

YKAN

Micro Incremental Encoder Series KEI-12DS4

Operation Manual

Thank you for purchasing this series KEI-12DS4 Micro Incremental Encoders. Please read this Operation Manual carefully before applying this product.
PLEASE KEEP MANUAL IN A SAFE PLACE!

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JELWX-M8585B-E

Safety Consideration

Warning This indicates contents which can cause large accidents leading to loss of life or severe injury when the indication is disregarded and wrong handling is executed.

Caution This indicates contents which can cause injury or material damage when the indication is disregarded and wrong handling is executed.

Explanation of the pictograms

This symbol indicates a general prohibition.

This symbol indicates a compulsory item or an instruction.

[Operating environment and conditions]

Warning

Do not use in a combustible or explosive atmosphere. Otherwise personal injury or fire may be caused.

Do not use this product for applications related to human safety. Use is assumed in an application where an accident or incorrect use will not immediately cause danger to humans.

[Operating environment and conditions]

Caution

Use and store the equipment within the scope of the environment (vibrations, impact, temperature, humidity etc.) specified in the specifications. Otherwise fire or product damage may be caused.

Understand the product first before use it.

[Installation and wiring]

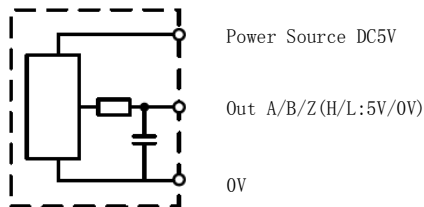
Warning

Use only with the power supply voltage listed in the specifications. Otherwise fire, electric shock, or accidents may be caused.

Use only with the wiring and layout specified in the specifications. Otherwise fire, electric shock, or accidents may be caused.

Do not apply any kind of stress to the wires. Otherwise electric shock or fire may be caused.

Output circuit

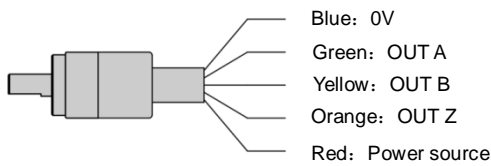


Power Source DC5V

Out A/B/Z (H/L: 5V/0V)

