Autonics

ROTARY ENCODER(INCREMENTAL TYPE)
E68S15 SERIES
INSTRUCTION MANUAL

Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ **Warning** Failure to follow these instructions may result in serious injury or death.
⚠ **Caution** Failure to follow these instructions may result in personal injury or product damage.

⚠ Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in fire, personal injury, or economic loss.
2. **Install on a device panel to use.**
   Failure to follow this instruction may result in fire.
3. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in fire.
4. **Check 'Connections' before wiring.**
   Failure to follow this instruction may result in fire.
5. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in fire.

⚠ Caution

1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **Do not short the load.**
   Failure to follow this instruction may result in product damage by fire.
3. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in fire or explosion.
4. **Do not use the unit near the place where there is the equipment which generates strong magnetic force or high frequency noise and strong alkaline, strong acidic exists.**
   Failure to follow this instruction may result in product damage.

■ Ordering Information

E68S	15	- 1024	- 6	- L	- 5

Series	Shaft diameter	Revolution	Output phase	Output	Power supply
Diameter Ø68mm Shaft type	Ø15mm	500, 600, 1024	6: A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$	L: Line Driver output	5VDC ±5%

※**The above specifications are subject to change and some models may be discontinued without notice.**
※**Be sure to follow cautions written in the instruction manual, and the technical descriptions (catalog, homepage).**

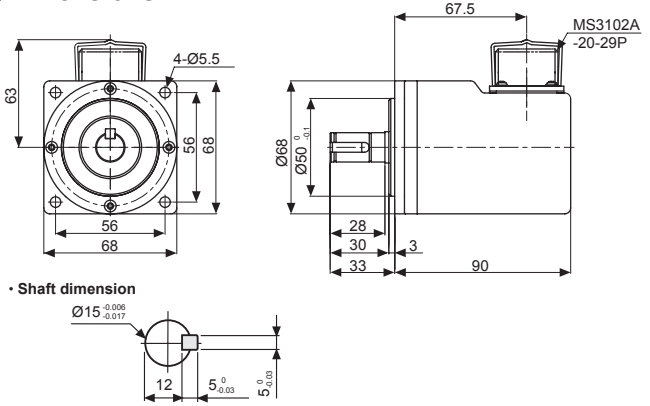
■ Specifications

Item		Diameter Ø68mm Shaft type Incremental Rotary encode
Model		E68S15- □ - □ - L - 5
Resolution(PPR)※1		500, 600, 1024
Electrical specification	Output phase	A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$ phase
	Phase difference of output	Output between A and B phase: $\frac{T}{4} \pm \frac{T}{8}$ (T=1cycle of A phase)
	Control output (Line Driver output)	●[Low] - Load current: Max. 20mA, Residual voltage: Max. 0.5VDC⎓ ●[High] - Load current: Max. -20mA, Residual voltage: Max. 2.5VDC⎓
	Response time(Rise, Fall)	Max. 0.5μs(Cable: 1m, I sink=20mA)
	Power supply	5VDC⎓ ± 5% (Ripple P-P: Max. 5%)
	Max. Response frequency	180kHz
	Current consumption	Max. 50mA (disconnection of the load)
	Insulation resistance	Min. 100MΩ(at 500VDC megger) (Between all terminals and case)
	Dielectric strength	750VAC 50/60Hz for 1minute (Between all terminals and case)
	Connection	Connector connection: MS3102A20-29P
Mechanical specification	Staring torque	1.5kgf·cm(Max. 0.15N·m)
	Moment of inertia	Radial: 20kgf, Thrust: 10kgf
	Max. allowable revolution※2	6,500rpm
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 temp.	-10 to 70℃, Storage: -25 to 85℃
	Ambient humi.	35 to 85%RH, Storage: 35 to 90%RH
Insulation type		IP65(IEC standard)
Unit weight		Approx. 550g

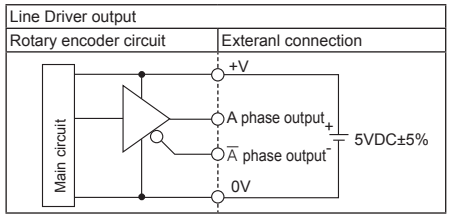
※1: The number of pulse, output type not indicated in the resolution is available to order.
※2: Make sure that max. response revolution should be lower than or equal to max. allowable revolution when selecting the resoultion. [Max. response revolution(rpm) = $\frac{\text{Max. response frequency}}{\text{revolution}}$ × 60 sec.]
※Environment resistance is rated at no freezing or condensation.

■ Dimensions

(unit: mm)

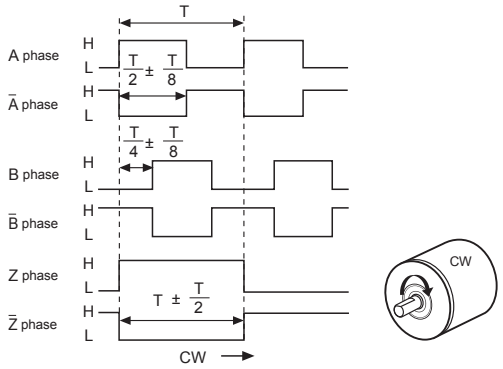


■ Control Output Diagram

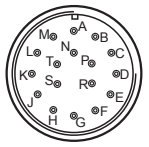


※All output circuits are same A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$ phase.

■ Output Waveform



■ Connections



Pin No.	Connection	Pin No.	Connection
A	A phase	K, M	0V
B	Z phase	N	$\overline{A}$ phase
C	B phase	P	$\overline{Z}$ phase
D, F, G, J, L, S	N C	R	$\overline{B}$ phase
E, H	5VDC	T	Shield(F.G.)

※N·C: Not Connected.
※E and H terminals, K and M terminals are connected intermally.

■ Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
2. 5VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. For using the unit with the equipment which generates noise (switching regulator, inverter, servo motor, etc.), ground the shield wire to the F.G. terminal.
4. Ground the shield wire to the F.G. terminal.
5. When using switching mode power supply, frame ground (F.G.) terminal of power supply should be grounded.
6. Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive noise.
7. For Line driver unit, use the twisted pair wire which is attached seal and use the receiver for RS-422A communication.
8. Check the wire type and response frequency when extending wire because of distortion of waveform or residual voltage increment etc by line resistance or capacity between lines.
9. This unit may be used in the following environments.
   ①Indoors (in the environment condition rated in 'Specifications')
   ②Altitude max. 2,000m
   ③Pollution degree 2
   ④Installation category II

■ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, CO_2, Nd: YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

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