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

DC 3-wire

Premium Model
- Stainless Steel Body
- Up to 4x Sensing Distance
- Weld Field Immune
- Factor 1 Sensing
- IO-Link

E2EW Series IO-Link
DC 3-wire Models
(Pre-wired Model/Pre-wired Connector Model)
P 3

Spatter-resistant model

E2EW Series IO-Link
DC 3-wire Models (Connector Models)
P 3

Basic Model
- Stainless Steel Body
- Up to 2x Sensing Distance

E2EW Series
DC 3-wire Models
(Pre-wired Model/Pre-wired Connector Model)
P 7

Spatter-resistant model

DC 2-wire

Basic Model
- Stainless Steel Body
- Up to 2x Sensing Distance

NEW
E2EW Series
DC 2-wire Models
(Pre-wired Model/Pre-wired Connector Models)
P 9

Spatter-resistant model

Connector Cable

M12

Previous basic model and
Spatter-resistant Cable model

XS5 Series
Round Water-resistant Connectors
(M12 Smartclick)
P 27

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 (Sensing distance)	Connection method	Operation mode	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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□□□D□" (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 (Sensing distance)	Connection method	Operation mode	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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□□□D□" (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.

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 (Sensing distance)	Connection method	Operation mode	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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□□□D□" (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 (Sensing distance)	Connection method	Operation mode	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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□□□D□" (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.

BASIC Model

E2EW Series (Double distance model) *NEW*

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

Size (Sensing distance)	Connection method	Operation mode *2	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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 (Sensing distance)	Connection method	Operation mode *2	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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 (Sensing distance)	Connection method	Operation mode *2	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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 (Sensing distance)	Connection method	Operation mode *2	Model	
			PNP	NPN
M12 (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 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 (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 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 (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 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.

BASIC Model

E2EW Series (Double distance model) *NEW*

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

Size (Sensing distance)	Connection method	Polarity	Model	
			Operation mode: NO	Operation mode: NC
M12 (3 mm)	Pre-wired (2 m) *1	Yes	**E2EW-X3D112 2M**	**E2EW-X3D212 2M**
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X3D112-M1TGJ 0.3M**	---
		No	**E2EW-X3D112-M1TGJ-T 0.3M**	---
M18 (7 mm)	Pre-wired (2 m) *1	Yes	**E2EW-X7D118 2M**	**E2EW-X7D218 2M**
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X7D118-M1TGJ 0.3M**	---
		No	**E2EW-X7D118-M1TGJ-T 0.3M**	---
M30 (12 mm)	Pre-wired (2 m) *1	Yes	**E2EW-X12D130 2M**	**E2EW-X12D230 2M**
	M12 Pre-wired 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 (Sensing distance)	Connection method	Polarity	Model	
			Operation mode: NO	Operation mode: NC
M12 (2 mm)	Pre-wired (2 m) *1	Yes	**E2EW-X2D112 2M**	**E2EW-X2D212 2M**
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X2D112-M1TGJ 0.3M**	---
		No	**E2EW-X2D112-M1TGJ-T 0.3M**	---
M18 (5 mm)	Pre-wired (2 m) *1	Yes	**E2EW-X5D118 2M**	**E2EW-X5D218 2M**
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X5D118-M1TGJ 0.3M**	---
		No	**E2EW-X5D118-M1TGJ-T 0.3M**	---
M30 (10 mm)	Pre-wired (2 m) *1	Yes	**E2EW-X10D130 2M**	**E2EW-X10D230 2M**
	M12 Pre-wired 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 (Sensing distance)	Connection method	Polarity	Model	
			Operation mode: NO	Operation mode: NC
M12 (3 mm)	Pre-wired (2 m) *1	Yes	E2EW-QX3D112 2M	E2EW-QX3D212 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EW-QX3D112-M1TGJ 0.3M	---
		No	E2EW-QX3D112-M1TGJ-T 0.3M	---
M18 (7 mm)	Pre-wired (2 m) *1	Yes	E2EW-QX7D118 2M	E2EW-QX7D218 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EW-QX7D118-M1TGJ 0.3M	---
		No	E2EW-QX7D118-M1TGJ-T 0.3M	---
M30 (12 mm)	Pre-wired (2 m) *1	Yes	E2EW-QX12D130 2M	E2EW-QX12D230 2M
	M12 Pre-wired 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 (Sensing distance)	Connection method	Polarity	Model	
			Operation mode: NO	Operation mode: NC
M12 (2 mm)	Pre-wired (2 m) *1	Yes	E2EW-QX2D112 2M	E2EW-QX2D212 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EW-QX2D112-M1TGJ 0.3M	---
		No	E2EW-QX2D112-M1TGJ-T 0.3M	---
M18 (5 mm)	Pre-wired (2 m) *1	Yes	E2EW-QX5D118 2M	E2EW-QX5D218 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EW-QX5D118-M1TGJ 0.3M	---
		No	E2EW-QX5D118-M1TGJ-T 0.3M	---
M30 (10 mm)	Pre-wired (2 m) *1	Yes	E2EW-QX10D130 2M	E2EW-QX10D230 2M
	M12 Pre-wired 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.

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	Quadruple distance model			Triple distance model		
	Size	M12	M18	M30	M12	M18	M30
	Model	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 *Engineering Data* 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), 1-output models (B2, C2): NC (Normally closed), 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. 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) 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) 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^2 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	Double distance model/ Spatter-resistant Double distance model			Single distance model/ Spatter-resistant Single distance model		
	Size	M12	M18	M30	M12	M18	M30
	Model	E2EW-(Q)X3□12	E2EW-(Q)X7□18	E2EW-(Q)X12□30	E2EW-(Q)X2□12	E2EW-(Q)X5□18	E2EW-(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 *Engineering Data* 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. 2-output models (B3, C3): 20 mA max.					
Output configuration		B□ Models: PNP open collector, C□ Models: NPN open collector					
Operation mode		1-output models (B1, C1): NO (Normally open), 1-output models (B2, C2): NC (Normally closed), 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. 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) 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^2 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.

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/ Spatter-resistant Double distance model			Single distance model/ Spatter-resistant Single distance model		
	Size	M12	M18	M30	M12	M18	M30
	Model	E2EW-(Q)X3D□12	E2EW-(Q)X7D□18	E2EW-(Q)X12D□30	E2EW-(Q)X2D□12	E2EW-(Q)X5D□18	E2EW-(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 *Engineering Data* 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		D□ models: Polarity D1-T models: No polarity					
Operation mode		D1 models: NO (Normally open), 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) 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) 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^2 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.

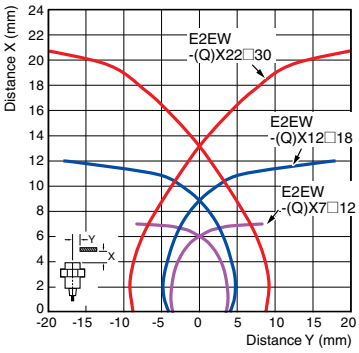
Engineering Data (Reference Value)

Sensing Area

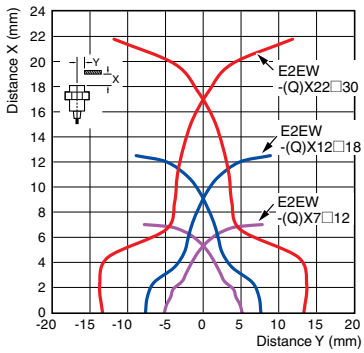
PREMIUM Model

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

Sensing object: iron

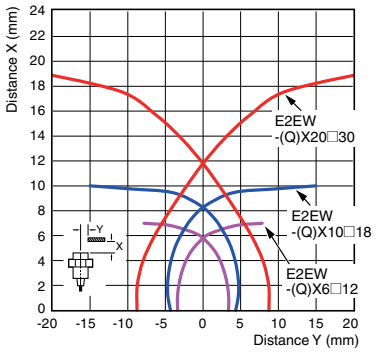


Sensing object: Aluminum

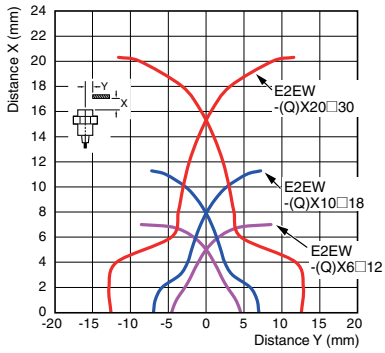


DC 3-wire
Triple distance model/
Spatter-resistant Triple distance model

Sensing object: iron



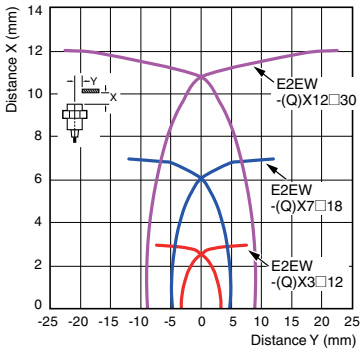
Sensing object: Aluminum



BASIC Model

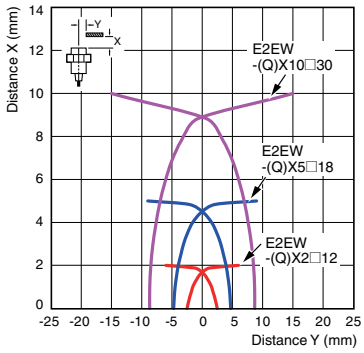
DC 2-wire/DC 3-wire
Double distance model/
Spatter-resistant Double distance model

