

# E40H

## ∅ 40mm/hollow type encoder (INCREMENTAL TYPE)

### ■ Features

- ∅ 40mm/miniature type encoder
- It can be stalled at motor's shaft or revolving shaft of machining.
- Wide power voltage 5 to 24VDC ±5%. (5VDC ±5% at line driver type)
- Diverse size of hollow diameter(6, 8, 10, 12 ∅)
- NPN open collector output.



### ■ Ordering information

E40H	8	100	3	2	
Series	Hole diameter	Pulses/Revolution	Output phase	Output method	Power supply
∅ 40mm/ Hollow type Encoder (INCREMENTAL TYPE)	∅ 6 ∅ 8 ∅ 10 ∅ 12	25, 60, 100, 192, 200, 360, 400, 500, 512, 600, 1000, 1024, 1200, 2000, 2048	3:A,B,Z Phase 6:A, B, Z, $\bar{A}$ , $\bar{B}$ , $\bar{Z}$	2:NPN open collector output 3:Voltage output L:Line Driver output	2:5 to 24VDC ±5% 3:5VDC, 12VDC, 24VDC ±5% L:5VDC ±5%

### ■ Specification

Item	∅ 40mm/Hollow type encoder(INCREMENTAL TYPE)		
Model	NPN open collector output	<b>E40H-□-3-2</b>	
	Voltage output	<b>E40H-□-3-3</b>	
	Line driver output	<b>E40H-□-6-L (※)</b>	
Pulses/Revolution	25, 60, 100, 192, 200, 360, 400, 500, 512, 600, 1000, 1024, 1200, 2000, 2048		
Electrical specification	Output phase	A Phase, B Phase, Z Phase(Line driver : A, B, Z, $\bar{A}$ , $\bar{B}$ , $\bar{Z}$ )	
	Output of phase difference	Output between A and B phas: $\frac{T}{4} \pm \frac{T}{8}$ (T=1 cycle of A phase) ★(Note1)	
	Control output	NPN open collector output	Load voltage:Max. 30V, Load current:Max. 30mA, Residual voltage:Max. 0.4V
		Line driver output	LOW⇒Load current:Max.20mA, Residual voltage:Max.0.5V, HIGH⇒Load current:Max. -20mA, Output voltage:Min. 2.5V
	Rise & Fall	NPN open collector output	Max. 1μs (Cable:1m, at Isink = 30mA)
		Line driver output	Max. 0.1μs (Cable:1m, at Isink = 30mA)
	Max.Response frequency	100KHz	
	Power supply	5 to 24VDC ±5%(Ripple P-P:Max. 3%), Line Driver output : DC5V ±5%(Ripple P-P:Max. 3%)	
	Current consumption	Max. 60mA(disconnection of the load), Line Driver Max. 85mA	
	Connection	Connector connection	
Mechanical specification	Starting torque	Max. 10gf · cm(980 μ · m)	
	Moment of inertia	Max. 10g · cm <sup>2</sup> (1×10 <sup>-6</sup> Kg · m <sup>2</sup> )	
	Shaft loading	Radial:2Kg, Thrust:1Kg	
	Deviation of shaft position	Radial:Max. 0.1mm, Thrust:Max. 0.2mm	
	Mechanical revolution (rpm)	5000rpm ★(Note2)	
Insulation resistance	Min. 50MΩ (at 500VDC)		
Dielectric strength	500VAC 50/60Hz for 1 minute		
Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X,Y,Z directions for 2 hours		
Shock	Max. 50G		
Ambient temperature	-10 to 70°C (non-freezing condition), line driver output type:0 to 70°C, Storage:-25 to 85°C		
Ambient humidity	35 to 85%RH, Storage:35 to 90%RH		
Protection	IP50(IEC Specification)		
Cable	5P, ∅ 5mm,Length:1m, Shield cable (Line Driver output : 8P)		
Weight	About 110g		
Accessory	Spring bracket		
Approval	<b>CE</b> (except models of ※ mark)		