0V

Connection



Blue: 0V

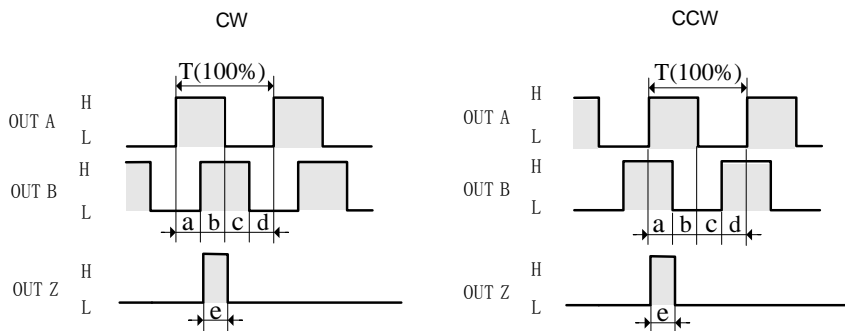
Green: OUT A

Yellow: OUT B

Orange: OUT Z

Red: Power source

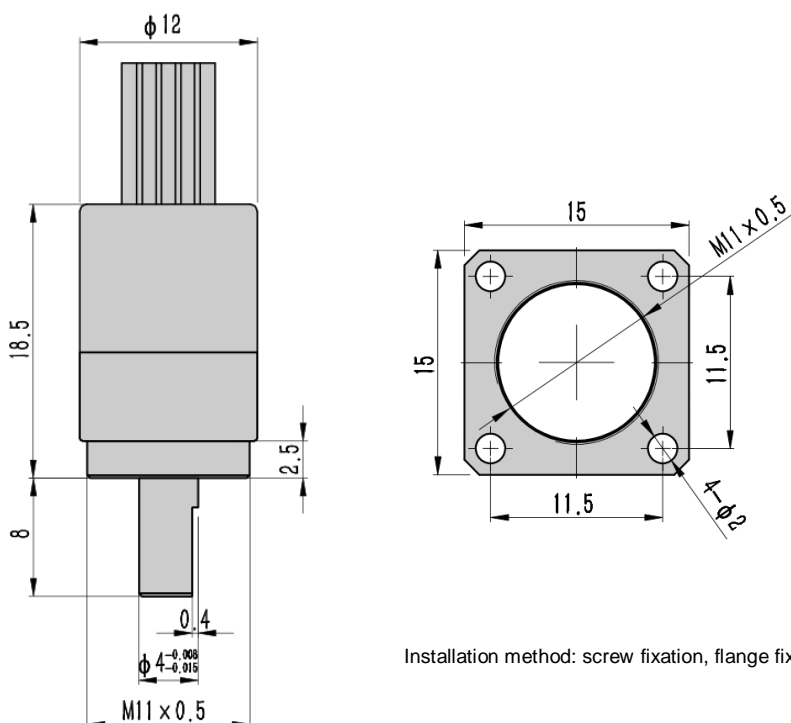
Output signal timing chart



a,b,c,d= 1/4T±0.125T
e = 4µs±0.4µs

Note: 1. Clockwise rotation when the main body is seen from the axle side is the normal rotation.
2. Phase Z is aligned with the rising edge of Phase B during forward rotation, and phase Z is aligned with the rising edge of Phase A during reverse rotation (phase Z width is fixed)

External dimensions



Installation method: screw fixation, flange fixation

Mechanical specifications

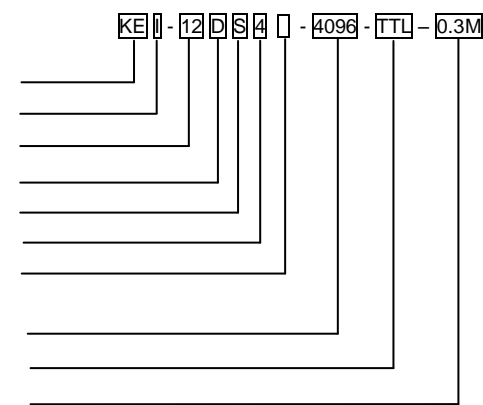
Starting torque		Max.1x10 ⁻³ N·m (+20°C)
Max. allowable shaft load	Radial	10N
	Thrust	5N
Max. allowable speed		6000rpm
Flat cable		Nominal core cross section AWG28(0.08mm ²)
Weight		Approx.10g(cable length 0.3m)

Environmental requirements

Ambient temperature	Operation temperature: -20~+75°C Storage temperature: -30~+80°C
Ambient humidity	35~90%RH (non-condensing)
Withstand voltage	AC500V(50/60Hz) 1minute
Insulation resistance	≥20MΩ (between power supply, signal line and body)
Vibration resistance	Durable for 1h along 3 axes at 10 to 55Hz with 0.75mm amplitudes
Shock resistance	11ms with 490m/s ² applied 3 times 3 axes
Protection construction	Dust proofed:IP50

Composition of model number

- KE: Fix
- I: Incremental
- 12: Outer diameter(mm)
- D: Series
- S: Solid shaft
- 4: Shaft diameter(mm)
- Protection construction blank: IP50
- 4096: Resolution
- TTL: 5V voltage output
- 0.3M: Cable length 0.3M



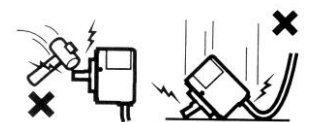
Pulse number per rotation	64	256	1024	4096
Max. response frequency(KHz)	3	13	50	200

*The electric maximum response frequency is specified by resolution (pulse number) and the maximum number of revolutions.
Electrical maximum number of revolutions = (Maximum response frequency / Resolution) x 60
If the encoder rotates at a speed greater than the electrical maximum number of revolutions, the signals do not electrically follow.

Electrical specifications

Type No.		KEI-12DS4
Power supply	Operating voltage	DC 5V±0.25V
	Allowable ripple	≤3%rms
	Current consumption	≤10mA (without load)
Output waveform	Signal format	Two-phase + home position (4µs), home position width is fixed
	Max. response frequency	200kHz
	Duty ratio	50%±25%
	Phase shift	25%±12.5%
	Rising/falling time	≤1.0µs (cable length 0.3m)
Output	Output type	TTL voltage output
	Output voltage	"H" ≥2.5V "L" ≤0.5V
	Output current	≤5mA

Cautions for use



- Do not wire the cable in parallel with other power lines and do not share a duct with other cables.
- Use capacitors or surge absorption elements to remove the sparks caused by relays and switches in the control panel as far as possible.
- Be sure to connect all wires properly, as wrong wiring can damage the internal circuitry.
- The service life of the bearing is largely affected by the amount of load to the shaft. Try to reduce the load as much as possible.
- Do not disassemble the product.
- As the rotary encoder is composed of precision parts, its function will be impaired when it is subjected to shocks. Use sufficient care for handling and mounting.
- Avoid using this product in the following places: the place where there is excessive vibration and shock, the encoder may be damaged; the place where there are devices with strong magnetic and strong electrical interference; the place where there is flammable, corrosive gases, splashing water, oil and dusty; the place where the temperature and humidity exceeds the standard; the place where strong alkali and strong acid materials nearby; the place where receives direct sunlight.