to 55Hz 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			ϕ5mm, 5P, Length : 2m, Shield cable	
Accessory			ϕ10mm coupling	
Approval			CE (Except for line driver output)	
Unit weight			Approx. 345g	

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

※**(★Note2)** Max. allowable revolution ≧ Max. response revolution 【Max. response revolution(rpm) = $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60$ sec.】
Make sure that max. response revolution should be lower than max. allowable revolution when selecting the resolution.

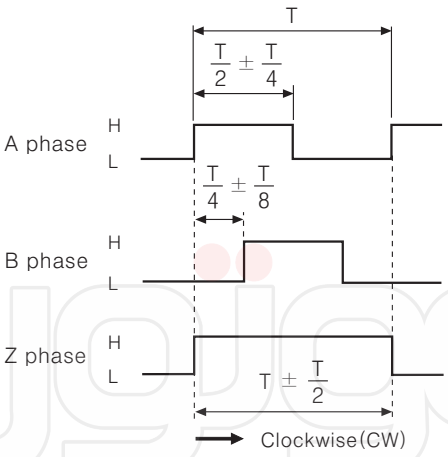
▣Control output diagram



●The output circuits 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).

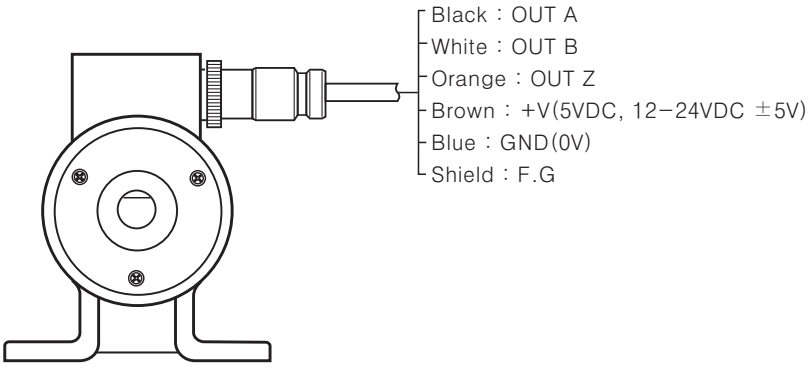
▣Output waveform

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



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

▣Connections



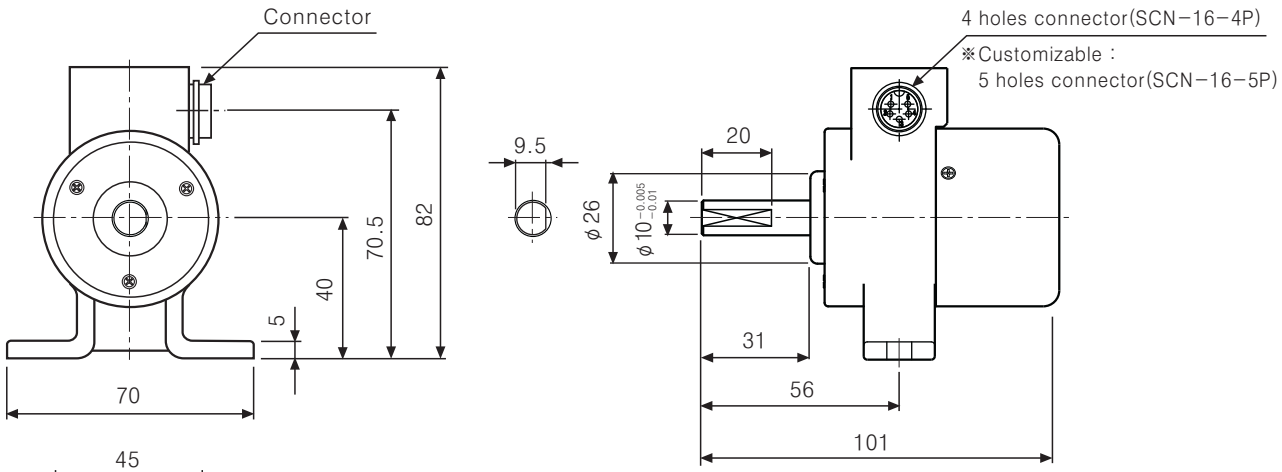
Pin No	Function	Cable color
①	A phase	Black
②	B phase	White
③	+V	Brown
④	0V	Blue

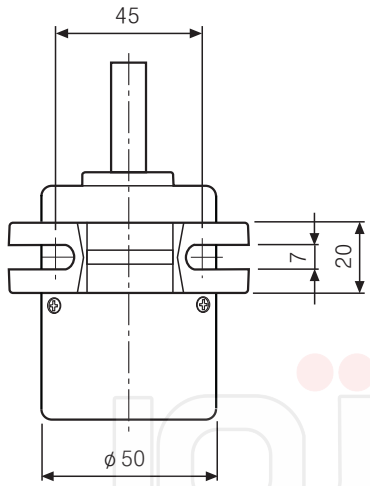
Pin No	Function	Cable color
①	A phase	Black
②	B phase	White
③	Z phase	Orange
④	+V	Brown
⑤	0V	Blue

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

▣Dimensions

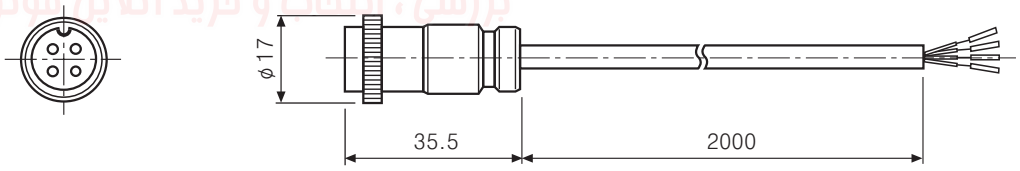
(Unit:mm)



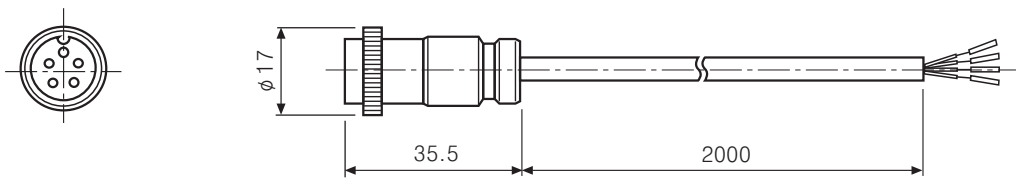


◎Connector cable

●ENA- □ - 2 - □ (Standard)



●ENA- □ - 3 - □ (Customizable)



※Connector cable is customizable and see G-6 for specifications.

◎Coupling