

Autonics ROTARY ENCODER (INCREMENTAL TYPE) E58 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

- 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 personal injury, economic loss or fire.
- 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 explosion or fire.
- Install on a device panel to use.**
Failure to follow this instruction may result in fire.
- Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire.
- Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.

⚠ Caution

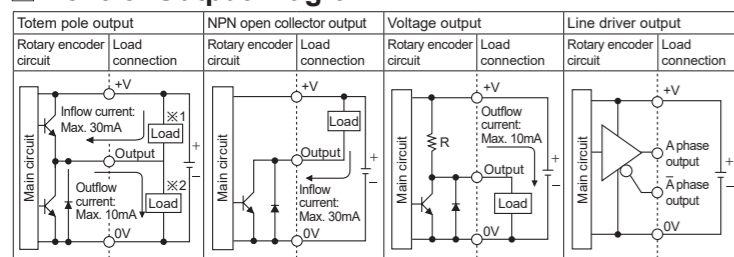
- Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
- Do not short the load.**
Failure to follow this instruction may result in fire.
- Do not use the unit near the place where there is the equipment which generates strong magnetic force or high frequency noise and strong alkaline, strong acidic exists.**
Failure to follow this instruction may result in product damage.

■ Ordering Information

E58SC		10	-	8000	-	3	-	N	-	24	-
Series	Diameter Ø58mm	Shaft diameter	Pulses/Revolution	Output phase	Control output	Power supply	Cable*1				
SC	Shaft Clamping	External	10	Ø10mm	2: A, B 3: A, B, Z 4: A, A, B, B	5: 5VDC ±5%	No mark: Axial/Radial cable type				
SS	Shaft Synchro	6	Ø6mm	Refer to resolution	N: NPN open collector output V: Voltage output L: Line driver output	24: 12-24VDC ±5%	C: Axial/Radial cable connector type CR: Axial connector type CS: Radial connector type				
H	Hollow	Inner	12	Ø12mm							
HB	Hollow Built-in										

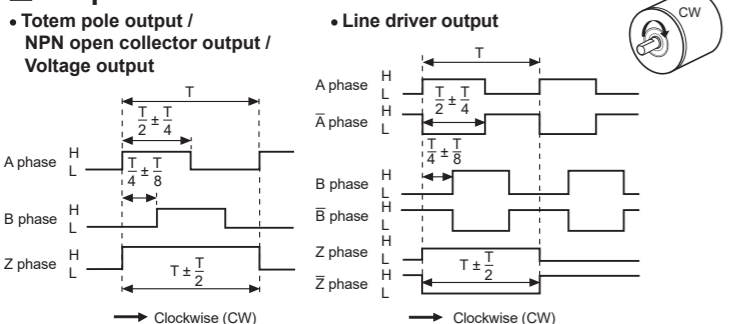
※1: Please refer to 'connection' in the specifications for the detailed information about cable.

■ Control Output Diagram



※ All output circuits of A, B, Z phase are the same. (line driver output is A, A, B, B, Z, Z)
※ Totem pole output type can be used for NPN open collector type (※1) or voltage output type (※2).

