

Aluminum-detecting Proximity Sensor

E2EY

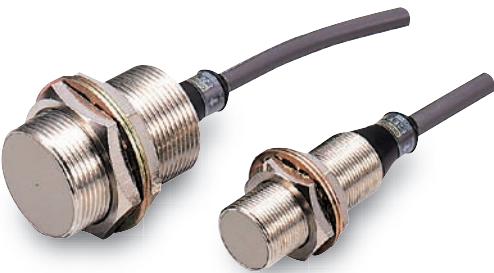
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A Proximity Sensor for Aluminum, Brass and Other Non-ferrous Metals. Iron Is Not Detected.

- 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
	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

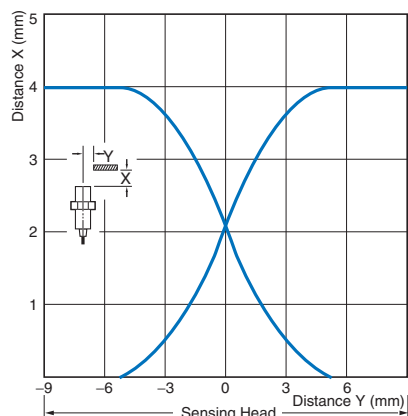
Item		Model	E2EY-X4C1	E2EY-X8C1
Sensing distance			4 mm $\pm 10\%$	8 mm $\pm 10\%$
Set distance			0 to 2.8 mm	0 to 5.6 mm
Differential travel			20% max. of sensing distance	
Detectable object			Non-ferrous metal (Does not detect ferrous metal.)	
Standard sensing object			Aluminum: 18 × 18 × 1 mm	Aluminum: 30 × 30 × 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.

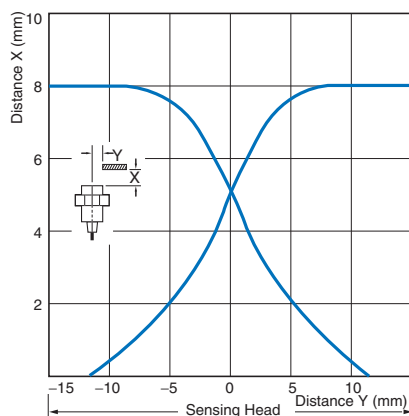
Engineering Data (Reference Value)

Sensing Area

E2EY-X4C1

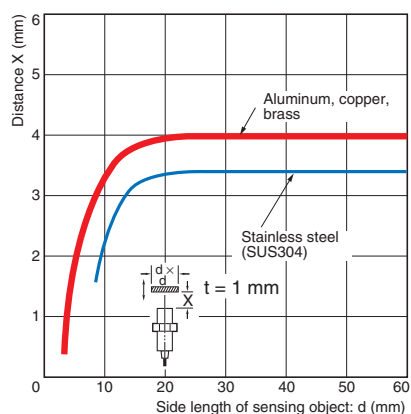


E2EY-X8C1

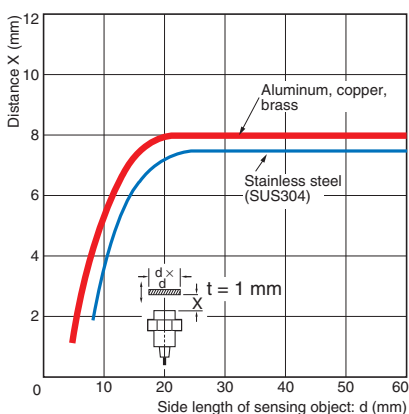


Influence of Sensing Object Size and Material

E2EY-X4C1



E2EY-X8C1



I/O Circuit Diagrams

DC 3-Wire Models

Operation mode	Model	Timing chart	Output circuit
NO	E2EY-X4C1 E2EY-X8C1	Sensing object Present Not present Output transistor (load) ON OFF Detection indicator (red) ON OFF	* Load current: 100 mA max.

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.



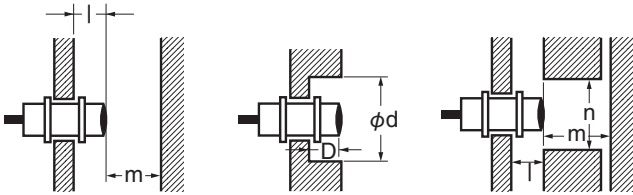
Precautions for Correct Use

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)

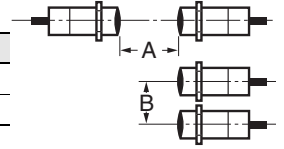
Model	Item	l	d	D	m	n
E2EY-X4C1		0	18	0	20	27
E2EY-X8C1			30		40	45

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)

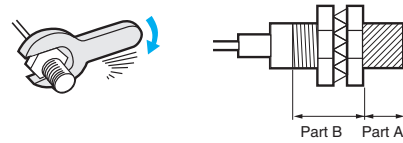
Model	Item	A	B
E2EY-X4C1		50	35
E2EY-X8C1		100	70



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.



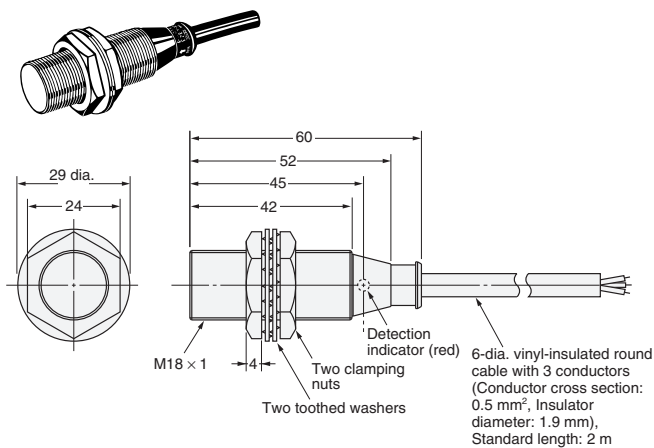
Note: 1. The allowable tightening strength depends on the distance from the edge of the head, as shown in the following table. (A is the distance from the edge of the head. B includes the nut on the head side. If the edge of the nut is in part A, the tightening torque for part A applies instead.)
2.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

Tightening Torque	Part A		Part B
	Dimension (mm)	Torque	Torque
E2EY-X4C1	22	15 N·m	49 N·m
E2EY-X8C1	26	39 N·m	78 N·m

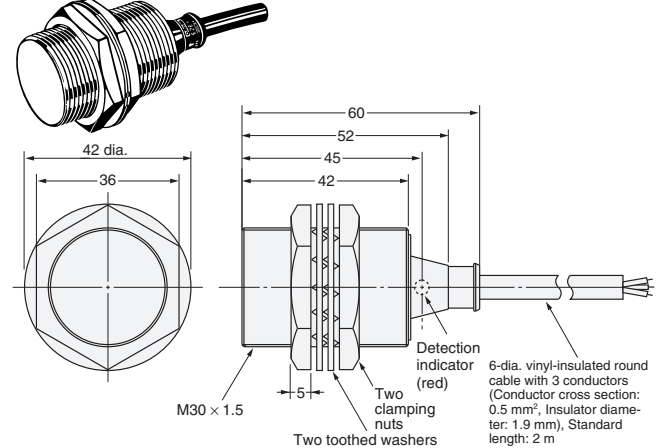
Dimensions

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

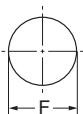
E2EY-X4C1



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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E2EY-X8C1



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