E2EQ NEXT Series

DC 3-wire/DC 2-wire

Enables easier and standardized designs previously not possible with fluororesin coating models

Is your welding process keeping you up at night because of weld slag?
Contact the experts at Ramco to discuss how the E2EQ NEXT can help!

- Nearly double*1 the sensing distance of previous
- With high-brightness LED, the indicator is visible anywhere from 360°
- Comes in a wide variation to make sensor selection easy
- UL certification (UL60947-5-2)*2 and CSA certification (CSA C22.2 UL60947-5-2-14)

*1. Comparison with E2EQ products. Based on September 2021 OMRON investigation.
*2. M8 (4-pin) Connector Models are not UL certified.

Be sure to read *Safety Precautions* on page 104.

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

E2EQ NEXT Series Model Number Legend

E2EQ - X (1) (2) (3) (4) (5) (6) - (7) - (8) (9)

No.	Type	Code	Meaning	Remarks
(1)	Sensing distance	Number	Sensing distance (Unit: mm) (R: Indication of decimal point)	
(2)	Output configuration	B	PNP open collector	Whether the D model has polarity is defined by number (7).
		C	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 (38.4 kbps)	
		T	COM3 (230.4 kbps)	
(5)	Size	8	M8	
		12	M12	
		18	M18	
		30	M30	
(6)	Connection method	Blank	Pre-wired Models	
		M1	M12 Connector Models	
		M3	M8 (4-pin) Connector Models	
		M5	M8 (3-pin) Connector Models	
		M1GJ	M12 Pre-wired Standard Connector Models DC 2-wire	
		M1TGJ	M12 Pre-wired Smartclick Connector Models DC 2-wire	
		M1TGJR	M12 Pre-wired Smartclick Connector Models Robot (bending-resistant) cable DC 2-wire	
		M1TJ	M12 Pre-wired Smartclick Connector Models DC 3-wire	
		M1TJR	M12 Pre-wired Smartclick Connector Models Robot (bending-resistant) cable DC 3-wire	
(7)	DC 2-wire polarity	Blank	Polarity	
		T	No polarity	
(8)	Cable specifications *1	Blank	Standard PVC cable	
		R	Robot (bending-resistant) cable	
(9)	Cable length	Number M	Cable length	

*1. (8) is only shown in the model number of Pre-wired Models.

Note: The purpose of this model number legend is to provide understanding of the meaning of specifications from the model number.

E2EQ NEXT Series

Ordering Information

Sensors

BASIC Model

E2EQ NEXT Series (Spatter-resistant Double distance model)

DC 3-wire Shielded [Refer to *Ratings and Specification* on page 93, *Dimension* on page 106.]

Size (Sensing distance)	Connection method *2	Body size	Operation mode *3	Model	
				PNP	NPN
M8 (2 mm)	Pre-wired (2 m) *1	38 mm	NO	E2EQ-X2B1D8 2M	E2EQ-X2C18 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm	NO	E2EQ-X2B1D8-M1TJ 0.3M	E2EQ-X2C18-M1TJ 0.3M
M12 (4 mm)	Pre-wired (2 m) *1	47 mm	NO	E2EQ-X4B1D12 2M	E2EQ-X4C112 2M
			NO+NC	E2EQ-X4B3D12 2M	E2EQ-X4C312 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm	NO	E2EQ-X4B1D12-M1TJ 0.3M	E2EQ-X4C112-M1TJ 0.3M
			NO+NC	E2EQ-X4B3D12-M1TJ 0.3M	E2EQ-X4C312-M1TJ 0.3M
M18 (8 mm)	Pre-wired (2 m) *1	55 mm	NO	E2EQ-X8B1D18 2M	E2EQ-X8C118 2M
			NO+NC	E2EQ-X8B3D18 2M	E2EQ-X8C318 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm	NO	E2EQ-X8B1D18-M1TJ 0.3M	E2EQ-X8C118-M1TJ 0.3M
			NO+NC	E2EQ-X8B3D18-M1TJ 0.3M	E2EQ-X8C318-M1TJ 0.3M
M30 (15 mm)	Pre-wired (2 m) *1	60 mm	NO	E2EQ-X15B1D30 2M	E2EQ-X15C130 2M
			NO+NC	E2EQ-X15B3D30 2M	E2EQ-X15C330 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm	NO	E2EQ-X15B1D30-M1TJ 0.3M	E2EQ-X15C130-M1TJ 0.3M
			NO+NC	E2EQ-X15B3D30-M1TJ 0.3M	E2EQ-X15C330-M1TJ 0.3M

BASIC Model

E2EQ NEXT Series (Spatter-resistant Single distance model)

DC 3-wire Shielded [Refer to *Ratings and Specification* on page 93, *Dimension* on page 106.]

