

40 mm Diameter Incremental Rotary Encoders



E40 Series CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Ø 40 mm housing incremental rotary encoders
- Shaft, hollow shaft, blind hollow shaft models available
- Easy installation in tight or limited spaces
- Low shaft moment of inertia
- Various resolutions: 1 to 5000 pulses per revolution
- Various control output options
- Power supply: 5 VDC \pm 5%, 12 - 24 VDC \pm 5%

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

E40 ① ② - ③ - ④ - ⑤ - ⑥ - ⑦

① Shaft type

S: Shaft type
H: Hollow type
HB: Hollow Built-in type

② Shaft outer diameter / Shaft inner diameter

6: Ø 6 mm
8: Ø 8 mm
10: Ø 10 mm
12: Ø 12 mm

③ Resolution

Number: Refer to resolution in 'Specifications'

④ Output phase

2: A, B
3: A, B, Z
4: A, \bar{A} , B, \bar{B}
6: A, \bar{A} , B, \bar{B} , Z, \bar{Z}

⑤ Control output

T: Totem pole output
N: NPN open collector output
V: Voltage output
L: Line driver output

⑥ Power supply

5: 5 VDC \pm 5%
24: 12 - 24 VDC \pm 5%

⑦ Connection

No mark: Radial cable type
C: Radial cable connector type

Product Components

Shaft type	Shaft type	Hollow type	Hollow Built-in type
Product Components	Product, Instruction manual	Product (+ bracket), Instruction manual	
Bolt	× 4	× 2	× 2
Coupling	× 1	-	-

Specifications

Model	E40□□-□-□-□-□-□-□	E40□□□-□-□-□-□-□-□-□-□	E40□□□-□-□-□-□-□-□-□-□	E40□□□-□-□-□-□-□-□-□-□
Resolution	1 / 2 / 5 / 12 PPR ⁰¹⁾ 10 to 5,000 PPR model			
Control output	Totem pole output	NPN open collector output	Voltage output	Line driver output
Output phase	A, B, Z	A, B, Z	A, B, Z	A, \bar{A} , B, \bar{B} , Z, \bar{Z}
Inflow current	≤ 30 mA	≤ 30 mA	-	≤ 20 mA
Residual voltage	≤ 0.4 VDC \pm	≤ 0.4 VDC \pm	≤ 0.4 VDC \pm	≤ 0.5 VDC \pm
Outflow current	≤ 10 mA	-	≤ 10 mA	≤ -20 mA
Output voltage (5 VDC \pm)	≥ (power supply -2.0) VDC \pm	-	-	≥ 2.5 VDC \pm
Output voltage (12 - 24 VDC \pm)	≥ (power supply -3.0) VDC \pm	-	-	≥ (power supply -3.0) VDC \pm
Response speed ⁰²⁾	≤ 1 μs			≤ 0.5 μs
Max. response freq.	300 kHz			
Max. allowable revolution ⁰³⁾	5,000 rpm			
Starting torque	E40S: ≤ 0.004 N m E40H, E40HB: ≤ 0.005 N m			
Inertia moment	≤ 40 g·cm ² (4 × 10 ⁻⁶ kg·m ²)			
Allowable shaft load	Radial: ≤ 2 kgf, Thrust: ≤ 1 kgf			
Unit weight	≈ 120 g			
Approval	CE EAC	CE EAC	CE EAC	EAC

01) Depending on the control output, only A, B or A, \bar{A} , B, \bar{B} are output.

02) Based on cable length: 2 m, I sink: 20 mA

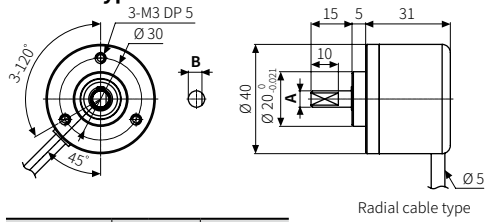
03) Select resolution to satisfy Max. allowable revolution ≥ Max. response revolution

$$[\text{max. response revolution (rpm)}] = \frac{\text{max. response frequency}}{\text{resolution}} \times 60 \text{ sec}$$

Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- Following items are based on cable type.
Refer to 'Specifications' for detailed specifications of cable, wire and connector.

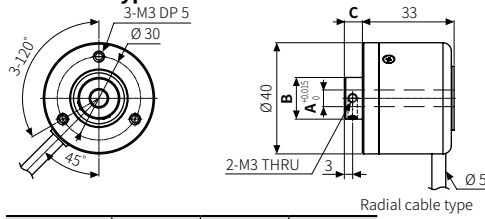
■ Shaft type



Radial cable type

	A	B
E40S6	Ø 6 $\begin{matrix} -0.004 \\ -0.016 \end{matrix}$	5
E40S8	Ø 8 $\begin{matrix} -0.005 \\ -0.02 \end{matrix}$	7

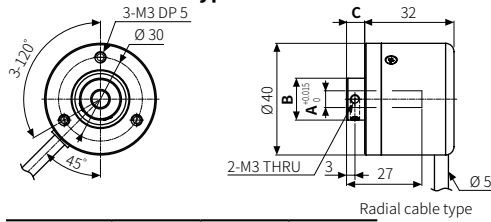
■ Hollow type



Radial cable type

	A	B	C
E40H6	Ø 6	Ø 15	6.5
E40H8	Ø 8	Ø 15	6.5
E40H10	Ø 10	Ø 17	6.3
E40H12	Ø 12	Ø 17	6.3

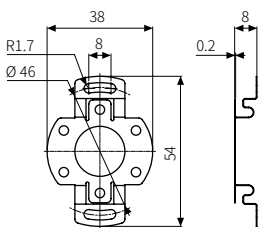
■ Hollow Built-in type



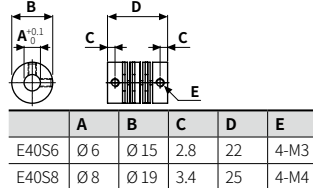
Radial cable type

	A	B	C
E40HB6	Ø 6	Ø 15	6.5
E40HB8	Ø 8	Ø 15	6.5
E40HB10	Ø 10	Ø 17	6.3
E40HB12	Ø 12	Ø 17	6.3

■ Bracket



■ Coupling



	A	B	C	D	E
E40S6	Ø 6	Ø 15	2.8	22	4-M3
E40S8	Ø 8	Ø 19	3.4	25	4-M4

- Parallel misalignment: ≤ 0.25 mm
- Angular misalignment: $\leq 5^\circ$
- End-play: ≤ 0.5 mm

Sold Separately

- Connector cable: CID6S-□, CID9S-□