

30 mm Diameter Incremental Rotary Encoders

E30 Series



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%

Specifications

Model	E30S4-□- 3-T-□-□	E30S4-□- 3-N-□-□	E30S4-□- 3-V-□-□	E30S4-□- 6-L-5-□
Resolution	100 / 200 / 360 / 500 / 1,000 / 1,024 / 3,000 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 $\pm$	-	-	-
Response speed ⁰¹⁾	≤ 1 μs		≤ 1 μs ⁰²⁾ ≤ 2 μs ⁰³⁾	≤ 0.5 μs
Max. response freq.	300 kHz			
Max. allowable revolution ⁰⁴⁾	5,000 rpm			
Starting torque	≤ 0.002 N m			
Inertia moment	≤ 20 g·cm ² (2 × 10 ⁻⁶ kg·m ²)			
Allowable shaft load	Radial: ≤ 2 kgf, Thrust: ≤ 1 kgf			
Unit weight	≈ 80 g			
Approval	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 Ω

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

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

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

Model	E30S4-□- 3-T-□-□	E30S4-□- 3-N-□-□	E30S4-□- 3-V-□-□	E30S4-□- 6-L-5-□
Power supply	5 VDC $\pm$ 5% (ripple P-P: ≤ 5%) / 12-24 VDC $\pm$ 5% (ripple P-P: ≤ 5%) model			5 VDC $\pm$ 5% (ripple P-P: ≤ 5%)
Current consumption	≤ 80 mA (no load)			≤ 50 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	IP50 (IEC standard)			
Connection	Axial cable type / cable connector type model			
Cable spec.	Ø 5 mm, 5-wire (Line driver output: 8-wire), shield cable cable type: 2 m, cable connector type: 250 mm			
Wire spec.	AWG24 (0.08 mm, 40-core), insulator diameter: Ø 1 mm			
Connector spec.	M17 6-pin socket type			M17 9-pin socket type



View product detail