

Aluminum-detecting Proximity Sensor E2EY

Proximity Sensor that Detects Aluminum, Brass, and Other Non-ferrous Metals, but Not Iron


- Ferrous metals (nickel, iron, etc.) but detects non-ferrous ones (aluminum, copper, brass, etc.).
- Easy to use with built-in amp.
- Easy-to-see detection indicator.

<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.

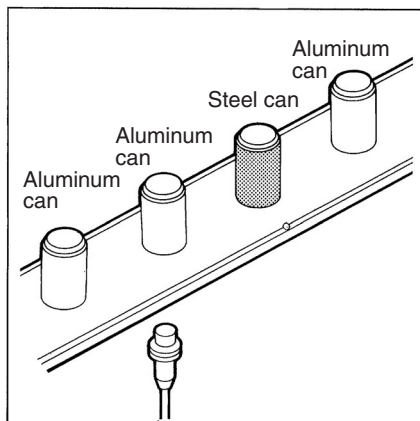


Ordering information

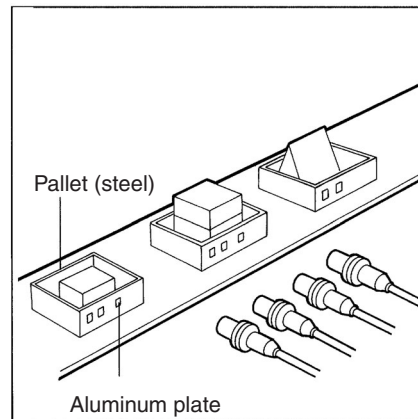
Shield	Size	Sensing distance	Output configuration operation mode	Model
Shielded 	M18	4 mm	DC 3-wire Models NPN-NO	E2EY-X4C1
	M30	8 mm		E2EY-X8C1

Application Example

Detecting Cans of Specific Materials



Separating Products via Aluminum Plates on Pallets



Specifications

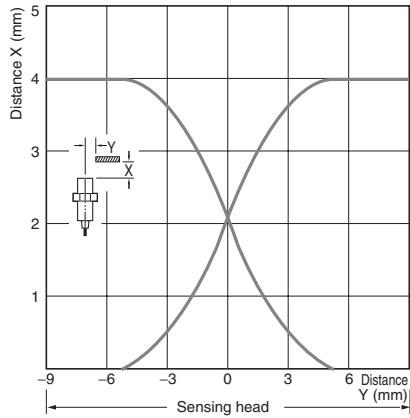
Item	E2EY-X4C1	E2EY-X8C1
Sensing distance	4.0 mm ±10%	8.0 mm ±10%
Power supply voltage (operating voltage range)	12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.	
Current consumption	20 mA max.	
Sensing object	Non-ferrous metals (Doesn't detect ferrous metals.)	
Set distance (standard sensing object)	0 to 2.8 mm (aluminum, 18 × 18 × 1 mm)	0 to 5.6 mm (aluminum, 30 × 30 × 1 mm)
Differential travel	20% max. of sensing distance	
Response speed (See note.)	70 Hz	
Operation mode (with sensing object approaching)	Load ON NO For details, refer to the <i>Timing Charts</i> .	
Control output	Load current	NPN open collector 100 mA max.
	Residual voltage	2 V max. (Load current: 100 mA, Cable length: 2 m)
Protection circuits	Short circuit protection, surge suppressor, reverse polarity protection	
Indicator	Detection indicator (red LED)	
Ambient temperature	Operating/storage: -10°C to 55°C (with no icing)	
Ambient humidity	Operating/storage: 35% to 95%	
Temperature influence	±20% max. of sensing distance at 23°C in the temperature range of -10°C to 55°C	
Voltage influence	±2.5% max. of sensing distance in the rated voltage range ±15%	
Insulation resistance	50 MΩ min. (at 500 VDC) between current-carrying parts and case	
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between current-carrying parts and case	
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 h each in X, Y, and Z directions	
Shock resistance	1,000 m/s ² 10 times each in X, Y, and Z directions	
Degree of protection	IEC 60529: IP67	
Weight (with 2-m cable)	Approx. 140 g	Approx. 190 g
Material	Case	Brass-nickel plated
	Sensing surface	Heat-resistant ABS