Size (Sensing distance)	Connection method *2	Body size	Operation mode *3	Model	
				PNP	NPN
M8 (1.5 mm)	Pre-wired (2 m) *1	38 mm	NO	E2EQ-X1R5B1D8 2M	E2EQ-X1R5C18 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm	NO	E2EQ-X1R5B1D8-M1TJ 0.3M	E2EQ-X1R5C18-M1TJ 0.3M
M12 (2 mm)	Pre-wired (2 m) *1	47 mm	NO	E2EQ-X2B1D12 2M	E2EQ-X2C112 2M
			NO+NC	E2EQ-X2B3D12 2M	E2EQ-X2C312 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm	NO	E2EQ-X2B1D12-M1TJ 0.3M	E2EQ-X2C112-M1TJ 0.3M
			NO+NC	E2EQ-X2B3D12-M1TJ 0.3M	E2EQ-X2C312-M1TJ 0.3M
M18 (5 mm)	Pre-wired (2 m) *1	55 mm	NO	E2EQ-X5B1D18 2M	E2EQ-X5C118 2M
			NO+NC	E2EQ-X5B3D18 2M	E2EQ-X5C318 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm	NO	E2EQ-X5B1D18-M1TJ 0.3M	E2EQ-X5C118-M1TJ 0.3M
			NO+NC	E2EQ-X5B3D18-M1TJ 0.3M	E2EQ-X5C318-M1TJ 0.3M
M30 (10 mm)	Pre-wired (2 m) *1	60 mm	NO	E2EQ-X10B1D30 2M	E2EQ-X10C130 2M
			NO+NC	E2EQ-X10B3D30 2M	E2EQ-X10C330 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm	NO	E2EQ-X10B1D30-M1TJ 0.3M	E2EQ-X10C130-M1TJ 0.3M
			NO+NC	E2EQ-X10B3D30-M1TJ 0.3M	E2EQ-X10C330-M1TJ 0.3M

*1. Models with 5-m cable length are also available (Example: E2EQ-X6B1D12 5M)
*2. M12 Connector Models are also available with "M1" suffix. (Example: E2EQ-X2B1D8-M1)
*3. NC models are also available. The model number is E2EQ-X□□2□ (Example: E2EQ-X3B28 2M).

Note: 1. Models in [ ] are equipped with IO-Link (COM2). For IO-Link (COM3), select a model number with the format of "E2E-X□□□T□" (Example: E2EQ-X6B1T12 2M).
Operation mode NO can be changed to NC via IO-Link communications.
2. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.

Sensors

BASIC Model

E2EQ NEXT Series (Spatter-resistant Double distance model)

DC 2-wire Shielded [Refer to *Ratings and Specification* on page 94, *Dimension* on page 106.]

Size (Sensing distance)	Connection method	Polarity	Model
			Operation mode: NO
M12 (4 mm)	Pre-wired (2 m) *1	NO	E2EQ-X4D112-T 2M
	M12 Pre-wired Smartclick Connector (0.3 m)		E2EQ-X4D112-M1TGJ-T 0.3M
M18 (8 mm)	Pre-wired (2 m) *1		E2EQ-X8D118-T 2M
	M12 Pre-wired Smartclick Connector (0.3 m)		E2EQ-X8D118-M1TGJ-T 0.3M
M30 (15 mm)	Pre-wired (2 m) *1		E2EQ-X15D130-T 2M
	M12 Pre-wired Smartclick Connector (0.3 m)		E2EQ-X15D130-M1TGJ-T 0.3M

*1. Models with 5-m cable length are also available (Example: E2EQ-X4D112-T 5M).

PREMIUM Model

E2EQ NEXT Series (Spatter-resistant Triple distance model)

DC 3-wire Shielded *1 [Refer to *Ratings and Specification* on page 95, *Dimension* on page 107.]

Size (Sensing distance)	Connection method *3	Body size	Operation mode *4	Model	
				PNP	NPN
M8 (3 mm)	Pre-wired (2 m) *2	38 mm	NO	E2EQ-X3B1D8 2M	E2EQ-X3C18 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm	NO	E2EQ-X3B1D8-M1TJ 0.3M	E2EQ-X3C18-M1TJ 0.3M
M12 (6 mm)	Pre-wired (2 m) *2	47 mm	NO	E2EQ-X6B1D12 2M	E2EQ-X6C112 2M
			NO+NC	E2EQ-X6B3D12 2M	E2EQ-X6C312 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm	NO	E2EQ-X6B1D12-M1TJ 0.3M	E2EQ-X6C112-M1TJ 0.3M
			NO+NC	E2EQ-X6B3D12-M1TJ 0.3M	E2EQ-X6C312-M1TJ 0.3M
M18 (12 mm)	Pre-wired (2 m) *2	55 mm	NO	E2EQ-X12B1D18 2M	E2EQ-X12C118 2M
			NO+NC	E2EQ-X12B3D18 2M	E2EQ-X12C318 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm	NO	E2EQ-X12B1D18-M1TJ 0.3M	E2EQ-X12C118-M1TJ 0.3M
			NO+NC	E2EQ-X12B3D18-M1TJ 0.3M	E2EQ-X12C318-M1TJ 0.3M
M30 (22 mm)	Pre-wired (2 m) *2	60 mm	NO	E2EQ-X22B1D30 2M	E2EQ-X22C130 2M
			NO+NC	E2EQ-X22B3D30 2M	E2EQ-X22C330 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm	NO	E2EQ-X22B1D30-M1TJ 0.3M	E2EQ-X22C130-M1TJ 0.3M
			NO+NC	E2EQ-X22B3D30-M1TJ 0.3M	E2EQ-X22C330-M1TJ 0.3M

*1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 105.
*2. Models with 5-m cable length are also available (Example: E2EQ-X6B1D12 5M)
*3. M12 Connector Models are also available with "M1" suffix. (Example: E2EQ-X3B1D8-M1).
*4. NC models are also available. The model number is E2EQ-□□2□ (Example: E2EQ-X3B28 2M).

Note: 1. Models in [ ] are equipped with IO-Link (COM2). For IO-Link (COM3), select a model number with the format of "E2E-X□□□T□" (Example: E2EQ-X6B1T12 2M).
Operation mode NO can be changed to NC via IO-Link communications.
2. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.