Sensing object: iron



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

Sensing object: iron

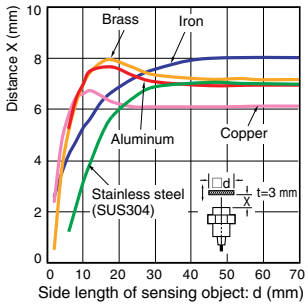


Influence of Sensing Object Size and Material

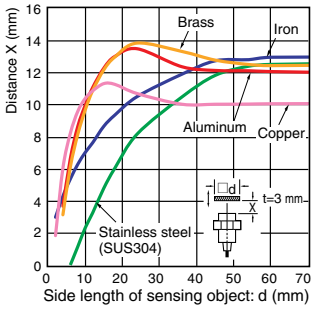
PREMIUM Model

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

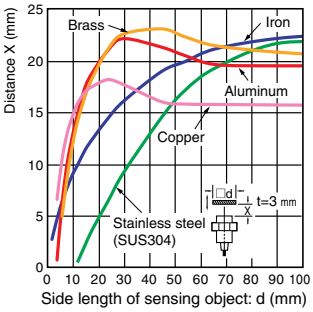
Size: M12
E2EW-(Q)X7□12



Size: M18
E2EW-(Q)X12□18

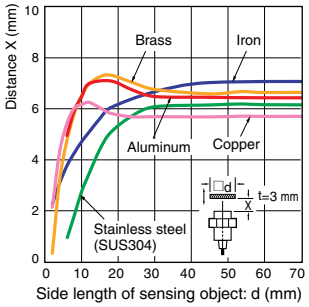


Size: M30
E2EW-(Q)X22□30

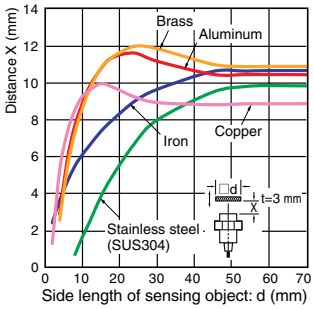


DC 3-wire Triple distance model/ Spatter-resistant Triple distance model

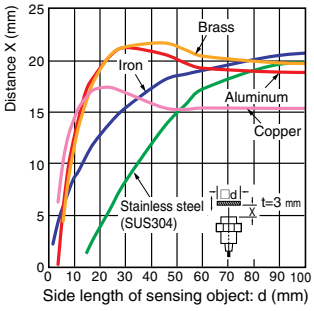
Size: M12
E2EW-(Q)X6□12



Size: M18
E2EW-(Q)X10□18



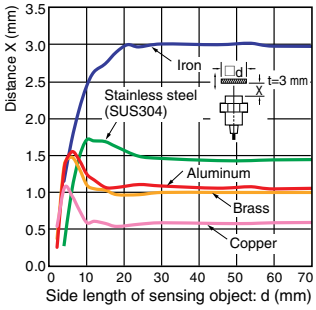
Size: M30
E2EW-(Q)X20□30



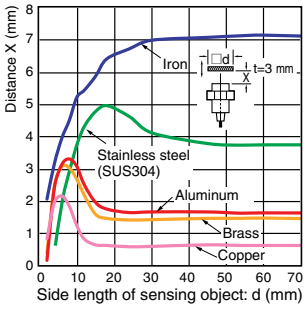
BASIC Model

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

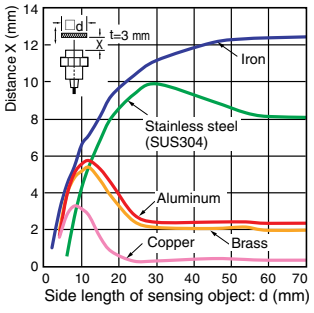
Size: M12
E2EW-(Q)X3□12



Size: M18
E2EW-(Q)X7□18

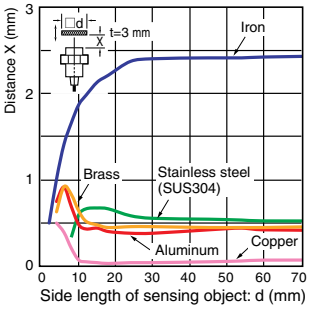


Size: M30
E2EW-(Q)X12□30

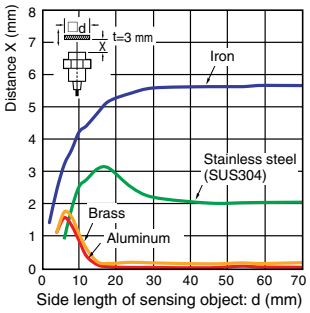


DC 2-wire/DC 3-wire Single distance model/ Spatter-resistant Single distance model

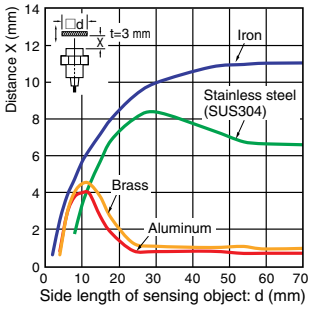
Size: M12
E2EW-(Q)X2□12



Size: M18
E2EW-(Q)X5□18



Size: M30
E2EW-(Q)X10□30

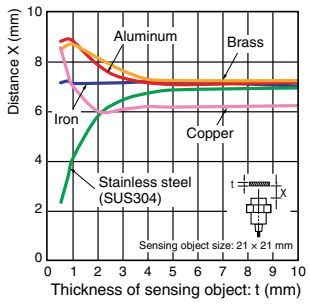


Influence of Sensing Object Thickness and Material

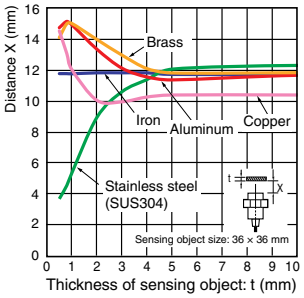
PREMIUM Model

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

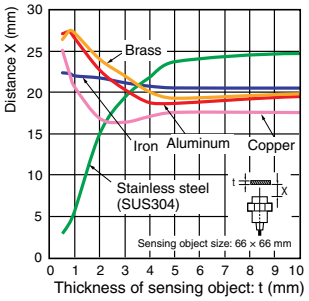
Size: M12
E2EW-(Q)X7□12



Size: M18
E2EW-(Q)X12□18

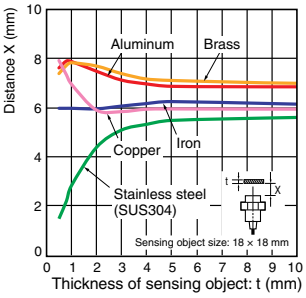


Size: M30
E2EW-(Q)X22□30

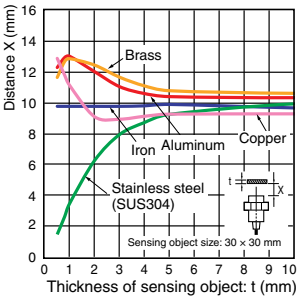


DC 3-wire Triple distance model/ Spatter-resistant Triple distance model

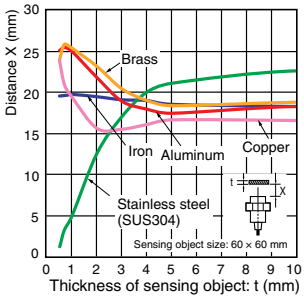
Size: M12
E2EW-(Q)X6□12



Size: M18
E2EW-(Q)X10□18



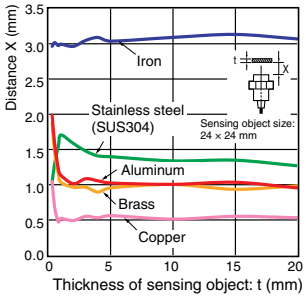
Size: M30
E2EW-(Q)X20□30



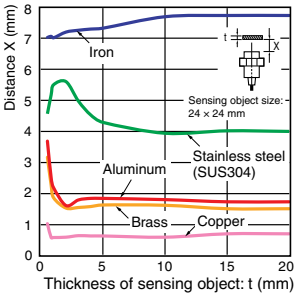
BASIC Model

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

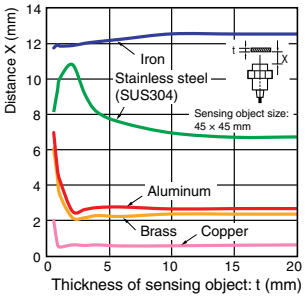
Size: M12
E2EW-(Q)X3□12



Size: M18
E2EW-(Q)X7□18

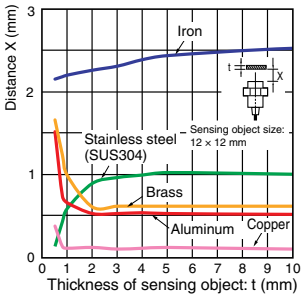


Size: M30
E2EW-(Q)X12□30

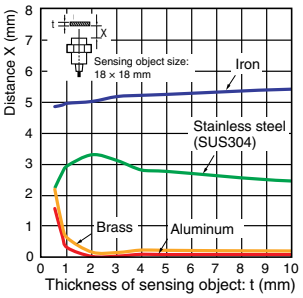


DC 2-wire/DC 3-wire Single distance model/ Spatter-resistant Single distance model

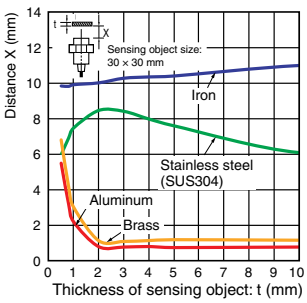
Size: M12
E2EW-(Q)X2□12



Size: M18
E2EW-(Q)X5□18



Size: M30
E2EW-(Q)X10□30



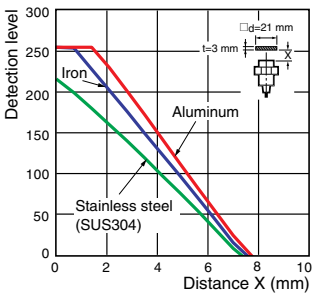
Monitor Output vs. Sensing Distance

PREMIUM Model

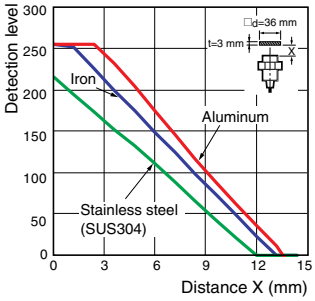
DC 3-wire

Quadruple distance model/Spatter-resistant Quadruple distance model

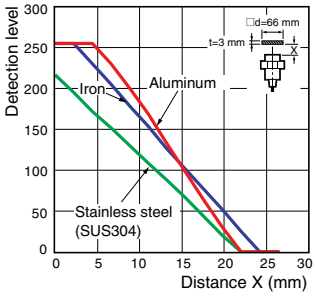
Size: M12
E2EW-(Q)X7□12



Size: M18
E2EW-(Q)X12□18



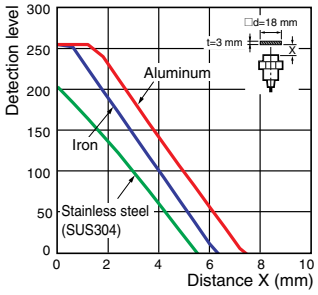
Size: M30
E2EW-(Q)X22□30



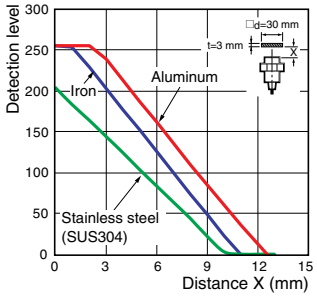
DC 3-wire

Triple distance model/Spatter-resistant Triple distance model

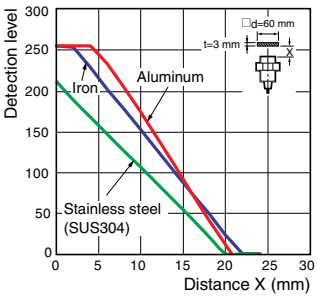
Size: M12
E2EW-(Q)X6□12



Size: M18
E2EW-(Q)X10□18



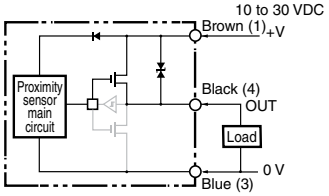
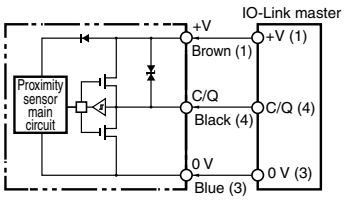
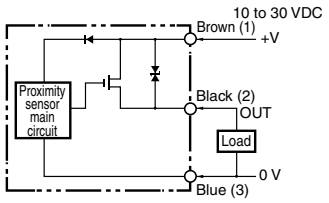
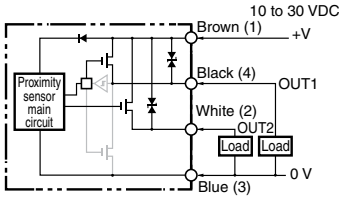
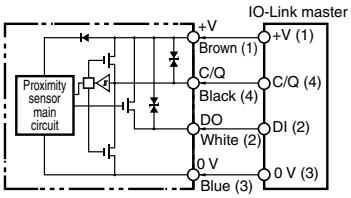
Size: M30
E2EW-(Q)X20□30



