

# Welding Proximity Sensor E2EW Series


DC 2-wire/DC 3-wire

## Stable detection in lines containing both aluminum and iron

- Equivalent sensing distances for both iron and aluminum \*1
- Enables common design for lines with both iron and aluminum \*1
- The exceptional sensing range \*2, which means fewer false detections and thereby fewer unexpected stoppages.
- OMRON's unique fluororesin coating technologies enable long-lasting spatter resistance \*4, eliminates the need to replace for 10 years \*3.
- Durable full metal body to reduce unexpected stoppages
- 2-output (NO+NC) models and models with IO-Link \*1 are also available.
- Laser printed information (sensing distance on the sensor head, model on the cable, and model on the metal part of the connector model) can be reducing errors during sensor replacement. \*5
- Equipped with a function, which effectively cancels pulse noise of current magnetic field. \*1
- UL certification (UL60947-5-2) and CSA certification (CSA C22.2 UL60947-5-2-14)



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

 Be sure to read *Safety Precautions* on page 35.

- \*1. PREMIUM Models only.  
 \*2. Based on September 2021 OMRON investigation.  
 \*3. This value assumes that the sensor operates 10 hours a day in an arc welding environment and is cleaned once a month (12 times a year). If our previous model (E2EF-Q) needs to be replaced once every 3 times it is cleaned, the E2EW-Q Proximity Sensor needs to be replaced once every 180 times it is cleaned. This means that there is no need to replace the E2EW-Q Proximity Sensor for 10 or more years.  
 \*4. Models with spatter-resistant coating only.  
 \*5. Models without spatter-resistant coating only.

## E2EW Series Model Number Legend

E2EW - (1) X (2) (3) (4) (5) (6) - (7) - (8) (9)

| No. | Type                 | Code     | Meaning                                             | Remarks                                                    |
|-----|----------------------|----------|-----------------------------------------------------|------------------------------------------------------------|
| (1) | Case                 | Blank    | Without spatter-resistant coating                   |                                                            |
|     |                      | Q        | With spatter-resistant coating                      |                                                            |
| (2) | Sensing distance     | Number   | Sensing distance (Unit: mm)                         |                                                            |
| (3) | Output configuration | B        | DC 3-wire PNP open collector                        | Whether the D model has polarity is defined by number (8). |
|     |                      | C        | DC 3-wire NPN open collector                        |                                                            |
|     |                      | D        | DC 2-wire polarity/no polarity                      |                                                            |
| (4) | Operation mode       | 1        | Normally open (NO)                                  |                                                            |
|     |                      | 2        | Normally closed (NC)                                |                                                            |
|     |                      | 3        | Normally open, Normally closed (NO+NC)              |                                                            |
| (5) | IO-Link baud rate    | Blank    | Non IO-Link compliant                               |                                                            |
|     |                      | D        | COM2 (38.4kbps)                                     |                                                            |
|     |                      | T        | COM3 (230.4kbps)                                    |                                                            |
| (6) | Size                 | 12       | M12                                                 |                                                            |
|     |                      | 18       | M18                                                 |                                                            |
|     |                      | 30       | M30                                                 |                                                            |
| (7) | Connection method    | Blank    | Pre-wired Models                                    |                                                            |
|     |                      | M1       | M12 Connector Models                                |                                                            |
|     |                      | M1TGJ    | M12 Pre-wired Smartclick Connector Models DC 2-wire |                                                            |
|     |                      | M1TJ     | M12 Pre-wired Smartclick Connector Models DC 3-wire |                                                            |
| (8) | DC 2-wire polarity   | Blank    | Polarity                                            |                                                            |
|     |                      | T        | No polarity                                         |                                                            |
| (9) | Cable length         | Number M | Cable length                                        |                                                            |

**Note:** The purpose of this model number legend is to provide understanding of the meaning of specifications from the model number. Models are not available for all combinations of code numbers.

# E2EW Series

## Selection Guide

### Proximity Sensor



### Connector Cable



# E2EW Series

## Ordering Information

PREMIUM Model

### E2EW Series (Quadruple distance model)

DC 3-wire [Refer to *Ratings and Specifications* on page 24, *Dimensions* on page 38.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode | Model                   |                        |
|----------------------------|-----------------------------------------------|----------------|-------------------------|------------------------|
|                            |                                               |                | PNP                     | NPN                    |
| M12<br>(7 mm)              | Pre-wired (2 m) *1                            | NO             | E2EW-X7B1T12 2M         | E2EW-X7C112 2M         |
|                            |                                               | NC             | E2EW-X7B212 2M          | E2EW-X7C212 2M         |
|                            |                                               | NO+NC          | E2EW-X7B3T12 2M         | E2EW-X7C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-X7B1T12-M1TJ 0.3M  | E2EW-X7C112-M1TJ 0.3M  |
|                            |                                               | NC             | E2EW-X7B212-M1TJ 0.3M   | E2EW-X7C212-M1TJ 0.3M  |
|                            |                                               | NO+NC          | E2EW-X7B3T12-M1TJ 0.3M  | E2EW-X7C312-M1TJ 0.3M  |
|                            | M12 Connector                                 | NO             | E2EW-X7B1T12-M1         | E2EW-X7C112-M1         |
|                            |                                               | NC             | E2EW-X7B212-M1          | E2EW-X7C212-M1         |
|                            |                                               | NO+NC          | E2EW-X7B3T12-M1         | E2EW-X7C312-M1         |
| M18<br>(12 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-X12B1T18 2M        | E2EW-X12C118 2M        |
|                            |                                               | NC             | E2EW-X12B218 2M         | E2EW-X12C218 2M        |
|                            |                                               | NO+NC          | E2EW-X12B3T18 2M        | E2EW-X12C318 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-X12B1T18-M1TJ 0.3M | E2EW-X12C118-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-X12B218-M1TJ 0.3M  | E2EW-X12C218-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-X12B3T18-M1TJ 0.3M | E2EW-X12C318-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-X12B1T18-M1        | E2EW-X12C118-M1        |
|                            |                                               | NC             | E2EW-X12B218-M1         | E2EW-X12C218-M1        |
|                            |                                               | NO+NC          | E2EW-X12B3T18-M1        | E2EW-X12C318-M1        |
| M30<br>(22 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-X22B1T30 2M        | E2EW-X22C130 2M        |
|                            |                                               | NC             | E2EW-X22B230 2M         | E2EW-X22C230 2M        |
|                            |                                               | NO+NC          | E2EW-X22B3T30 2M        | E2EW-X22C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-X22B1T30-M1TJ 0.3M | E2EW-X22C130-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-X22B230-M1TJ 0.3M  | E2EW-X22C230-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-X22B3T30-M1TJ 0.3M | E2EW-X22C330-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-X22B1T30-M1        | E2EW-X22C130-M1        |
|                            |                                               | NC             | E2EW-X22B230-M1         | E2EW-X22C230-M1        |
|                            |                                               | NO+NC          | E2EW-X22B3T30-M1        | E2EW-X22C330-M1        |

\*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EW-X7B1T12 5M)

**Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.

2. Models in   are equipped with IO-Link (COM3). For IO-Link (COM2), select a model number with the format of "E2EW-X     " (Example: E2EW-X7B1D12 2M).

Operation mode NO can be changed to NC via IO-Link communications.

3. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.

## PREMIUM Model

## E2EW Series (Triple distance model)

DC 3-wire [Refer to *Ratings and Specifications* on page 24, *Dimensions* on page 38.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode | Model                   |                        |
|----------------------------|-----------------------------------------------|----------------|-------------------------|------------------------|
|                            |                                               |                | PNP                     | NPN                    |
| M12<br>(6 mm)              | Pre-wired (2 m) *1                            | NO             | E2EW-X6B1T12 2M         | E2EW-X6C112 2M         |
|                            |                                               | NC             | E2EW-X6B212 2M          | E2EW-X6C212 2M         |
|                            |                                               | NO+NC          | E2EW-X6B3T12 2M         | E2EW-X6C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-X6B1T12-M1TJ 0.3M  | E2EW-X6C112-M1TJ 0.3M  |
|                            |                                               | NC             | E2EW-X6B212-M1TJ 0.3M   | E2EW-X6C212-M1TJ 0.3M  |
|                            |                                               | NO+NC          | E2EW-X6B3T12-M1TJ 0.3M  | E2EW-X6C312-M1TJ 0.3M  |
|                            | M12 Connector                                 | NO             | E2EW-X6B1T12-M1         | E2EW-X6C112-M1         |
|                            |                                               | NC             | E2EW-X6B212-M1          | E2EW-X6C212-M1         |
|                            |                                               | NO+NC          | E2EW-X6B3T12-M1         | E2EW-X6C312-M1         |
| M18<br>(10 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-X10B1T18 2M        | E2EW-X10C118 2M        |
|                            |                                               | NC             | E2EW-X10B218 2M         | E2EW-X10C218 2M        |
|                            |                                               | NO+NC          | E2EW-X10B3T18 2M        | E2EW-X10C318 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-X10B1T18-M1TJ 0.3M | E2EW-X10C118-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-X10B218-M1TJ 0.3M  | E2EW-X10C218-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-X10B3T18-M1TJ 0.3M | E2EW-X10C318-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-X10B1T18-M1        | E2EW-X10C118-M1        |
|                            |                                               | NC             | E2EW-X10B218-M1         | E2EW-X10C218-M1        |
|                            |                                               | NO+NC          | E2EW-X10B3T18-M1        | E2EW-X10C318-M1        |
| M30<br>(20 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-X20B1T30 2M        | E2EW-X20C130 2M        |
|                            |                                               | NC             | E2EW-X20B230 2M         | E2EW-X20C230 2M        |
|                            |                                               | NO+NC          | E2EW-X20B3T30 2M        | E2EW-X20C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-X20B1T30-M1TJ 0.3M | E2EW-X20C130-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-X20B230-M1TJ 0.3M  | E2EW-X20C230-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-X20B3T30-M1TJ 0.3M | E2EW-X20C330-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-X20B1T30-M1        | E2EW-X20C130-M1        |
|                            |                                               | NC             | E2EW-X20B230-M1         | E2EW-X20C230-M1        |
|                            |                                               | NO+NC          | E2EW-X20B3T30-M1        | E2EW-X20C330-M1        |

\*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EW-X6B1T12 5M)

**Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.2. Models in   are equipped with IO-Link (COM3). For IO-Link (COM2), select a model number with the format of "E2EW-X□□□□□□"  
(Example: E2EW-X6B1D12 2M).

Operation mode NO can be changed to NC via IO-Link communications.

3. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.

# E2EW Series

## PREMIUM Model

### E2EW-Q Series (Spatter-resistant Quadruple distance model)

DC 3-wire [Refer to *Ratings and Specifications* on page 24, *Dimensions* on page 38.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode | Model                    |                         |
|----------------------------|-----------------------------------------------|----------------|--------------------------|-------------------------|
|                            |                                               |                | PNP                      | NPN                     |
| M12<br>(7 mm)              | Pre-wired (2 m) *1                            | NO             | E2EW-QX7B1T12 2M         | E2EW-QX7C112 2M         |
|                            |                                               | NC             | E2EW-QX7B212 2M          | E2EW-QX7C212 2M         |
|                            |                                               | NO+NC          | E2EW-QX7B3T12 2M         | E2EW-QX7C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-QX7B1T12-M1TJ 0.3M  | E2EW-QX7C112-M1TJ 0.3M  |
|                            |                                               | NC             | E2EW-QX7B212-M1TJ 0.3M   | E2EW-QX7C212-M1TJ 0.3M  |
|                            |                                               | NO+NC          | E2EW-QX7B3T12-M1TJ 0.3M  | E2EW-QX7C312-M1TJ 0.3M  |
|                            | M12 Connector                                 | NO             | E2EW-QX7B1T12-M1         | E2EW-QX7C112-M1         |
|                            |                                               | NC             | E2EW-QX7B212-M1          | E2EW-QX7C212-M1         |
|                            |                                               | NO+NC          | E2EW-QX7B3T12-M1         | E2EW-QX7C312-M1         |
| M18<br>(12 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-QX12B1T18 2M        | E2EW-QX12C118 2M        |
|                            |                                               | NC             | E2EW-QX12B218 2M         | E2EW-QX12C218 2M        |
|                            |                                               | NO+NC          | E2EW-QX12B3T18 2M        | E2EW-QX12C318 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-QX12B1T18-M1TJ 0.3M | E2EW-QX12C118-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-QX12B218-M1TJ 0.3M  | E2EW-QX12C218-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-QX12B3T18-M1TJ 0.3M | E2EW-QX12C318-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-QX12B1T18-M1        | E2EW-QX12C118-M1        |
|                            |                                               | NC             | E2EW-QX12B218-M1         | E2EW-QX12C218-M1        |
|                            |                                               | NO+NC          | E2EW-QX12B3T18-M1        | E2EW-QX12C318-M1        |
| M30<br>(22 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-QX22B1T30 2M        | E2EW-QX22C130 2M        |
|                            |                                               | NC             | E2EW-QX22B230 2M         | E2EW-QX22C230 2M        |
|                            |                                               | NO+NC          | E2EW-QX22B3T30 2M        | E2EW-QX22C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-QX22B1T30-M1TJ 0.3M | E2EW-QX22C130-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-QX22B230-M1TJ 0.3M  | E2EW-QX22C230-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-QX22B3T30-M1TJ 0.3M | E2EW-QX22C330-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-QX22B1T30-M1        | E2EW-QX22C130-M1        |
|                            |                                               | NC             | E2EW-QX22B230-M1         | E2EW-QX22C230-M1        |
|                            |                                               | NO+NC          | E2EW-QX22B3T30-M1        | E2EW-QX22C330-M1        |

\*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EW-QX7B1T12 5M)

**Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.

2. Models in   are equipped with IO-Link (COM3). For IO-Link (COM2), select a model number with the format of "E2EW-QX    " (Example: E2EW-QX7B1D12 2M).