PREMIUM Model

E2EQ NEXT Series (Spatter-resistant Triple distance model)

DC 2-wire Shielded *1 [Refer to *Ratings and Specification* on page 96, *Dimension* on page 107.]

Size (Sensing distance)	Connection method	Polarity	Model	
			Operation mode: NO	Operation mode: NC
M8 (3 mm)	Pre-wired (2 m) *2	Yes	E2EQ-X3D18 2M	E2EQ-X3D28 2M
		No	E2EQ-X3D18-T 2M	E2EQ-X3D28-T 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EQ-X3D18-M1TGJ 0.3M	E2EQ-X3D28-M1TGJ 0.3M
		No	E2EQ-X3D18-M1TGJ-T 0.3M	E2EQ-X3D28-M1TGJ-T 0.3M
M12 (7 mm)	Pre-wired (2 m) *2	Yes	E2EQ-X7D112 2M	E2EQ-X7D212 2M
		No	E2EQ-X7D112-T 2M	E2EQ-X7D212-T 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EQ-X7D112-M1TGJ 0.3M	E2EQ-X7D212-M1TGJ 0.3M
		No	E2EQ-X7D112-M1TGJ-T 0.3M	E2EQ-X7D212-M1TGJ-T 0.3M
M18 (11 mm)	Pre-wired (2 m) *2	Yes	E2EQ-X11D118 2M	E2EQ-X11D218 2M
		No	E2EQ-X11D118-T 2M	E2EQ-X11D218-T 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EQ-X11D118-M1TGJ 0.3M	E2EQ-X11D218-M1TGJ 0.3M
		No	E2EQ-X11D118-M1TGJ-T 0.3M	E2EQ-X11D218-M1TGJ-T 0.3M
M30 (20 mm)	Pre-wired (2 m) *2	Yes	E2EQ-X20D130 2M	E2EQ-X20D230 2M
		No	E2EQ-X20D130-T 2M	E2EQ-X20D230-T 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	Yes	E2EQ-X20D130-M1TGJ 0.3M	E2EQ-X20D230-M1TGJ 0.3M
		No	E2EQ-X20D130-M1TGJ-T 0.3M	E2EQ-X20D230-M1TGJ-T 0.3M

*1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 105.
*2. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EQ-X3D18 5M)

Sensor I/O Connectors (Sold Separately)

For details of the connector, refer to XS5 Series on page 111.

Ratings and Specifications

BASIC Model

E2EQ NEXT Series (Spatter-resistant Double distance/Single distance model)
DC 3-wire Shielded

Item \ Types / Size / Model		Double distance Models				Single distance Models			
		M8	M12	M18	M30	M8	M12	M18	M30
		E2EQ-X2□8	E2EQ-X4□12	E2EQ-X8□18	E2EQ-X15□30	E2EQ-X1R5□8	E2EQ-X2□12	E2EQ-X5□18	E2EQ-X10□30
Sensing distance		2 mm±10%	4 mm±10%	8 mm±10%	15 mm±10%	1.5 mm±10%	2 mm±10%	5 mm±10%	10 mm±10%
Setting distance		0 to 1.6 mm	0 to 3.2 mm	0 to 6.4 mm	0 to 12 mm	0 to 1.2 mm	0 to 1.6 mm	0 to 4 mm	0 to 8 mm
Differential travel		15% max. of sensing distance				10% max. of sensing distance			
Detectable object		Ferrous metals (For non-ferrous metals, refer to the *Engineering Data* on page 97.)							
Standard sensing object (Iron)		8 × 8 × 1 mm	12 × 12 × 1 mm	24 × 24 × 1 mm	45 × 45 × 1 mm	8 × 8 × 1 mm	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency *1		1,500 Hz	1,000 Hz	500 Hz	250 Hz	2,000 Hz	1,500 Hz	600 Hz	400 Hz
Power supply voltage		10 to 30 VDC (including 10% ripple (p-p)), Class 2							
Current consumption		1-output models: 16 mA max., 2-output models: 20 mA max.							
Output configuration		B□ Models: PNP open collector, C□ Models: NPN open collector							
Operation mode (with sensing object approaching)		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	M8 size 1-output models: 10 to 30 VDC, Class 2, 200 mA max., (-40 to 70°C), 100 mA max., (70 to 85°C) 2-output models: 10 to 30 VDC, Class 2, 50 mA max. M12, M18, M30 size 1-output models: 10 to 30 VDC, Class 2, 200 mA max., 2-output models:10 to 30 VDC, Class 2, 100 mA max.							
	Residual voltage	M8 size 1-output models: 2 V max. (Load current: 200 mA, Cable length: 2 m), 2-output models: 2 V max. (Load current: 50 mA, Cable length: 2 m) M12, M18, M30 size 1-output models: 2 V max. (Load current: 200 mA, Cable length: 2 m), 2-output models: 2 V max. (Load current: 100 mA, Cable length: 2 m)							
Indicator *2		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/Storage: -40 to 85°C (with no icing or condensation) **Note:** The UL temperature rating for M12 Pre-wired Connector Models is -25 to 70°C.							
Ambient humidity range		Operating/Storage: 35% to 95% (with no condensation)							
Temperature influence		±15% max. of sensing distance at 23°C in the temperature range of -40 to 85°C ±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C							
Voltage influence		±1% 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)		M8 size: 500 m/s^2 10 times each in X, Y, and Z directions/M12, M18, M30 size: 1,000 m/s^2 10 times each in X, Y, and Z directions							
Degree of protection		Pre-wired Models, Pre-wired Connector Models: IEC 60529:IP67, JIS C 0920 Annex 1: IP67G *4/Connector Models: IEC 60529 IP67							
Connection method		Pre-wired Models (Standard cable length: 2 m) and Pre-wired Connector Models (Standard cable length: 0.3 m), M12 Connector Models							
Weight *3 (packed state)	Pre-wired	Approx. 85 g	Approx. 95 g	Approx. 170 g	Approx. 240 g	Approx. 85 g	Approx. 95 g	Approx. 170 g	Approx. 240 g
	M12 Pre-wired Smartclick Connector	Approx. 55 g	Approx. 70 g	Approx. 105 g	Approx. 170 g	Approx. 55 g	Approx. 70 g	Approx. 105 g	Approx. 170 g
	Connector	Approx. 40 g	Approx. 55 g	Approx. 85 g	Approx. 160 g	Approx. 40 g	Approx. 55 g	Approx. 85 g	Approx. 160 g
Materials	Case	M8 size: Fluororesin coating (Base material: SUS303)/M12, M18, M30 size: Fluororesin coating (Base material: brass)							
	Sensing surface	Fluorine resin							
	Clamping nuts	Fluororesin coating (Base material: brass)							
	Toothed washers	Zinc-plated iron							
	Cable	Vinyl chloride (PVC) Note: Material of Pre-wired Models and Pre-wired Connector Models.							
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	Ver1.1							
	Baud rate	COM2 (38.4 kbps), COM3 (230.4 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: 0.4 ms							
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. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.
*3. Weight of the standard body-sized model.
*4. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards).
The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

