

A Proximity Sensor for Aluminum, Brass and Other Non-ferrous Metals. Iron Is Not Detected.

- Non-ferrous metals, such as aluminum and brass, are detected. *
 - Ferrous metals, such as iron and nickel, are not detected.
- * Aluminum foil, however, cannot be detected.



 Be sure to read *Safety Precautions* on page 4.

Ordering Information

Sensors [Refer to *Dimensions* on page 4.]

| Appearance | | Sensing distance | | | Output configuration/Operation mode | Model |
|---|-----|--|--|--|-------------------------------------|--------------|
| Shielded  | M18 |  4 mm | | | DC 3-wire, NPN NO | E2EY-X4C1 2M |
| | M30 |  8 mm | | | | E2EY-X8C1 2M |

Accessories (Order Separately)

[Mounting Brackets](#)

[Protective Covers](#)

[Sputter Protective Covers](#)

Refer to Y92□ for details.

Ratings and Specifications

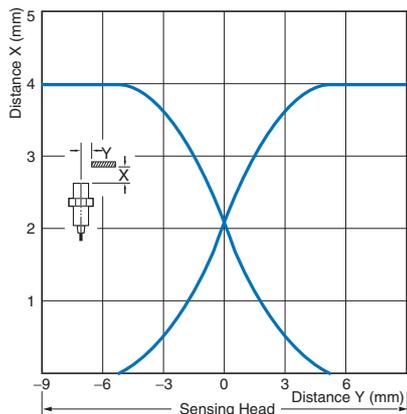
| Item | Model | E2EY-X4C1 | E2EY-X8C1 |
|--|------------------|--|--|
| Sensing distance | | 4 mm \pm 10% | 8 mm \pm 10% |
| Set distance | | 0 to 2.8 mm | 0 to 5.6 mm |
| Differential travel | | 20% max. of sensing distance | |
| Detectable object | | Non-ferrous metal (Does not detect ferrous metal.) | |
| Standard sensing object | | Aluminum: 18 \times 18 \times 1 mm | Aluminum: 30 \times 30 \times 1 mm |
| Response frequency * | | 70 Hz | |
| Power supply voltage (operating voltage range) | | 12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max. | |
| Current consumption | | 20 mA max. | |
| Control output | Load current | NPN open-collector output, 100 mA max. (at 30 VDC) | |
| | Residual voltage | 2 V max. (Load current: 100 mA, Cable length: 2 m) | |
| Indicators | | Detection indicator (red) | |
| Operation mode (with sensing object approaching) | | Load ON: NO (Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 3 for details.) | |
| Protection circuits | | Reverse polarity protection, Load short-circuit protection, Surge suppressor | |
| Ambient temperature range | | Operating/Storage: -10 to 55°C (with no icing or condensation) | |
| Ambient humidity range | | Operating/Storage: 35% to 95% (with no condensation) | |
| Temperature influence | | \pm 20% max. of sensing distance at 23°C in the temperature range of -10 to 55°C | |
| Voltage influence | | \pm 2.5% max. of sensing distance at rated voltage in rated voltage \pm 15% range | |
| Insulation resistance | | 50 M Ω min. (at 500 VDC) between current-carrying parts and case | |
| Dielectric strength | | 1,000 VAC, 50/60 Hz for 1 minute between current-carrying parts and case | |
| Vibration resistance | | Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions | |
| Shock resistance | | Destruction: 1,000 m/s ² 10 times each in X, Y, and Z directions | |
| Degree of protection | | IEC 60529 IP67, in-house standards: oil-resistant | |
| Connection method | | Pre-wired Models (Standard cable length: 2 m) | |
| Weight (packed state) | | Approx. 140 g | Approx. 190 g |
| Materials | Case | Nickel-plated brass | |
| | Sensing surface | Heat-resistant ABS | |
| | Clamping nuts | Nickel-plated brass | |
| | Toothed washer | Zinc-plated iron | |
| Accessories | | --- | |

* The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.

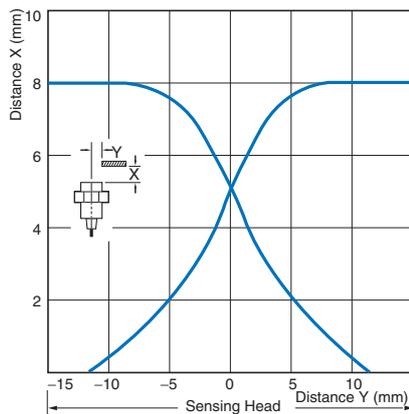
Engineering Data (Reference Value)

Sensing Area

E2EY-X4C1

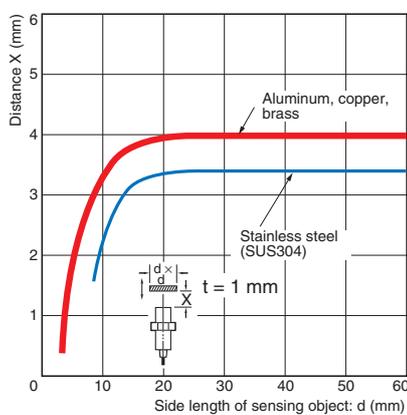


E2EY-X8C1

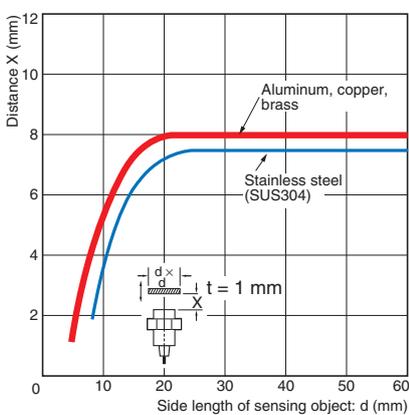


Influence of Sensing Object Size and Material

E2EY-X4C1



E2EY-X8C1



I/O Circuit Diagrams

DC 3-Wire Models

| Operation mode | Model | Timing chart | Output circuit |
|----------------|------------------------|---|------------------------------------|
| NO | E2EY-X4C1 E2EY-X8C1 | <p>Sensing object Present: [Green bar]</p> <p>Sensing object Not present: [White bar]</p> <p>Output transistor (load) ON: [Green bar]</p> <p>Output transistor (load) OFF: [White bar]</p> <p>Detection indicator (red) ON: [Green bar]</p> <p>Detection indicator (red) OFF: [White bar]</p> | <p>* Load current: 100 mA max.</p> |