Operation mode NO can be changed to NC via IO-Link communications.

3. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.

## PREMIUM Model

## E2EW-Q Series (Spatter-resistant Triple distance model)

DC 3-wire [Refer to Ratings and Specifications on page 24, Dimensions on page 38.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode | Model                    |                         |
|----------------------------|-----------------------------------------------|----------------|--------------------------|-------------------------|
|                            |                                               |                | PNP                      | NPN                     |
| M12<br>(6 mm)              | Pre-wired (2 m) *1                            | NO             | E2EW-QX6B1T12 2M         | E2EW-QX6C112 2M         |
|                            |                                               | NC             | E2EW-QX6B212 2M          | E2EW-QX6C212 2M         |
|                            |                                               | NO+NC          | E2EW-QX6B3T12 2M         | E2EW-QX6C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-QX6B1T12-M1TJ 0.3M  | E2EW-QX6C112-M1TJ 0.3M  |
|                            |                                               | NC             | E2EW-QX6B212-M1TJ 0.3M   | E2EW-QX6C212-M1TJ 0.3M  |
|                            |                                               | NO+NC          | E2EW-QX6B3T12-M1TJ 0.3M  | E2EW-QX6C312-M1TJ 0.3M  |
|                            | M12 Connector                                 | NO             | E2EW-QX6B1T12-M1         | E2EW-QX6C112-M1         |
|                            |                                               | NC             | E2EW-QX6B212-M1          | E2EW-QX6C212-M1         |
|                            |                                               | NO+NC          | E2EW-QX6B3T12-M1         | E2EW-QX6C312-M1         |
| M18<br>(10 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-QX10B1T18 2M        | E2EW-QX10C118 2M        |
|                            |                                               | NC             | E2EW-QX10B218 2M         | E2EW-QX10C218 2M        |
|                            |                                               | NO+NC          | E2EW-QX10B3T18 2M        | E2EW-QX10C318 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-QX10B1T18-M1TJ 0.3M | E2EW-QX10C118-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-QX10B218-M1TJ 0.3M  | E2EW-QX10C218-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-QX10B3T18-M1TJ 0.3M | E2EW-QX10C318-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-QX10B1T18-M1        | E2EW-QX10C118-M1        |
|                            |                                               | NC             | E2EW-QX10B218-M1         | E2EW-QX10C218-M1        |
|                            |                                               | NO+NC          | E2EW-QX10B3T18-M1        | E2EW-QX10C318-M1        |
| M30<br>(20 mm)             | Pre-wired (2 m) *1                            | NO             | E2EW-QX20B1T30 2M        | E2EW-QX20C130 2M        |
|                            |                                               | NC             | E2EW-QX20B230 2M         | E2EW-QX20C230 2M        |
|                            |                                               | NO+NC          | E2EW-QX20B3T30 2M        | E2EW-QX20C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO             | E2EW-QX20B1T30-M1TJ 0.3M | E2EW-QX20C130-M1TJ 0.3M |
|                            |                                               | NC             | E2EW-QX20B230-M1TJ 0.3M  | E2EW-QX20C230-M1TJ 0.3M |
|                            |                                               | NO+NC          | E2EW-QX20B3T30-M1TJ 0.3M | E2EW-QX20C330-M1TJ 0.3M |
|                            | M12 Connector                                 | NO             | E2EW-QX20B1T30-M1        | E2EW-QX20C130-M1        |
|                            |                                               | NC             | E2EW-QX20B230-M1         | E2EW-QX20C230-M1        |
|                            |                                               | NO+NC          | E2EW-QX20B3T30-M1        | E2EW-QX20C330-M1        |

\*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EW-QX6B1T12 5M)

**Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.2. Models in   are equipped with IO-Link (COM3). For IO-Link (COM2), select a model number with the format of "E2EW-QX    " (Example: E2EW-QX6B1D12 2M).

Operation mode NO can be changed to NC via IO-Link communications.

3. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.

# E2EW Series

## BASIC Model

### E2EW Series (Double distance model) **NEW**

DC 3-wire [Refer to *Ratings and Specifications* on page 25, *Dimensions* on page 39.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode<br>*2 | Model                  |                        |
|----------------------------|-----------------------------------------------|----------------------|------------------------|------------------------|
|                            |                                               |                      | PNP                    | NPN                    |
| M12<br>(3 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-X3B112 2M         | E2EW-X3C112 2M         |
|                            |                                               | NO+NC                | E2EW-X3B312 2M         | E2EW-X3C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-X3B112-M1TJ 0.3M  | E2EW-X3C112-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-X3B312-M1TJ 0.3M  | E2EW-X3C312-M1TJ 0.3M  |
| M18<br>(7 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-X7B118 2M         | E2EW-X7C118 2M         |
|                            |                                               | NO+NC                | E2EW-X7B318 2M         | E2EW-X7C318 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-X7B118-M1TJ 0.3M  | E2EW-X7C118-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-X7B318-M1TJ 0.3M  | E2EW-X7C318-M1TJ 0.3M  |
| M30<br>(12 mm)             | Pre-wired (2 m) *1                            | NO                   | E2EW-X12B130 2M        | E2EW-X12C130 2M        |
|                            |                                               | NO+NC                | E2EW-X12B330 2M        | E2EW-X12C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-X12B130-M1TJ 0.3M | E2EW-X12C130-M1TJ 0.3M |
|                            |                                               | NO+NC                | E2EW-X12B330-M1TJ 0.3M | E2EW-X12C330-M1TJ 0.3M |

## BASIC Model

### E2EW Series (Single distance model)

DC 3-wire [Refer to *Ratings and Specifications* on page 25, *Dimensions* on page 39.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode<br>*2 | Model                  |                        |
|----------------------------|-----------------------------------------------|----------------------|------------------------|------------------------|
|                            |                                               |                      | PNP                    | NPN                    |
| M12<br>(2 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-X2B112 2M         | E2EW-X2C112 2M         |
|                            |                                               | NO+NC                | E2EW-X2B312 2M         | E2EW-X2C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-X2B112-M1TJ 0.3M  | E2EW-X2C112-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-X2B312-M1TJ 0.3M  | E2EW-X2C312-M1TJ 0.3M  |
| M18<br>(5 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-X5B118 2M         | E2EW-X5C118 2M         |
|                            |                                               | NO+NC                | E2EW-X5B318 2M         | E2EW-X5C318 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-X5B118-M1TJ 0.3M  | E2EW-X5C118-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-X5B318-M1TJ 0.3M  | E2EW-X5C318-M1TJ 0.3M  |
| M30<br>(10 mm)             | Pre-wired (2 m) *1                            | NO                   | E2EW-X10B130 2M        | E2EW-X10C130 2M        |
|                            |                                               | NO+NC                | E2EW-X10B330 2M        | E2EW-X10C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-X10B130-M1TJ 0.3M | E2EW-X10C130-M1TJ 0.3M |
|                            |                                               | NO+NC                | E2EW-X10B330-M1TJ 0.3M | E2EW-X10C330-M1TJ 0.3M |

\*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EW-X3B112 5M)

\*2. Operation model NC are also available with "E2EW-X□□2□□". (Example: E2EW-X3B212 2M)

**Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.

2. IO-Link is not supported for all types of BASIC Model.

## BASIC Model

E2EW-Q Series (Spatter-resistant Double distance model) **NEW**

DC 3-wire [Refer to Ratings and Specifications on page 25, Dimensions on page 39.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode<br>*2 | Model                   |                         |
|----------------------------|-----------------------------------------------|----------------------|-------------------------|-------------------------|
|                            |                                               |                      | PNP                     | NPN                     |
| M12<br>(3 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-QX3B112 2M         | E2EW-QX3C112 2M         |
|                            |                                               | NO+NC                | E2EW-QX3B312 2M         | E2EW-QX3C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-QX3B112-M1TJ 0.3M  | E2EW-QX3C112-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-QX3B312-M1TJ 0.3M  | E2EW-QX3C312-M1TJ 0.3M  |
| M18<br>(7 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-QX7B118 2M         | E2EW-QX7C118 2M         |
|                            |                                               | NO+NC                | E2EW-QX7B318 2M         | E2EW-QX7C318 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-QX7B118-M1TJ 0.3M  | E2EW-QX7C118-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-QX7B318-M1TJ 0.3M  | E2EW-QX7C318-M1TJ 0.3M  |
| M30<br>(12 mm)             | Pre-wired (2 m) *1                            | NO                   | E2EW-QX12B130 2M        | E2EW-QX12C130 2M        |
|                            |                                               | NO+NC                | E2EW-QX12B330 2M        | E2EW-QX12C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-QX12B130-M1TJ 0.3M | E2EW-QX12C130-M1TJ 0.3M |
|                            |                                               | NO+NC                | E2EW-QX12B330-M1TJ 0.3M | E2EW-QX12C330-M1TJ 0.3M |

## BASIC Model

## E2EW-Q Series (Spatter-resistant Single distance model)

DC 3-wire [Refer to Ratings and Specifications on page 25, Dimensions on page 39.]

| Size<br>(Sensing distance) | Connection method                             | Operation mode<br>*2 | Model                   |                         |
|----------------------------|-----------------------------------------------|----------------------|-------------------------|-------------------------|
|                            |                                               |                      | PNP                     | NPN                     |
| M12<br>(2 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-QX2B112 2M         | E2EW-QX2C112 2M         |
|                            |                                               | NO+NC                | E2EW-QX2B312 2M         | E2EW-QX2C312 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-QX2B112-M1TJ 0.3M  | E2EW-QX2C112-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-QX2B312-M1TJ 0.3M  | E2EW-QX2C312-M1TJ 0.3M  |
| M18<br>(5 mm)              | Pre-wired (2 m) *1                            | NO                   | E2EW-QX5B118 2M         | E2EW-QX5C118 2M         |
|                            |                                               | NO+NC                | E2EW-QX5B318 2M         | E2EW-QX5C318 2M         |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-QX5B118-M1TJ 0.3M  | E2EW-QX5C118-M1TJ 0.3M  |
|                            |                                               | NO+NC                | E2EW-QX5B318-M1TJ 0.3M  | E2EW-QX5C318-M1TJ 0.3M  |
| M30<br>(10 mm)             | Pre-wired (2 m) *1                            | NO                   | E2EW-QX10B130 2M        | E2EW-QX10C130 2M        |
|                            |                                               | NO+NC                | E2EW-QX10B330 2M        | E2EW-QX10C330 2M        |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | NO                   | E2EW-QX10B130-M1TJ 0.3M | E2EW-QX10C130-M1TJ 0.3M |
|                            |                                               | NO+NC                | E2EW-QX10B330-M1TJ 0.3M | E2EW-QX10C330-M1TJ 0.3M |

\*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EW-QX3B112 5M)

\*2. Operation model NC are also available with "E2EW-QX□□2□□". (Example: E2EW-QX3B212 2M)

**Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.

2. IO-Link is not supported for all types of BASIC Model.



# E2EW Series

## BASIC Model

### E2EW Series (Double distance model) ***NEW***

DC 2-wire [Refer to *Ratings and Specifications on page 26, Dimensions on page 39.*]

| Size<br>(Sensing distance) | Connection method                             | Polarity | Model                     |                    |
|----------------------------|-----------------------------------------------|----------|---------------------------|--------------------|
|                            |                                               |          | Operation mode: NO        | Operation mode: NC |
| M12<br>(3 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-X3D112 2M            | E2EW-X3D212 2M     |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-X3D112-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-X3D112-M1TGJ-T 0.3M  | ---                |
| M18<br>(7 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-X7D118 2M            | E2EW-X7D218 2M     |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-X7D118-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-X7D118-M1TGJ-T 0.3M  | ---                |
| M30<br>(12 mm)             | Pre-wired (2 m) *1                            | Yes      | E2EW-X12D130 2M           | E2EW-X12D230 2M    |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-X12D130-M1TGJ 0.3M   | ---                |
|                            |                                               | No       | E2EW-X12D130-M1TGJ-T 0.3M | ---                |

## BASIC Model

### E2EW Series (Single distance model) ***NEW***

DC 2-wire [Refer to *Ratings and Specifications on page 26, Dimensions on page 39.*]

| Size<br>(Sensing distance) | Connection method                             | Polarity | Model                     |                    |
|----------------------------|-----------------------------------------------|----------|---------------------------|--------------------|
|                            |                                               |          | Operation mode: NO        | Operation mode: NC |
| M12<br>(2 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-X2D112 2M            | E2EW-X2D212 2M     |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-X2D112-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-X2D112-M1TGJ-T 0.3M  | ---                |
| M18<br>(5 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-X5D118 2M            | E2EW-X5D218 2M     |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-X5D118-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-X5D118-M1TGJ-T 0.3M  | ---                |
| M30<br>(10 mm)             | Pre-wired (2 m) *1                            | Yes      | E2EW-X10D130 2M           | E2EW-X10D230 2M    |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-X10D130-M1TGJ 0.3M   | ---                |
|                            |                                               | No       | E2EW-X10D130-M1TGJ-T 0.3M | ---                |

\*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EW-X3D112 5M)

**Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.  
2. IO-Link is not supported for BASIC Model.

## BASIC Model

E2EW-Q Series (Spatter-resistant Double distance model) **NEW**

DC 2-wire [Refer to Ratings and Specifications on page 26, Dimensions on page 39.]

| Size<br>(Sensing distance) | Connection method                             | Polarity | Model                      |                    |
|----------------------------|-----------------------------------------------|----------|----------------------------|--------------------|
|                            |                                               |          | Operation mode: NO         | Operation mode: NC |
| M12<br>(3 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-QX3D112 2M            | E2EW-QX3D212 2M    |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-QX3D112-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-QX3D112-M1TGJ-T 0.3M  | ---                |
| M18<br>(7 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-QX7D118 2M            | E2EW-QX7D218 2M    |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-QX7D118-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-QX7D118-M1TGJ-T 0.3M  | ---                |
| M30<br>(12 mm)             | Pre-wired (2 m) *1                            | Yes      | E2EW-QX12D130 2M           | E2EW-QX12D230 2M   |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-QX12D130-M1TGJ 0.3M   | ---                |
|                            |                                               | No       | E2EW-QX12D130-M1TGJ-T 0.3M | ---                |

## BASIC Model

E2EW-Q Series (Spatter-resistant Single distance model) **NEW**

DC 2-wire [Refer to Ratings and Specifications on page 26, Dimensions on page 39.]

| Size<br>(Sensing distance) | Connection method                             | Polarity | Model                      |                    |
|----------------------------|-----------------------------------------------|----------|----------------------------|--------------------|
|                            |                                               |          | Operation mode: NO         | Operation mode: NC |
| M12<br>(2 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-QX2D112 2M            | E2EW-QX2D212 2M    |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-QX2D112-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-QX2D112-M1TGJ-T 0.3M  | ---                |
| M18<br>(5 mm)              | Pre-wired (2 m) *1                            | Yes      | E2EW-QX5D118 2M            | E2EW-QX5D218 2M    |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-QX5D118-M1TGJ 0.3M    | ---                |
|                            |                                               | No       | E2EW-QX5D118-M1TGJ-T 0.3M  | ---                |
| M30<br>(10 mm)             | Pre-wired (2 m) *1                            | Yes      | E2EW-QX10D130 2M           | E2EW-QX10D230 2M   |
|                            | M12 Pre-wired<br>Smartclick Connector (0.3 m) | Yes      | E2EW-QX10D130-M1TGJ 0.3M   | ---                |
|                            |                                               | No       | E2EW-QX10D130-M1TGJ-T 0.3M | ---                |

\*1. NO models with polarity are also available with a 5-m cable: suffix 5M (Example: E2EW-QX3D112 5M).

- Note:** 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 36.  
2. IO-Link is not supported for BASIC Model.

# E2EW Series

## Ratings and Specifications

### PREMIUM Model

### E2EW Series (Quadruple/Triple distance model)

### E2EW-Q Series (Spatter-resistant Quadruple/Triple distance model)

#### DC 3-wire

| Item                                    | Type<br>Size<br>Model              | Quadruple distance model                                                                                                                                                                                                                                                                                                                                               |                |                | Triple distance model |                |                |
|-----------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|-----------------------|----------------|----------------|
|                                         |                                    | M12                                                                                                                                                                                                                                                                                                                                                                    | M18            | M30            | M12                   | M18            | M30            |
|                                         |                                    | E2EW-(Q)X7□12                                                                                                                                                                                                                                                                                                                                                          | E2EW-(Q)X12□18 | E2EW-(Q)X22□30 | E2EW-(Q)X6□12         | E2EW-(Q)X10□18 | E2EW-(Q)X20□30 |
| Sensing distance                        |                                    | 7 mm ±10%                                                                                                                                                                                                                                                                                                                                                              | 12 mm ±10%     | 22 mm ±10%     | 6 mm ±10%             | 10 mm ±10%     | 20 mm ±10%     |
| Setting distance                        |                                    | 0 to 4.9 mm                                                                                                                                                                                                                                                                                                                                                            | 0 to 8.4 mm    | 0 to 15.4 mm   | 0 to 4.2 mm           | 0 to 7.0 mm    | 0 to 14 mm     |
| Differential travel                     |                                    | 15% max. of sensing distance                                                                                                                                                                                                                                                                                                                                           |                |                |                       |                |                |
| Detectable object                       |                                    | Ferrous metals and non-ferrous metals (The sensing distance depends on the material of the sensing object. Refer to <i>Engineering Data</i> on page 27.)                                                                                                                                                                                                               |                |                |                       |                |                |
| Standard sensing object (Iron)          |                                    | 21 × 21 × 1 mm                                                                                                                                                                                                                                                                                                                                                         | 36 × 36 × 1 mm | 66 × 66 × 1 mm | 18 × 18 × 1 mm        | 30 × 30 × 1 mm | 60 × 60 × 1 mm |
| Response frequency *1                   |                                    | 2 Hz (Equipped with a function, which effectively cancels pulse noise of current magnetic field.)                                                                                                                                                                                                                                                                      |                |                |                       |                |                |
| Power supply voltage                    |                                    | 10 to 30 VDC (including 10% ripple (p-p)), Class 2                                                                                                                                                                                                                                                                                                                     |                |                |                       |                |                |
| Current consumption                     |                                    | 720 mW max. (Current consumption: 30 mA max. at power supply voltage of 24 V)                                                                                                                                                                                                                                                                                          |                |                |                       |                |                |
| Output configuration                    |                                    | B□ Models: PNP open collector, C□ Models: NPN open collector                                                                                                                                                                                                                                                                                                           |                |                |                       |                |                |
| Operation mode                          |                                    | 1-output models (B1, C1): NO (Normally open),<br>1-output models (B2, C2): NC (Normally closed),<br>2-output models (B3, C3): NO+NC (Normally open, Normally closed)                                                                                                                                                                                                   |                |                |                       |                |                |
| Control output                          | Load current                       | 1-output models (B1, B2, C1, C2): 10 to 30 VDC, Class 2, 200 mA max.<br>2-output models (B3, C3): 10 to 30 VDC, Class 2, 100 mA max.                                                                                                                                                                                                                                   |                |                |                       |                |                |
|                                         | Residual voltage                   | 1-output models (B1, B2, C1, C2): 2 V max. (Load current: 200 mA, Cable length: 2 m)<br>2-output models (B3, C3): 2 V max. (Load current: 100 mA, Cable length: 2 m)                                                                                                                                                                                                   |                |                |                       |                |                |
| Indicator                               |                                    | In the Standard I/O mode (SIO mode): Operation indicator (orange, lit) and communication indicator (green, not lit)<br>In the IO-Link communication mode (COM mode): Operation indicator (orange, lit) and communication indicator (green, blinking at 1 s intervals)                                                                                                  |                |                |                       |                |                |
| Protection circuits                     |                                    | Power supply reverse polarity protection, Surge suppressor, Output short-circuit protection, Output reverse polarity protection                                                                                                                                                                                                                                        |                |                |                       |                |                |
| Ambient temperature range               |                                    | Operating: 0 to 85 °C, Storage: -15 to 85 °C (with no icing or condensation) *3                                                                                                                                                                                                                                                                                        |                |                |                       |                |                |
| Ambient humidity range                  |                                    | Operating/Storage: 35% to 95% (with no condensation)                                                                                                                                                                                                                                                                                                                   |                |                |                       |                |                |
| Temperature influence                   |                                    | ±20% max. of sensing distance at 23 °C in the temperature range of 0 to 85 °C                                                                                                                                                                                                                                                                                          |                |                |                       |                |                |
| Voltage influence                       |                                    | ±1.5% max. of sensing distance at rated voltage in the rated voltage ±15% range                                                                                                                                                                                                                                                                                        |                |                |                       |                |                |
| Insulation resistance                   |                                    | 50 MΩ 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                                                                                                                                                                                                                                                                                                                                                        |                |                |                       |                |                |
| Connection method                       |                                    | Pre-wired Models (Standard cable length: 2 m), Pre-wired Connector Models (Standard cable length: 0.3 m), M12 Connector Models                                                                                                                                                                                                                                         |                |                |                       |                |                |
| Weight (packed state)                   | Pre-wired                          | Approx. 140 g                                                                                                                                                                                                                                                                                                                                                          | Approx. 165 g  | Approx. 225 g  | Approx. 140 g         | Approx. 165 g  | Approx. 225 g  |
|                                         | M12 Pre-wired Smartclick Connector | Approx. 70 g                                                                                                                                                                                                                                                                                                                                                           | Approx. 100 g  | Approx. 160 g  | Approx. 70 g          | Approx. 100 g  | Approx. 160 g  |
|                                         | M12 Connector                      | Approx. 60 g                                                                                                                                                                                                                                                                                                                                                           | Approx. 75 g   | Approx. 135 g  | Approx. 60 g          | Approx. 75 g   | Approx. 135 g  |
| Materials                               | Case                               | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                                                                                                                                                                                                                                             |                |                |                       |                |                |
|                                         | Sensing surface                    | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                                                                                                                                                                                                                                             |                |                |                       |                |                |
|                                         | Sensing surface (Thickness)        | 0.4 mm                                                                                                                                                                                                                                                                                                                                                                 | 0.4 mm         | 0.5 mm         | 0.4 mm                | 0.4 mm         | 0.5 mm         |
|                                         | Clamping nuts                      | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                                                                                                                                                                                                                                             |                |                |                       |                |                |
|                                         | Toothed washers                    | Zinc-plated iron                                                                                                                                                                                                                                                                                                                                                       |                |                |                       |                |                |
| Cable                                   | Vinyl chloride (PVC)               |                                                                                                                                                                                                                                                                                                                                                                        |                |                |                       |                |                |
| Main IO-Link functions *2               |                                    | Operation mode switching between NO and NC, self diagnosis enabling, excessive proximity judgment distance selecting, timer function of the control output and timer time selecting, instability output (IO-Link mode) ON delay timer time selecting function, monitor output, operating hours read-out, readout of the sensor internal temperature, and initial reset |                |                |                       |                |                |
| IO-Link Communication specifications *2 | IO-Link specification              | Ver.1.1                                                                                                                                                                                                                                                                                                                                                                |                |                |                       |                |                |
|                                         | Baud rate                          | E2EW-(Q) X□B□T□: COM3 (230.4 kbps), E2EW-(Q) X□B□D□: COM2 (38.4 kbps)                                                                                                                                                                                                                                                                                                  |                |                |                       |                |                |
|                                         | Data length                        | PD size: 2 bytes, OD size: 1 byte (M-sequence type: TYPE_2_2)                                                                                                                                                                                                                                                                                                          |                |                |                       |                |                |
|                                         | Minimum cycle time                 | COM2: 2.3 ms, COM3: 1.0 ms                                                                                                                                                                                                                                                                                                                                             |                |                |                       |                |                |
| Accessories                             |                                    | Instruction manual, Clamping nuts, Toothed washer                                                                                                                                                                                                                                                                                                                      |                |                |                       |                |                |

\*1. The response frequency is an average value. Factory setting: (timer function: ONOFF delay)

\*2. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.

