Diameter ϕ80mm Hollow shaft type Incremental Rotary encoder

▣Features

- ●Diameter ϕ80mm, Inner diameter of shaft ϕ30mm, ϕ32mm(Customizable)
- ●Allows to install directly at motor or machinery without coupling
- ●Power supply : 5VDC, 12−24VDC ±5%
- ●Various output types

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

CE

▣Ordering information

E80H	30	–	3200	–	3	–	N	–	24	–	

Series	Shaft diameter	Pulse/1Revolution	Output phase	Output	Power supply	Cable
Diameter ϕ80mm, hollow shaft type	ϕ30mm ϕ32mm	60, 100, 360, 500, 512, 1024, 3200	3 : A, B, Z 6 : A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$	T : Totem pole output N : NPN open collector output V : Voltage output L : Line driver output(※)	5 : 5VDC ±5% 24 : 12−24VDC ±5%	Blank:Normal type (※) C:Cable outgoing connector type

☞ Shaft inner diameter ϕ32mm is customizable.

※The power of Line driver is only for 5VDC

※Cable length :250mm

▣Specifications

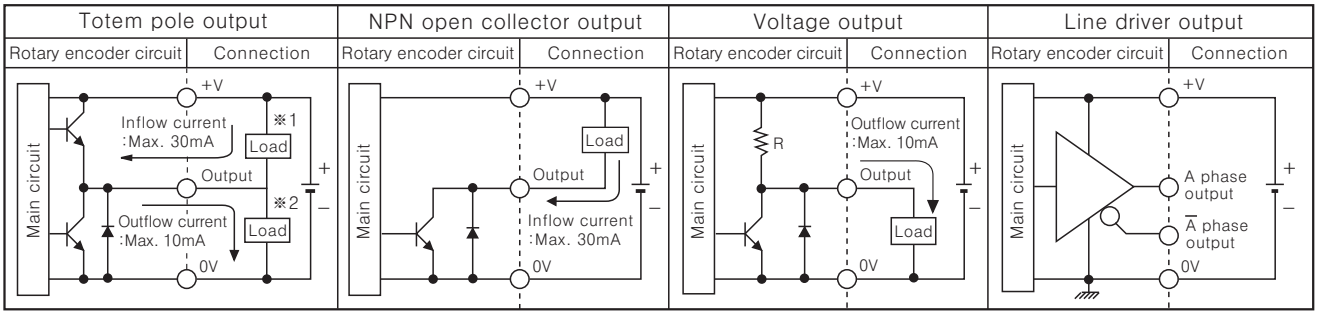
Item			Diameter ϕ80mm hollow shaft type of incremental rotary encoder	
Resolution(P/R)			**(Note1)** 60, 100, 360, 500, 512, 1024, 3200	
Electrical specification	Output phase		A, B, Z phase (Line driver output A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$ phase)	
	Phase difference of output		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	
		Line driver output	• Low ☞ Load current : Max. 20mA, Residual voltage : Max. 0.5VDC • High ☞ Load current : Max. −20mA, Output voltage : Min. 2.5VDC	
	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	
		Line driver output	Max. 0.5μs	
	Max. Response frequency		200kHz	
	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), Line driver output:Max. 50mA(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		Cable outgoing type, 250mm cable outgoing connector type	
Mechanical specification	Starting torque		Max. 200gf · cm(0.02N · m)	
	Moment of inertia		Max. 800g · cm²(8×10^{-5} kg · m²)	
	Shaft loading		Radial : 5kgf, Thrust : 2.5kgf	
	Max. allowable revolution		**(Note2)** 3600rpm	
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(Line driver output : ϕ5mm, 8P)	
Accessory			Spring bracket	
Unit weight			Approx. 560g	
Approval			CE (Except for line driver output)	

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

※**(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.