I/O Circuit Diagrams/Timing charts

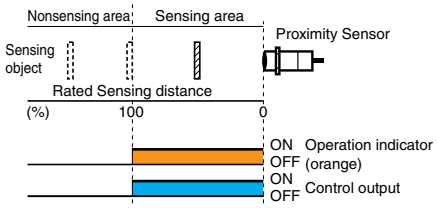
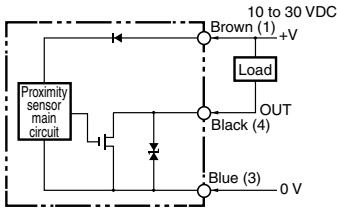
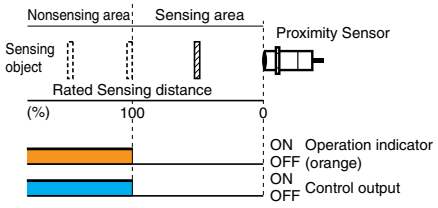
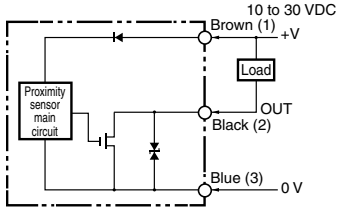
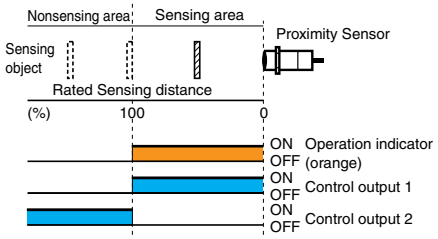
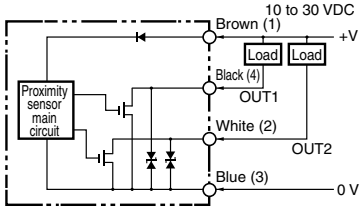
DC 3-wire

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

Operation mode	Model	Output circuit	
		Standard I/O mode (SIO mode) When using as a general	IO-Link Communication mode (COM mode) When using the Sensor connected to 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		

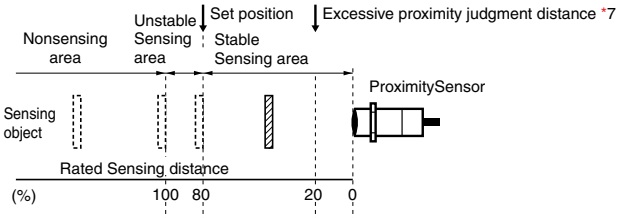
Connector Pin Arrangement

M12 Connector M12 Smartclick Connector	

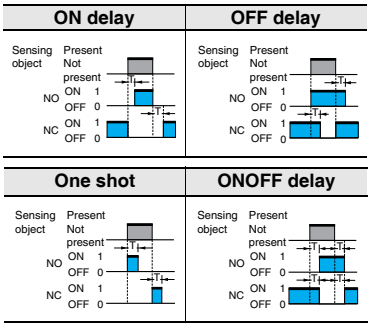
DC 3-wire

PNP output (PREMIUM Model)

Output mode	Operation mode *1	Timing chart
Standard I/O mode (SIO mode) *2	NO	ON/OFF Comunication indicator (green) : Always OFF ON/OFF Operation indicator (orange) ON/OFF Control output *3
	NC	ON/OFF Comunication indicator (green) : Always OFF ON/OFF Operation indicator (orange) ON/OFF Control output *3
	NO+NC	ON/OFF Comunication indicator (green) : Always OFF ON/OFF Operation indicator (orange) ON/OFF Control output 1 *3 ON/OFF Control output 2 *3
IO-Link Communication mode (COM mode)	NO	Flashing (1sec cycle) Comunication indicator (green) ON/OFF Operation indicator (orange) 1/0 Control output (PD1_bit0) *3 1/0 Instability detection *6 (PD1_bit4) 1/0 Excessive proximity detection (PD1_bit5)
	NC	Flashing (1sec cycle) Comunication indicator (green) ON/OFF Operation indicator (orange) 1/0 Control output (PD1_bit0) *3 1/0 Instability detection *6 (PD1_bit4) 1/0 Excessive proximity detection (PD1_bit5)
	NO+NC	Flashing (1sec cycle) Comunication indicator (green) ON/OFF Operation indicator (orange) 1/0 Control output1 (PD1_bit0) *3 1/0 Control output2 (PD1_bit1) *3 1/0 Instability detection *6 (PD1_bit4) 1/0 Excessive proximity detection (PD1_bit5)



*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).

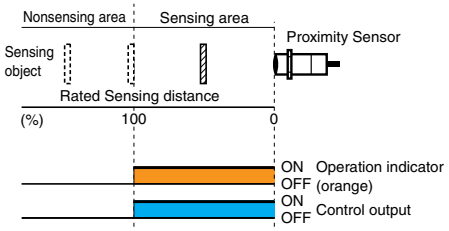
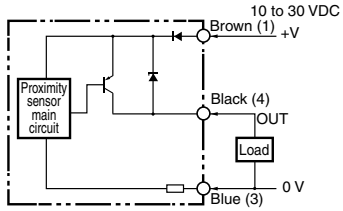
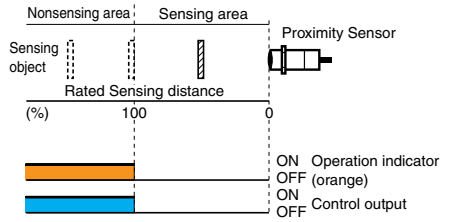
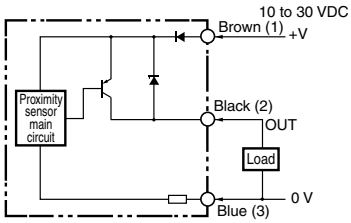
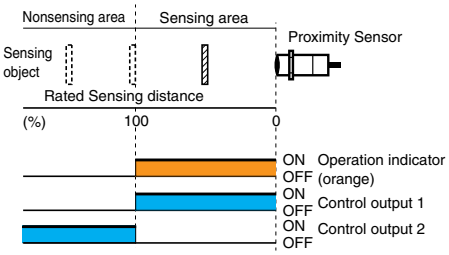
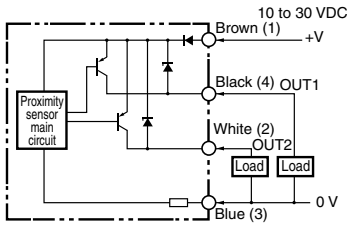
Please contact your OMRON sales representative regarding assignment of data.

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

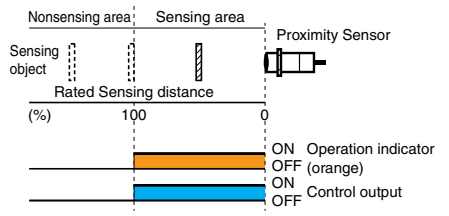
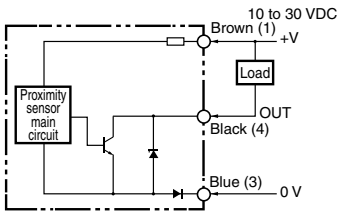
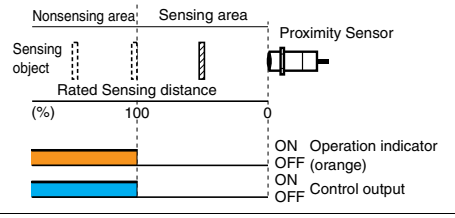
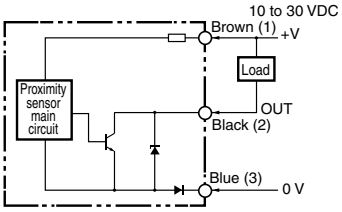
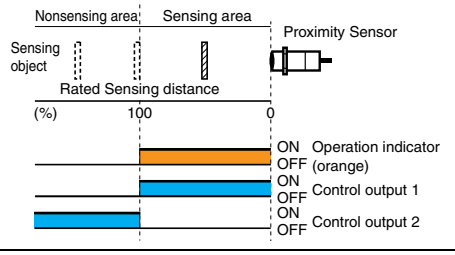
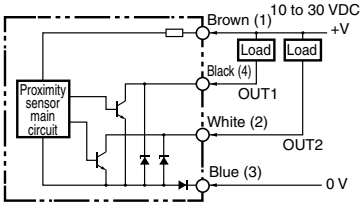
*2. If using a model with IO-Link as a general sensor or using a model without IO-Link, it operates in the standard I/O mode (SIO mode).

DC 3-wire

PNP output (BASIC Model)

Operation mode	Model	Timing chart	Output circuit
NO	E2EW-(Q)X□B1		
NC	E2EW-(Q)X□B2		
NO+NC	E2EW-(Q)X□B3		

NPN output (BASIC Model)

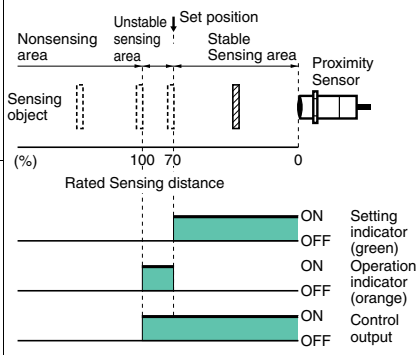
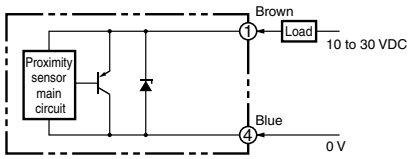
Operation mode	Model	Timing chart	Output circuit
NO	E2EW-(Q)X□C1		
NC	E2EW-(Q)X□C2		
NO+NC	E2EW-(Q)X□C3		

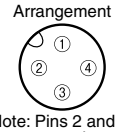
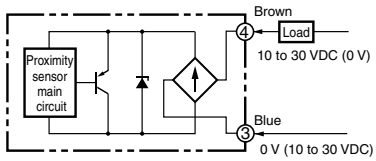
Connector Pin Arrangement

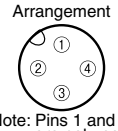
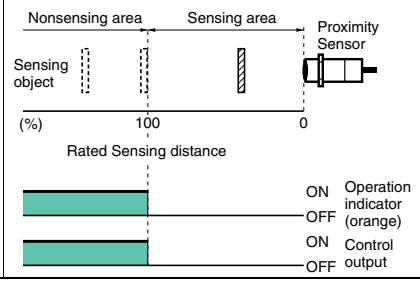
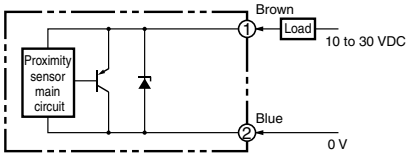
M12 Connector **M12 Smartclick Connector**	

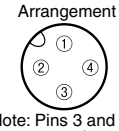
DC 2-wire

BASIC Models

<table>
<tr><th>Operation mode</th><th>Model</th><th>Timing chart</th><th>Output circuit</th></tr>
<tr><td rowspan="2">NO</td><td>E2EW-(Q)X□D1□</td><td rowspan="2"> 
</td><td> 

Note: The load can be connected to either the +V or 0 V side.
Connector Pin Arrangement
 
Note: Pins 2 and 3 are not used.</td></tr>
<tr><td>E2EW-(Q)X□D1□-T</td><td> 

Note 1. The load can be connected to either the +V or 0 V side.
2. The E2E-X□D1-M1J-T has no polarity. Therefore, terminals 3 and 4 have no polarity.
Connector Pin Arrangement
 
Note: Pins 1 and 2 are not used.</td></tr>
<tr><td>NC</td><td>E2EW-(Q)X□D2□</td><td> 
</td><td> 

Note: The load can be connected to either the +V or 0 V side.
Connector Pin Arrangement
 
Note: Pins 3 and 4 are not used.</td></tr>
</table>

Safety Precautions

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

Warning Indications

⚠WARNING	**Warning level** 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.
Precautions for Safe Use	Supplementary comments on what to do or avoid doing, to use the product safely.
Precautions for Correct Use	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

	**General prohibition** Indicates the instructions of unspecified prohibited action.
	**Caution, explosion** 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.

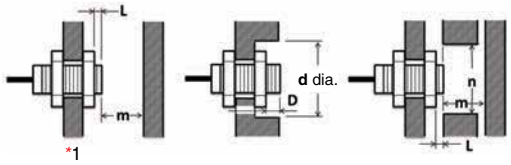
Operating Environment

1. Do not install the Sensor in the following locations.
   (1) Outdoor locations directly subject to sunlight, rain, snow, waterdroplets, or oil.
   (2) Locations subject to atmospheres with chemical vapors, inparticular 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) 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 outputmis-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.