\*3. UL temperature rating is between 0 °C to 60 °C.

## BASIC Model

## E2EW Series (Double distance mode/Single distance model)

## E2EW-Q Series (Spatter-resistant Double distance model/Spatter-resistant Single distance model)

## DC 3-wire

| Item                               | Type<br>Size<br>Model              | Double distance model/<br>Spatter-resistant Double distance model                                                                                                    |                   |                    | Single distance model/<br>Spatter-resistant Single distance model |                   |                    |
|------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|-------------------------------------------------------------------|-------------------|--------------------|
|                                    |                                    | M12                                                                                                                                                                  | M18               | M30                | M12                                                               | M18               | M30                |
|                                    |                                    | E2EW-<br>(Q)X3□12                                                                                                                                                    | E2EW-<br>(Q)X7□18 | E2EW-<br>(Q)X12□30 | E2EW-<br>(Q)X2□12                                                 | E2EW-<br>(Q)X5□18 | E2EW-<br>(Q)X10□30 |
| Sensing distance                   |                                    | 3 mm ±10%                                                                                                                                                            | 7 mm ±10%         | 12 mm ±10%         | 2 mm ±10%                                                         | 5 mm ±10%         | 10 mm ±10%         |
| Setting distance                   |                                    | 0 to 2.1 mm                                                                                                                                                          | 0 to 4.9 mm       | 0 to 8.4 mm        | 0 to 1.4 mm                                                       | 0 to 3.5 mm       | 0 to 7 mm          |
| Differential travel                |                                    | 15% max. of sensing distance                                                                                                                                         |                   |                    | 10% max. of sensing distance                                      |                   |                    |
| Detectable object                  |                                    | Ferrous metals and non-ferrous metals (The sensing distance depends on the material of the sensing object. Refer to <i>Engineering Data</i> on page 27.)             |                   |                    |                                                                   |                   |                    |
| Standard sensing object (Iron)     |                                    | 21 × 21 × 1 mm                                                                                                                                                       | 30 × 30 × 1 mm    | 54 × 54 × 1 mm     | 12 × 12 × 1 mm                                                    | 18 × 18 × 1 mm    | 30 × 30 × 1 mm     |
| Response frequency *1              |                                    | 80 Hz                                                                                                                                                                | 90 Hz             | 50 Hz              | 100 Hz                                                            | 80 Hz             | 40 Hz              |
| Power supply voltage               |                                    | 10 to 30 VDC (including 10% ripple (p-p)), Class 2                                                                                                                   |                   |                    |                                                                   |                   |                    |
| Current consumption                |                                    | 1-output models (B1, B2, C1, C2): 16 mA max.<br>2-output models (B3, C3): 20 mA max.                                                                                 |                   |                    |                                                                   |                   |                    |
| Output configuration               |                                    | B□ Models: PNP open collector,<br>C□ Models: NPN open collector                                                                                                      |                   |                    |                                                                   |                   |                    |
| Operation mode                     |                                    | 1-output models (B1, C1): NO (Normally open),<br>1-output models (B2, C2): NC (Normally closed),<br>2-output models (B3, C3): NO+NC (Normally open, Normally closed) |                   |                    |                                                                   |                   |                    |
| Control output                     | Load current                       | 1-output models (B1, B2, C1, C2): 10 to 30 VDC, Class 2, 200 mA max.<br>2-output models (B3, C3): 10 to 30 VDC, Class 2, 100 mA max.                                 |                   |                    |                                                                   |                   |                    |
|                                    | Residual voltage                   | 1-output models (B1, B2, C1, C2): 2 V max. (Load current: 200 mA, Cable length: 2 m)<br>2-output models (B3, C3): 2 V max. (Load current: 100 mA, Cable length: 2 m) |                   |                    |                                                                   |                   |                    |
| Indicator                          |                                    | Operation indicator (orange, lit) and communication indicator (green, not lit)                                                                                       |                   |                    |                                                                   |                   |                    |
| Protection circuits                |                                    | Power supply reverse polarity protection, Surge suppressor, Output short-circuit protection, Output reverse polarity protection                                      |                   |                    |                                                                   |                   |                    |
| Ambient temperature range          |                                    | Operating: 0 to 85 °C, Storage: -15 to 85 °C (with no icing or condensation) *2                                                                                      |                   |                    |                                                                   |                   |                    |
| Ambient humidity range             |                                    | Operating/Storage: 35% to 95% (with no condensation)                                                                                                                 |                   |                    |                                                                   |                   |                    |
| Temperature influence              |                                    | ±20% max. of sensing distance at 23 °C in the temperature range of 0 to 85 °C                                                                                        |                   |                    |                                                                   |                   |                    |
| Voltage influence                  |                                    | ±1.5% max. of sensing distance at rated voltage in the rated voltage ±15% range                                                                                      |                   |                    |                                                                   |                   |                    |
| Insulation resistance              |                                    | 50 MΩ 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                                                                                                                                                      |                   |                    |                                                                   |                   |                    |
| Connection method                  |                                    | Pre-wired Models (Standard cable length: 2 m), Pre-wired Connector Models (Standard cable length: 0.3 m)                                                             |                   |                    |                                                                   |                   |                    |
| Weight (packed state)              | Pre-wired                          | Approx. 140 g                                                                                                                                                        | Approx. 165 g     | Approx. 225 g      | Approx. 140 g                                                     | Approx. 160 g     | Approx. 225 g      |
|                                    | M12 Pre-wired Smartclick Connector | Approx. 70 g                                                                                                                                                         | Approx. 100 g     | Approx. 160 g      | Approx. 70 g                                                      | Approx. 95 g      | Approx. 160 g      |
| Materials                          | Case                               | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                                           |                   |                    |                                                                   |                   |                    |
|                                    | Sensing surface                    | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                                           |                   |                    |                                                                   |                   |                    |
|                                    | Sensing surface (Thickness)        | 0.4 mm                                                                                                                                                               | 0.4 mm            | 0.5 mm             | 0.8 mm                                                            | 0.8 mm            | 0.8 mm             |
|                                    | Clamping nuts                      | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                                           |                   |                    |                                                                   |                   |                    |
|                                    | Toothed washers                    | Zinc-plated iron                                                                                                                                                     |                   |                    |                                                                   |                   |                    |
| Cable                              | Vinyl chloride (PVC)               |                                                                                                                                                                      |                   |                    |                                                                   |                   |                    |
| Accessories                        |                                    | Instruction manual, Clamping nuts, Toothed washer                                                                                                                    |                   |                    |                                                                   |                   |                    |

\*1. 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.

\*2. UL temperature rating is between 0 °C to 60 °C.

# E2EW Series

## BASIC Model

### E2EW Series (Double distance model/Single distance model)

### E2EW-Q Series (Spatter-resistant Double distance model/Spatter-resistant Single distance model)

#### DC 2-wire

| Item                               | Type                               | Double distance model/<br>Spatter-resistant Double distance model                                                                                        |                    |                     | Single distance model/<br>Spatter-resistant Single distance model |                    |                     |
|------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------|-------------------------------------------------------------------|--------------------|---------------------|
|                                    | Size                               | M12                                                                                                                                                      | M18                | M30                 | M12                                                               | M18                | M30                 |
|                                    | Model                              | E2EW-<br>(Q)X3D□12                                                                                                                                       | E2EW-<br>(Q)X7D□18 | E2EW-<br>(Q)X12D□30 | E2EW-<br>(Q)X2D□12                                                | E2EW-<br>(Q)X5D□18 | E2EW-<br>(Q)X10D□30 |
| Sensing distance                   |                                    | 3 mm ±10%                                                                                                                                                | 7 mm ±10%          | 12 mm ±10%          | 2 mm ±10%                                                         | 5 mm ±10%          | 10 mm ±10%          |
| Setting distance                   |                                    | 0 to 2.1 mm                                                                                                                                              | 0 to 4.9 mm        | 0 to 8.4 mm         | 0 to 1.4 mm                                                       | 0 to 3.5 mm        | 0 to 7 mm           |
| Differential travel                |                                    | 15% max. of sensing distance                                                                                                                             |                    |                     | 10% max. of sensing distance                                      |                    |                     |
| Detectable object                  |                                    | Ferrous metals and non-ferrous metals (The sensing distance depends on the material of the sensing object. Refer to <i>Engineering Data</i> on page 27.) |                    |                     |                                                                   |                    |                     |
| Standard sensing object (Iron)     |                                    | 21 × 21 × 1 mm                                                                                                                                           | 30 × 30 × 1 mm     | 54 × 54 × 1 mm      | 12 × 12 × 1 mm                                                    | 18 × 18 × 1 mm     | 30 × 30 × 1 mm      |
| Response frequency *1              |                                    | 80 Hz                                                                                                                                                    | 90 Hz              | 50 Hz               | 100 Hz                                                            | 80 Hz              | 40 Hz               |
| Power supply voltage               |                                    | 10 to 30 VDC (including 10% ripple (p-p)), Class 2                                                                                                       |                    |                     |                                                                   |                    |                     |
| Leakage current                    |                                    | 0.8 mA max.                                                                                                                                              |                    |                     |                                                                   |                    |                     |
| Output configuration               |                                    | □ models: Polarity<br>D1-T models: No polarity                                                                                                           |                    |                     |                                                                   |                    |                     |
| Operation mode                     |                                    | D1 models: NO (Normally open),<br>D2 models: NC (Normally closed)                                                                                        |                    |                     |                                                                   |                    |                     |
| Control output                     | Load current                       | 3 to 100 mA                                                                                                                                              |                    |                     |                                                                   |                    |                     |
|                                    | Residual voltage                   | Polarity: 3 V max. (Load current: 100 mA, Cable length: 2 m)<br>No polarity: 5 V max. (Load current: 100 mA, Cable length: 2 m)                          |                    |                     |                                                                   |                    |                     |
| Indicator                          |                                    | D1 models: Operation indicator (orange, lit) and communication indicator (green, not lit)<br>D2 models: Operation indicator (orange, lit)                |                    |                     |                                                                   |                    |                     |
| Protection circuits                |                                    | Surge suppressor, Output short-circuit protection                                                                                                        |                    |                     |                                                                   |                    |                     |
| Ambient temperature range          |                                    | Operating: 0 to 85 °C, Storage: -15 to 85 °C (with no icing or condensation) *2                                                                          |                    |                     |                                                                   |                    |                     |
| Ambient humidity range             |                                    | Operating/Storage: 35% to 95% (with no condensation)                                                                                                     |                    |                     |                                                                   |                    |                     |
| Temperature influence              |                                    | ±20% max. of sensing distance at 23 °C in the temperature range of 0 to 85 °C                                                                            |                    |                     |                                                                   |                    |                     |
| Voltage influence                  |                                    | ±1.5% max. of sensing distance at rated voltage in the rated voltage ±15% range                                                                          |                    |                     |                                                                   |                    |                     |
| Insulation resistance              |                                    | 50 MΩ 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                                                                                                                                          |                    |                     |                                                                   |                    |                     |
| Connection method                  |                                    | Pre-wired Models (Standard cable length: 2 m), Pre-wired Connector Models (Standard cable length: 0.3 m)                                                 |                    |                     |                                                                   |                    |                     |
| Weight (packed state)              | Pre-wired                          | Approx. 140 g                                                                                                                                            | Approx. 165 g      | Approx. 225 g       | Approx. 140 g                                                     | Approx. 160 g      | Approx. 225 g       |
|                                    | M12 Pre-wired Smartclick Connector | Approx. 70 g                                                                                                                                             | Approx. 100 g      | Approx. 160 g       | Approx. 70 g                                                      | Approx. 95 g       | Approx. 160 g       |
| Materials                          | Case                               | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                               |                    |                     |                                                                   |                    |                     |
|                                    | Sensing surface                    | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                               |                    |                     |                                                                   |                    |                     |
|                                    | Sensing surface (Thickness)        | 0.4 mm                                                                                                                                                   | 0.4 mm             | 0.5 mm              | 0.8 mm                                                            | 0.8 mm             | 0.8 mm              |
|                                    | Clamping nuts                      | E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))                                                               |                    |                     |                                                                   |                    |                     |
|                                    | Toothed washers                    | Zinc-plated iron                                                                                                                                         |                    |                     |                                                                   |                    |                     |
| Cable                              | Vinyl chloride (PVC)               |                                                                                                                                                          |                    |                     |                                                                   |                    |                     |
| Accessories                        |                                    | Instruction manual, Clamping nuts, Toothed washer                                                                                                        |                    |                     |                                                                   |                    |                     |

\*1. 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.