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

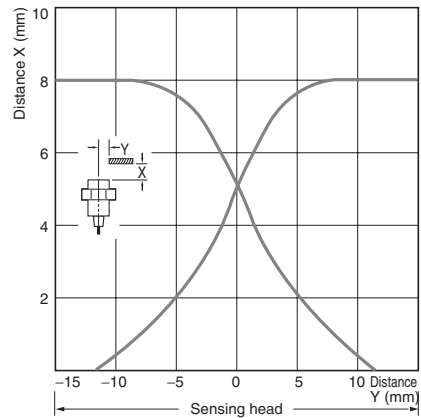
Engineering Data

Operating Range (Typical Example)

E2EY-X4

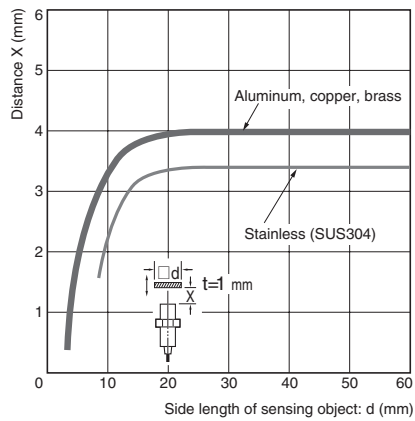


E2EY-X8

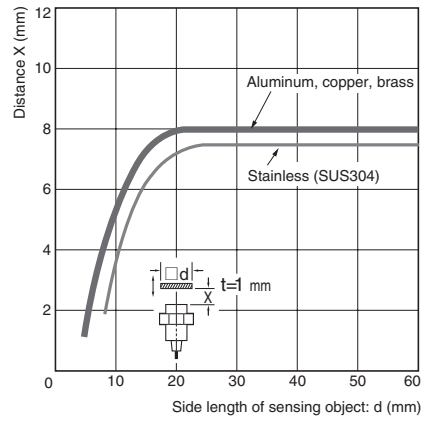


Sensing Distance Vs. Sensing Object (Typical Example)

E2EY-X4

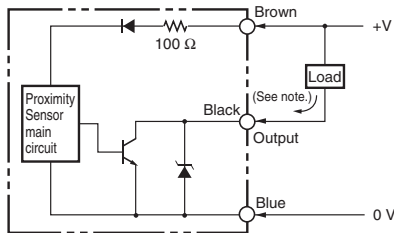


E2EY-X8



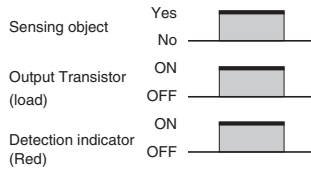
Installation

Output Circuit



Note: The load current must be less than 100 mA.

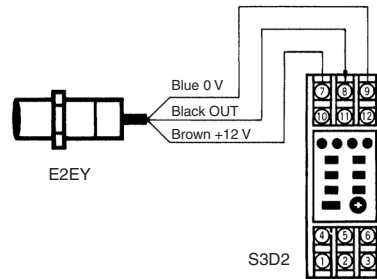
Timing Charts



Connection

Connecting a S3D2 Sensor Controller

If a S3D2 is connected, reverse operation of the Sensor is possible by adjusting the signal input switch of the S3D2.



Note: Refer to the *S3D2 Datasheet* for details on the operation and characteristics of the S3D2.

Precautions

⚠ WARNING

Do not use this Sensor in applications related to human safety.

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

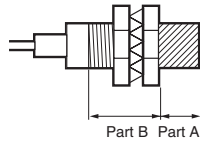
■ Precautions for Correct Use

Mounting

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



Shielded Model

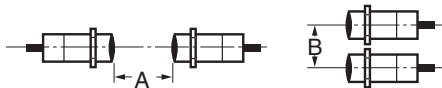


Note: The table below shows the tightening torques for part A and part B nuts. In the above example, the nut is on the sensor head side (part B) and hence the tightening torque for part B applies. If this nut is in part A, the tightening torque for part A applies instead.