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

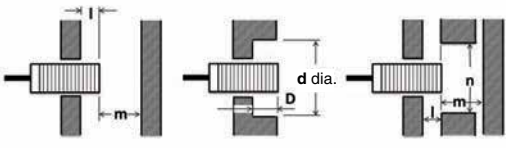
Models	Model	L	d	D	m	n
Quadruple distance model	E2EW-(Q)X7□12	4	30	4	28	36
	E2EW-(Q)X12□18	6	54	6	36	54
	E2EW-(Q)X22□30	8	90	8	66	90
Triple distance model	E2EW-(Q)X6□12	4	30	4	24	36
	E2EW-(Q)X10□18	2	54	2	30	54
	E2EW-(Q)X20□30	0	30	0	60	90
Double distance model	E2EW-(Q)X3□12	0	12	0	12	40
	E2EW-(Q)X7□18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

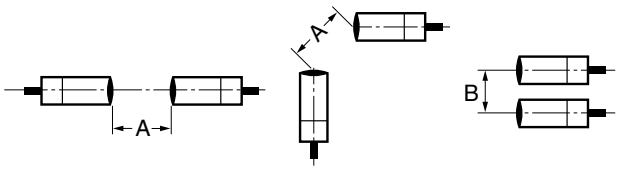
*2. If the thickness of the mounting bracket (t) is less than 10 mm, be sure to install the Sensor so that l ≥ 2, d (dia.) ≥ 30, and D ≥ 2.

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 sideby-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

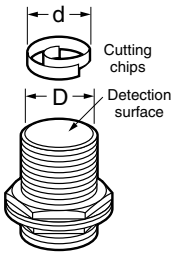
Normally, chips from cutting aluminum will not cause a detection signal to be output even if it adheres to or accumulates on the detection surface. In the following cases, however, a detection signal may be output.

Remove the cutting chips in these cases.

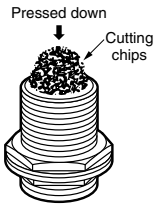
1. If d ≥ 2/3D at the center of the detection surface where d is the cutting chip size and D is the detection surface size

(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.

Dimensions

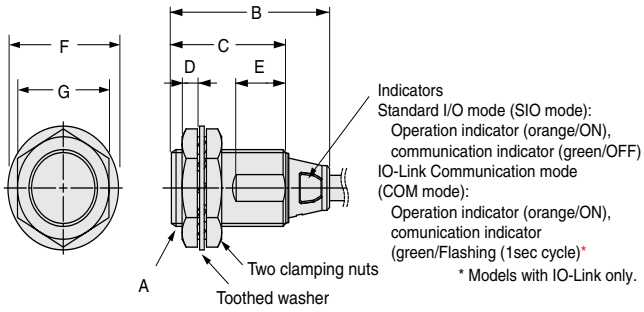
(Unit: mm)
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

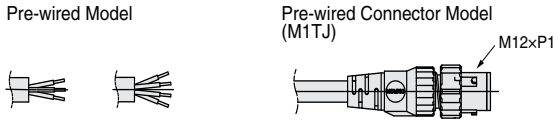
Sensors

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



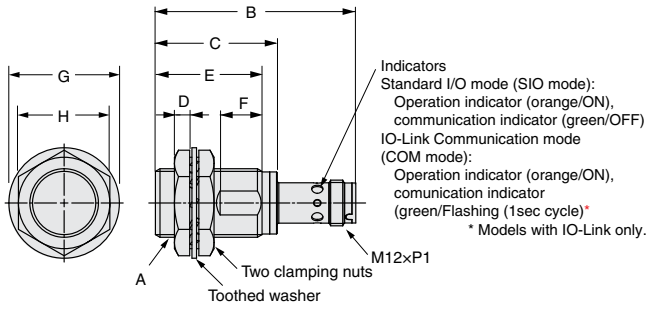


(Operation mode): Output configuration (B1, C1): NO,
(B2, C2): NC
Vinyl-insulated round cable with 3 conductors size: 6-dia.
(Conductor cross section: 0.3 mm^2 (AWG24), Insulator diameter: 1.05 mm),
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)

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

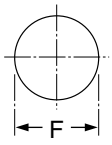
Models	Model	A	B	C	D	E	F	G
Quadruple distance model	E2EW-(Q)X7□12(-M1TJ)	M12×P1	41.5	30	4	10	21 dia.	17
	E2EW-(Q)X12□18(-M1TJ)	M18×P1	41.5	30	4	13	29 dia.	24
	E2EW-(Q)X22□30(-M1TJ)	M30×P1.5	41.5	30	5	13	42 dia.	36
Triple distance model	E2EW-(Q)X6□12(-M1TJ)	M12×P1	41.5	30	4	10	21 dia.	17
	E2EW-(Q)X10□18(-M1TJ)	M18×P1	41.5	30	4	13	29 dia.	24
	E2EW-(Q)X20□30(-M1TJ)	M30×P1.5	41.5	30	5	13	42 dia.	36

M12 Connector Model



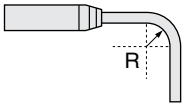
Models	Model	A	B	C	D	E	F	G	H
Quadruple distance model	E2EW-(Q)X7□12-M1	M12×P1	54.4	---	4	28	8	21 dia.	17
	E2EW-(Q)X12□18-M1	M18×P1	54.4	32	4	28	11	29 dia.	24
	E2EW-(Q)X22□30-M1	M30×P1.5	54.4	32	5	28	11	42 dia.	36
Triple distance model	E2EW-(Q)X6□12-M1	M12×P1	54.4	---	4	28	8	21 dia.	17
	E2EW-(Q)X10□18-M1	M18×P1	54.4	32	4	28	11	29 dia.	24
	E2EW-(Q)X20□30-M1	M30×P1.5	54.4	32	5	28	11	42 dia.	36

Mounting Hole Dimensions



Dimensions	F (mm)
M12	12.5 dia. $^{+0.5}_{0}$
M18	18.5 dia. $^{+0.5}_{0}$
M30	30.5 dia. $^{+0.5}_{0}$

Angle R of the Bending Wire



Dimensions	R (mm)
M12	18
M18	
M30	

Dimensions

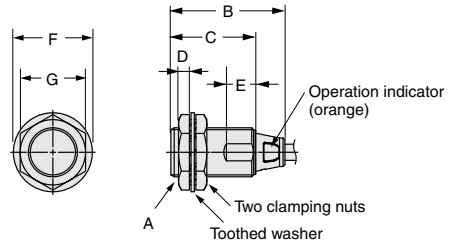
(Unit: mm)
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

Sensors

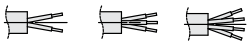
BASIC Model **DC 2-wire/DC 3-wire**

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

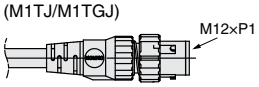
Pre-wired Model/ Pre-wired Connector Model



Pre-wired Model



Pre-wired Connector Model (M1TJ/M1TGJ)



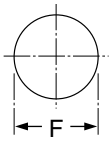
(Operation mode): Output configuration (D1): NO
(D2): NC
Vinyl-insulated round cable with 2 conductors size: 6-dia.
(Conductor cross section: 0.3 mm² (AWG24), Insulator diameter: 1.05 mm),
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)

(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 mm² (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 mm² (AWG24), Insulator diameter: 1.05 mm),
Standard length: 2 m (Pre-wired Model), 0.3 m (Pre-wired Connector Model)

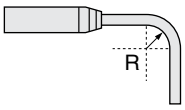
Models	Model	A	B	C	D	E	F	G
Double distance model	E2EW-(Q)X3 □12(-M1TJ) E2EW-(Q)X3D □12(-M1TGJ)	M12×P1	41.5	30	4	10	21 dia.	17
	E2EW-(Q)X7 □18(-M1TJ) E2EW-(Q)X7D □18(-M1TGJ)	M18×P1	41.5	30	4	13	29 dia.	24
	E2EW-(Q)X12 □30(-M1TJ) E2EW-(Q)X12D □30(-M1TGJ)	M30× P1.5	41.5	30	5	13	42 dia.	36
Single distance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

Mounting Hole Dimensions



Dimensions	F (mm)
M12	12.5 dia. $^{+0.5}_{0}$
M18	18.5 dia. $^{+0.5}_{0}$
M30	30.5 dia. $^{+0.5}_{0}$

Angle R of the Bending Wire



Dimensions	R (mm)
M12	18
M18	
M30	

EV Battery Manufacturing Proximity Sensor
E2EW-EV Series
DC 2-wire/DC 3-wire

Copper- and zinc-free *3 EV battery manufacturing proximity sensor

- Equivalent sensing distances for both iron and aluminum *1
- Enables common design for lines with both iron and aluminum *1
- The exceptional sensing range, which means fewer false detections and thereby fewer unexpected stoppages. *1
- 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 and model on the cable) *2 can be reducing errors during sensor replacement.
- UL certification (UL60947-5-2) and CSA certification (CSA C22.2 UL60947-5-2-14) *2

*1. PREMIUM Models only.
*2. DC 2-wire, M8-size models are excluded.

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 10.

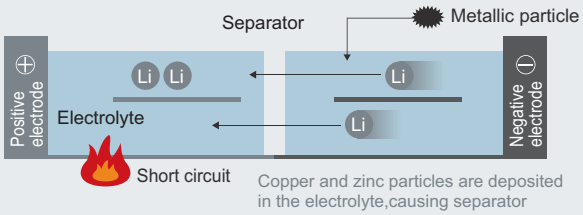
Features

Proximity sensors free from copper and zinc affecting battery performance *3 help build production lines for safe and reliable EV batteries

Devices enclosed in a housing that does not contain copper or zinc are required to ensure the safety and reliability of EV batteries. Clamping nuts and washers provided as accessories with E2EW-EV *4 Proximity Sensors are also made of SUS and free from copper and zinc, allowing them to be reliably used in EV battery manufacturing processes.

BEFORE

It is impossible to ensure the safety and reliability of EV batteries manufactured by using devices that contain copper or zinc.



Copper and zinc particles are deposited in the electrolyte,causing separator breakage or short circuit.

· The use of devices that do not contain metallic materials affecting battery performance and reliability or that meet the inhouse content percentage standard needs to be considered. It will take over one month to select these devices.

AFTER

A wide range of products that are free from specific metals *3 and enclosed in a SUS contribute to the construction of production lines for safe and reliable EV batteries.

Cu FREE

Zn FREE

· Our products that do not contain specific metals *3 eliminate the need for the examination of metal content, saving time and effort.

*3. Metals used for a housing contain 5% or less of specific substances. (Based on our investigation.)
*4. Use the XS2Z-31 Spatter Protection Cover because the connector of pre-wired connector models (-M1TJ/-M1J/-M1TGJ) is plated with zinc. For details, refer to XS2 on your local OMRON website.

E2EW-EV Series

Model Number Legend

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

No.	Type	Code	Meaning	Remarks
(1)	Sensing distance	Number	Sensing distance (Unit: mm)	
(2)	Output configuration	B	DC 3-wire PNP open collector	Whether the D model has polarity is defined by number (7).
		C	DC 3-wire NPN open collector	
		D	DC 2-wire polarity/no polarity	
(3)	Operation mode	1	Normally open (NO)	
		2	Normally closed (NC)	
		3	Normally open, Normally closed (NO+NC)	
(4)	IO-Link baud rate	Blank	Non IO-Link compliant	
		D	COM2 (38.4kbps)	
		T	COM3 (230.4kbps)	
(5)	Size	8	M8	
		12	M12	
		18	M18	
		30	M30	
(6)	Connection method	Blank	Pre-wired Models	
		M1TGJ	M12 Pre-wired Smartclick Connector Models DC 2-wire	
		M1TJ	M12 Pre-wired Smartclick Connector Models DC 3-wire	
(7)	DC 2-wire polarity	Blank	Polarity	
		T	No polarity	
(8)	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.

