

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



## MGA50 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

- High accuracy in harsh environments including shock, vibration, dust, and humidity (compared to optical encoders)
- Longer service life compared to optical encoders
- Various output code options: BCD, binary, Gray
- Various resolutions: up to 10-bit (1024 divisions)
- Power supply: 5 VDC $\pm$  5%, 12 - 24 VDC $\pm$  5%
- IP50 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.

**MGA50 S 8 - ① - ② ③ - N - ④**

#### ① Resolution

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

#### 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

#### ② Output code

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

#### ④ Power supply

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

### Product Components

- Product
- Instruction manual
- Bolt  $\times$  7
- Coupling  $\times$  1
- Bracket  $\times$  1

### Specifications

Model	MGA50S8-□-□□-N-□
Resolution <sup>01)</sup>	$\leq$ 1024 division
Output code	BCD / Binary / Gray code model
Control output	NPN open collector output
Inflow current	$\leq$ 32 mA
Residual voltage	$\leq$ 1 VDC $\approx$
Output logic	Negative logic output
Response speed <sup>02)</sup>	$\leq$ 1 $\mu$ s
Max. response freq.	30 kHz
Max. allowable revolution <sup>03)</sup>	3,000 rpm
Starting torque	$\leq$ 0.007 N m
Inertia moment	$\leq$ 80 g $\cdot$ cm <sup>2</sup> ( $8 \times 10^{-6}$ kg $\cdot$ m <sup>2</sup> )
Allowable shaft load	Radial: 10 kgf, Thrust: 2.5 kgf
Unit weight (packaged)	$\approx$ 270 g ( $\approx$ 400 g)
Approval	CE EAC

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

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

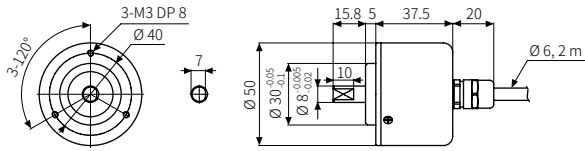
03) Select resolution to satisfy Max. allowable revolution  $\geq$  Max. response revolution

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

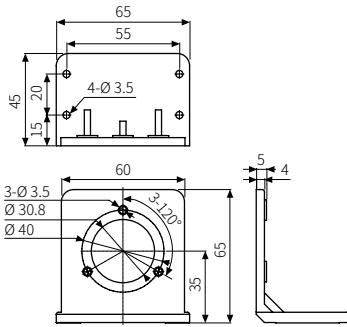
Power supply	5 VDC $\pm$ 5% (ripple P-P: $\leq$ 5%) / 12 - 24 VDC $\pm$ 5% (ripple P-P: $\leq$ 5%) model
Current consumption	$\leq$ 60 mA (no load)
Insulation resistance	Between all terminals and case: $\geq$ 100 M $\Omega$ (500 VDC $\approx$ megger)
Dielectric strength	Between all terminals and case: 750 VAC $\sim$ 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	$\leq$ 75 G
Ambient temp.	-10 to 70 $^{\circ}$ C, storage: -25 to 85 $^{\circ}$ C (no freezing or condensation)
Ambient humi.	35 to 85%RH, storage: 35 to 90%RH (no freezing or condensation)
Protection rating	IP50 (IEC standard)
Connection	Axial (cable gland)
Cable spec.	$\varnothing$ 6 mm, 17-wire, 2 m, shield cable
Wire spec.	AWG28 (0.08 mm, 17-core), insulator diameter: $\varnothing$ 0.8 mm

## Dimensions

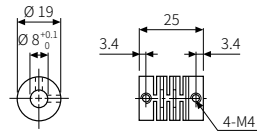
- Unit: mm, For the detailed drawings, follow the Autonics website.



### ■ Bracket



### ■ Coupling



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