

## A Proximity Sensor for Non-Ferrous Metals: Aluminum, Brass, etc. Iron Is Not Detected.

- Detects only non-ferrous metals without detecting ferrous metals (such as iron and nickel). (Aluminum foil is also not detected.)
- Built-in amplifier for easy application.
- Easy-to-see detection indicator provided.



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

### Ordering Information

#### Sensors

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

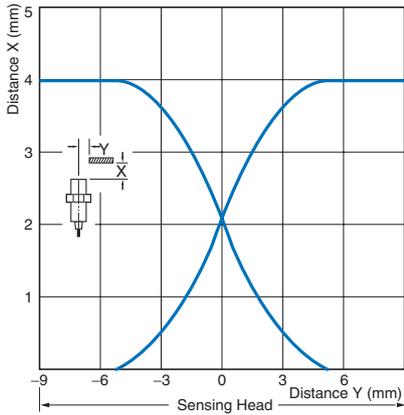
Item	Model	E2EY-X4C1	E2EY-X8C1
Sensing distance		4 mm $\pm$ 10%	8 mm $\pm$ 10%
Set distance		0 to 2.8 mm	0 to 5.6 mm
Differential travel		20% max. of sensing distance	
Detectable object		Non-ferrous metal (Does not detect ferrous metal.)	
Standard sensing object		Aluminum: 18 $\times$ 18 $\times$ 1 mm	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 $55^{\circ}\text{C}$ (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 $23^{\circ}\text{C}$ in the temperature range of $-10$ to $55^{\circ}\text{C}$	
Voltage influence		$\pm$ 2.5% max. of sensing distance at rated voltage in rated voltage $\pm$ 15% range	
Insulation resistance		50 M $\Omega$ 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 <sup>2</sup> 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.

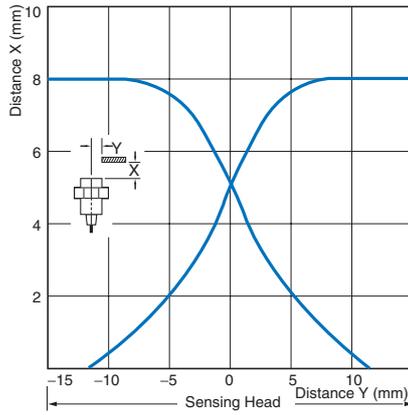
## Engineering Data (Typical)

### Sensing Area

E2EY-X4C1

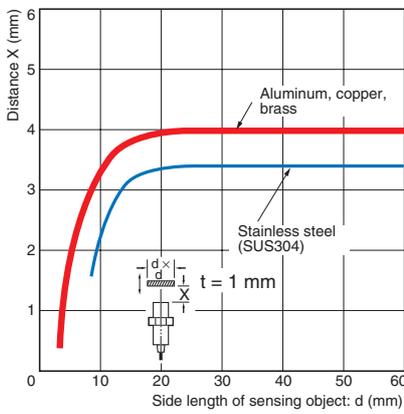


E2EY-X8C1

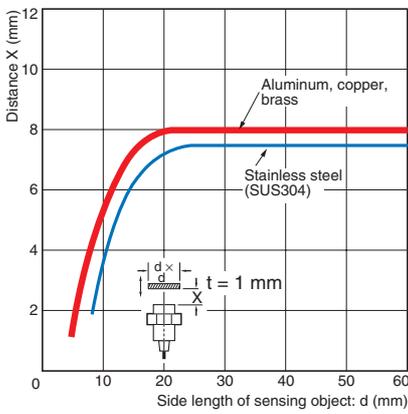


### Influence of Sensing Object Size and Material

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 </p> <p>Not present </p> <p>Output transistor (load) ON </p> <p>OFF </p> <p>Detection indicator (red) ON </p> <p>OFF </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.



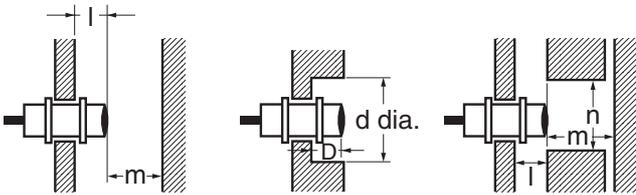
**Precautions for Correct Use**

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)

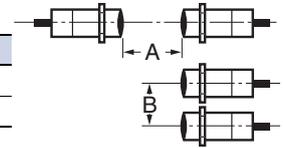
Model	Item	l	d	D	m	n
E2EY-X4C1	0	0	18	0	20	27
E2EY-X8C1			30		40	45

**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)

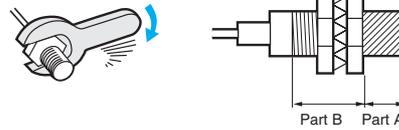
Model	Item	A	B
E2EY-X4C1		50	35
E2EY-X8C1		100	70



**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.)

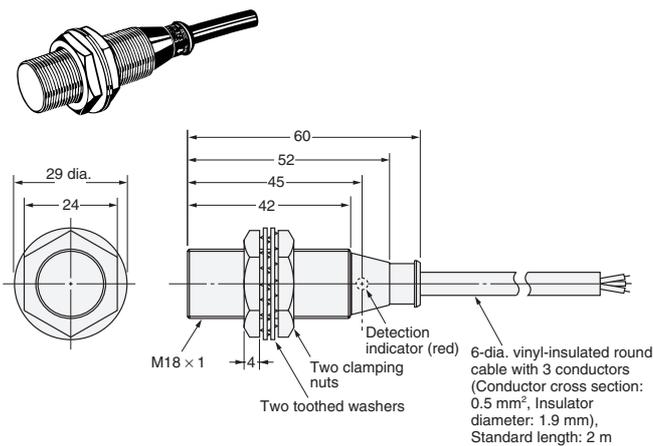
2. The following torque assume washers are being used.

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

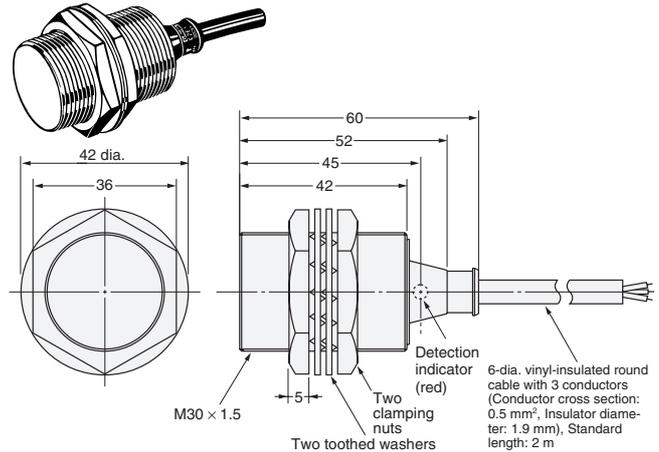
## Dimensions

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

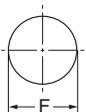
**E2EY-X4C1**



**E2EY-X8C1**



**Mounting Hole Dimensions**



Model	F (mm)
E2EY-X4C1	18.5 <sup>+5</sup> <sub>0</sub> dia.
E2EY-X8C1	30.5 <sup>+5</sup> <sub>0</sub> dia.

## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

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OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

## Disclaimers

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### DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

### PERFORMANCE DATA

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### ERRORS AND OMISSIONS

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2008.11

In the interest of product improvement, specifications are subject to change without notice.

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