

ROTARY ENCODER(INCREMENTAL TYPE) E40S/E40H/E40HB/E80H 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.

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.

Install on a device panel to use.

Do not connect, repair, or inspect the unit while connected to a power source.

Check 'Connections' before wiring.

Do not disassemble or modify the unit.

Caution

Use the unit within the rated specifications.

Do not short the lead.

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.

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.

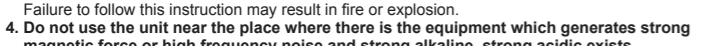
Ordering Information

Ordering code example: E40S 6 5000 3 N 24

Table with columns: Series, Shaft diameter, Pulses / Revolution, Output phase, Output, Power supply, Cable

*** indicates the standard specification of diameters. Cable length: 250mm

Control Output Diagram



Output circuit of A, B, Z phase are the same. (Line Driver output is A, A-bar, B, B-bar, Z, Z-bar phase)

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

Table with columns: Model, Resolution(PPR), Output phase, Electrical specification, Mechanical specification, Environment, Protection structure, Cable, Accessory, Approval, Unit weight

※1: 1, 2, 5, 12 PPR are output A, B phase only. (But Line Driver output: A, A-bar, B, B-bar phase)

※2: Max. allowable revolution ≥ Max. response revolution [Max. response revolution(rpm) = Max. response frequency / Resolution × 60 sec] Please select the resolution to make lower max. revolution than max. allowable revolution.

※Environment resistance is rated at no freezing or condensation.

Dimensions

Shaft type(E40S)

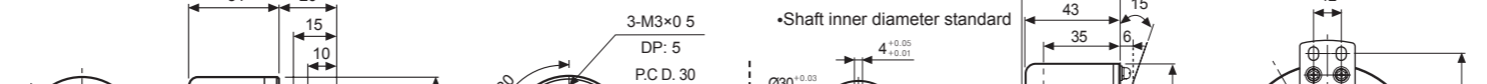


Table with columns: A, B, Tolerance for shaft type(E40S)

Cable for radial cable type Ø5, 5-wire(Line Driver output: 8-wire), Length: 2000, Shield cable

Hollow shaft type(E40H)

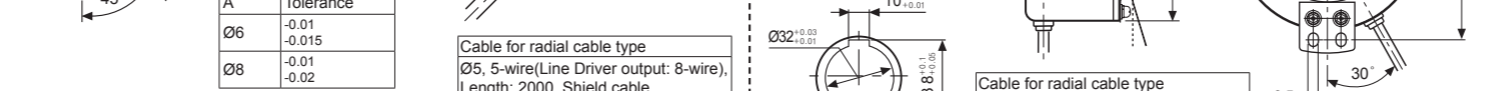


Table with columns: A, B, Tolerance for hollow shaft type(E40H)

Cable for radial cable type Ø5, 5-wire(Line Driver output: 8-wire), Length: 2000, Shield cable

Hollow shaft built-in type(E40HB)

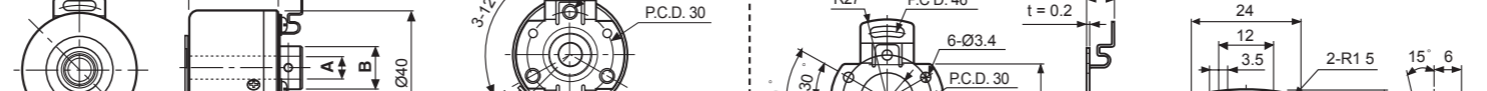


Table with columns: A, B, Tolerance for hollow shaft built-in type(E40HB)

※ A, B dimensions are the same as hollow shaft type(E40H).

Coupling(E40S Series)



Table with columns: Type, Item, A, B, C, D for coupling(E40S Series)

※Do not put strong impact when insert a coupling into shaft. Failure to follow this instruction may result in product damage.

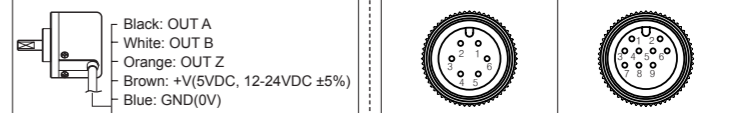
※Fix the unit or a coupling by a wrench under 0.15 N-m of torque.

※When you install this unit, if eccentricity and deflection angle are larger, it may shorten the life cycle of this unit.

Connections

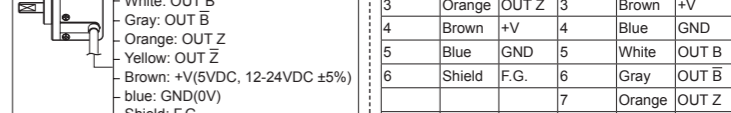
Radial cable type

•Totem Pole output •NPN open collector output •Voltage output



Radial cable connector type

•Totem Pole output •NPN open collector output •Line Driver output •Voltage output



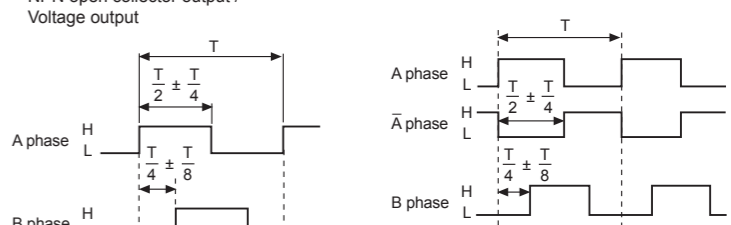
Line Driver output

•Black: OUT A •Red: OUT A-bar •White: OUT B •Gray: OUT B-bar •Orange: OUT Z •Yellow: OUT Z-bar •Brown: +V(5VDC, 12-24VDC ±5%) •Blue: GND(0V) •Shield: F.G.

※Non-using wires must be insulated. ※The shield cable and metal case of encoder must be grounded(F.G.). ※Do not apply tensile strength over 30N to the cable.

Output Waveform

•Totem Pole output / NPN open collector output / Voltage output •Line Driver output



Cautions during Use

- 1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents. 2. 5VDC, 12-24VDC 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, Temperature Controllers, Fiber Optic Sensors, Temperature/Humidity Transducers, Door Sensors, SSRs/Power Controllers, Door Side Sensors, Counters, Area Sensors, Timers, Proximity Sensors, Panel Meters, Pressure Sensors, Tachometer/Pulse (Rate) Meters, Rotary Encoders, Display Units, Connector/Sockets, Sensor Controllers, 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

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