Ordering Information

BASIC Model

Double distance model

DC 2-wire [Refer to *Ratings and Specifications* on page 4, *Dimensions* on page 13.]

Size (Sensing distance)	Body size	Connection method	Polarity	Model
				Operation mode: NO
M8 (2 mm)		Pre-wired (2 m)	Yes	**E2EW-X2D18-EV 2M**
		M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X2D18-M1TGJ-EV 0.3M**
M12 (3 mm)		Pre-wired (2 m)	Yes	**E2EW-X3D112-EV 2M**
		M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X3D112-M1TGJ-EV 0.3M**
			No	**E2EW-X3D112-M1TGJ-TEV 0.3M**
M18 (7 mm)		Pre-wired (2 m)	Yes	**E2EW-X7D118-EV 2M**
		M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X7D118-M1TGJ-EV 0.3M**
			No	**E2EW-X7D118-M1TGJ-TEV 0.3M**
M30 (12 mm)		Pre-wired (2 m)	Yes	**E2EW-X12D130-EV 2M**
		M12 Pre-wired Smartclick Connector (0.3 m)	Yes	**E2EW-X12D130-M1TGJ-EV 0.3M**
			No	**E2EW-X12D130-M1TGJ-TEV 0.3M**

Note: 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 11.
2. IO-Link is not supported for BASIC Model.
3. M8-size models have some different specifications (e.g., indicator, information printed on sensor head, body size) from M12, M18, or M30-size models.
Refer to *Ratings and Specifications* and *Dimensions* for details and differences.

PREMIUM Model

Triple distance model

DC 3-wire [Refer to *Ratings and Specifications* on page 5, *Dimensions* on page 14.]

Size (Sensing distance)	Body size	Connection method	Operation mode	Model	
				PNP	NPN
M12 (6 mm)		Pre-wired (2 m)	NO	**E2EW-X6B1T12-EV 2M**	**E2EW-X6C112-EV 2M**
			NO+NC	**E2EW-X6B3T12-EV 2M**	---
		M12 Pre-wired Smartclick Connector (0.3 m)	NO	**E2EW-X6B1T12-M1TJ-EV 0.3M**	**E2EW-X6C112-M1TJ-EV 0.3M**
			NO+NC	**E2EW-X6B3T12-M1TJ-EV 0.3M**	---
M18 (10 mm)		Pre-wired (2 m)	NO	**E2EW-X10B1T18-EV 2M**	**E2EW-X10C118-EV 2M**
			NO+NC	**E2EW-X10B3T18-EV 2M**	---
		M12 Pre-wired Smartclick Connector (0.3 m)	NO	**E2EW-X10B1T18-M1TJ-EV 0.3M**	**E2EW-X10C118-M1TJ-EV 0.3M**
			NO+NC	**E2EW-X10B3T18-M1TJ-EV 0.3M**	---

Note: 1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 11.
2. Models in [ ] are equipped with IO-Link (COM3).
Operation mode NO can be changed to NC via IO-Link communications.
3. IO-Link is not supported for all types of NPN outputs.

Accessories (Sold Separately)

Nut Sets

A Nut Set is included with the Sensor. Order a Nut Set when required, e.g., if you lose the nuts.

Model	Applicable Sensors	Applicable Sensor diameter	Set contents
Y92E-NWM12-E2EW-EV	E2EW-EV Series	M12	Clamping nuts (Stainless steel: SUS303): 2 Toothed washer (Stainless steel: SUS304): 1
Y92E-NWM18-E2EW-EV		M18	
Y92E-NWM30-E2EW-EV		M30	

Sensor I/O Connectors (Sold Separately)

For details of the connector, refer to XS5 Series on page 15.

E2EW-EV Series

Ratings and Specifications

BASIC Model

Double distance model

DC 2-wire

Item		Size	M8	M12	M18	M30
		Model	E2EW-X2D18-EV	E2EW-X3D112-(T)EV	E2EW-X7D118-(T)EV	E2EW-X12D130-(T)EV
Sensing distance			2 mm ±10%	3 mm ±10%	7 mm ±10%	12 mm ±10%
Setting distance			0 to 1.4 mm	0 to 2.1 mm	0 to 4.9 mm	0 to 8.4 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 *Engineering Data* on page 6.)			
Standard sensing object (Iron)			12 × 12 × 1 mm	21 × 21 × 1 mm	30 × 30 × 1 mm	54 × 54 × 1 mm
Response frequency *1			200 Hz	80 Hz	90 Hz	50 Hz
Power supply voltage			10 to 30 VDC (including 10% ripple (p-p)), Class 2			
Leakage current			0.8 mA max.			
Output configuration			D1 models: Polarity D1-T models: No polarity			
Operation mode			NO (Normally open)			
Control output	Load current		3 to 100 mA			
	Residual voltage		Polarity: 3 V max. (Load current: 100 mA, Cable length: 2 m) No polarity: 5 V max. (Load current: 100 mA, Cable length: 2 m)			
Indicator			Operation indicator (red) and setting indicator (green)	Operation indicator (orange) and setting indicator (green)		
Protection circuits			Surge suppressor, Output short-circuit protection			
Ambient temperature range			Operating: -10 to 70 °C, Storage: -25 to 70 °C (with no icing or condensation)	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 -10 to 70 °C	±20% max. of sensing distance at 23 °C in the temperature range of 0 to 85 °C		
Voltage influence			±1% max. of sensing distance at rated voltage in the rated voltage ±15% range	±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)			500 m/s^2 10 times each in X, Y, and Z directions	1,000 m/s^2 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. 105 g	Approx. 140 g	Approx. 165 g	Approx. 225 g
	M12 Pre-wired Smartclick Connector		Approx. 65 g	Approx. 70 g	Approx. 100 g	Approx. 160 g
Materials	Case		Stainless steel (SUS303)	Stainless steel (SUS303Cu)		
	Sensing surface		Stainless steel (SUS303)	Stainless steel (SUS303Cu)		
	Sensing surface (Thickness)		0.2 mm	0.4 mm	0.4 mm	0.5 mm
	Clamping nuts		Stainless steel (SUS303)			
	Toothed washers		Stainless steel (SUS304)			
	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.

PREMIUM Model

Triple distance model

DC 3-wire

Item \ Size	Model	M12	M18
		E2EW-X6□12-EV	E2EW-X10□18-EV
Sensing distance		6 mm ±10%	10 mm ±10%
Setting distance		0 to 4.2 mm	0 to 7.0 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 *Engineering Data* on page 6.)	
Standard sensing object (Iron)		18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency *1		30 Hz	20 Hz
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), 2-output models (B3): NO+NC (Normally open, Normally closed)	
Control output	Load current	1-output models (B1, C1): 10 to 30 VDC, Class 2, 200 mA max. 2-output models (B3): 10 to 30 VDC, Class 2, 100 mA max.	
	Residual voltage	1-output models (B1, C1): 2 V max. (Load current: 200 mA, Cable length: 2 m) 2-output models (B3): 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) 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: 0 to 85 °C, Storage: -15 to 85 °C (with no icing or condensation) *3	
Temperature influence		±20% max. of sensing distance at 23 °C in the temperature range of 0 to 85 °C	
Voltage influence		±20% max. of sensing distance at 23 °C in the temperature range of 0 to 85 °C	
Insulation resistance		±20% max. of sensing distance at 23 °C in the temperature range of 0 to 85 °C	
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)		10 to 55 Hz, 1.5-mm double amplitude for 2 hours 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
	M12 Pre-wired Smartclick Connector	Approx. 70 g	Approx. 100 g
Materials	Case	Stainless steel (SUS303Cu)	
	Sensing surface	Stainless steel (SUS303Cu)	
	Sensing surface (Thickness)	0.4 mm	0.4 mm
	Clamping nuts	Stainless steel (SUS303)	
	Toothed washers	Stainless steel (SUS304)	
	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	COM3 (230.4 kbps)	
	Data length	PD size: 2 bytes, OD size: 1 byte (M-sequence type: TYPE_2_2)	
	Minimum cycle time	COM3: 1.0 ms	
Accessories		Instruction manual, Clamping nuts, Toothed washer	

*1. The response frequency is an average value.
*2. IO-Link is not supported for all types of NPN outputs.
*3. UL temperature rating is between 0 °C to 60 °C.

E2EW-EV Series

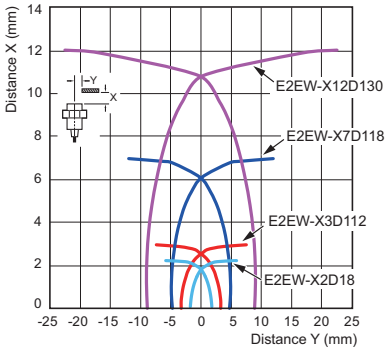
Engineering Data (Reference Value)