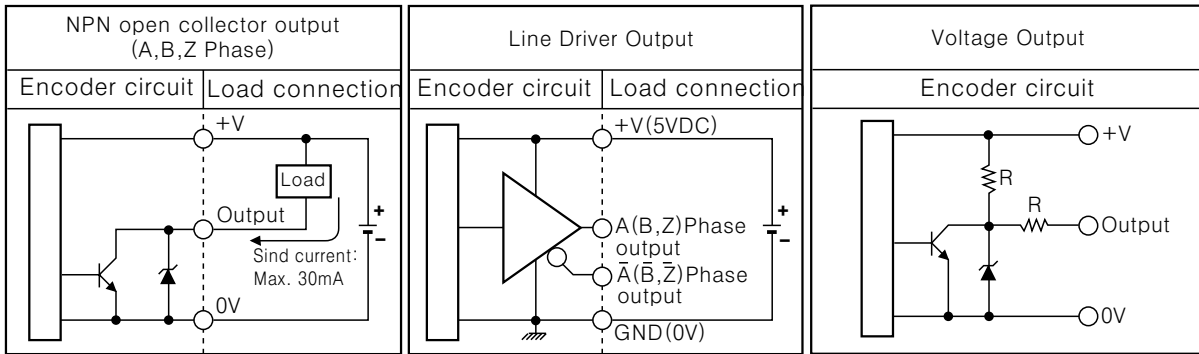
※Option except above spec. & rate.

※The weight of above chart is not weight.

★(note1) phase difference between A and B phase for 1 pulse Encoder is  $\frac{T}{4} \pm \frac{T}{8}$  (T=1cycle of A phase)

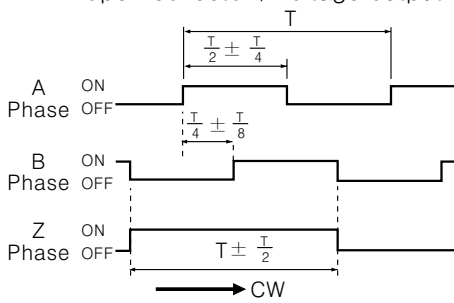
★(note2) Max. response frequency(rpm) =  $\frac{\text{Max. rpm}}{\text{Revolution}} \times 60$  (but max. rpm ≤ max. allowable rotation) □

## Control output circuit



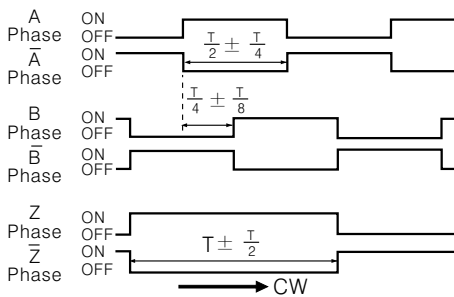
## Output waveform

### ●NPN open collector / voltage output



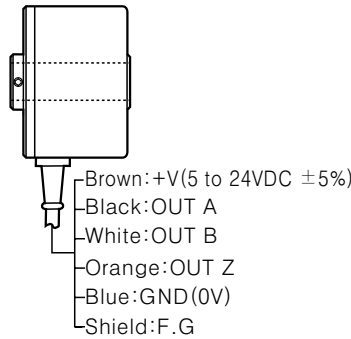
※ON/OFF means that of output transistor.  
 ※The output waveform of NPN open collector is opposit of above waveform.

### ●Line Driver output

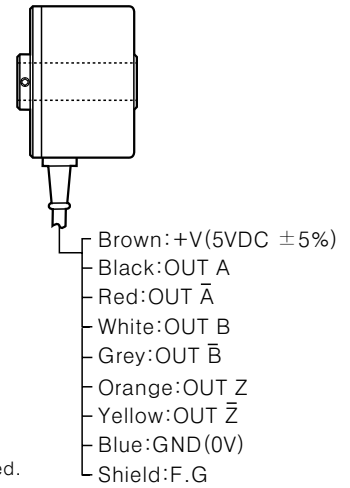


## Connection

### ●NPN open collector output



### ●Line driver output



※Non-using wires must be insulated.

## Dimension

