

# 50 mm Diameter Absolute Single-Turn Rotary Encoders (Optical)



## EP50 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 50 mm housing, Ø 8 mm solid shaft
- Various output code options: BCD, binary, Gray code
- Various resolutions: up to 10-bit (1024 divisions)
- IP64 protection structure (IEC standard)

### Ordering Information

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

EP50 S 8 - ① - ② ③ - ④ - ⑤

#### ① Resolution

Number: Refer to resolution in 'Output Phase / Output Angle'

#### ② Output code

- 1: BCD code
- 2: Binary code
- 3: Gray code

#### ③ Rotating direction

F: Increase output when the rotating direction is clockwise base on facing the shaft

R: Increase output when the rotating direction is counter-clockwise base on facing the shaft

#### ④ Control output

N: NPN open collector output  
P: PNP open collector output

#### ⑤ Power supply

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

### Product Components

- Product
- Bolt × 8
- Instruction manual
- Coupling × 1
- Bracket × 2

### Specifications

Model	EP50S8-□-□□-N-□	EP50S8-□-□□-P-□
Resolution <sup>01)</sup>	≤ 1024 division	
Output code	BCD / Binary / Gray code model	
Control output	NPN open collector output	PNP open collector output
Inflow current	≤ 32 mA	-
Residual voltage	≤ 1 VDC $\pm$	-
Outflow current	-	≤ 32 mA
Output voltage	-	≥ (power supply - 1.5) VDC $\pm$
Response speed <sup>02)</sup>	T <sub>on</sub> ≤ 800 nsec, T <sub>off</sub> ≤ 800 nsec	
Max. response freq.	35 kHz	
Max. allowable revolution <sup>03)</sup>	3,000 rpm	
Starting torque	≤ 0.0069 N m	
Inertia moment	≤ 40 g · cm <sup>2</sup> (4 × 10 <sup>-6</sup> kg · m <sup>2</sup> )	
Allowable shaft load	Radial: 10 kgf, Thrust: 2.5 kgf	
Unit weight (packaged)	≈ 398 g (≈ 482 g)	
Approval	CE ENEC	

01) Refer to resolution in 'Output Phase / Output Angle'.

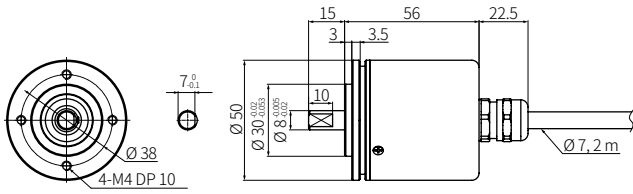
02) Based on cable length: 2 m, I sink = 32 mA

03) Select resolution to satisfy Max. allowable revolution ≥ Max. response revolution  
 [max. response revolution (rpm) =  $\frac{\text{max. response frequency}}{\text{resolution}} \times 60 \text{ sec}$ ]

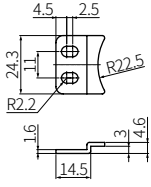
Power supply	5 VDC $\pm$ 5% (ripple P-P: ≤ 5%) / 12 - 24 VDC $\pm$ 5% (ripple P-P: ≤ 5%) model
Current consumption	≤ 100 mA (no load)
Insulation resistance	Between all terminals and case: ≥ 100 MΩ (500 VDC $\pm$ megger)
Dielectric strength	Between all terminals and case: 750 VAC ~ 50 / 60 Hz for 1 minute
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 2 hours
Shock	≤ 50 G
Ambient temp.	-10 to 70 °C, storage: -25 to 85 °C (no freezing or condensation)
Ambient humi.	35 to 85%RH, storage: 35 to 90%RH (no freezing or condensation)
Protection rating	IP64 (IEC standard)
Connection	Axial cable type (cable gland)
Cable spec.	Ø 7 mm, 15-wire, 2m, shield cable
Wire spec.	AWG28 (0.08 mm, 40-core), insulator diameter: Ø 0.8 mm

## Dimensions

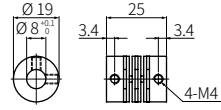
- Unit: mm, For the detailed drawings, follow the Autonics website.



### ■ Bracket



### ■ Coupling



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