BASIC Model

E2EQ NEXT Series (Spatter-resistant Double distance model)
DC 2-wire Shielded

Item \ Size		M12	M18	M30
Item \ Model		E2EQ-X4D□12	E2EQ-X8D□18	E2EQ-X15D□30
Sensing distance		4 mm ±10%	8 mm ±10%	15 mm ±10%
Setting distance *1		0 to 3.2 mm	0 to 6.4 mm	0 to 12 mm
Differential travel		15% max. of sensing distance		
Detectable object		Ferrous metals (For non-ferrous metals, refer to *Engineering Data* on page 97.)		
Standard sensing object (Iron)		12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency *2		1,000 Hz	500 Hz	250 Hz
Power supply voltage		10 to 30 VDC (including 10% ripple (p-p)), Class 2		
Current consumption		0.8 mA max.		
Control output	Load current	3 to 100 mA		
	Residual voltage	5 V max. (Load current: 100 mA, Cable length: 2 m)		
Indicator		Operation indicator (orange), Setting indicator (green)		
Operation mode		NO Refer to the timing charts under *I/O Circuit Diagrams/Timing charts* on page 103 for details.		
Protection circuits		Surge suppressor, Load short-circuit protection		
Ambient temperature range		Operating: -25 to 70°C, Storage: -40 to 85°C (with no icing or condensation)		
Ambient humidity range		Operating and Storage: 35% to 95% (with no condensation)		
Temperature influence		±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C		
Voltage influence		±1% 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		Pre-wired Models, Pre-wired Connector Models: IEC 60529:IP67, JIS C 0920 Annex 1: IP67G		
Connection method		Pre-wired Models (Standard cable length: 2 m) and M12 Pre-wired Smartclick Connector Models (Standard cable length: 0.3 m)		
Weight (packed state)	Pre-wired	Approx. 100 g	Approx. 180 g	Approx. 250 g
	M12 Pre-wired Smartclick Connector	Approx. 75 g	Approx. 110 g	Approx. 180 g
Materials	Materials	Fluororesin coating (Base material: brass)		
	Sensing surface	Fluororesin		
	Clamping nuts	Fluororesin coating (Base material: brass)		
	Toothed washer	Zinc-plated iron		
	Cable	Vinyl chloride (PVC)		
Accessories		Instruction manual, Clamping nuts, Toothed washer		

*1. Use the Sensor within the range in which the setting indicator (green LED) is ON.
*2. 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.