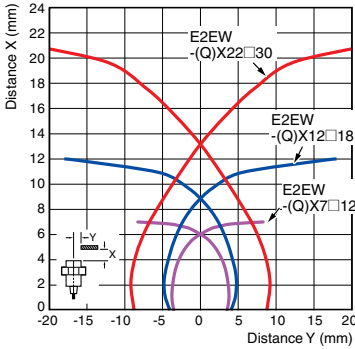
\*2. UL temperature rating is between 0 °C to 60 °C.

# Engineering Data (Reference Value)

## Sensing Area

### PREMIUM Model

**DC 3-wire**  
**Quadruple distance model/**  
**Spatter-resistant Quadruple distance model**  
**Sensing object: iron**



**Sensing object: Aluminum**



**DC 3-wire**  
**Triple distance model/**  
**Spatter-resistant Triple distance model**  
**Sensing object: iron**



**Sensing object: Aluminum**



### BASIC Model

**DC 2-wire/DC 3-wire**  
**Double distance model/**  
**Spatter-resistant Double distance model**  
**Sensing object: iron**



**DC 2-wire/DC 3-wire**  
**Single distance model/**  
**Spatter-resistant Single distance model**  
**Sensing object: iron**



## Influence of Sensing Object Size and Material

### PREMIUM Model

**DC 3-wire  
Quadruple distance model/  
Spatter-resistant  
Quadruple distance model**

Size: M12  
E2EW-(Q)X7□12



Size: M18  
E2EW-(Q)X12□18



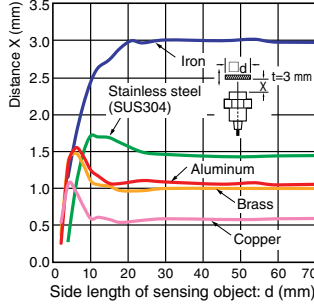
Size: M30  
E2EW-(Q)X22□30



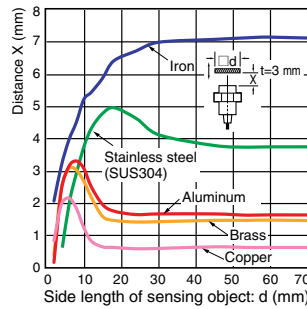
### BASIC Model

**DC 2-wire/DC 3-wire  
Double distance model/  
Spatter-resistant  
Double distance model**

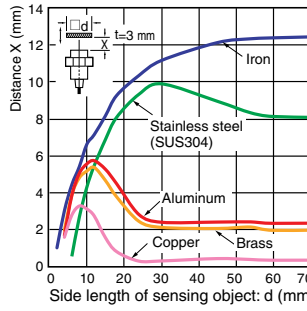
Size: M12  
E2EW-(Q)X3□12



Size: M18  
E2EW-(Q)X7□18

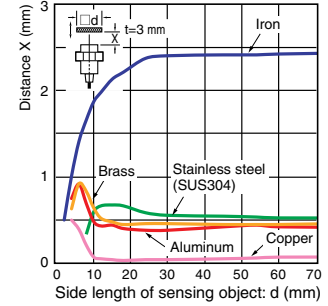


Size: M30  
E2EW-(Q)X12□30

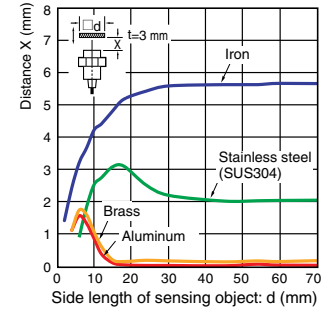


**DC 2-wire/DC 3-wire  
Single distance model/  
Spatter-resistant  
Single distance model**

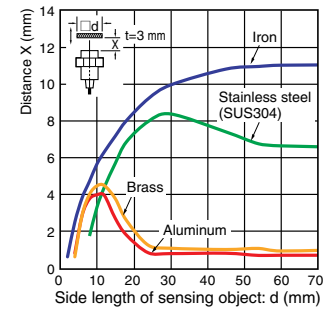
Size: M12  
E2EW-(Q)X2□12



Size: M18  
E2EW-(Q)X5□18



Size: M30  
E2EW-(Q)X10□30



Influence of Sensing Object Thickness and Material

PREMIUM Model

DC 3-wire  
 Quadruple distance model/  
 Spatter-resistant  
 Quadruple distance model

Size: M12  
 E2EW-(Q)X7□12



Size: M18  
 E2EW-(Q)X12□18

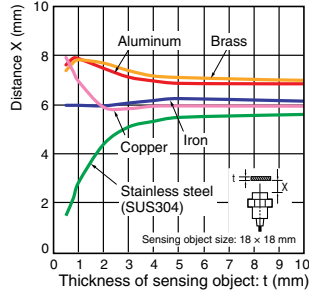


Size: M30  
 E2EW-(Q)X22□30

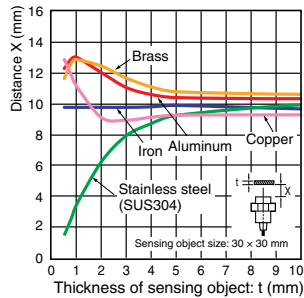


DC 3-wire  
 Triple distance model/  
 Spatter-resistant  
 Triple distance model

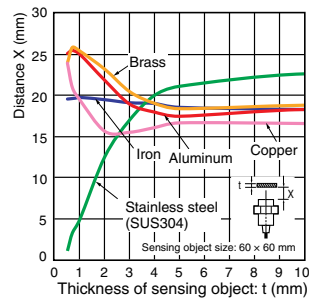
Size: M12  
 E2EW-(Q)X6□12



Size: M18  
 E2EW-(Q)X10□18



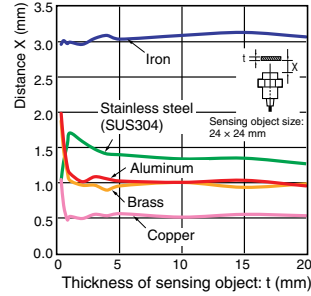
Size: M30  
 E2EW-(Q)X20□30



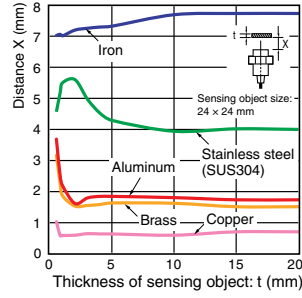
BASIC Model

DC 2-wire/DC 3-wire  
 Double distance model/  
 Spatter-resistant  
 Double distance model

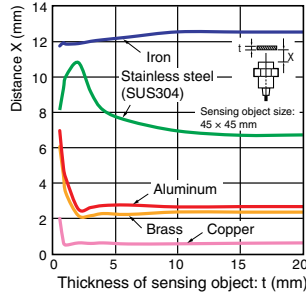
Size: M12  
 E2EW-(Q)X3□12



Size: M18  
 E2EW-(Q)X7□18



Size: M30  
 E2EW-(Q)X12□30

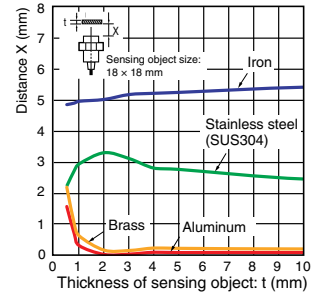


DC 2-wire/DC 3-wire  
 Single distance model/  
 Spatter-resistant  
 Single distance model

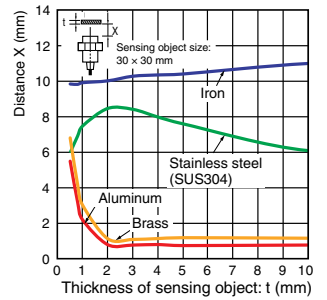
Size: M12  
 E2EW-(Q)X2□12



Size: M18  
 E2EW-(Q)X5□18



Size: M30  
 E2EW-(Q)X10□30





# E2EW Series

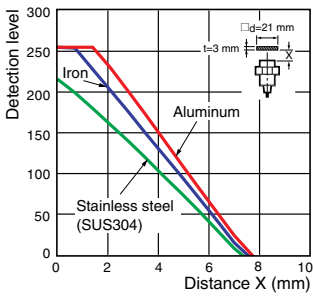
## Monitor Output vs. Sensing Distance

### PREMIUM Model

#### DC 3-wire

#### Quadruple distance model/Spatter-resistant Quadruple distance model

Size: M12  
E2EW-(Q)X7□12



Size: M18  
E2EW-(Q)X12□18



Size: M30  
E2EW-(Q)X22□30



#### DC 3-wire

#### Triple distance model/Spatter-resistant Triple distance model

Size: M12  
E2EW-(Q)X6□12



Size: M18  
E2EW-(Q)X10□18



Size: M30  
E2EW-(Q)X20□30



# I/O Circuit Diagrams/Timing charts

## DC 3-wire

PNP output (PREMIUM Model) [Refer to *Timing Chart* on page 32]

| Operation mode | Model        | Output circuit                                          |                                                                                                    |
|----------------|--------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|                |              | Standard I/O mode (SIO mode)<br>When using as a general | IO-Link Communication mode (COM mode)<br>When using the Sensor connected to<br>IO-Link Master Unit |
| NO             | E2EW-(Q)X□B1 |                                                         |                                                                                                    |
| NC             | E2EW-(Q)X□B2 |                                                         | ---                                                                                                |
| NO+NC          | E2EW-(Q)X□B3 |                                                         |                                                                                                    |

In the IO-Link mode, the cord between the IO-Link master and sensor must have a length of 20 m or less.

## NPN output (PREMIUM Model)

| Operation mode | Model        | Timing chart | Output circuit |
|----------------|--------------|--------------|----------------|
| NO             | E2EW-(Q)X□C1 |              |                |
| NC             | E2EW-(Q)X□C2 |              |                |
| NO+NC          | E2EW-(Q)X□C3 |              |                |

## Connector Pin Arrangement

|                                           |  |
|-------------------------------------------|--|
| M12 Connector<br>M12 Smartclick Connector |  |
|-------------------------------------------|--|

## DC 3-wire

### PNP output (PREMIUM Model)



\*3. The timer function of the control output can be set up by the IO-Link communications. (It is able to select ON delay, OFF delay, one-shot, or ONOFF delay function and select a timer time of 1 to 16,383ms (T).)



\*4. The excessive proximity diagnosis function can be selected by the IO-Link communications.

\*5. The instability detection diagnosis can be selected by the IO-Link communications.

\*6. The judgment time for the instability detection diagnosis can be selected by the IO-Link communications. (For the ON delay timer function, the setting can be selected from 0 (invalid), 10, 50, 100, 300, 500, or 1000 ms.)

\*7. The judgment distance of the excessive proximity diagnosis function can be selected by the IO-Link communications. (The distance can be selected as a combination of the material of the object detected, such as iron, aluminum, or SUS and the judgment distance of approximately 10, 20, or 30%. However, it is not allowed to select a combination of aluminum and 10%.)

Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

Please contact your OMRON sales representative regarding assignment of data.

\*1. For models with IO-Link, the operation mode can be changed by the IO-Link communications.

\*2. If using a model with IO-Link as a general sensor or using a model without IO-Link, it operates in the standard I/O mode (SIO mode).