Model	Part A		Part B
	Length	Torque	Torque
E2EY-X4C1	22 mm	15 N·m	49 N·m
E2EY-X8C1	26 mm	39 N·m	78 N·m

Mutual Interference

When installing two or more E2EY Sensors face to face or side by side, ensure the minimum distances given in the following table are maintained.

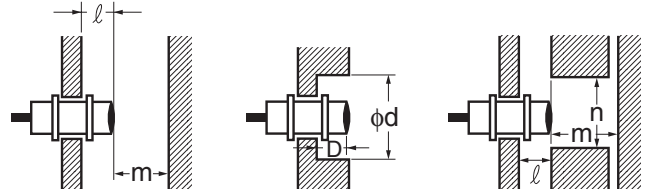


Model	E2EY-X4C1	E2EY-X8C1
A	50 mm	100 mm
B	35 mm	70 mm

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

Influence of Surrounding Metal

When mounting the E2EY within a metal panel, ensure the clearances given in the following table are maintained. Failure to maintain these distances may cause deterioration in the performance of the Sensor.

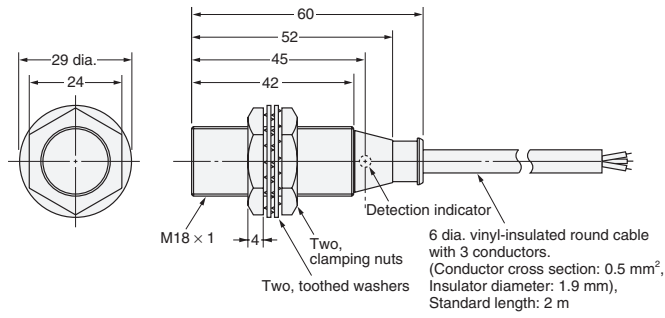
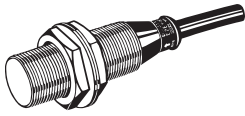


Model	E2EY-X4C1	E2EY-X8C1
l	0 mm	0 mm
d	18 mm	30 mm
D	0 mm	0 mm
m	20 mm	40 mm
n	27 mm	45 mm

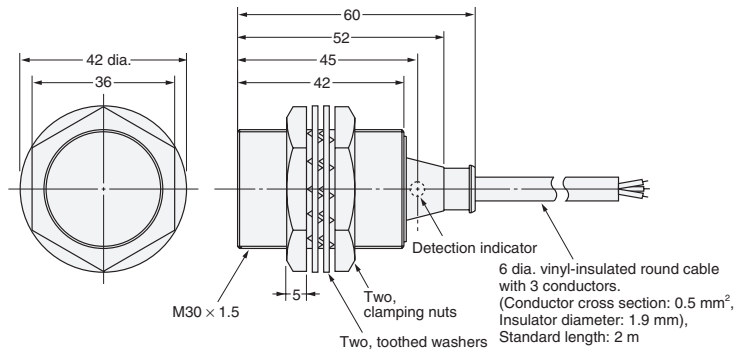
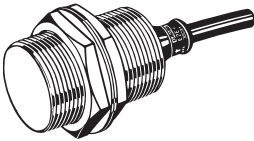
Dimensions

Note: All units are in millimeters unless otherwise indicated.

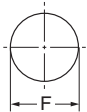
E2EY-X4C1



E2EY-X8C1



Mounting Hole Dimensions



Model	F (mm)
E2EY-X4C1	18.5 ^{+0.5} ₋₀ dia.
E2EY-X8C1	30.5 ^{+0.5} ₋₀ dia.

Warranties and Limitations of Liability

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Application Considerations

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NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Disclaimers

■ CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

■ DIMENSIONS AND WEIGHTS

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

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. E219-E1-04

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

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Printed in Japan

0205-0.5C (0791) (M)