

## All Metal Sensing Inductive Prox

## E2EV

One Sensor Detects All Kinds of Metal at Equal Distance

- Ideal for use on conveyors with work pieces of different metals
- Detects aluminum and copper at the same distance as iron and stainless steel
- Offers up to three times the detection distance for aluminum compared to conventional inductive sensors
- Shielded for flush mounting in metal
- Prewired with 2 meters (6.56 ft) of cable



## Ordering Information

### ■ SENSORS

| Sensing head | Detecting distance | Output            |                   |                   |                   |
|--------------|--------------------|-------------------|-------------------|-------------------|-------------------|
|              |                    | NPN-NO            | NPN-NC            | PNP-NO            | PNP-NC            |
| M12          | 2 mm (0.08 in)     | <b>E2EV-X2C1</b>  | <b>E2EV-X2C2</b>  | <b>E2EV-X2B1</b>  | <b>E2EV-X2B2</b>  |
| M18          | 5 mm (0.20 in)     | <b>E2EV-X5C1</b>  | <b>E2EV-X5C2</b>  | <b>E2EV-X5B1</b>  | <b>E2EV-X5B2</b>  |
| M30          | 10 mm (0.39 in)    | <b>E2EV-X10C1</b> | <b>E2EV-X10C2</b> | <b>E2EV-X10B1</b> | <b>E2EV-X10B2</b> |

### ■ ACCESSORIES

| Description                            |                       | Part number       |
|--|-----------------------|-------------------|
| Mounting brackets                      | Fits M12 size sensors | <b>Y92E-B12</b>   |
|  | Fits M18 size sensors | <b>Y92E-B18</b>   |
|  | Fits M30 size sensors | <b>Y92E-B30</b>   |
|  |                       |                   |
| Protective covers for shielded sensors | Fits M12 size sensors | <b>Y92E-E12-2</b> |
|  | Fits M18 size sensors | <b>Y92E-E18-2</b> |
|  | Fits M30 size sensors | <b>Y92E-E30-2</b> |
|  |                       |                   |

### ■ REPLACEMENT PARTS

| Description  |   | Part number     |
|--|---|-----------------|
| Mounting hardware including one pair of metal nuts and washers | Fits M12 size sensors (supplied with each sensor) | <b>M12-MHWS</b> |
|  | Fits M18 size sensors (supplied with each sensor) | <b>M18-MHWS</b> |
|  | Fits M30 size sensors (supplied with each sensor) | <b>M30-MHWS</b> |
|  |   |                 |