DC 3-wire

PNP output (BASIC Model)

| Operation mode | Model        | Timing chart                                                                                                                                                     | Output circuit                                                                             |
|----------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| NO             | E2EW-(Q)X□B1 | <p>Proximity Sensor</p> <p>Rated Sensing distance (%)</p> <p>ON Operation indicator<br/>OFF (orange)<br/>ON Control output<br/>OFF</p>                           | <p>10 to 30 VDC<br/>Brown (1) +V<br/>Black (4) OUT<br/>Blue (3) 0V</p>                     |
| NC             | E2EW-(Q)X□B2 | <p>Proximity Sensor</p> <p>Rated Sensing distance (%)</p> <p>ON Operation indicator<br/>OFF (orange)<br/>ON Control output<br/>OFF</p>                           | <p>10 to 30 VDC<br/>Brown (1) +V<br/>Black (2) OUT<br/>Blue (3) 0V</p>                     |
| NO+NC          | E2EW-(Q)X□B3 | <p>Proximity Sensor</p> <p>Rated Sensing distance (%)</p> <p>ON Operation indicator<br/>OFF (orange)<br/>ON Control output 1<br/>ON Control output 2<br/>OFF</p> | <p>10 to 30 VDC<br/>Brown (1) +V<br/>Black (4) OUT1<br/>White (2) OUT2<br/>Blue (3) 0V</p> |

NPN output (BASIC Model)

| Operation mode | Model        | Timing chart                                                                                                                                                     | Output circuit                                                                             |
|----------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| NO             | E2EW-(Q)X□C1 | <p>Proximity Sensor</p> <p>Rated Sensing distance (%)</p> <p>ON Operation indicator<br/>OFF (orange)<br/>ON Control output<br/>OFF</p>                           | <p>10 to 30 VDC<br/>Brown (1) +V<br/>Black (4) OUT<br/>Blue (3) 0V</p>                     |
| NC             | E2EW-(Q)X□C2 | <p>Proximity Sensor</p> <p>Rated Sensing distance (%)</p> <p>ON Operation indicator<br/>OFF (orange)<br/>ON Control output<br/>OFF</p>                           | <p>10 to 30 VDC<br/>Brown (1) +V<br/>Black (2) OUT<br/>Blue (3) 0V</p>                     |
| NO+NC          | E2EW-(Q)X□C3 | <p>Proximity Sensor</p> <p>Rated Sensing distance (%)</p> <p>ON Operation indicator<br/>OFF (orange)<br/>ON Control output 1<br/>ON Control output 2<br/>OFF</p> | <p>10 to 30 VDC<br/>Brown (1) +V<br/>Black (4) OUT1<br/>White (2) OUT2<br/>Blue (3) 0V</p> |

Connector Pin Arrangement



# E2EW Series

## DC 2-wire

### BASIC Models

| Operation mode | Model           | Timing chart                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Output circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NO             | E2EW-(Q)X□D1□   | <p>Timing chart for E2EW-(Q)X□D1□. The x-axis represents distance from the sensor (0% to 100% of rated sensing distance). The y-axis represents the percentage of rated sensing distance. The chart shows a 'Nonsensing area' from 0% to approximately 70%, an 'Unstable sensing area' from 70% to 100%, and a 'Stable Sensing area' from 100% to the sensor. A 'Sensing object' is shown at 100%. The 'Set position' is marked at 70%. The 'Proximity Sensor' is shown on the right. The output states are: Setting indicator (green) ON, Operation indicator (orange) OFF, and Control output ON.</p>   | <p>Output circuit diagram for E2EW-(Q)X□D1□. The circuit shows a 'Proximity sensor main circuit' connected to a load between terminals 1 (Brown, +V) and 4 (Blue, 0V). The load is rated for 10 to 30 VDC. The connector pin arrangement is shown as a 4-pin circular connector with pins 1, 2, 3, and 4. Note: Pins 2 and 3 are not used.</p> <p>Note: The load can be connected to either the +V or 0 V side.</p>                                                                                                                          |
|                | E2EW-(Q)X□D1□-T | <p>Timing chart for E2EW-(Q)X□D1□-T. The x-axis represents distance from the sensor (0% to 100% of rated sensing distance). The y-axis represents the percentage of rated sensing distance. The chart shows a 'Nonsensing area' from 0% to approximately 70%, an 'Unstable sensing area' from 70% to 100%, and a 'Stable Sensing area' from 100% to the sensor. A 'Sensing object' is shown at 100%. The 'Set position' is marked at 70%. The 'Proximity Sensor' is shown on the right. The output states are: Setting indicator (green) ON, Operation indicator (orange) OFF, and Control output ON.</p> | <p>Output circuit diagram for E2EW-(Q)X□D1□-T. The circuit shows a 'Proximity sensor main circuit' connected to a load between terminals 4 (Brown, +V) and 3 (Blue, 0V). The load is rated for 10 to 30 VDC (0V). The connector pin arrangement is shown as a 4-pin circular connector with pins 1, 2, 3, and 4. Note: Pins 1 and 2 are not used.</p> <p>Note 1. The load can be connected to either the +V or 0 V side.<br/>         2. The E2E-X□D1-M1J-T has no polarity.<br/>         Therefore, terminals 3 and 4 have no polarity.</p> |
| NC             | E2EW-(Q)X□D2□   | <p>Timing chart for E2EW-(Q)X□D2□. The x-axis represents distance from the sensor (0% to 100% of rated sensing distance). The y-axis represents the percentage of rated sensing distance. The chart shows a 'Nonsensing area' from 0% to approximately 70%, an 'Unstable sensing area' from 70% to 100%, and a 'Sensing area' from 100% to the sensor. A 'Sensing object' is shown at 100%. The 'Set position' is marked at 70%. The 'Proximity Sensor' is shown on the right. The output states are: Operation indicator (orange) ON, and Control output ON.</p>                                         | <p>Output circuit diagram for E2EW-(Q)X□D2□. The circuit shows a 'Proximity sensor main circuit' connected to a load between terminals 1 (Brown, +V) and 2 (Blue, 0V). The load is rated for 10 to 30 VDC. The connector pin arrangement is shown as a 4-pin circular connector with pins 1, 2, 3, and 4. Note: Pins 3 and 4 are not used.</p> <p>Note: The load can be connected to either the +V or 0 V side.</p>                                                                                                                          |

## Safety Precautions

Be sure to read the precautions for all models in the website at: <http://www.ia.omron.com/>.

### Warning Indications

|                                    |                                                                                                                                                                                                                                      |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>⚠ WARNING</b>                   | <b>Warning level</b><br>Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage. |
| <b>Precautions for Safe Use</b>    | Supplementary comments on what to do or avoid doing, to use the product safely.                                                                                                                                                      |
| <b>Precautions for Correct Use</b> | Supplementary comments on what to do or avoid doing, to prevent failure to operate, malfunction or undesirable effect on product performance.                                                                                        |

### Meaning of Product Safety Symbols

|                                                                                   |                                                                                                |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|  | <b>General prohibition</b><br>Indicates the instructions of unspecified prohibited action.     |
|  | <b>Caution, explosion</b><br>Indicates the possibility of explosion under specific conditions. |

### ⚠ WARNING

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



**Otherwise, explosion may result. Never use the product with an AC power supply.**



### Precautions for Safe Use

The following precautions must be observed to ensure safe operation.

1. Do not use the product in environments subject to flammable or explosive gases.
2. Do not attempt to disassemble, repair, or modify the product.
3. Do not use a voltage that exceeds the rated operating voltage range.  
Applying a voltage that is higher than the operating voltage range may result in explosion or fire.
4. Be sure that the power supply polarity and other wiring is correct. Incorrect wiring may cause explosion or fire.
5. If the power supply is connected directly without a load, the internal elements may explode or burn.
6.  Dispose of the product according to applicable regulations (laws).

### Precautions for Correct Use

Do not use the product in any atmosphere or environment that exceeds the ratings.

#### Operating Environment

1. Do not install the Sensor in the following locations.
  - (1) Outdoor locations directly subject to sunlight, rain, snow, water droplets, or oil.
  - (2) Locations subject to atmospheres with chemical vapors, in particular solvents and acids.
  - (3) Locations subject to corrosive gases.
2. The Sensor may malfunction if used near ultrasonic cleaning equipment, high-frequency equipment, transceivers, cellular phones, inverters, or other devices that generate a high-frequency electric field. Please refer to the Precautions for Correct Use on the OMRON website ([www.ia.omron.com](http://www.ia.omron.com)) for typical measures.
3. Laying the Proximity Sensor wiring in the same conduit or duct as high-voltage wires or power lines may result in incorrect operation and damage due to induction. Wire the Sensor using a separate conduit or independent conduit.
4. Never use thinner or other solvents. Otherwise, the Sensor surface may be dissolved.
5. When turning on the power by influence of temperature environment, an output mis-pulse sometimes occurs. After the sensor has passed for 300 msec after turning on, please use in the stable state.
6. The sensor is adjusted with a high degree of accuracy, so do not use in the environment with sudden temperature change.
7. Operation check is performed using an OMRON's IO-Link master. If using an IO-Link master from another company, perform the operation check in advance. (Models with IO-Link only.)
8. When connecting non IO-Link compliant models to the IO-Link master, use the SIO mode.
9. In the IO-Link mode, the cord between the IO-Link master and sensor must have a length of 20 m or less. (Models with IO-Link only.)
10. The Sensor cannot be used embedded in where pressure is constantly applied to the sensing surface, such as hydraulic cylinders and hydraulic valves.

# E2EW Series

## Design

### Influence of Surrounding Metal

When mounting the Proximity Sensor, ensure that the minimum distances given in the following table are maintained. If you use a nut, only use the provided nut. And ensure that the minimum distances between the sensing surface and nut is bigger than the "L" given in the following table. Other non-ferrous metals affect sensor's performance in the same way as aluminum. Perform the operation check in advance.



(Unit: mm)

### Mounting panel material: Iron

| Models                   | Model          | L | d  | D | m  | n   |
|--------------------------|----------------|---|----|---|----|-----|
| Quadruple distance model | E2EW-(Q)X7□12  | 4 | 30 | 4 | 28 | 36  |
|                          | E2EW-(Q)X12□18 | 6 | 54 | 6 | 36 | 54  |
|                          | E2EW-(Q)X22□30 | 8 | 90 | 8 | 66 | 90  |
| Triple distance model    | E2EW-(Q)X6□12  | 4 | 30 | 4 | 24 | 36  |
|                          | E2EW-(Q)X10□18 | 2 | 54 | 2 | 30 | 54  |
|                          | E2EW-(Q)X20□30 | 0 | 30 | 0 | 60 | 90  |
| Double distance model    | E2EW-(Q)X3□12  | 0 | 12 | 0 | 12 | 40  |
|                          | E2EW-(Q)X7□18  | 0 | 18 | 0 | 28 | 60  |
|                          | E2EW-(Q)X12□30 | 0 | 30 | 0 | 48 | 100 |
| Single distance model    | E2EW-(Q)X2□12  | 0 | 12 | 0 | 8  | 40  |
|                          | E2EW-(Q)X5□18  | 0 | 18 | 0 | 20 | 60  |
|                          | E2EW-(Q)X10□30 | 0 | 30 | 0 | 40 | 100 |

### Mounting panel material: Aluminum

| Models                   | Model             | L  | d   | D  | m  | n   |
|--------------------------|-------------------|----|-----|----|----|-----|
| Quadruple distance model | E2EW-(Q)X7□12     | 12 | 70  | 12 | 28 | 70  |
|                          | E2EW-(Q)X12□18    | 12 | 80  | 12 | 36 | 80  |
|                          | E2EW-(Q)X22□30 *1 | 16 | 120 | 16 | 66 | 120 |
| Triple distance model    | E2EW-(Q)X6□12     | 12 | 70  | 12 | 24 | 70  |
|                          | E2EW-(Q)X10□18    | 12 | 80  | 12 | 30 | 80  |
|                          | E2EW-(Q)X20□30 *1 | 16 | 120 | 16 | 60 | 120 |
| Double distance model    | E2EW-(Q)X3□12     | 12 | 70  | 12 | 12 | 70  |
|                          | E2EW-(Q)X7□18     | 12 | 80  | 12 | 28 | 80  |
|                          | E2EW-(Q)X12□30    | 16 | 120 | 16 | 48 | 120 |
| Single distance model    | E2EW-(Q)X2□12     | 12 | 70  | 12 | 8  | 70  |
|                          | E2EW-(Q)X5□18     | 12 | 80  | 12 | 20 | 80  |
|                          | E2EW-(Q)X10□30    | 16 | 120 | 16 | 40 | 120 |

\*1. If you use the model E2EW-(Q)X22□30, or E2EW-(Q)X20□30, the panel thickness (t) is 3 mm or less.