Sensing Area

BASIC Model

DC 2-wire
Double distance model

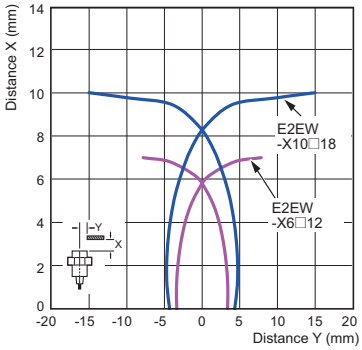
Sensing object: iron



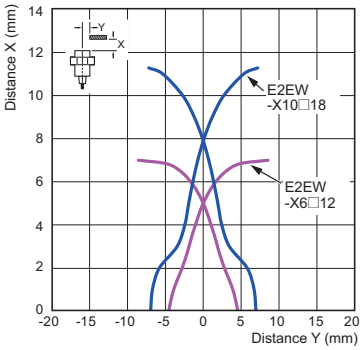
PREMIUM Model

DC 3-wire
Triple distance model

Sensing object: iron



Sensing object: Aluminum

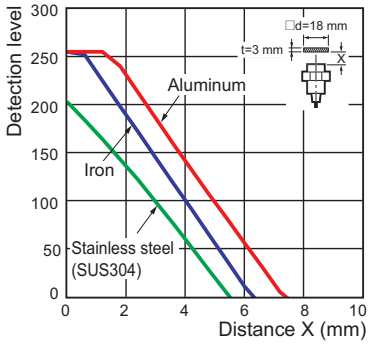


Monitor Output vs. Sensing Distance

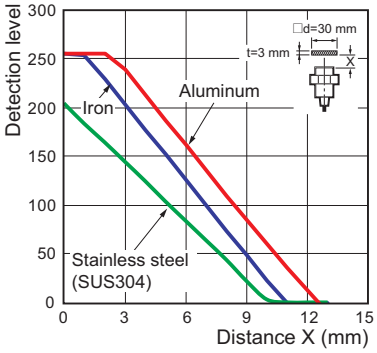
PREMIUM Model

DC 3-wire
Triple distance model

Size: M12
E2EW-X6□12



Size: M18
E2EW-X10□18

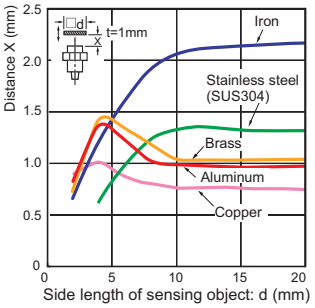


Influence of Sensing Object Size and Material

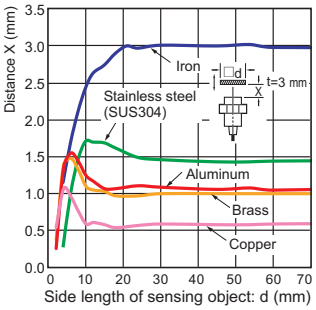
BASIC Model

DC 2-wire
Double distance model

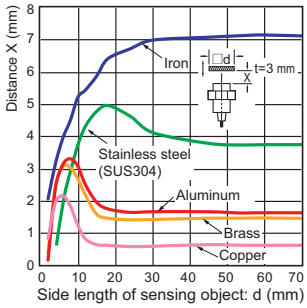
Size: M8
E2EW-X2D18



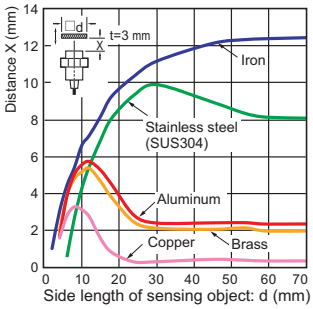
Size: M12
E2EW-X3D112



Size: M18
E2EW-X7D118



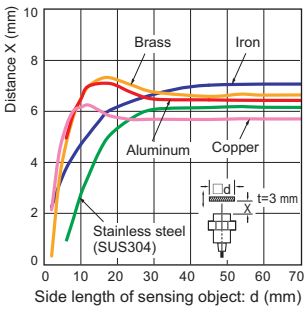
Size: M30
E2EW-X12D130



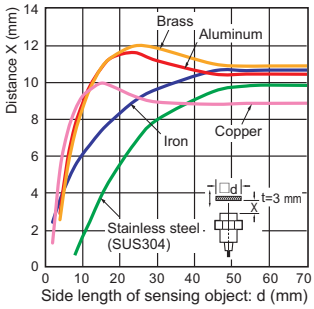
PREMIUM Model

DC 3-wire
Triple distance model

Size: M12
E2EW-X6□12



Size: M18
E2EW-X10□18

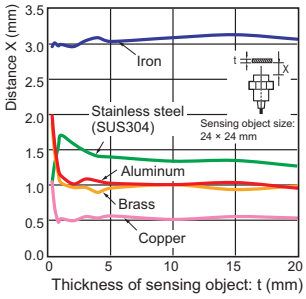


Influence of Sensing Object Thickness and Material

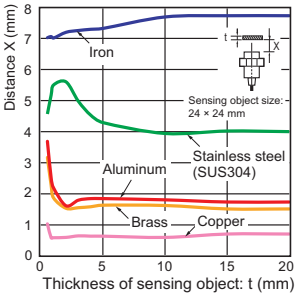
BASIC Model

DC 2-wire
Double distance model

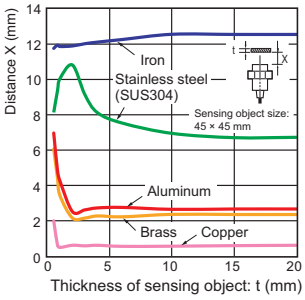
Size: M12
E2EW-X3D112



Size: M18
E2EW-X7D118



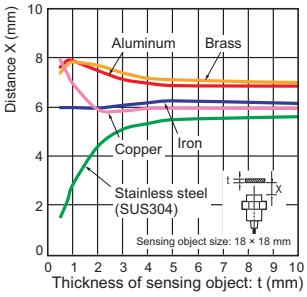
Size: M30
E2EW-X12D130



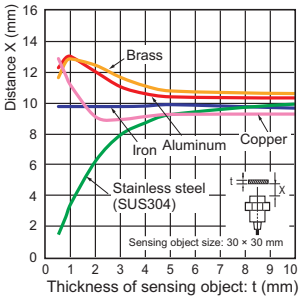
PREMIUM Model

DC 3-wire
Triple distance model

Size: M12
E2EW-X6□12



Size: M18
E2EW-X10□18

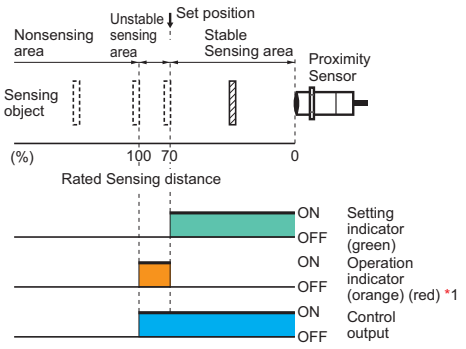
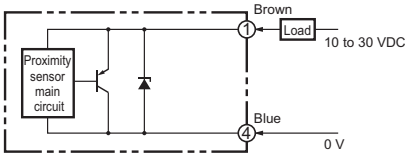
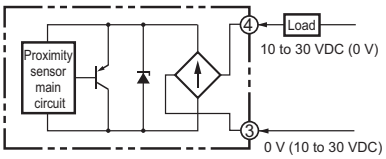


E2EW-EV Series

I/O Circuit Diagrams/Timing charts

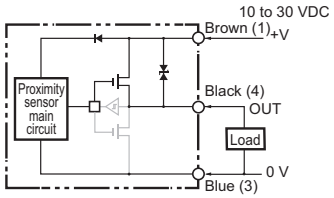
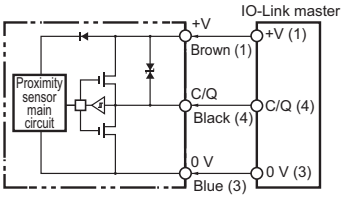
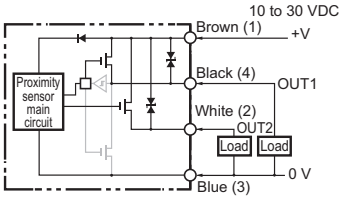
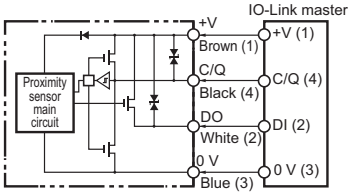
DC 2-wire

BASIC Models

Operation mode	Model	Timing chart	Output circuit
NO	E2EW-X□D1□	 *1. Only M8-size models have a red indicator.	 Note 1. The load can be connected to either the +V or 0 V side. 2. Pins 2 and 3 of the Pre-wired Smartclick Connector type are not used.
	E2EW-X□D1□-T		 Note 1. The load can be connected to either the +V or 0 V side. 2. There is no polarity. Therefore, no need to be concerned about the polarity of pins 3 and 4. Pins 1 and 2 of the Pre-wired Smartclick Connector type are not used.

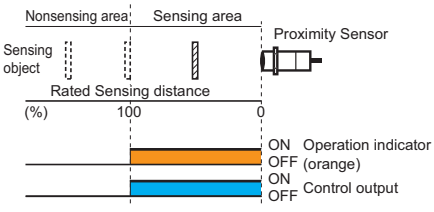
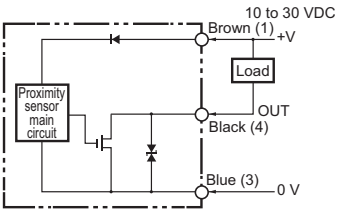
DC 3-wire

PNP output (PREMIUM Model) [Refer to *Timing Chart* on page 9]

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

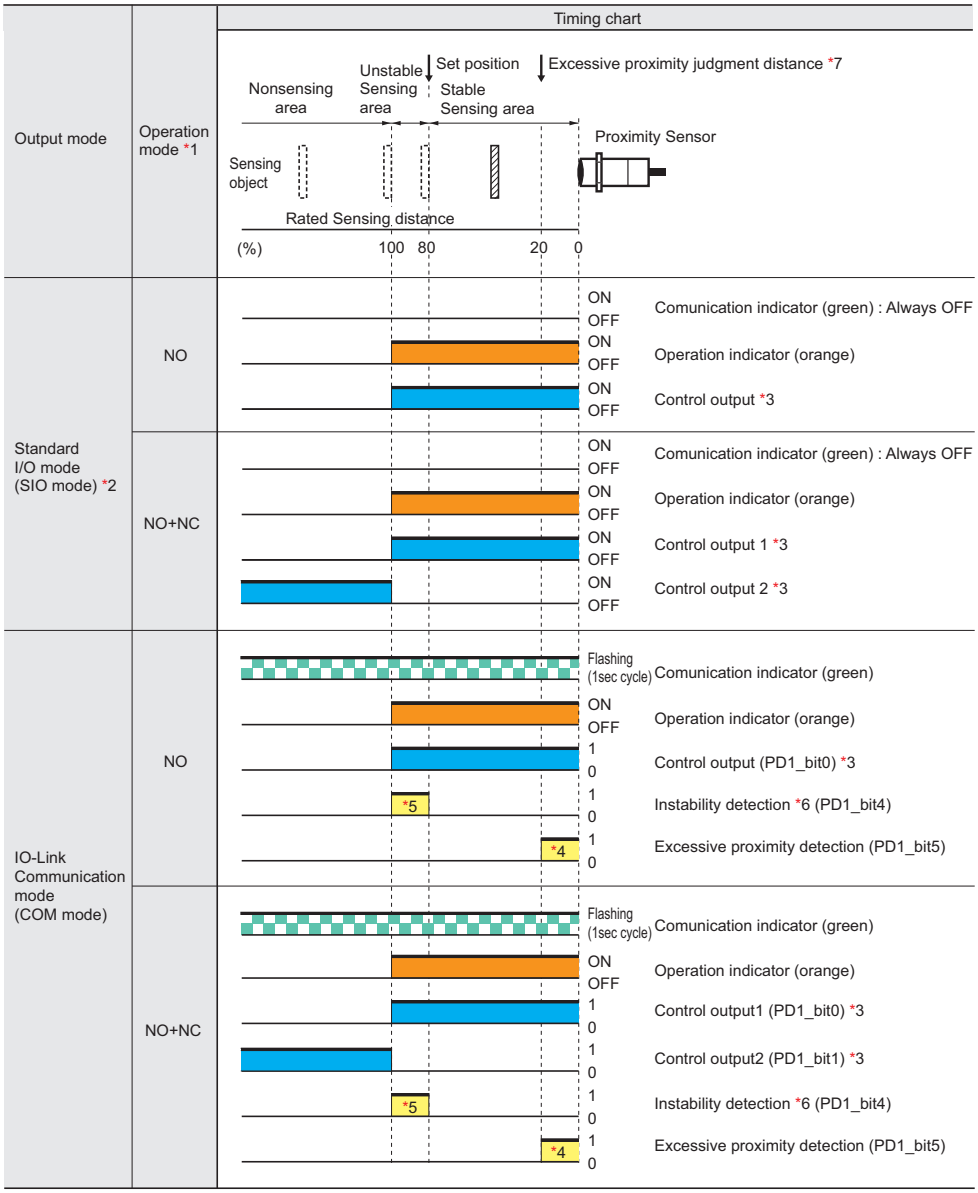
Operation mode	Model	Timing chart	Output circuit
NO	E2EW-X□C1		

Connector Pin Arrangement

M12 Smartclick Connector	

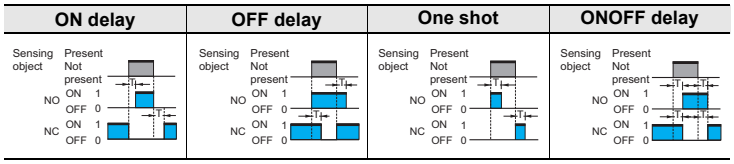
DC 3-wire

PNP output (PREMIUM Model)



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).
*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)

Safety Precautions

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

Warning Indications

⚠WARNING	**Warning level** 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.
Precautions for Safe Use	Supplementary comments on what to do or avoid doing, to use the product safely.
Precautions for Correct Use	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

	**General prohibition** Indicates the instructions of unspecified prohibited action.
	**Caution, explosion** 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

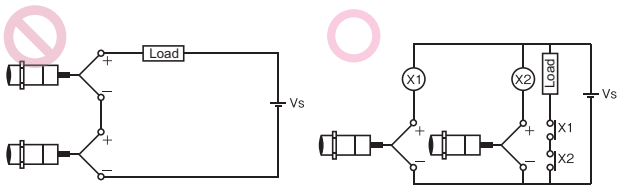
Do not use the product in any atmosphere or environment that exceeds the ratings.