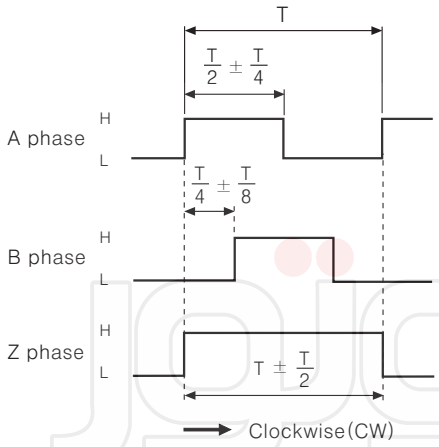
▣Control output diagram



●Totem pole output type can be used for NPN open collector output type(※1) or Voltage output type(※2).
●All output circuits of A, B, Z phase are the same. (Line driver output is A, Ā, B, B̄, Z, Z̄)

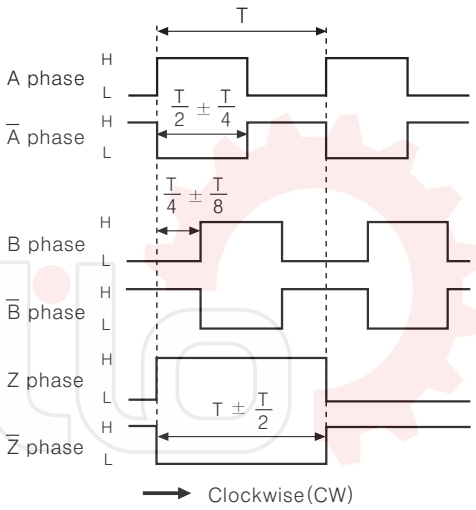
▣Output waveform

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



※CW : Right turn as from the shaft

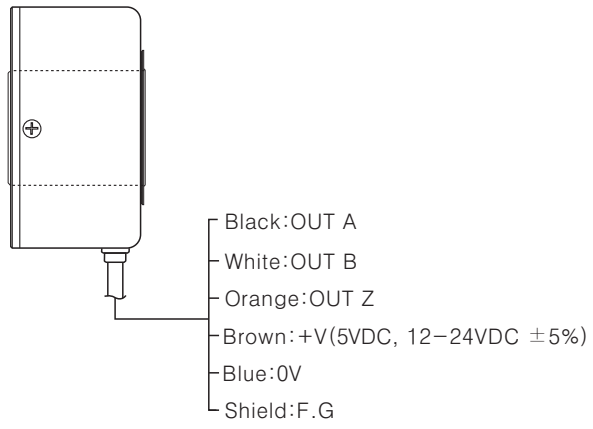
●Line driver output



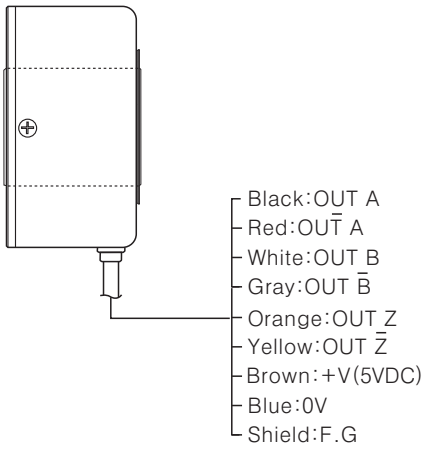
▣Connections

■Normal type

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



●Line driver output

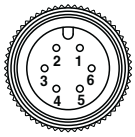


※Unused wires must be insulated.
※The metal case and shield cable should be grounded(F.G).