When the Proximity Sensor is mounted in metal, ensure that the minimum distances given in the following table are maintained.



(Unit: mm)

### Embedded material: Iron

| Models                   | Model          | l    | d     | D    | m  | n   |
|--------------------------|----------------|------|-------|------|----|-----|
| Quadruple distance model | E2EW-(Q)X7□12  | 4    | 30    | 4    | 28 | 36  |
|                          | E2EW-(Q)X12□18 | 6    | 54    | 6    | 36 | 54  |
|                          | E2EW-(Q)X22□30 | 8    | 90    | 8    | 66 | 90  |
| Triple distance model    | E2EW-(Q)X6□12  | 0 *2 | 12 *2 | 0 *2 | 24 | 36  |
|                          | E2EW-(Q)X10□18 | 0    | 18    | 0    | 30 | 54  |
|                          | E2EW-(Q)X20□30 | 0    | 30    | 0    | 60 | 90  |
| Double distance model    | E2EW-(Q)X3□12  | 0    | 12    | 0    | 12 | 40  |
|                          | E2EW-(Q)X7□18  | 0    | 18    | 0    | 28 | 60  |
|                          | E2EW-(Q)X12□30 | 0    | 30    | 0    | 48 | 100 |
| Single distance model    | E2EW-(Q)X2□12  | 0    | 12    | 0    | 8  | 40  |
|                          | E2EW-(Q)X5□18  | 0    | 18    | 0    | 20 | 60  |
|                          | E2EW-(Q)X10□30 | 0    | 30    | 0    | 40 | 100 |

\*2. If the thickness of the mounting bracket (t) is less than 10 mm, be sure to install the Sensor so that  $l \geq 2$ ,  $d \text{ (dia.)} \geq 30$ , and  $D \geq 2$ .

### Embedded material: Aluminum

| Models                   | Model          | l  | d   | D  | m  | n   |
|--------------------------|----------------|----|-----|----|----|-----|
| Quadruple distance model | E2EW-(Q)X7□12  | 12 | 70  | 12 | 28 | 70  |
|                          | E2EW-(Q)X12□18 | 12 | 80  | 12 | 36 | 80  |
|                          | E2EW-(Q)X22□30 | 16 | 120 | 16 | 66 | 120 |
| Triple distance model    | E2EW-(Q)X6□12  | 12 | 70  | 12 | 24 | 70  |
|                          | E2EW-(Q)X10□18 | 12 | 80  | 12 | 30 | 80  |
|                          | E2EW-(Q)X20□30 | 16 | 120 | 16 | 60 | 120 |
| Double distance model    | E2EW-(Q)X3□12  | 12 | 70  | 12 | 12 | 70  |
|                          | E2EW-(Q)X7□18  | 12 | 80  | 12 | 28 | 80  |
|                          | E2EW-(Q)X12□30 | 16 | 120 | 16 | 48 | 120 |
| Single distance model    | E2EW-(Q)X2□12  | 12 | 70  | 12 | 8  | 70  |
|                          | E2EW-(Q)X5□18  | 12 | 80  | 12 | 20 | 80  |
|                          | E2EW-(Q)X10□30 | 16 | 120 | 16 | 40 | 120 |

### Mutual Interference

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



(Unit: mm)

| Models                   | Model          | Item |     |
|--------------------------|----------------|------|-----|
|                          |                | A    | B   |
| Quadruple distance model | E2EW-(Q)X7□12  | 45   | 40  |
|                          | E2EW-(Q)X12□18 | 80   | 60  |
|                          | E2EW-(Q)X22□30 | 135  | 110 |
| Triple distance model    | E2EW-(Q)X6□12  | 45   | 40  |
|                          | E2EW-(Q)X10□18 | 80   | 60  |
|                          | E2EW-(Q)X20□30 | 135  | 110 |
| Double distance model    | E2EW-(Q)X3□12  | 40   | 35  |
|                          | E2EW-(Q)X7□18  | 65   | 60  |
|                          | E2EW-(Q)X12□30 | 110  | 100 |
| Single distance model    | E2EW-(Q)X2□12  | 40   | 35  |
|                          | E2EW-(Q)X5□18  | 65   | 60  |
|                          | E2EW-(Q)X10□30 | 110  | 100 |

### Chips from Cutting Aluminum

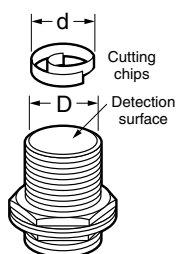
Normally, chips from cutting aluminum will not cause a detection signal to be output even if it adheres to or accumulates on the detection surface. In the following cases, however, a detection signal may be output.

Remove the cutting chips in these cases.

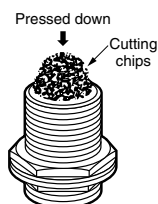
1. If  $d \geq 2/3D$  at the center of the detection surface where  $d$  is the cutting chip size and  $D$  is the detection surface size

(Unit: mm)

| Model        | Dimension | D  |
|--------------|-----------|----|
| E2EW-(Q)X□12 |           | 10 |
| E2EW-(Q)X□18 |           | 16 |
| E2EW-(Q)X□30 |           | 28 |



2. If the cutting chips are pressed down



### Mounting

#### Tightening Force

Do not tighten the nut with excessive force.

A washer must be used with the nut.

The tightening force must be the same or less than the figures in the following table.



#### Quadruple distance model, Triple distance model (Unit: N·m)

| Size | Torque   |
|------|----------|
| M12  | 20 (15)  |
| M18  | 70 (35)  |
| M30  | 180 (60) |

\* Tighten the nut of the E2EW-Q to a torque in parentheses.

#### Double distance model, Single distance model (Unit: N·m)

| Size | Torque   |
|------|----------|
| M12  | 30 (15)  |
| M18  | 70 (35)  |
| M30  | 180 (60) |

\* Tighten the nut of the E2EW-Q to a torque in parentheses.

**Note:** When mounting the Proximity Sensor, only use the provided nut. Do not use set screws. The Sensor may malfunction.



# E2EW Series

## Dimensions

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

### Sensors

**PREMIUM Model DC 3-wire**

## E2EW/E2EW-Q Series (Quadruple distance/Triple distance/ Spatter-resistant Quadruple distance, Spatter-resistant Triple distance model)

Pre-wired Model/  
Pre-wired Connector Model

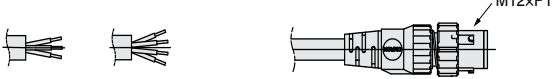


M12 Connector Model



Pre-wired Model

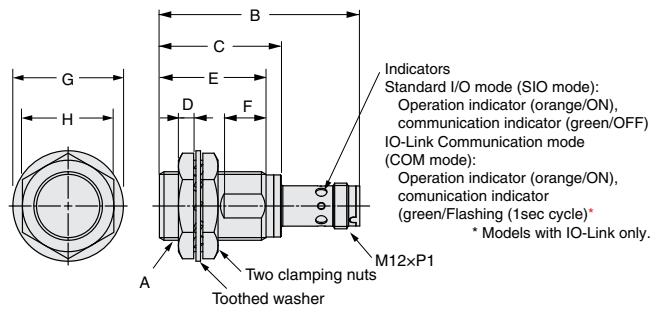
Pre-wired Connector Model  
(M1TJ)



(Operation mode): Output configuration (B1, C1): NO,  
(B2, C2): NC

Vinyl-insulated round cable with 3 conductors size: 6-dia.  
(Conductor cross section: 0.3 mm<sup>2</sup> (AWG24), Insulator diameter: 1.05 mm),  
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)

(Operation mode): Output configuration (B3, C3): NO+NC  
Vinyl-insulated round cable with 4 conductors size: 6-dia.  
(Conductor cross section: 0.3 mm<sup>2</sup> (AWG24), Insulator diameter: 1.05 mm),  
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)



| Models                   | Model              | A        | B    | C   | D | E  | F  | G       | H  |
|--------------------------|--------------------|----------|------|-----|---|----|----|---------|----|
| Quadruple distance model | E2EW-(Q) X7□12-M1  | M12xP1   | 54.4 | --- | 4 | 28 | 8  | 21 dia. | 17 |
|                          | E2EW-(Q) X12□18-M1 | M18xP1   | 54.4 | 32  | 4 | 28 | 11 | 29 dia. | 24 |
|                          | E2EW-(Q) X22□30-M1 | M30xP1.5 | 54.4 | 32  | 5 | 28 | 11 | 42 dia. | 36 |
| Triple distance model    | E2EW-(Q) X6□12-M1  | M12xP1   | 54.4 | --- | 4 | 28 | 8  | 21 dia. | 17 |
|                          | E2EW-(Q) X10□18-M1 | M18xP1   | 54.4 | 32  | 4 | 28 | 11 | 29 dia. | 24 |
|                          | E2EW-(Q) X20□30-M1 | M30xP1.5 | 54.4 | 32  | 5 | 28 | 11 | 42 dia. | 36 |

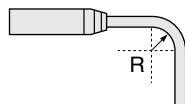
| Models                   | Model                 | A        | B    | C  | D | E  | F       | G  |
|--------------------------|-----------------------|----------|------|----|---|----|---------|----|
| Quadruple distance model | E2EW-(Q)X7□12(-M1TJ)  | M12xP1   | 41.5 | 30 | 4 | 10 | 21 dia. | 17 |
|                          | E2EW-(Q)X12□18(-M1TJ) | M18xP1   | 41.5 | 30 | 4 | 13 | 29 dia. | 24 |
|                          | E2EW-(Q)X22□30(-M1TJ) | M30xP1.5 | 41.5 | 30 | 5 | 13 | 42 dia. | 36 |
| Triple distance model    | E2EW-(Q)X6□12(-M1TJ)  | M12xP1   | 41.5 | 30 | 4 | 10 | 21 dia. | 17 |
|                          | E2EW-(Q)X10□18(-M1TJ) | M18xP1   | 41.5 | 30 | 4 | 13 | 29 dia. | 24 |
|                          | E2EW-(Q)X20□30(-M1TJ) | M30xP1.5 | 41.5 | 30 | 5 | 13 | 42 dia. | 36 |

### Mounting Hole Dimensions



| Dimensions | F (mm)                                   |
|------------|------------------------------------------|
| M12        | 12.5 dia. <sup>+0.5</sup> / <sub>0</sub> |
| M18        | 18.5 dia. <sup>+0.5</sup> / <sub>0</sub> |
| M30        | 30.5 dia. <sup>+0.5</sup> / <sub>0</sub> |

### Angle R of the Bending Wire



| Dimensions | R (mm) |
|------------|--------|
| M12        | 18     |
| M18        |        |
| M30        |        |

# Dimensions

## Sensors

**BASIC Model DC 2-wire/DC 3-wire**

**E2EW/E2EW-Q Series (Double distance model/Spatter-resistant Double distance model/Single distance model/Spatter-resistant Single distance model)**

Pre-wired Model/  
Pre-wired Connector Model



Pre-wired Model

Pre-wired Connector Model (M12/M18/M30)



(Operation mode): Output configuration (D1): NO  
(D2): NC

Vinyl-insulated round cable with 2 conductors size: 6-dia.  
(Conductor cross section: 0.3 mm<sup>2</sup> (AWG24), Insulator diameter: 1.05 mm),  
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)

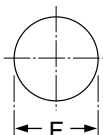
(Operation mode): Output configuration (B1/C1): NO  
(B2/C2): NC

Vinyl-insulated round cable with 3 conductors size: 6-dia.  
(Conductor cross section: 0.3 mm<sup>2</sup> (AWG24), Insulator diameter: 1.05 mm),  
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)

(Operation mode): Output configuration (B3/C3): NO+NC  
Vinyl-insulated round cable with 4 conductors size: 6-dia.  
(Conductor cross section: 0.3 mm<sup>2</sup> (AWG24), Insulator diameter: 1.05 mm),  
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)