Operating Environment

1. Do not install the Sensor in the following locations.
   (1) Outdoor locations directly subject to sunlight, rain, snow, waterdroplets, or oil.
   (2) Locations subject to atmospheres with chemical vapors, inparticular 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) 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 outputmis-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.

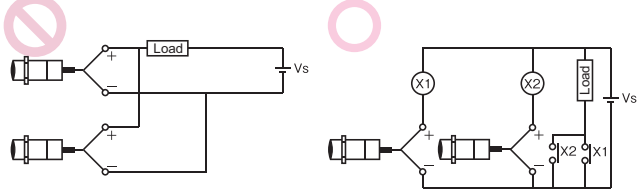
AND Connection of Proximity Sensors (DC 2-wire)

Two or more sensors cannot be connected in series on the AND circuit. Use them via a relay as shown on the figure.



OR Wiring of Proximity Sensors (DC 2-wire)

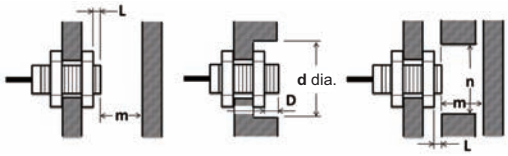
As a general principle, two or more sensors cannot be used in parallel on the OR circuit. It is possible only when sensors do not operate simultaneously and loads do not need to be maintained. When loads need to be maintained, use the sensors via a relay as shown on the figure.



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)

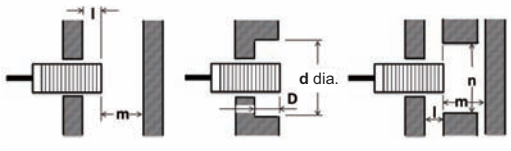
Mounting panel material: Iron

Models	Model	L	d	D	m	n
Triple distance model	E2EW-X6□12	4	30	4	24	36
	E2EW-X10□18	2	54	2	30	54
Double distance model	E2EW-X2□8	0	8	0	8	30
	E2EW-X3□12	0	12	0	12	40
	E2EW-X7□18	0	18	0	28	60
	E2EW-X12□30	0	30	0	48	100

Mounting panel material: Aluminum

Models	Model	L	d	D	m	n
Triple distance model	E2EW-X6□12	12	70	12	24	70
	E2EW-X10□18	12	80	12	30	80
Double distance model	E2EW-X2□8	10	50	10	8	50
	E2EW-X3□12	12	70	12	12	70
	E2EW-X7□18	12	80	12	28	80
	E2EW-X12□30	16	120	16	48	120

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
Triple distance model	E2EW-X6□12	0 *1	12 *1	0 *1	24	36
	E2EW-X10□18	0	18	0	30	54
Double distance model	E2EW-X2□8	0	8	0	8	30
	E2EW-X3□12	0	12	0	12	40
	E2EW-X7□18	0	18	0	28	60
	E2EW-X12□30	0	30	0	48	100

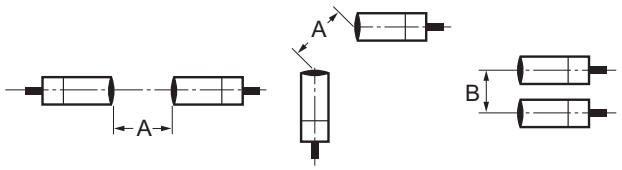
*1. If the thickness of the mounting bracket (t) is less than 10 mm, be sure to install the Sensor so that l ≥ 2, d (dia.) ≥ 30, and D ≥ 2.

Embedded material: Aluminum

Models	Model	l	d	D	m	n
Triple distance model	E2EW-X6□12	12	70	12	24	70
	E2EW-X10□18	12	80	12	30	80
Double distance model	E2EW-X2□8	10	50	10	8	50
	E2EW-X3□12	12	70	12	12	70
	E2EW-X7□18	12	80	12	28	80
	E2EW-X12□30	16	120	16	48	120

Mutual Interference

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



(Unit: mm)

Models	Model	Item	
		A	B
Triple distance model	E2EW-X6□12	45	40
	E2EW-X10□18	80	60
	E2EW-X20□30	135	110
Double distance model	E2EW-X2□8	35	35
	E2EW-X3□12	40	35
	E2EW-X7□18	65	60
	E2EW-X12□30	110	100

Chips from Cutting Aluminum

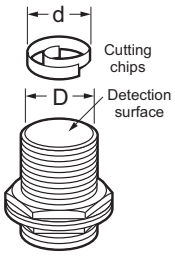
Normally, chips from cutting aluminum will not cause a detection signal to be output even if it adheres to or accumulates on the detection surface. In the following cases, however, a detection signal may be output.

Remove the cutting chips in these cases.

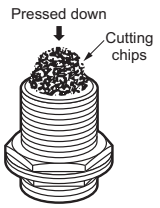
1. If d ≥ 2/3D at the center of the detection surface where d is the cutting chip size and D is the detection surface size

(Unit: mm)

Model	Dimension	D
E2EW-X□8		6
E2EW-X□12		10
E2EW-X□18		16
E2EW-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.

Triple distance model (Unit: N·m)

Size	Torque
M12	20
M18	70

Double distance model (Unit: N·m)

Size	Torque
M8	9
M12	30
M18	70
M30	180

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

Dimensions

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

Sensors

BASIC Model **DC 2-wire**

Double distance model

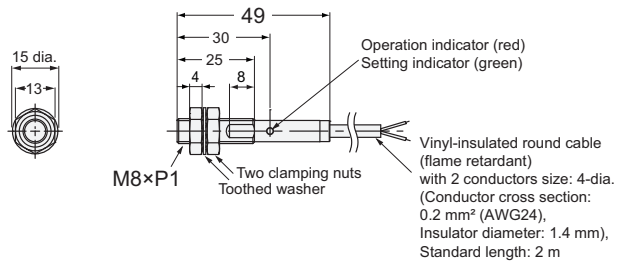
Pre-wired Model

Product photo: M12-size model

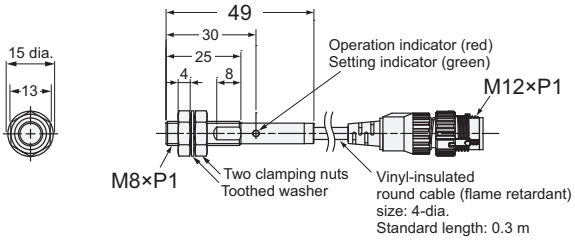
Pre-wired Connector Model

Product photo: M12-size model

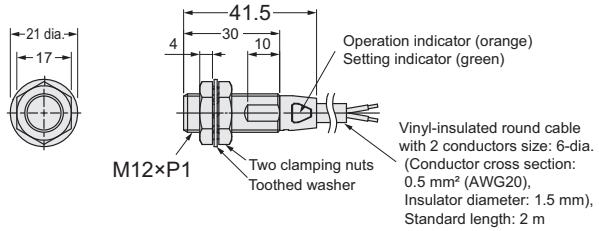
E2EW-X2D18-EV



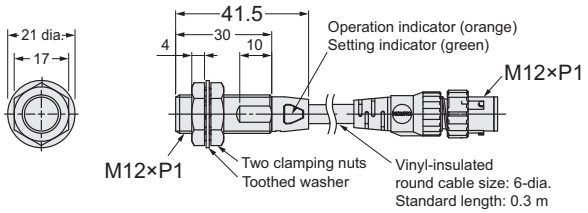
E2EW-X2D18-M1TGJ-EV



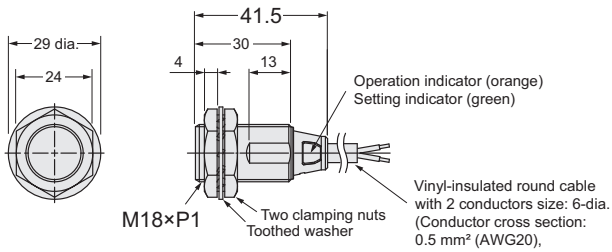
E2EW-X3D112-EV



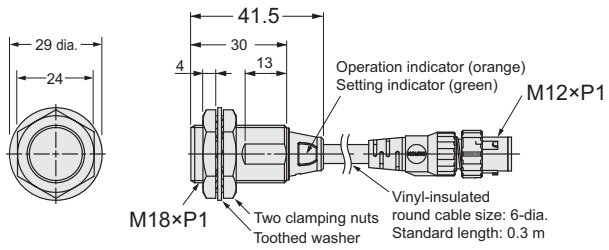
E2EW-X3D112-M1TGJ-(T)EV



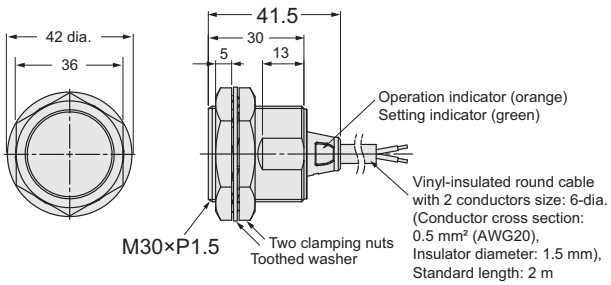
E2EW-X7D118-EV



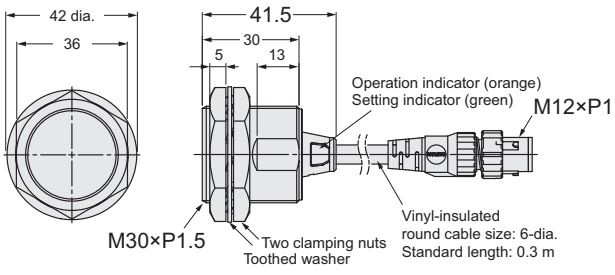
E2EW-X7D118-M1TGJ-(T)EV



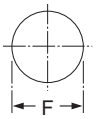
E2EW-X12D130-EV



E2EW-X12D130-M1TGJ-(T)EV

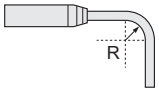


Mounting Hole Dimensions



Dimensions	F (mm)
M8	8.5 dia. $^{+0.5}_{0}$
M12	12.5 dia. $^{+0.5}_{0}$
M18	18.5 dia. $^{+0.5}_{0}$
M30	30.5 dia. $^{+0.5}_{0}$