■ Output Waveforms



※ 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

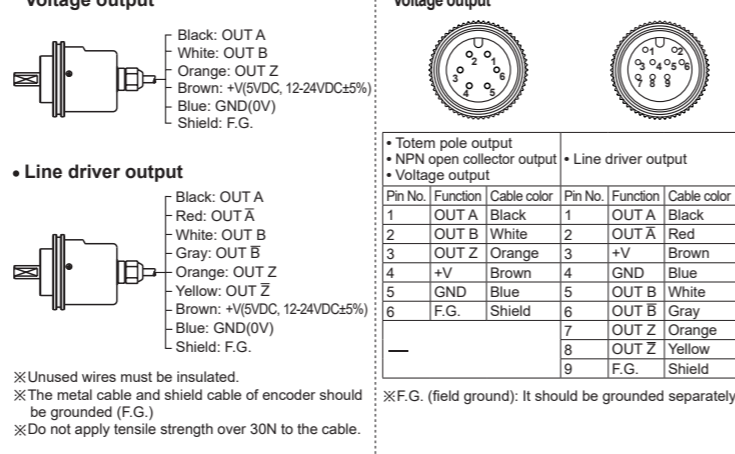
Item	Diameter Ø58mm incremental rotary encoder
Model	Totem pole output E58□□-□□-3-T-□□
	NPN open collector output E58□□-□□-3-N-□□
	Voltage output E58□□-□□-3-V-□□
	Line driver output E58□□-□□-3-L-□□
Resolution (PPR)*1	*1, *2, *5, 10, *12, 15, 20, 23, 25, 30, 35, 40, 45, 50, 60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 5000, 6000, 8000
Output phase	A, B, Z phase (line driver output: A, A, B, B, Z, Z phase)
Phase difference of output	Output between A and B phase: $\frac{T}{4} \pm \frac{T}{8}$ (T=1 cycle of A phase)
Electrical specification	Totem pole output
	NPN open collector output
	Voltage output
	Line driver output
Response time (rise, fall)	Max. 1µs (cable length: 2m, I sink = 20mA)
Max. response frequency	300kHz
Power supply	• 5VDC ±5% (ripple P-P: max. 5%) • 12-24VDC ±5% (ripple P-P: max. 5%)
Current consumption	Max. 80mA (disconnection of the load), Line driver output: max. 50mA (disconnection of the load)
Insulation resistance	Over 100MΩ (at 500VDC megger between all terminals and case)
Dielectric strength	750VAC 50/60Hz for 1 min (between all terminals and case)
Mechanical specification	Starting torque
	Moment of inertia
Vibration	Shock
	Environment
Protection structure	Cable
	Accessory
Approval	Weight
	Connector type

※1: "1" pulse is only for A, B phase. (line driver output is for A, A, B, B phase)
(In case of hollow shaft type, 6000, 8000 PPR excluded) Not indicated resolutions are customizable.

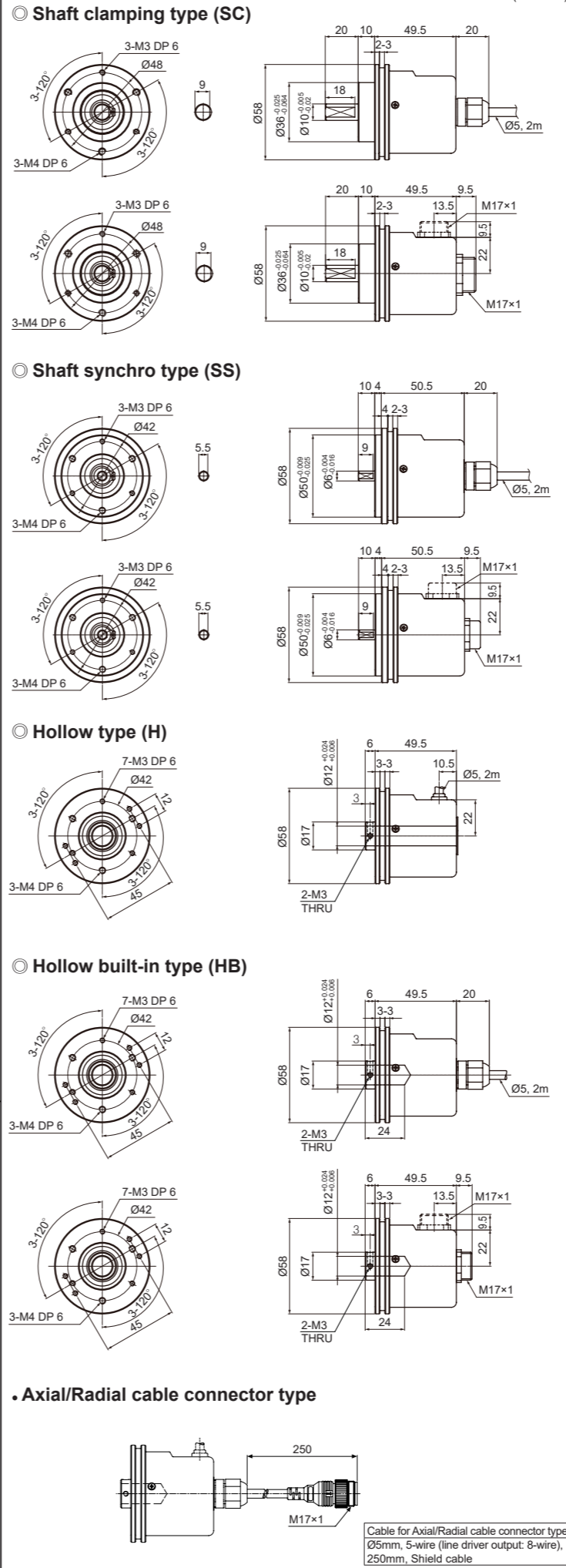
※2: Make sure that Max. response resolution should be lower than or equal to max. allowable revolution when selecting the resolution.
[Max. response revolution (rpm) = $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$]

