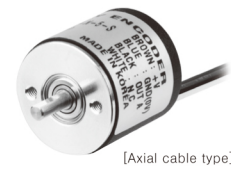
Diameter ø18mm Shaft type Incremental Rotary Encoder

▣ Features

NEW

- Diameter ø18mm of miniature and weight 10g of ultra-light rotary encoder
- Easy installation at narrow space
- Small moment of inertia
- Power supply: 5VDC ±5%



[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.**

CE

▣ Ordering information

E18S	2.5	– 200	– 1	– N	– 5	– R

Series	Shaft diameter	Pulse/1Revolution	Output phase	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)			100, 200, (300, 400) (not indicated resolutions are customizable)	
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	• Measuring condition- Cable length: 1m, I sink=Max. 20mA
		Voltage output	Max. 1μs	
	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(10×10^{-4} N·m)	
	Moment of inertia		Max. 0.5g·cm^2(5×10^{-8}kg·m^2)	
	Shaft loading		Radial : 200gf, Thrust : 200gf	
	Max. allowable revolution※1		6000rpm	
Vibration			1.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours	
Shock			Max. 50G	
Environment		Ambient temperature	-10 to 70℃, storage: -20 to 80℃	
		Ambient humidity	35 to 85%RH, storage: 35 to 90%RH	
Protection			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	
Unit weight			Approx. 34.2g(approx. 12g)※2 / Accessory: Approx. 1.2g	

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

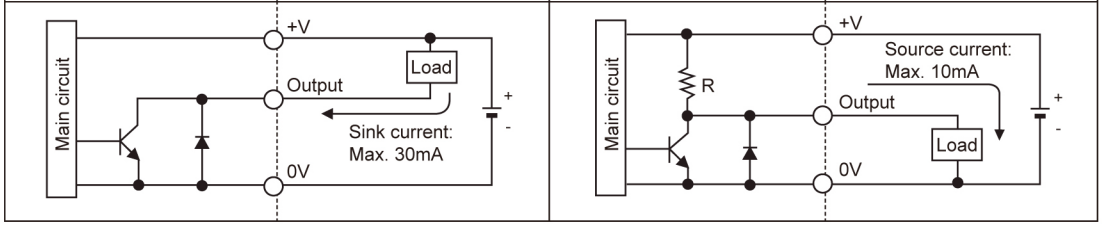
$$[\text{Max. response revolution(rpm)}=\frac{\text{Max. response frequency}}{\text{Resolution}}\times 60\ \text{sec}]$$

※2: The weight with packaging and the weight in parentheses is only unit weight.

※Environment resistance is rated at no freezing or condensation.

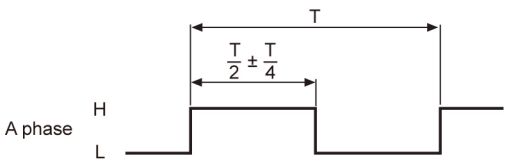
▣ Control output diagram

NPN open collector output		Voltage output	
Rotary encoder circuit	Load connection	Rotary encoder circuit	Load connection

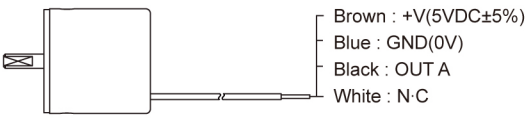


▣ Output waveform

• NPN open collector output / Voltage output



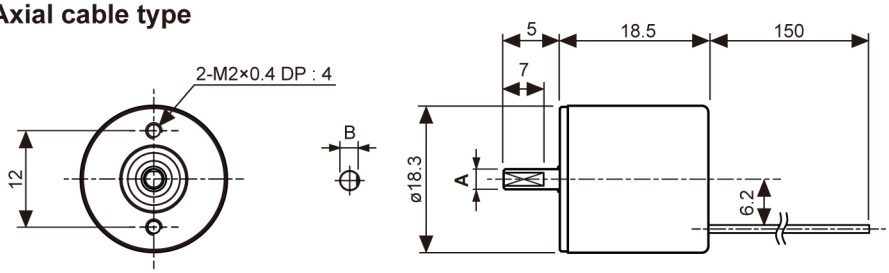
▣ Connections



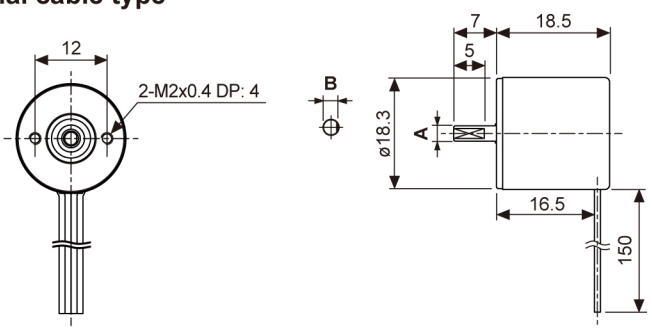
▣ Dimensions

(unit : mm)

◎ Axial cable type

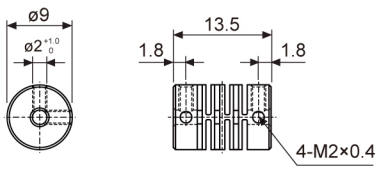


◎ Radial cable type



Model	A	B
E18S-2	Ø2.0 $^{-0.004}_{-0.02}$	1.7
E18S-2.5	Ø2.5 $^{-0.004}_{-0.02}$	2.2

• Coupling(E18S)



· Parallel misalignment: Min. 0.15mm
· Angular misalignment: Min. 2°
· End-play: Min. 0.2mm
※ For terminology of parallel, angular misalignment, and end-play, refer to the F-77 page.