Safety Precautions

Refer to *Warranty and Limitations of Liability*.

⚠ WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



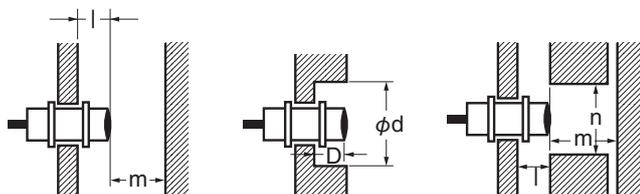
Precautions for Correct Use

Do not use this product under ambient conditions that exceed the ratings.

● Design

Influence of Surrounding Metal

When mounting the Sensor within a metal panel, ensure that the clearances given in the following table are maintained. Failure to maintain these distances may cause deterioration in the performance of the Sensor.



Influence of Surrounding Metal

(Unit: mm)

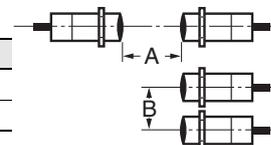
| Model | Item | l | d | D | m | n |
|-----------|------|---|----|---|----|----|
| E2EY-X4C1 | 0 | 0 | 18 | 0 | 20 | 27 |
| E2EY-X8C1 | | | 30 | | 40 | 45 |

Mutual Interference

When installing Sensors face-to-face or side-by-side, ensure that the minimum distances given in the following table are maintained.

Mutual Interference (Unit: mm)

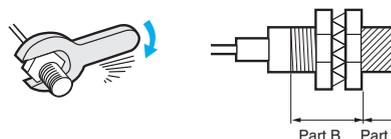
| Model | Item | A | B |
|-----------|------|-----|----|
| E2EY-X4C1 | | 50 | 35 |
| E2EY-X8C1 | | 100 | 70 |



Note: Aluminum (non-ferrous metal) cannot be detected through iron (ferrous metal).

Mounting

Do not tighten the nut with excessive force. A toothed washer must be used with the nut.



Note: 1. The allowable tightening strength depends on the distance from the edge of the head, as shown in the following table. (A is the distance from the edge of the head. B includes the nut on the head side. If the edge of the nut is in part A, the tightening torque for part A applies instead.)

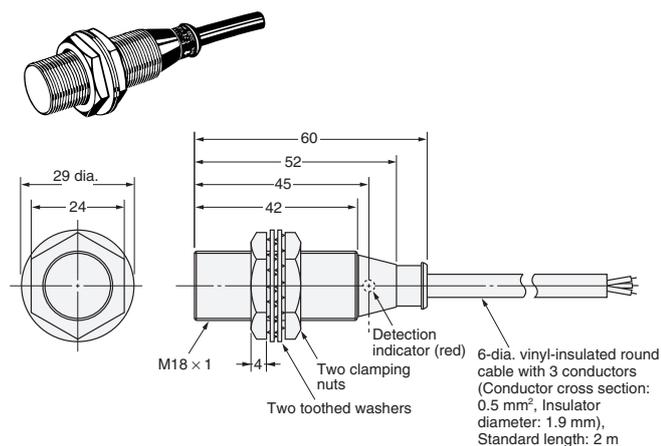
2. The following torque assume washers are being used.

| Model | Tightening Torque | Part A | | Part B |
|-----------|-------------------|----------------|--------|--------|
| | | Dimension (mm) | Torque | Torque |
| E2EY-X4C1 | 15 N·m | 22 | 15 N·m | 49 N·m |
| E2EY-X8C1 | | 26 | | 39 N·m |

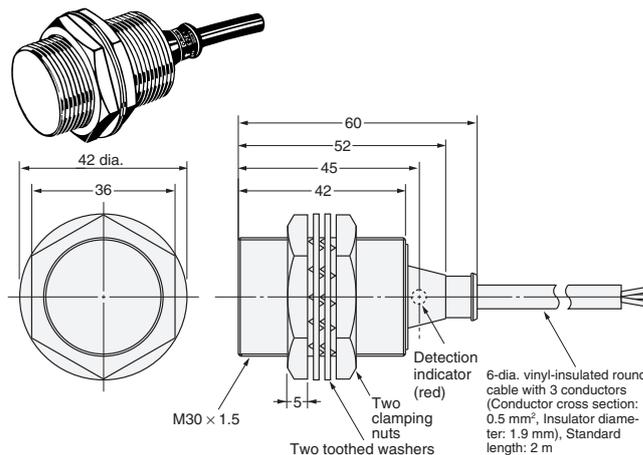
Dimensions

(Unit: mm)
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

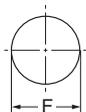
E2EY-X4C1



E2EY-X8C1



Mounting Hole Dimensions



| Model | F (mm) |
|-----------|--------------------------------------|
| E2EY-X4C1 | 18.5 ⁺⁵ ₀ dia. |
| E2EY-X8C1 | 30.5 ⁺⁵ ₀ dia. |

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