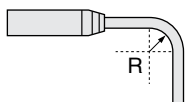
| Models                | Model                                                    | A                                                        | B        | C    | D    | E  | F       | G       |    |
|-----------------------|----------------------------------------------------------|----------------------------------------------------------|----------|------|------|----|---------|---------|----|
| Double distance model | E2EW-(Q)X3<br>□12(-M1TJ)<br>E2EW-(Q)X3D<br>□12(-M1TGJ)   | M12×P1                                                   | 41.5     | 30   | 4    | 10 | 21 dia. | 17      |    |
|                       | E2EW-(Q)X7<br>□18(-M1TJ)<br>E2EW-(Q)X7D<br>□18(-M1TGJ)   | M18×P1                                                   | 41.5     | 30   | 4    | 13 | 29 dia. | 24      |    |
|                       | E2EW-(Q)X12<br>□30(-M1TJ)<br>E2EW-(Q)X12D<br>□30(-M1TGJ) | M30×P1.5                                                 | 41.5     | 30   | 5    | 13 | 42 dia. | 36      |    |
|                       | Single distance model                                    | E2EW-(Q)X2<br>□12(-M1TJ)<br>E2EW-(Q)X2D<br>□12(-M1TGJ)   | M12×P1   | 41.9 | 30.4 | 4  | 7       | 21 dia. | 17 |
|                       |                                                          | E2EW-(Q)X5<br>□18(-M1TJ)<br>E2EW-(Q)X5D<br>□18(-M1TGJ)   | M18×P1   | 41.9 | 30.4 | 4  | 10      | 29 dia. | 24 |
|                       |                                                          | E2EW-(Q)X10<br>□30(-M1TJ)<br>E2EW-(Q)X10D<br>□30(-M1TGJ) | M30×P1.5 | 41.8 | 30.3 | 5  | 10      | 42 dia. | 36 |

### Mounting Hole Dimensions



| Dimensions | F (mm)                                   |
|------------|------------------------------------------|
| M12        | 12.5 dia. <sup>+0.5</sup> / <sub>0</sub> |
| M18        | 18.5 dia. <sup>+0.5</sup> / <sub>0</sub> |
| M30        | 30.5 dia. <sup>+0.5</sup> / <sub>0</sub> |

### Angle R of the Bending Wire



| Dimensions | R (mm) |
|------------|--------|
| M12        | 18     |
| M18        |        |
| M30        |        |

# Round Water-resistant Connectors (M12 Smartclick)

# XS5

## Round Water-resistive Smartclick Connectors that Reduce Installation Work

- A newly developed lock mechanism that is compatible with round M12 connectors.
- Simply insert the Connectors, then turn them approximately 1/8 of a turn to lock.
- A positive click indicates locking.
- Spatter-resistant Cables are also available.
- IP67 degree of protection.
- UL approved products.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

**Note:** For details, refer to XS5 on your OMRON website.

## Ordering Information

### Sensor I/O Connectors

A Sensor I/O Connector is not provided with the Sensor. It must be ordered separately as required.

| Appearance                                                                                                                      | Cable Specification           | Type                     | Cable diameter (mm)                      | Cable Connection Direction            | Cable length (m) | Sensor I/O Connector model number | Applicable Proximity Sensor model number                                       |    |                 |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------|------------------------------------------|---------------------------------------|------------------|-----------------------------------|--------------------------------------------------------------------------------|----|-----------------|
| M12 Smartclick Connector<br>Straight type<br> | PVC robot cable               | Sockets on One Cable End | 6 dia.                                   | Straight                              | 1                | XS5F-D421-C80-F                   | E2EW, E2E NEXT, E2EF, E2FM (M12 Pre-wired Smartclick Connector, M12 Connector) |    |                 |
|                                                                                                                                 |                               |                          |                                          |                                       | 2                | XS5F-D421-D80-F                   |                                                                                |    |                 |
| 3                                                                                                                               |                               |                          |                                          |                                       | XS5F-D421-E80-F  |                                   |                                                                                |    |                 |
| 5                                                                                                                               |                               |                          |                                          |                                       | XS5F-D421-G80-F  |                                   |                                                                                |    |                 |
| 10                                                                                                                              |                               |                          |                                          |                                       | XS5F-D421-J80-F  |                                   |                                                                                |    |                 |
| Right-angle type<br>                          |                               |                          |                                          | Socket and Plug on Cable Ends         | 6 dia.           | Right-angle                       |                                                                                | 1  | XS5F-D422-C80-F |
|                                                                                                                                 |                               |                          |                                          |                                       |                  |                                   |                                                                                | 2  | XS5F-D422-D80-F |
|                                                                                                                                 |                               |                          |                                          |                                       |                  |                                   |                                                                                | 3  | XS5F-D422-E80-F |
|                                                                                                                                 |                               |                          |                                          |                                       |                  |                                   |                                                                                | 5  | XS5F-D422-G80-F |
|                                                                                                                                 |                               |                          |                                          |                                       |                  |                                   |                                                                                | 10 | XS5F-D422-J80-F |
| Spatter-resistant Cable                                                                                                         | Sockets on One Cable End      | 6.6 dia.                 | Straight (Socket)/ Straight (Plug)       | 1                                     | XS5W-D421-C81-F  |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 2                                     | XS5W-D421-D81-F  |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 3                                     | XS5W-D421-E81-F  |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 5                                     | XS5W-D421-G81-F  |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 10                                    | XS5W-D421-J81-F  |                                   |                                                                                |    |                 |
|                                                                                                                                 | Socket and Plug on Cable Ends | 6.6 dia.                 | Right-angle (Socket)/ Right-angle (Plug) | 2                                     | XS5W-D422-D81-F  |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 5                                     | XS5W-D422-G81-F  |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | Straight (Socket)/ Right-angle (Plug) | 2                | XS5W-D423-D81-F                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          |                                       | 5                | XS5W-D423-G81-F                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | Right-angle (Socket)/ Straight (Plug) | 2                | XS5W-D424-D81-F                   |                                                                                |    |                 |
| 5                                                                                                                               | XS5W-D424-G81-F               |                          |                                          |                                       |                  |                                   |                                                                                |    |                 |
| Sockets on One Cable End                                                                                                        | 6.6 dia.                      | Straight                 | Straight (Socket)/ Straight (Plug)       | 2                                     | XS5F-D421-D80-SA |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 5                                     | XS5F-D421-G80-SA |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 2                                     | XS5W-D421-D81-SA |                                   |                                                                                |    |                 |
|                                                                                                                                 |                               |                          |                                          | 5                                     | XS5W-D421-G81-SA |                                   |                                                                                |    |                 |

# Connections for Sensor I/O Connectors

## DC 2-Wire

| Proximity Sensor                 |          |                |                                                                                  | Sensor I/O Connectors                                                      |                                                                                                                                                                 |
|----------------------------------|----------|----------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                             | Polarity | Operation mode | Model                                                                            | Model                                                                      | Connections *1                                                                                                                                                  |
| DC 2-Wire (Smartclick Connector) | Yes      | NO             | E2EW-(Q)X□D1□-M1TGJ<br>E2EQ-X□D1□-M1TGJ<br>E2EF-(Q)X□D1-M1TGJ<br>E2FM-X□D1-M1TGJ | XS5F-D42□-□80-F<br>XS5F-D421-□80-SA<br>XS5W-D42□-□81-F<br>XS5W-D421-□81-SA | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (not connected)</li> <li>3: Blue (not connected)</li> <li>4: Black (-)</li> </ul>         |
|                                  |          | NC             | E2EQ-X□D2□-M1TGJ                                                                 |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (-)</li> <li>3: Blue (not connected)</li> <li>4: Black (not connected)</li> </ul>         |
|                                  | No       | NO             | E2EW-(Q)X□D1□-M1TGJ-T<br>E2EQ-X□D1□-M1TGJ-T                                      |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (not connected)</li> <li>2: White (not connected)</li> <li>3: Blue (+) (-)</li> <li>4: Black (-) (+)</li> </ul> |
|                                  |          | NC             | E2EQ-X□D2□-M1TGJ-T                                                               |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (+) (-)</li> <li>2: White (-) (+)</li> <li>3: Blue (not connected)</li> <li>4: Black (not connected)</li> </ul> |

## DC 3-Wire

| Proximity Sensor                                     |        |                |                                             | Sensor I/O Connectors                                                      |                                                                                                                                                  |
|------------------------------------------------------|--------|----------------|---------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Types                                                | Output | Operation mode | Model                                       | Model                                                                      | Connections *1                                                                                                                                   |
| DC 3-Wire (M12 Connector / M12 Smartclick Connector) | PNP    | NO             | E2EW-(Q)X□B1□-M1TJ/M1<br>E2EQ-X□B1□-M1TJ/M1 | XS5F-D42□-□80-F<br>XS5F-D421-□80-SA<br>XS5W-D42□-□81-F<br>XS5W-D421-□81-SA | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (not connected)</li> <li>3: Blue (-)</li> <li>4: Black (Output)</li> </ul> |
|                                                      |        | NC             | E2EW-(Q)X□B2□-M1TJ/M1<br>E2EQ-X□B2□-M1TJ/M1 |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (Output)</li> <li>3: Blue (-)</li> <li>4: Black (not connected)</li> </ul> |
|                                                      |        | NO+NC          | E2EW-(Q)X□B3□-M1TJ/M1<br>E2EQ-X□B3□-M1TJ/M1 |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (Output 2)</li> <li>3: Blue (-)</li> <li>4: Black (Output 1)</li> </ul>    |
|                                                      | NPN    | NO             | E2EW-(Q)X□C1□-M1TJ/M1<br>E2EQ-X□C1□-M1TJ/M1 |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (not connected)</li> <li>3: Blue (-)</li> <li>4: Black (Output)</li> </ul> |
|                                                      |        | NC             | E2EW-(Q)X□C2□-M1TJ/M1<br>E2EQ-X□C2□-M1TJ/M1 |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (Output)</li> <li>3: Blue (-)</li> <li>4: Black (not connected)</li> </ul> |
|                                                      |        | NO+NC          | E2EW-(Q)X□C3□-M1TJ/M1<br>E2EQ-X□C3□-M1TJ/M1 |                                                                            | <ul style="list-style-type: none"> <li>1: Brown (+)</li> <li>2: White (Output 2)</li> <li>3: Blue (-)</li> <li>4: Black (Output 1)</li> </ul>    |

\*1. If the XS5W Series Connector which has a socket and plug on the cable ends is connected to the Sensor, this part will be a plug.  
**Note:** Different from Proximity Sensor wire colors.

# XS5

## Dimensions

(Unit: mm)

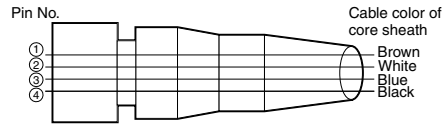
### Socket and Plug on Cable Ends XS5W

#### Wiring Diagram for 4 Cores



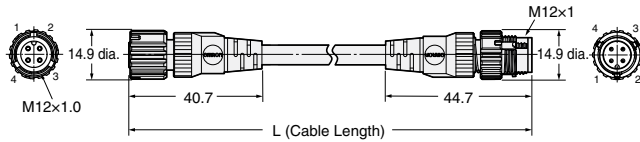
### Sockets on One Cable End XS5F

#### Wiring Diagram for 4 Cores



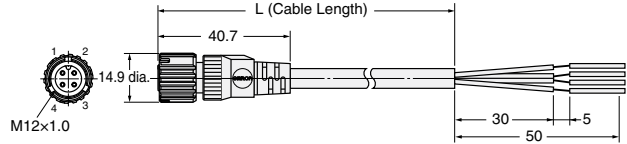
### Straight (Socket)/straight (Plug)

#### XS5W-D421-□81-F/XS5W-D421-□81-SA



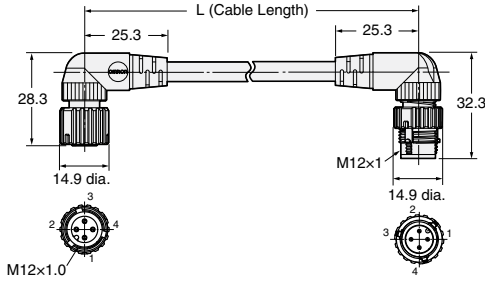
### Straight type

#### XS5F-D421-□80-F/XS5F-D421-□80-SA



### Right-angle (Socket)/right-angle (Plug)

#### XS5W-D422-□81-F



### Right-angle type

#### XS5F-D422-□80-F



### Straight (Socket)/right-angle (Plug)

#### XS5W-D423-□81-F



### Right-angle (Socket)/straight (Plug)

#### XS5W-D424-□81-F

