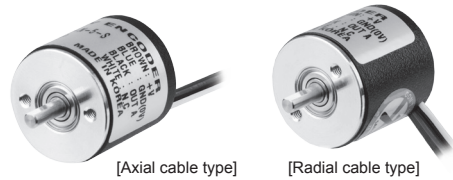


## Diameter Ø18mm Shaft Type Incremental Rotary Encoder

### ■ Features

- Diameter ø18mm of miniature and weight 12g of ultra-light rotary encoder
- Easy installation at narrow space
- Small shaft inertia moment
- Power supply: 5VDC ±5%

NEW



[Axial cable type]

[Radial cable type]

### ■ Applications

- Suitable for office machine such as ATMs, bill counters, copy machines

**⚠ Please read "Caution for your safety" in operation manual before using.**



### ■ Ordering Information

<b>E18S</b>	<b>2.5</b>	<b>200</b>	<b>1</b>	<b>N</b>	<b>5</b>	<b>R</b>
Series	Shaft diameter	Pulse/1Revolution	Output phase	Control output	Power supply	Cable
Diameter ø18mm, shaft type	2 : ø2mm 2.5 : ø2.5mm	100, 200, 300, 400	1 : A	N: NPN open collector output V: Voltage output	5 : 5VDC ±5%	R: Axial cable type S: Radial cable type

### ■ Specifications

Item	Diameter ø18mm shaft type of incremental rotary encoder		
Resolution (P/R) <sup>※1</sup>	100, 200, 300, 400		
Electrical specification	Output phase	A phase	
	Control output	NPN open collector output	Load current: Max. 30mA, Residual voltage: Max. 0.4VDC
		Voltage output	Load current: Max. 10mA, Residual voltage: Max.0.4VDC
	Response time (rise/fall)	NPN open collector output	Max. 1μs (Cable length: 1m, I sink = 20mA)
		Voltage output	
	Max. response frequency	25kHz	
	Power supply	5VDC ±5% (ripple P-P: max. 5%)	
	Current consumption	Max. 50mA (disconnection of the load)	
	Insulation resistance	Min. 100MΩ (at 500VDC megger between all terminals and case)	
	Dielectric strength	500VAC 50/60Hz for 1 min. (between all terminals and case)	
Connection	Cable type (axial cable, radial cable)		
Mechanical specification	Starting torque	Max. 10gf·cm (9.8×10 <sup>-4</sup> N·m)	
	Moment of inertia	Max. 0.5g·cm <sup>2</sup> (5×10 <sup>-8</sup> kg·m <sup>2</sup> )	
	Shaft loading	Radial : 200gf, Thrust : 200gf	
	Max. allowable revolution <sup>※2</sup>	6000rpm	
Vibration	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each X, Y, Z direction for 2 hours		
Shock	Max. 50G		
Environment	Ambient temperature	-10 to 70°C, storage: -20 to 80°C	
	Ambient humidity	35 to 85%RH, storage: 35 to 90%RH	
Protection structure	IP50 (IEC standard)		
Cable	ø0.98mm, 4-wire, Length: 150mm, Flat ribbon cable (AWG26, Core diameter: 0.16mm, Number of cores: 7, Insulator out diameter: ø0.98mm)		
Accessory	ø2mm coupling (supplied only for ø2mm shaft diameter model)		
Approval	CE c UL US		
Weight <sup>※3</sup>	ø2mm Shaft diameter model: Approx. 35.4g(approx. 12g) ø2.5mm Shaft diameter model: Approx. 34.2g(approx. 12g)		

※1: Not indicated resolutions are customizable.

※2: Make sure that. Max response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.