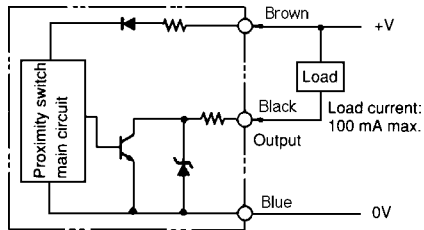
# Specifications

|  |                       |                               |   |   |   |
|--|-----------------------|-------------------------------|---|---|---|
| Part number  |                       |                               | E2EV-X2□□   | E2EV-X5□□                                 | E2EV-X10□□                                |
| Sensor type  |                       |                               | Inductive   |   |   |
| Body   | Size                  |                               | M12   | M18                                       | M30                                       |
|  | Type                  |                               | Shielded  |   |   |
| Supply voltage   |                       |                               | 10 to 30 VDC, max. ripple 10% peak-to-peak  |   |   |
| Current consumption                                    |                       |                               | 15 mA max.  |   |   |
| Detectable object type                                 |                       |                               | Ferrous and non-ferrous metals  |   |   |
| Effective detecting distance<br>(with standard target) |                       |                               | 2 mm ±10%<br>(0.08 in)  | 5 mm ±10%<br>(0.20 in)                    | 10 mm ±10%<br>(0.39 in)                   |
| Usable detecting range<br>(with standard target)       |                       |                               | 0 to 1.4 mm<br>(0 to 0.06 in)   | 0 to 3.5 mm<br>(0 to 0.14 in)             | 0 to 7 mm<br>(0 to 0.28 in)               |
| Standard target size<br>aluminum, L x W x H)           |                       |                               | 12 x 12 x 1 mm<br>(0.47 x 0.47 x 0.04 in)   | 18 x 18 x 1 mm<br>(0.71 x 0.71 x 0.04 in) | 30 x 30 x 1 mm<br>(1.18 x 1.18 x 0.04 in) |
| Differential travel                                    |                       |                               | 10% max. of effective detecting distance  |   |   |
| Control<br>output                                      | DC<br>solid-<br>state | Type                          | NPN-NO (E2EV-X□C1)<br>NPN-NC (E2EV-X□C2)<br>PNP-NO (E2EV-X□B1)<br>PNP-NC (E2EV-X□B2)      |   |   |
|  |                       | Max. load                     | 100 mA max.   |   |   |
|  |                       | Max. on-state<br>voltage drop | 2 VDC (See graph in Engineering Data section)   |   |   |
| Response frequency                                     |                       |                               | 150 Hz  | 70 Hz                                     | 70 Hz                                     |
| Circuit protection                                     |                       |                               | Output short circuit, surge voltage, reverse polarity                                     |   |   |
| Indicators   |                       |                               | Target present (red LED)  |   |   |
| Materials  | Housing               |                               | Nickel-plated brass   |   |   |
|  | Sensing face          |                               | ABS   |   |   |
| Mounting   |                       |                               | Two M12 nuts included.  | Two M18 nuts included.                    | Two M30 nuts included.                    |
|  |                       |                               | Bracket Y92E-B12 optional.  | Bracket Y92E-B18 optional.                | Bracket Y92E-B30 optional.                |
| Connections  | Prewired              |                               | 3-conductor cable, 2 m (6.56 ft) length   |   |   |
| Weight   |                       |                               | 120 g (4.23 oz.)  | 140 g (5.5 oz.)                           | 190 g (7.5 oz.)                           |
| Enclosure<br>ratings                                   | UL                    |                               | —   |   |   |
|  | NEMA                  |                               | 1, 3, 4, 6, 12, 13  |   |   |
|  | IEC 144               |                               | IP67  |   |   |
| Approvals  | UL                    |                               | —   |   |   |
|  | CSA                   |                               | —   |   |   |
| Ambient operating temperature                          |                       |                               | -10° to 55°C (14° to 131°F)   |   |   |
| Vibration  |                       |                               | 10 to 55 Hz, 1.5 mm (0.06 in) double amplitude for 2 hours each in X, Y, and Z directions |   |   |
| Shock  |                       |                               | Approx. 100 G's, 10 times each in X, Y, and Z directions                                  |   |   |