PREMIUM Model

E2EQ NEXT Series (Spatter-resistant Triple distance model)
DC 3-wire Shielded

Item \ Size		M8	M12	M18	M30
Item \ Model		E2EQ-X3□8	E2EQ-X6□12	E2EQ-X12□18	E2EQ-X22□30
Sensing distance		3 mm±10%	6 mm±10%	12 mm±10%	22 mm±10%
Setting distance		0 to 2.4 mm	0 to 4.8 mm	0 to 9.6 mm	0 to 16.8 mm
Differential travel		15% max. of sensing distance			
Detectable object		Ferrous metals (For non-ferrous metals, refer to the *Engineering Data* on page 97.)			
Standard sensing object (Iron)		9 × 9 × 1 mm	18 × 18 × 1 mm	36 × 36 × 1 mm	66 × 66 × 1 mm
Response frequency *1		1,000 Hz	800 Hz	500 Hz	200 Hz
Power supply voltage		10 to 30 VDC (including 10% ripple (p-p)), Class 2			
Current consumption		1-output models: 16 mA max.	1-output models: 16 mA max., 2-output models: 20 mA max.		
Output configuration		B□ Models: PNP open collector, C□ Models: NPN open collector			
Operation mode (with sensing object approaching)		1-output models (B1, C1): NO (Normally open), 1-output models (B2, C2): NC (Normally closed)	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: 10 to 30 VDC, Class 2, 100 mA max.	1-output models: 10 to 30 VDC, Class 2, 100 mA max.,, 2-output models: 10 to 30 VDC, Class 2, 50 mA max.		
	Residual voltage	1-output models: 2 V max. (Load current: 100 mA, Cable length: 2 m)	1-output models: 2 V max. (Load current: 100 mA, Cable length: 2 m), 2-output models: 2 V max. (Load current: 50 mA, Cable length: 2 m)		
Indicator *2		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/Storage: -25 to 70°C (with no icing or condensation)			
Ambient humidity range		Operating/Storage: 35% to 95% (with no condensation)			
Temperature influence		±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C			
Voltage influence		±1% 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/s² 10 times each in X, Y, and Z directions	1,000 m/s² 10 times each in X, Y, and Z directions		
Degree of protection		Pre-wired Models, Pre-wired Connector Models: IEC 60529: IP67, JIS C 0920 Annex 1: IP67G *4 Connector Models: IEC 60529: IP67			
Connection method		Pre-wired Models (Standard cable length: 2 m) and Pre-wired Connector Models (Standard cable length: 0.3 m), M12 Connector Models			
Weight *3 (packed state)	Pre-wired Models	Approx. 85 g	Approx. 95 g	Approx. 180 g	Approx. 260 g
	M12 Pre-wired Smartclick Connector	Approx. 55 g	Approx. 70 g	Approx. 115 g	Approx. 200 g
	Connector	Approx. 40 g	Approx. 55 g	Approx. 95 g	Approx. 180 g
Materials	Case	Fluororesin coating (Base material: brass)			
	Sensing surface	Fluorine resin			
	Clamping nuts	Fluororesin coating (Base material: brass)			
	Toothed washers	Zinc-plated iron			
	Cable	Vinyl chloride (PVC) Note: Material of Pre-wired Models and Pre-wired Connector Models.			
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	COM2 (38.4 kbps), COM3 (230.4 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: 0.4 ms			
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. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.
*3. Weight of the standard body-sized model.
*4. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards). The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

PREMIUM Model

E2EQ NEXT Series (Spatter-resistant Triple distance model)
DC 2-wire Shielded

Item \ Size		M8	M12	M18	M30
Item \ Model		E2EQ-X3D□	E2EQ-X7D□	E2EQ-X11D□	E2EQ-X20D□
Sensing distance		3 mm ±10%	7 mm ±10%	11 mm ±10%	20 mm ±10%
Setting distance *1		0 to 2.4 mm	0 to 4.9 mm	0 to 8.8 mm	0 to 16 mm
Differential travel		15% max. of sensing distance			
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on page 97.)			
Standard sensing object (Iron)		9 × 9 × 1 mm	21 × 21 × 1 mm	33 × 33 × 1 mm	60 × 60 × 1 mm
Response frequency *2		250 Hz	250 Hz	250 Hz	200 Hz
Power supply voltage		10 to 30 VDC, (including 10% ripple (p-p))			
Leakage current		0.8 mA max.			
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), Setting indicator (green) D2 Models: Operation indicator (orange)			
Operation mode		D1 Models: NO D2 Models: NC Refer to the timing charts under *I/O Circuit Diagrams/Timing charts* on page 103 for details.			
Protection circuits		Surge suppressor, Load short-circuit protection			
Ambient temperature range		Operating: -25 to 70°C, Storage: -40 to 85°C (with no icing or condensation)			
Ambient humidity range		Operating and Storage: 35% to 95% (with no condensation)			
Temperature influence		±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C		±20% max. of sensing distance at 23°C in the temperature range of -25 to 70°C	
Voltage influence		±1% 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		Pre-wired/Pre-wired M12 Connector: IP67 (IEC 60529) and IP67G *3 (JIS C 0920 Annex 1)			
Connecting method		Pre-wired (Standard cable length: 2 m) and Pre-wired M12 Connector (Standard cable length: 0.3 m)			
Weight (packed state)	Pre-wired	Approx. 60 g	Approx. 70 g	Approx. 150 g	Approx. 210 g
	Pre-wired M12 Connector	Approx. 30 g	Approx. 40 g	Approx. 90 g	Approx. 140 g
Materials	Case	Fluororesin coating (Base material: brass)			
	Sensing surface	Fluororesin			
	Clamping nuts	Fluororesin coating (Base material: brass)			
	Toothed washer	Zinc-plated iron			
	Cable	Vinyl chloride (PVC)			
Accessories		Instruction manual, Clamping nuts, Toothed washer			

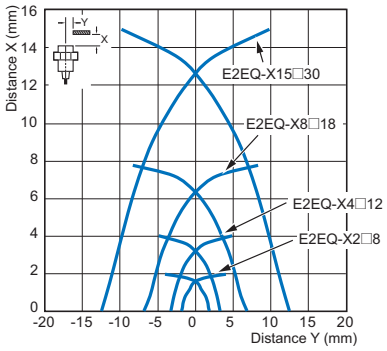
*1. Use the Sensor within the range in which the setting indicator (green LED) is ON (except D2 Models).
*2. The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.
*3. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards).
The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

Engineering Data (Reference Value)

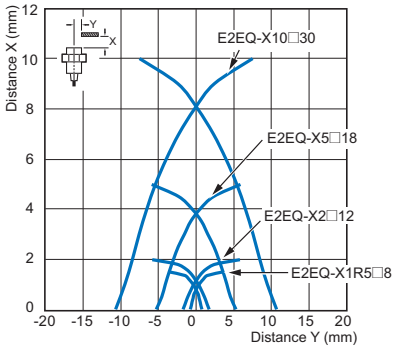
Sensing Area

BASIC Model

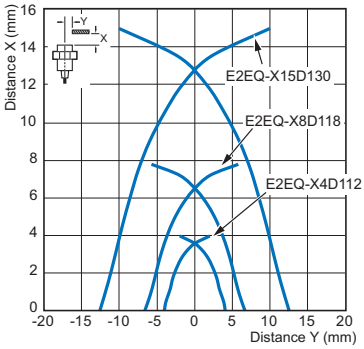
DC 3-wire
Spatter-resistant Double distance model