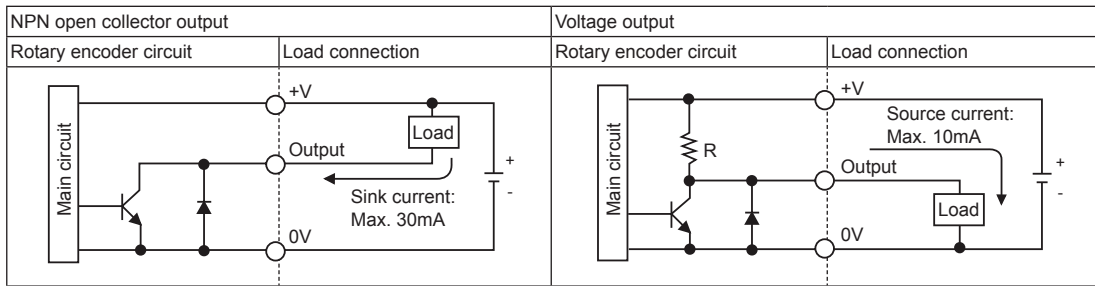
$$[\text{Max. response revolution (rpm)}] = \frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$$

※3: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

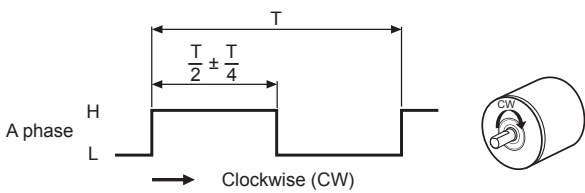
# Incremental ø18mm Shaft Type

## Control Output Diagram



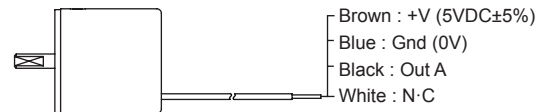
## Output Waveform

- NPN open collector output / Voltage output



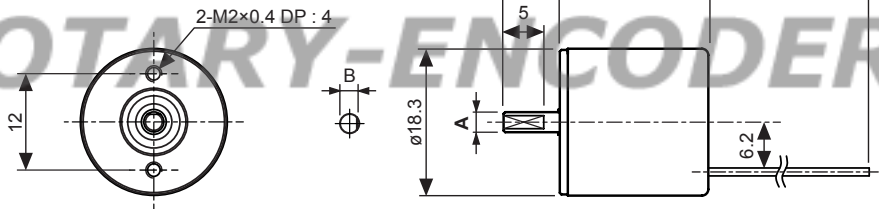
## Connections

- NPN open collector output / Voltage output



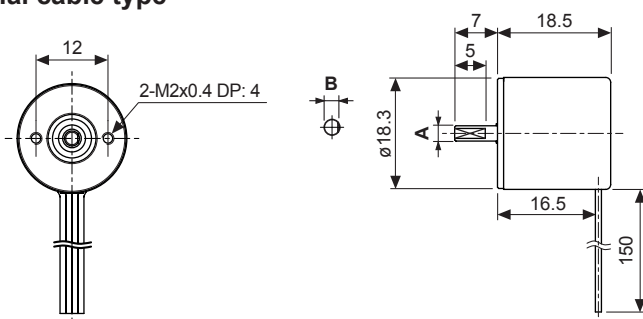
## Dimensions

- ◎ Axial cable type



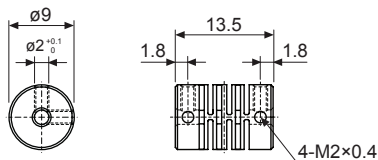
(unit : mm)

- ◎ Radial cable type



Model	A	B
E18S-2	Ø2.0 <sup>-0.004</sup> <sub>-0.02</sub>	1.7 <sup>0</sup> <sub>-0.1</sub>
E18S-2.5	Ø2.5 <sup>-0.004</sup> <sub>-0.02</sub>	2.2 <sup>0</sup> <sub>-0.1</sub>

- Coupling (E18S)



- Parallel misalignment: Max. 0.15mm
- Angular misalignment: Max. 2°
- End-play: Max. 0.2mm

※ For terminology of parallel, angular misalignment, and end-play, refer to page F-71.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/Logic Panels

(S) Field Network Devices

(T) Software