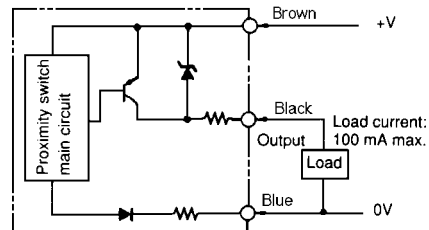
# Operation

## ■ OUTPUT CIRCUIT DIAGRAMS AND CONNECTIONS

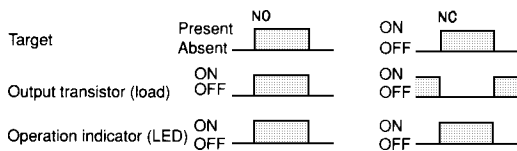
NPN Output Type



PNP Output Type



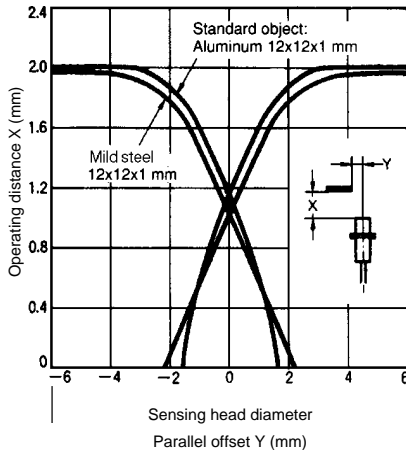
## ■ TIMING CHARTS



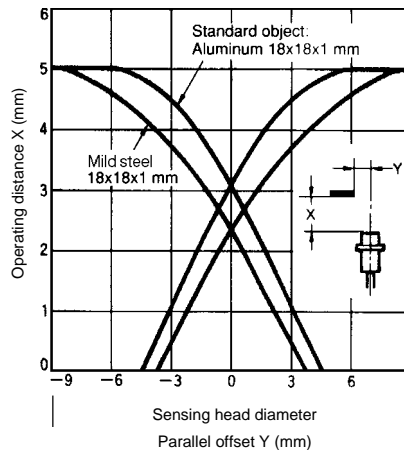
# Engineering Data

## ■ OPERATING RANGE

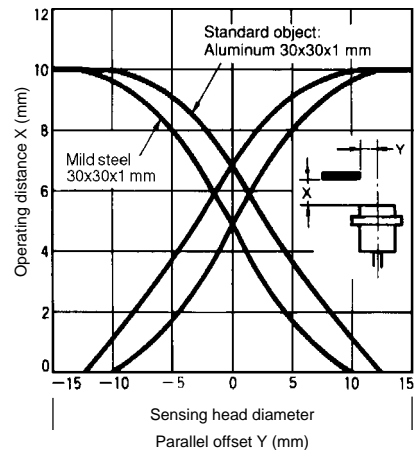
E2EV-X2□□



E2EV-X5□□

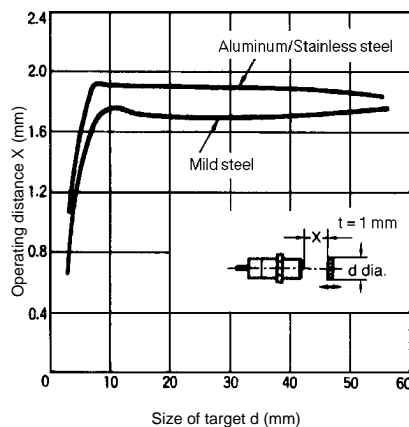


E2EV-X10□□

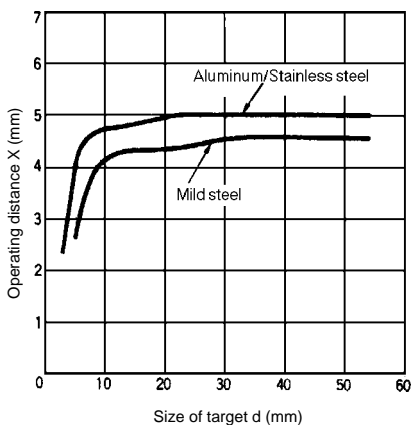


## ■ SENSING DISTANCE vs. SIZE AND MATERIAL OF TARGET

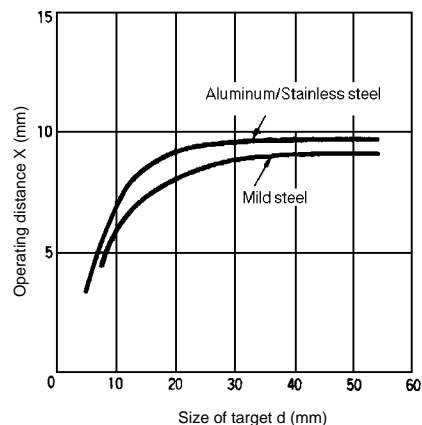
E2EV-X2□□



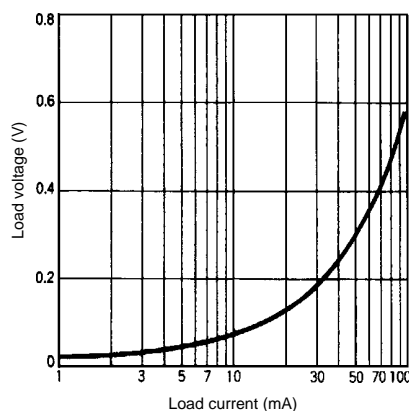
E2EV-X5□□



E2EV-X10□□



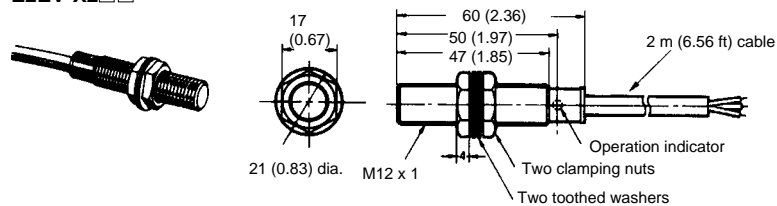
## ■ ON-STATE VOLTAGE DROP



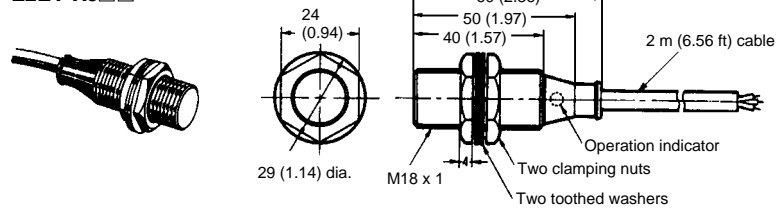
## Dimensions

Unit: mm (inch)

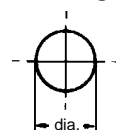
E2EV-X2□□



E2EV-X5□□

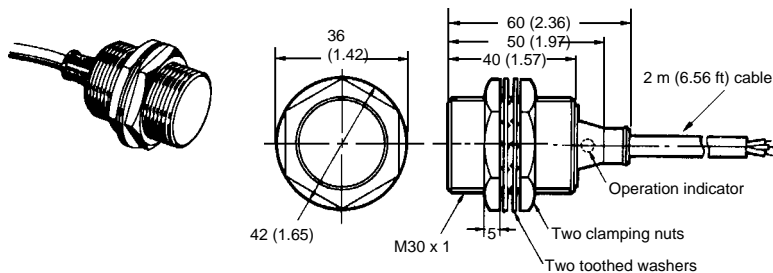


Mounting holes



| Model      | Diameter          |
|------------|-------------------|
| E2EV-X2□□  | 12.5 mm (0.49 in) |
| E2EV-X5□□  | 18.5 mm (0.73 in) |
| E2EV-X10□□ | 30.5 mm (1.20 in) |

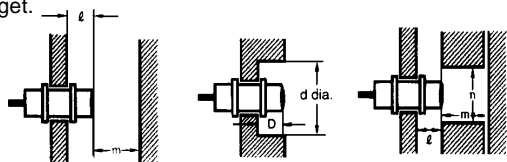
## E2EV-X10□□



## Precautions

### ■ EFFECTS OF SURROUNDING METALS

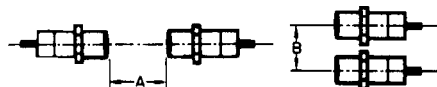
