

INCREMENTAL ROTARY ENCODERS

Optical Incremental Rotary Encoder (E Series)

EH-E-01-003003

※ It is an encoder of reliable and excellent quality that is applicable to the automated control industry.
 ※ The above specifications are subject to change without notice.

Ordering Information

Series	Shaft inner diameter	Body material	Resolution	Control output	Power supply
E40H: Ø40mm H : Hollow HB: Hollow Built-in	6: Ø6mm 8: Ø8mm	No mark: Aluminum P: Plastic (PA66-GF30)	Refer to Resolution	T: Totem pole output N: NPN O.C output V: Voltage output L: Line driver output	24: 5~24VDC 5 : 5VDC 24: 5~24VDC

※ The PA66-GF15 is a lightweight material with very high stiffness, excellent wear resistance, very high strength, and resistance to oil and fuel applied to the aviation, automobile and machine industries.

Connections

■ T: Totem pole Output N: NPN O.C Output V: Voltage Output

Function	Color	Function	Color
OUT A	Green	+V	Red
OUT B	White	GND(0V)	Black
OUT Z	Blue	Shield	F.G.

■ L: Line driver Output

Function	Color	Function	Color
OUT A	Green	OUT $\bar{A}$	Brown
OUT B	White	OUT $\bar{B}$	Orange
OUT Z	Blue	OUT $\bar{Z}$	Yellow
+V	Red	Shield	F.G.
GND(0V)	Black	-	-

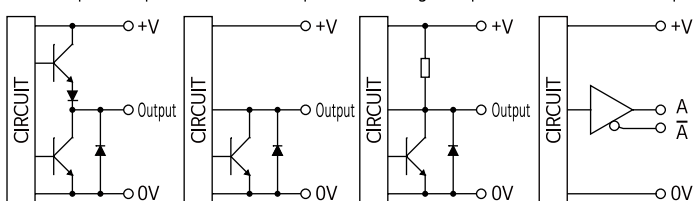
※ Unused wires must be insulated.

※ The encoder and shield cable must be grounded (F.G.).

※ F.G. (Frame Ground) must be grounded separately.

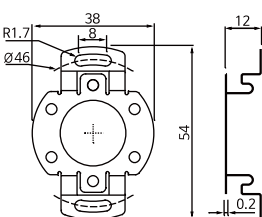
Control output diagram

■ Totem pole Output ■ NPN O.C Output ■ Voltage Output ■ Line driver Output



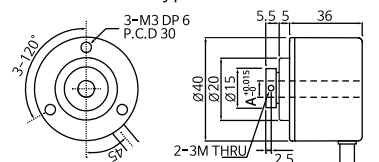
Dimensions

■ Bracket : E40H, E40HB

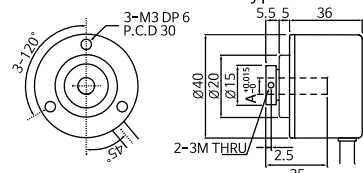


	A
E40H(B)6	Ø6
E40H(B)8	Ø8

■ E40H: Hollow type



■ E40HB: Hollow Built-in type



Specifications

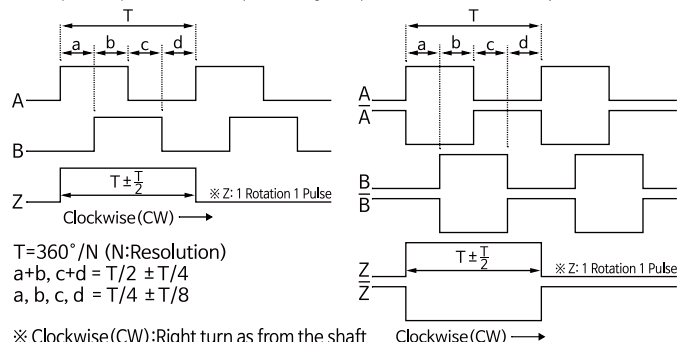
Model	Outside diameter Ø40mm Incremental rotary encoder
Power supply	5VDC ± 5%, 5VDC ~ 24VDC ± 5% (Ripple P-P : Max. 5%)
Current consumption	Max. 80mA (no load)
Resolution (P/R)	60, 100, 200, 256, 300, 360, 400, 500, 1000, 1024, 2000, 2500, 3000, 3600
Control Output	Totem pole output 「L」Level - Load current: Max. 10mA, Residual voltage: Max. 0.5VDC 「H」Level - Load current: Max. 10mA Power voltage: Min. (Power voltage-2.5VDC)
	NPN O.C output Load current: Max. 20mA, Residual voltage: Max. 0.5VDC
	Voltage output Load current: Max. 10mA, Residual voltage: Max. 0.5VDC
	Line driver output Load current : 「H」Level Io = Max. ~20mA, 「L」Level Is = Max. 20mA Output voltage: Min. (Power voltage-2.5VDC), Vs = Max. 0.5VDC
Response time	Totem pole output Max. 1μs (Cable length : 1.5m, I sink=20mA)
	NPN O.C output Max. 2μs (Cable length : 1.5m, I sink=20mA)
	Voltage output Max. 1μs (Cable length : 1.5m, I sink=20mA)
	Line driver output Max. 1μs (Cable length : 1.5m, I sink=20mA)
Max. Response frequency	150kHz
Max. Allowable revolution	5,000rpm
Shaft loading	Radial: Max. 2kg·f, Thrust: Max. 1kg·f
Shock	Max. 50G
Vibration	Max. 5G
Protection	E40HB: IP50, E40H: IP40 ※IEC standard
Environment	Ambient temperature -10 ~ 70°C (no freezing or condensation)
	Storage temperature -20 ~ 85°C (no freezing or condensation)
	Ambient humidity 35% ~ 85% RH
	Storage humidity 35% ~ 90% RH
Shaft Inner diameter	Ø6mm, Ø8mm
E40H(HB) Series	Radial cable type ※ HB Series Axial cable type Option
Cable	Shield cable, Length: 1.5m
Accessory	Product, Bracket, Bolt, Instruction manual
Approval	CE

※ Select resolution to satisfy Max. allowable revolution ≥ Max. response revolution

※ Max. response revolution (rpm) = (Max. response frequency / resolution) X 60 sec

Output Waveform

■ Totem pole Output, NPN O.C Output, Voltage Output ■ Line driver Output



Cautions during use

Environment

Please do not use this unit with below environment, or it may cause malfunction.

- 1) Place where this unit or component may be damaged by strong vibration or impact.
- 2) Place where there is a lot of flammable or corrosive gases.
- 3) Place where strong magnet field or electric noise occurs.
- 4) Place where strong acids or alkali near and direct ray of the sun.

Cautions during installation

- 1) Do not load overweight on the shaft.
- 2) Do not put strong impact when insert a coupling into shaft.
- 3) If the coupling error (parallel misalignment, angular misalignment) between the shaft increases while installation, the life cycle of the coupling and the encoder can be shorten.
- 4) Do not connect, repair, or inspect the unit while connected to a power source.
- 5) If a big impact or strong vibration applies to the product it may cause pulse errors.

Wire Connection

- 1) Do not pull out the wire with over 20N strength after fixing the unit and wiring the cable.
- 2) If wire encoder cable with high voltage line or power cable in the same conduit, it may cause a malfunction or mechanical problem. Please wire it separately or use separated conduit.

Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.

- 1) medical equipment, ship, vehicle, railways, aircraft, safety equipment, etc
- 2) Failure to follow this instruction may result in personal injury, economic loss or fire