▣Connection

■Cable outgoing connector type

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



●Line driver output

Totem pole output NPN open collector output Voltage output			Line driver output		
Pin No	Function	Cable color	Pin No	Function	Cable color
①	OUT A	Black	①	OUT A	Black
②	OUT B	White	②	OUT $\overline{A}$	Red
③	OUT Z	Orange	③	+V	Brown
④	+V	Brown	④	GND	Blue
⑤	GND	Blue	⑤	OUT B	White
⑥	F.G	Shield	⑥	OUT $\overline{B}$	Gray
			⑦	OUT Z	Orange
			⑧	OUT $\overline{Z}$	Yellow
			⑨	F.G	Shield

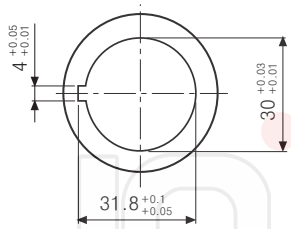
※F.G(Field Ground) : It should be grounded separately.

▣Dimensions

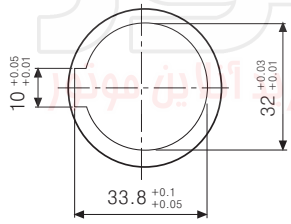
■Normal type

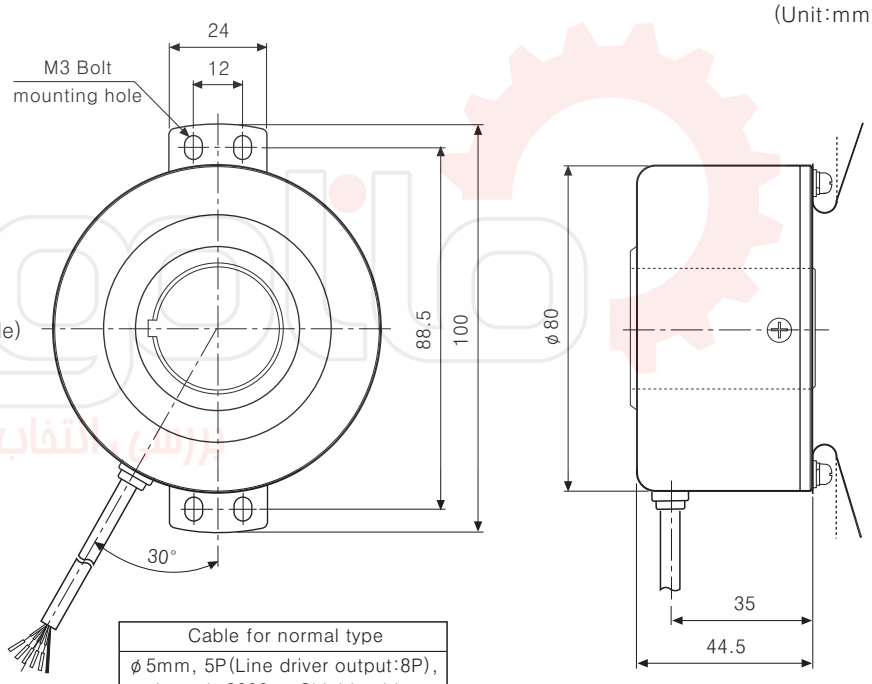
(Unit:mm)

●Inner diameter of shaft(Standard)



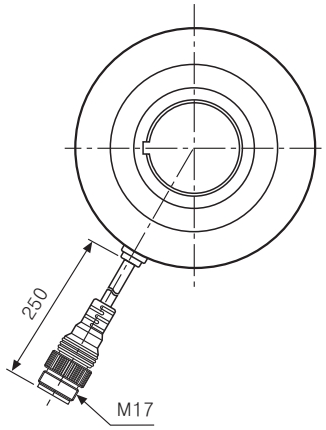
●Inner diameter of shaft(Customizable)



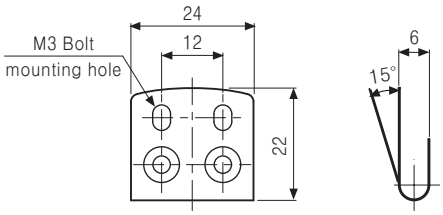


Cable for normal type
∅5mm, 5P(Line driver output:8P), Length:2000m, Shield cable

■Cable outgoing connector type



●Bracket



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