When mounting a proximity sensor flush with a metallic panel, provide the minimum distance shown. This prevents the sensor from being affected by metallic objects other than the target.



| Model | E2EV-X2□□       | E2EV-X5□□       | E2EV-X10□□      |
|-------|-----------------|-----------------|-----------------|
| l     | 0               | 0               | 0               |
| d     | 12 mm (0.47 in) | 18 mm (0.71 in) | 30 mm (1.18 in) |
| D     | 0               | 0               | 0               |
| m     | 8 mm (0.31 in)  | 20 mm (0.79 in) | 40 mm (1.57 in) |
| n     | 18 mm (0.71 in) | 27 mm (1.06 in) | 45 mm (1.77 in) |

### ■ MUTUAL INTERFERENCE

To prevent mutual interference between two sensors mounted opposite or parallel to each other, be sure to space the two sensors at a distance greater than that shown here.



| Model      | A                | B               |
|------------|------------------|-----------------|
| E2EV-X2□□  | 30 mm (1.18 in)  | 20 mm (0.79 in) |
| E2EV-X5□□  | 50 mm (1.97 in)  | 35 mm (1.38 in) |
| E2EV-X10□□ | 100 mm (3.94 in) | 70 mm (2.76 in) |

# OMRON

## OMRON ELECTRONICS LLC

One East Commerce Drive  
Schaumburg, IL 60173

1-800-55-OMRON

## OMRON ON-LINE

Global - <http://www.omron.com>

USA - <http://www.omron.com/oei>

Canada - <http://www.omron.com/oci>

## OMRON CANADA, INC.

885 Milner Avenue  
Scarborough, Ontario M1B 5V8

416-286-6465