

# 30 mm Diameter Incremental Rotary Encoders



## E30 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

- Compact Ø 30 mm housing, Ø 4 mm solid shaft
- Easy installation in tight or limited spaces
- Low shaft moment of inertia
- Various resolutions: up to 3000 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.

**E30 S 4 - ① - ② - ③ - ④ - ⑤**

#### ① Resolution

Number: Refer to resolution in 'Specifications'

#### ② Output phase

3: A, B, Z  
6: A,  $\bar{A}$ , B,  $\bar{B}$ , Z,  $\bar{Z}$

#### ③ Control output

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

#### ④ Power supply

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

#### ⑤ Connection

No mark: Axial cable type  
C: Axial cable connector type

### Product Components

- Product
- Bolt  $\times$  4
- Instruction manual
- Coupling  $\times$  1

### Specifications

Model	E30S4-□-3-T-□-□	E30S4-□-3-N-□-□	E30S4-□-3-V-□-□	E30S4-□-6-L-5-□
<b>Resolution</b>	100 / 200 / 360 / 500 / 1,000 / 1,024 / 3,000 PPR model			
<b>Control output</b>	Totem pole output	NPN open collector output	Voltage output	Line driver output
<b>Output phase</b>	A, B, Z	A, B, Z	A, B, Z	A, $\bar{A}$ , B, $\bar{B}$ , Z, $\bar{Z}$
<b>Inflow current</b>	$\leq$ 30 mA	$\leq$ 30 mA	-	$\leq$ 20 mA
<b>Residual voltage</b>	$\leq$ 0.4 VDC $\pm$	$\leq$ 0.4 VDC $\pm$	$\leq$ 0.4 VDC $\pm$	$\leq$ 0.5 VDC $\pm$
<b>Outflow current</b>	$\leq$ 10 mA	-	$\leq$ 10 mA	$\leq$ -20 mA
<b>Output voltage (5 VDC<math>\pm</math>)</b>	$\geq$ (power supply - 2.0) VDC $\pm$	-	-	$\geq$ 2.5 VDC $\pm$
<b>Output voltage (12 - 24 VDC<math>\pm</math>)</b>	$\geq$ (power supply - 3.0) VDC $\pm$	-	-	-
<b>Response speed</b> <sup>01)</sup>	$\leq$ 1 $\mu$ s	-	$\leq$ 1 $\mu$ s <sup>02)</sup> $\leq$ 2 $\mu$ s <sup>03)</sup>	$\leq$ 0.5 $\mu$ s
<b>Max. response freq.</b>	300 kHz			
<b>Max. allowable revolution</b> <sup>04)</sup>	5,000 rpm			
<b>Starting torque</b>	$\leq$ 0.002 N m			
<b>Inertia moment</b>	$\leq$ 20 g $\cdot$ cm <sup>2</sup> ( $2 \times 10^{-6}$ kg $\cdot$ m <sup>2</sup> )			
<b>Allowable shaft load</b>	Radial: $\leq$ 2 kgf, Thrust: $\leq$ 1 kgf			
<b>Unit weight</b>	$\approx$ 80 g			
<b>Approval</b>	CE EAC	CE EAC	CE EAC	EAC

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

02) Based on power supply: 5 VDC $\pm$ , output resistance: 820  $\Omega$

03) Based on power supply: 12 - 24 VDC $\pm$ , output resistance: 4.7 k $\Omega$

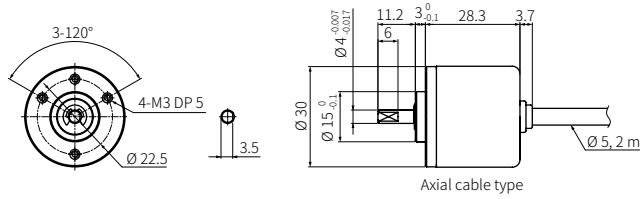
04) Select resolution to satisfy Max. allowable revolution  $\geq$  Max. response revolution

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

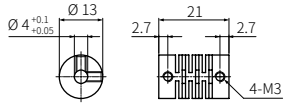
Model	E30S4-□-3-T-□-□	E30S4-□-3-N-□-□	E30S4-□-3-V-□-□	E30S4-□-6-L-5-□
<b>Power supply</b>	5 VDC $\pm$ 5% (ripple P-P: $\leq$ 5%) / 12-24 VDC $\pm$ 5% (ripple P-P: $\leq$ 5%) model			5 VDC $\pm$ 5% (ripple P-P: $\leq$ 5%)
<b>Current consumption</b>	$\leq$ 80 mA (no load)			$\leq$ 50 mA (no load)
<b>Insulation resistance</b>	Between all terminals and case: $\geq$ 100 M $\Omega$ (500 VDC $\pm$ megger)			
<b>Dielectric strength</b>	Between all terminals and case: 750 VAC $\sim$ 50 / 60 Hz for 1 minute			
<b>Vibration</b>	1 mm double amplitude at frequency 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 2 hours			
<b>Shock</b>	$\leq$ 50 G			
<b>Ambient temp.</b>	-10 to 70 $^{\circ}$ C, storage: -25 to 85 $^{\circ}$ C (no freezing or condensation)			
<b>Ambient humi.</b>	35 to 85%RH, storage: 35 to 90%RH (no freezing or condensation)			
<b>Protection rating</b>	IP50 (IEC standard)			
<b>Connection</b>	Axial cable type / cable connector type model			
<b>Cable spec.</b>	$\varnothing$ 5 mm, 5-wire (Line driver output: 8-wire), shield cable cable type: 2 m, cable connector type: 250 mm			
<b>Wire spec.</b>	AWG24 (0.08 mm, 40-core), insulator diameter: $\varnothing$ 1 mm			
<b>Connector spec.</b>	M17 6-pin socket type			M17 9-pin socket type

## 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.



## ■ Coupling



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

## Sold Separately

- Connector cable: CID6S-□, CID9S-□