Angle R of the Bending Wire



Dimensions	R (mm)
M8	12
M12	18
M18	
M30	

Dimensions

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

Sensors

PREMIUM Model **DC 3-wire**

Triple distance model

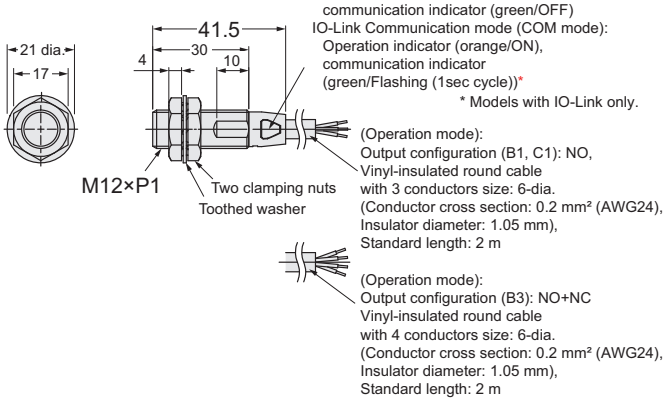
Pre-wired Model

Product photo: M12-size model

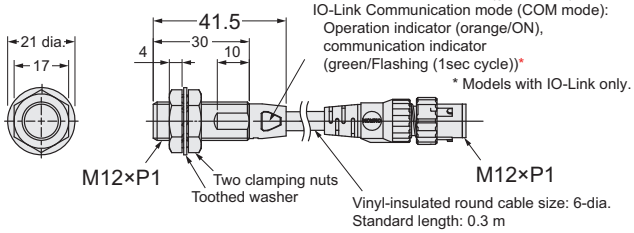
Pre-wired Connector Model

Product photo: M12-size model

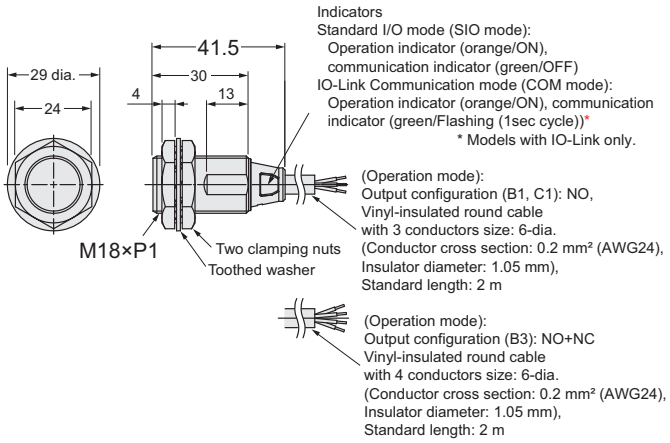
E2EW-X6□12-EV



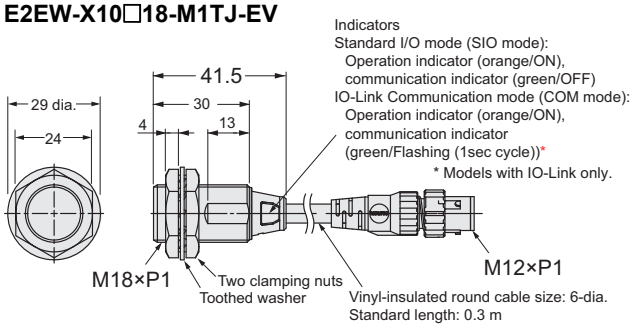
E2EW-X6□12-M1TJ-EV



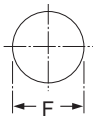
E2EW-X10□18-EV



E2EW-X10□18-M1TJ-EV

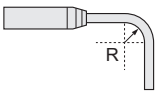


Mounting Hole Dimensions



Dimensions	F (mm)
M12	12.5 dia. $^{+0.5}_{0}$
M18	18.5 dia. $^{+0.5}_{0}$

Angle R of the Bending Wire



Dimensions	R (mm)
M12	18
M18	

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.

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

Smartclick

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

Ordering Information

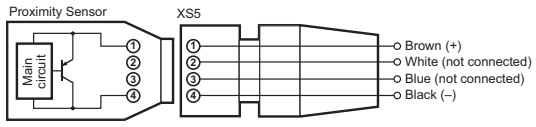
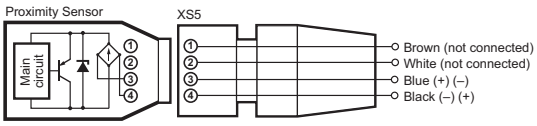
Sensor I/O Connectors

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

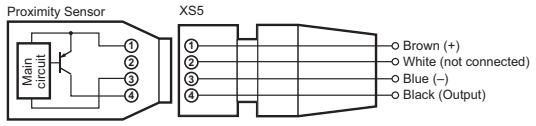
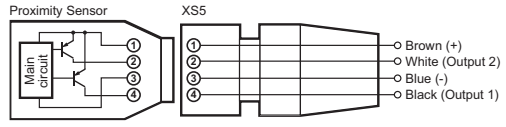
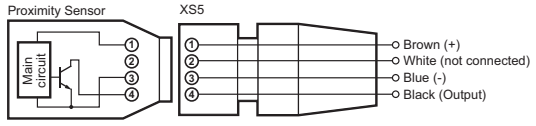
Appearance	Cable Specification	Type	Cable diameter (mm)	Cable Connection Direction	Cable length (m)	Sensor I/O Connector model number	Applicable Proximity Sensor model number
M12 Smartclick Connector Straight type  Right-angle type 	PVC robot cable	Sockets on One Cable End	6 dia.	Straight	1	**XS5F-D421-C80-F**	E2EW-EV (M12 Pre-wired Smartclick Connector)
					2	**XS5F-D421-D80-F**	
					3	**XS5F-D421-E80-F**	
					5	**XS5F-D421-G80-F**	
					10	**XS5F-D421-J80-F**	
				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**	
		Socket and Plug on Cable Ends	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**	
				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**	

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 (M12 Pre-wired Smartclick Connector)	Yes	NO	E2EW-X□D1□-M1TGJ	XS5F-D42□-□80-F XS5W-D42□-□81-F	
	No	NO	E2EW-X□D1□-M1TGJ-T		

DC 3-Wire

Proximity Sensor				Sensor I/O Connectors	
Types	Output	Operation mode	Model	Model	Connections *1
DC 3-Wire (M12 Smartclick Connector)	PNP	NO	E2EW-X□B1□-M1TJ	XS5F-D42□-□80-F XS5W-D42□-□81-F	
		NO+NC	E2EW-X□B3□-M1TJ		
	NPN	NO	E2EW-X□C1□-M1TJ		

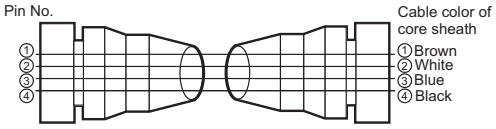
*1. If the XS5W Series Connector which has a socket and plug on the cable ends is connected to the Sensor, this part will be a plug.
Note: Different from Proximity Sensor wire colors.

Dimensions

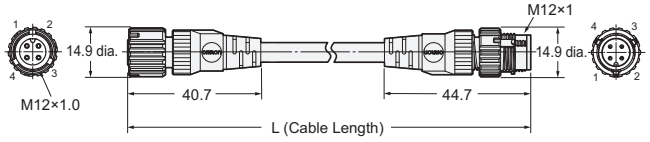
(Unit: mm)

Socket and Plug on Cable Ends XS5W

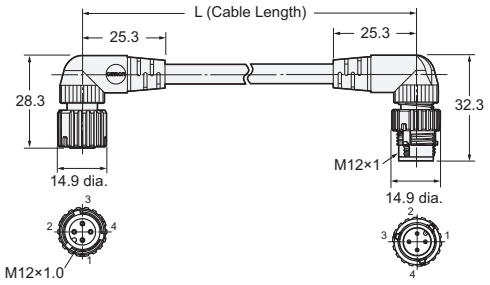
Wiring Diagram for 4 Cores



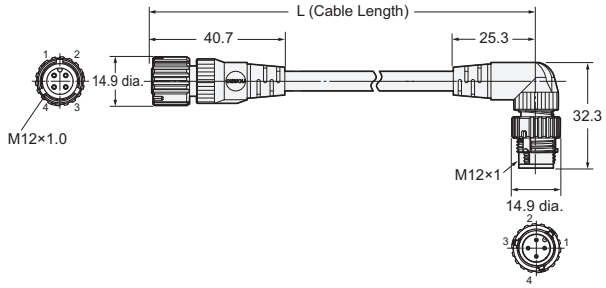
Straight (Socket)/straight (Plug)
XS5W-D421-□81-F



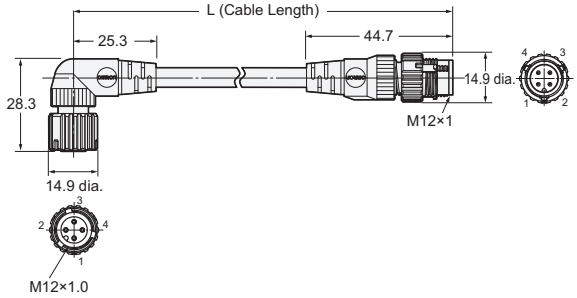
Right-angle (Socket)/right-angle (Plug)
XS5W-D422-□81-F



Straight (Socket)/right-angle (Plug)
XS5W-D423-□81-F

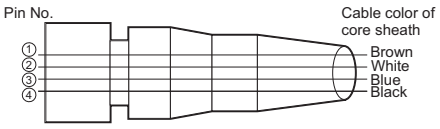


Right-angle (Socket)/straight (Plug)
XS5W-D424-□81-F

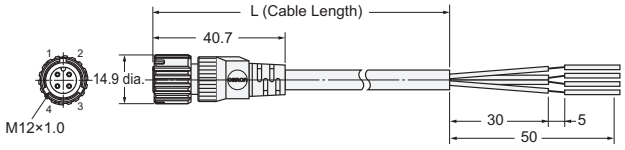


Sockets on One Cable End XS5F

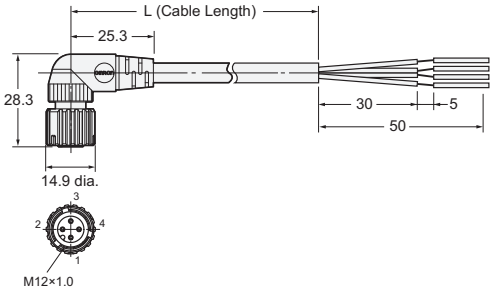
Wiring Diagram for 4 Cores



Straight type
XS5F-D421-□80-F



Right-angle type
XS5F-D422-□80-F



MEMO

Terms and Conditions Agreement

Read and understand this catalog.

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

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See http://www.omron.com/global/ or contact your Omron representative for published information.

Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

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

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

OMRON AUTOMATION AMERICAS HEADQUARTERS • Chicago, IL USA • 847.843.7900 • 800.556.6766 • automation.omron.com

OMRON CANADA, INC. • HEAD OFFICE
Toronto, ON, Canada • 416.286.6465 • 866.986.6766 • automation.omron.com

OMRON ELECTRONICS DE MEXICO • HEAD OFFICE
Ciudad de México • 52.55.5901.4300 • 01.800.386.6766 • mela@omron.com

OMRON ELECTRONICS DE MEXICO • SALES OFFICE
San Pedro Garza García, N.L. • 81.12.53.7392 • 01.800.386.6766 • mela@omron.com

OMRON ELECTRONICS DE MEXICO • SALES OFFICE
Eugenio Garza Sada,León, Gto • 01.800.386.6766 • mela@omron.com

OMRON ELETRÔNICA DO BRASIL LTDA • HEAD OFFICE
São Paulo, SP, Brasil • 55 11 5171-8920 • automation.omron.com

OMRON ARGENTINA • SALES OFFICE
Buenos Aires, Argentina • +54.11.4521.8630 • +54.11.4523.8483
mela@omron.com

OTHER OMRON LATIN AMERICA SALES
+54.11.4521.8630 • +54.11.4523.8483 • mela@omron.com

Authorized Distributor:

Controllers & I/O
• Machine Automation Controllers (MAC) • Motion Controllers
• Programmable Logic Controllers (PLC) • Temperature Controllers • Remote I/O

Robotics
• Industrial Robots • Mobile Robots

Operator Interfaces
• Human Machine Interface (HMI)

Motion & Drives
• Machine Automation Controllers (MAC) • Motion Controllers • Servo Systems
• Frequency Inverters

Vision, Measurement & Identification
• Vision Sensors & Systems • Measurement Sensors • Auto Identification Systems

Sensing
• Photoelectric Sensors • Fiber-Optic Sensors • Proximity Sensors
• Rotary Encoders • Ultrasonic Sensors

Safety
• Safety Light Curtains • Safety Laser Scanners • Programmable Safety Systems
• Safety Mats and Edges • Safety Door Switches • Emergency Stop Devices
• Safety Switches & Operator Controls • Safety Monitoring/Force-guided Relays

Control Components
• Power Supplies • Timers • Counters • Programmable Relays
• Digital Panel Meters • Monitoring Products

Switches & Relays
• Limit Switches • Pushbutton Switches • Electromechanical Relays
• Solid State Relays

Software
• Programming & Configuration • Runtime

Note: Specifications are subject to change.