※3: The weight includes packaging. The weight in parenthesis is for unit only.
※ Environment resistance is rated at no freezing or condensation.

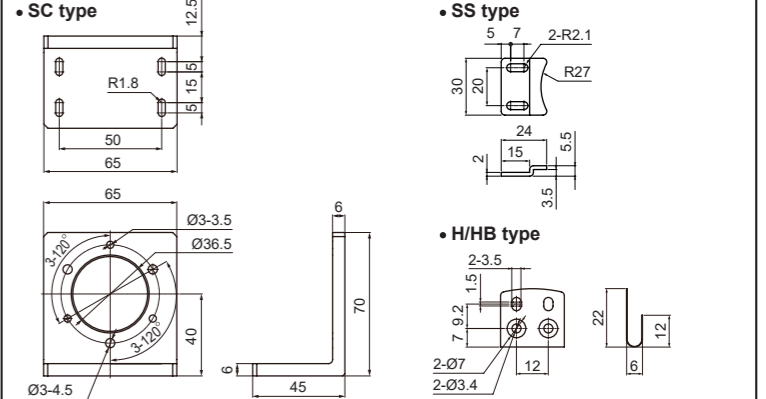
■ Connections



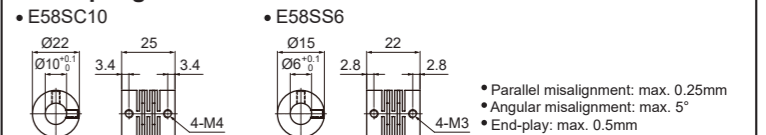
■ Dimensions



■ Bracket

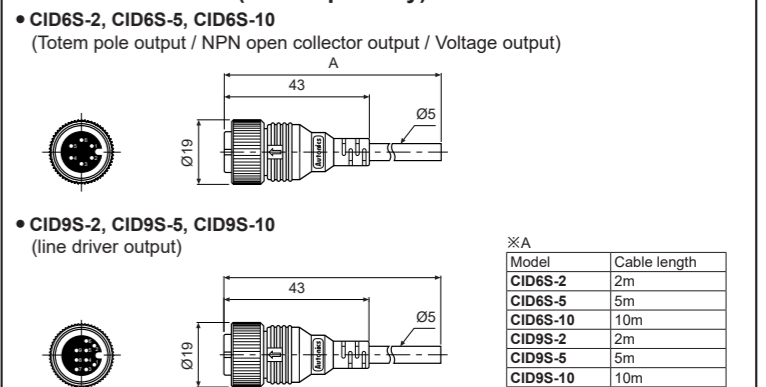


■ Coupling



※ Do not load overweight on the shaft.
※ For flexible coupling (ERB series) information, refer to catalogue.
※ Do not put strong impact when insert a coupling into shaft.
Failure to follow this instruction may result in product damage.
※ Fix the unit or a coupling by a wrench under 0.15 N.m of torque.
※ When you install this unit, if eccentricity and deflection angle are larger, it may shorten the life cycle of this unit.

■ Connector cable (sold separately)



■ Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
- 5VDC, 12-24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- 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.
- Ground the shield wire to the F.G. terminal.
- When using switching mode power supply, frame ground (F.G.) terminal of power supply should be grounded.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive noise.
- For Line driver unit, use the twisted pair wire which is attached seal and use the receiver for RS-422A communication.
- 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.
- This unit may be used in the following environments.
 - ① Indoors (in the environment condition rated in 'Specifications')
 - ② Altitude max. 2,000m
 - ③ Pollution degree 2
 - ④ Installation 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, CO₂, 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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