DC 3-wire
Spatter-resistant Single distance model

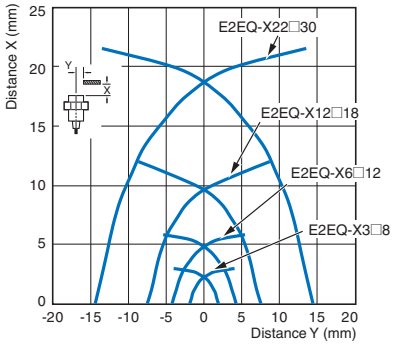


DC 2-wire
Spatter-resistant Double distance model

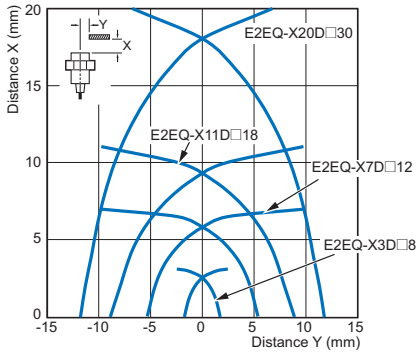


PREMIUM Model

DC 3-wire
Spatter-resistant Triple distance model

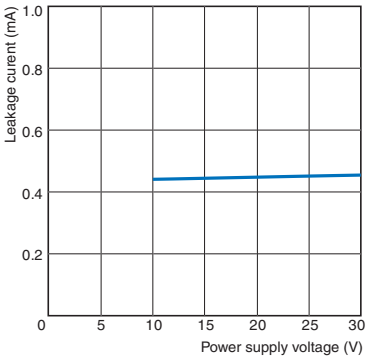


DC 2-wire
Spatter-resistant Triple distance model



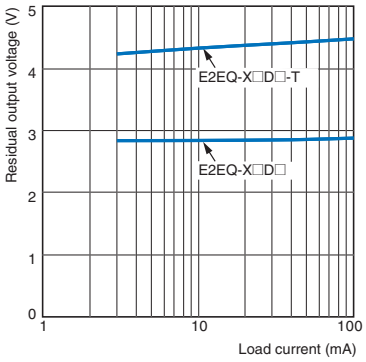
Leakage Current

DC 2-wire
Spatter-resistant Triple distance/ Double distance model
E2EQ-X□D□(-T)



Residual Output Voltage

DC 2-wire
Spatter-resistant Triple distance/ Double distance model
E2EQ-X□D□(-T)

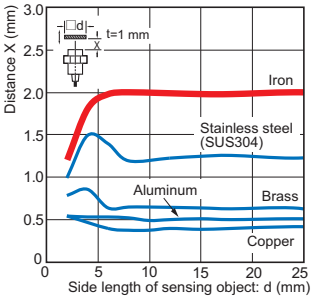


Influence of Sensing Object Size and Material

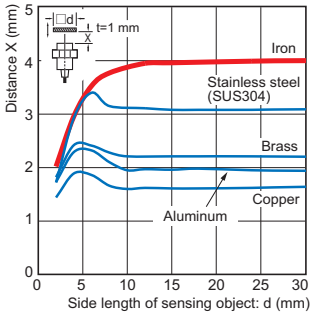
BASIC Model

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

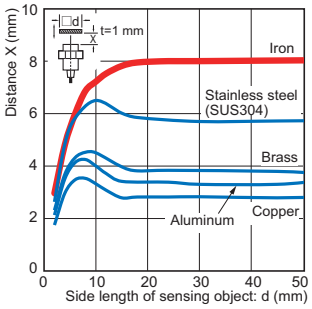
Size: M8
E2EQ-X2□8



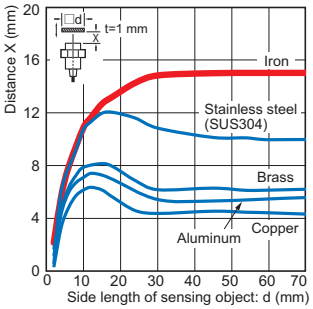
Size: M12
E2EQ-X4□12



Size: M18
E2EQ-X8□18



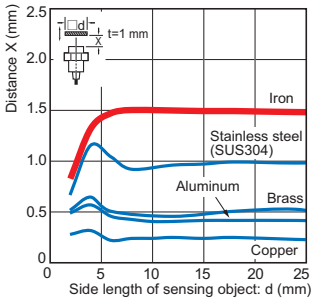
Size: M30
E2EQ-X15□30



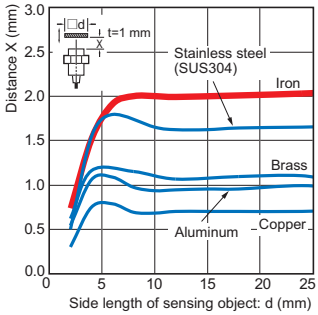
BASIC Model

DC 3-wire
Spatter-resistant
Single distance model

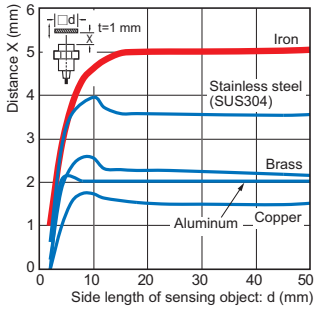
Size: M8
E2EQ-X1R5□8



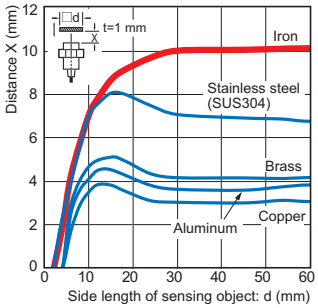
Size: M12
E2EQ-X2□12



Size: M18
E2EQ-X5□18



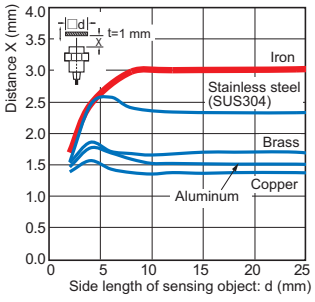
Size: M30
E2EQ-X10□30



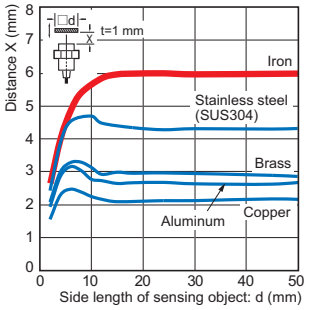
PREMIUM Model

DC 3-wire
Spatter-resistant
Triple distance model

Size: M8
E2EQ-X3□8



Size: M12
E2EQ-X6□12



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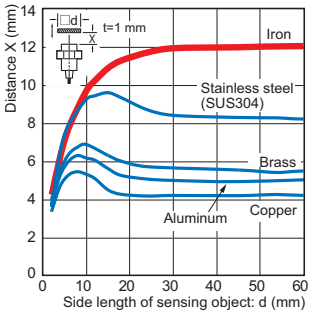
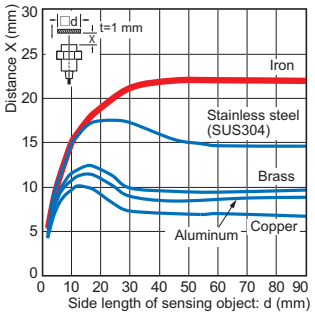
E2EQ-X12□18



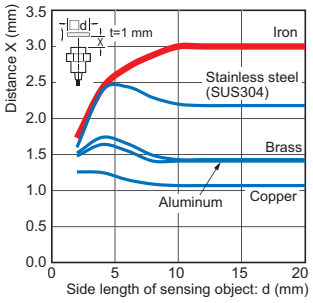
Size: M30
E2EQ-X22□30



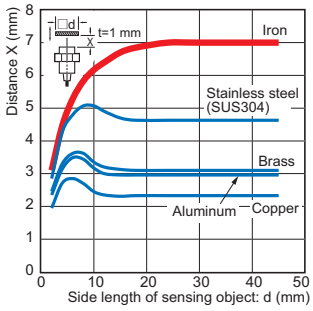
PREMIUM Model

DC 2-wire
Spatter-resistant
Triple distance model

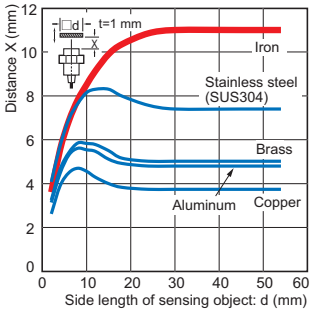
Size: M8
E2EQ-X3D□8



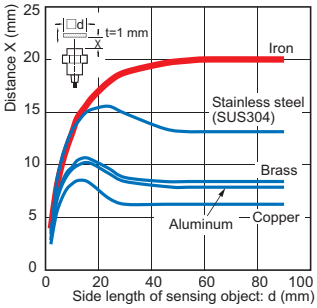
Size: M12
E2EQ-X7D□12



Size: M18
E2EQ-X11D□18



Size: M30
E2EQ-X20D□30

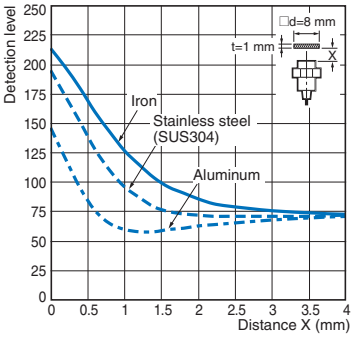


Monitor Output vs. Sensing Distance

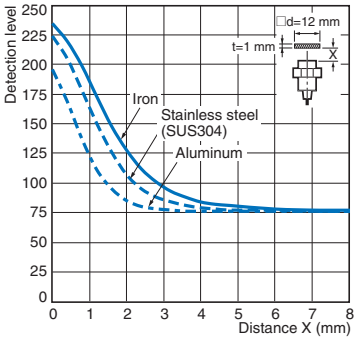
BASIC Model

DC 3-wire
Spatter-resistant
Double distance model

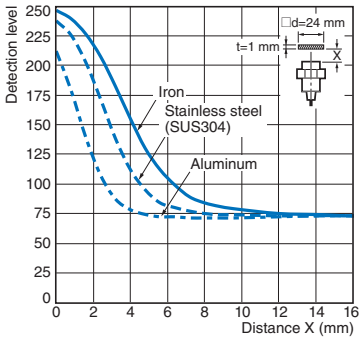
Size: M8
E2EQ-X2□8



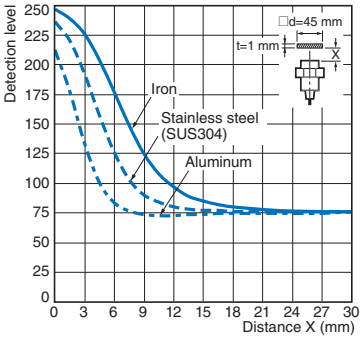
Size: M12
E2EQ-X4□12



Size: M18
E2EQ-X8□18



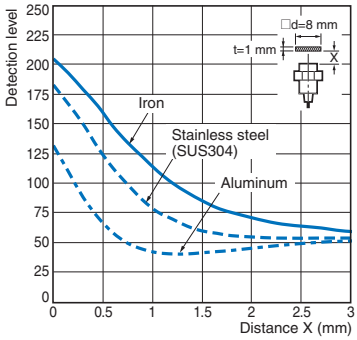
Size: M30
E2EQ-X15□30



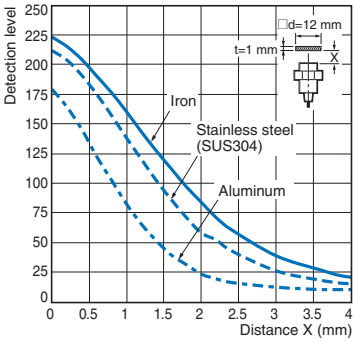
BASIC Model

DC 3-wire
Spatter-resistant
Single distance model

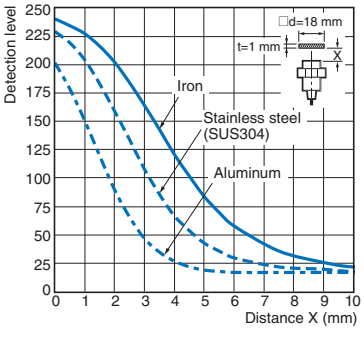
Size: M8
E2EQ-X1R5□8



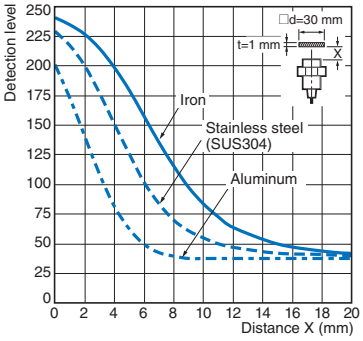
Size: M12
E2EQ-X2□12



Size: M18
E2EQ-X5□18



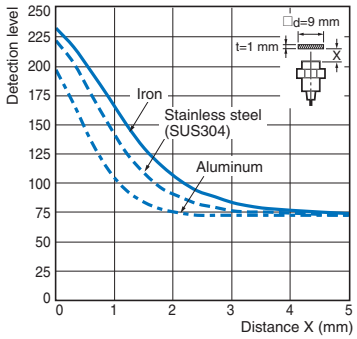
Size: M30
E2EQ-X10□30



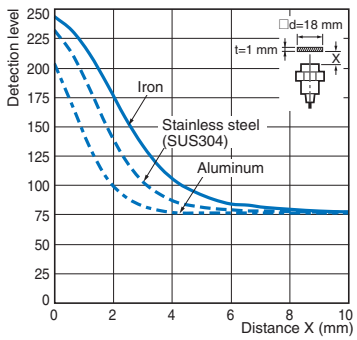
PREMIUM Model

DC 3-wire
Spatter-resistant
Triple distance model

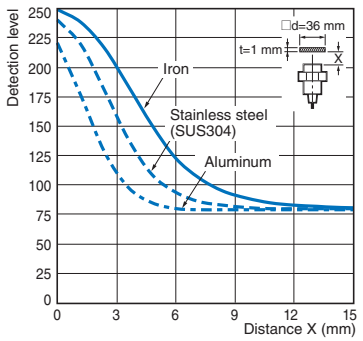
Size: M8
E2EQ-X3□8



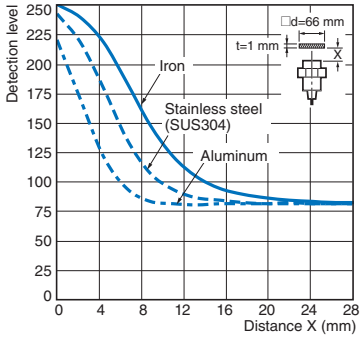
Size: M12
E2EQ-X6□12



Size: M18
E2EQ-X12□18



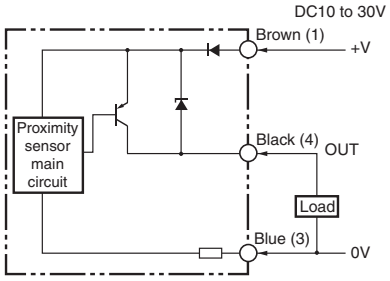
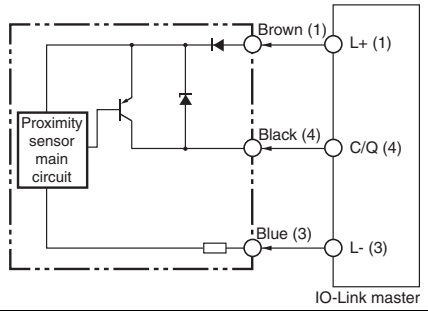
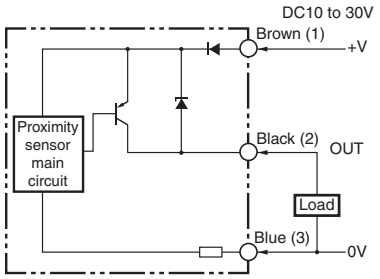
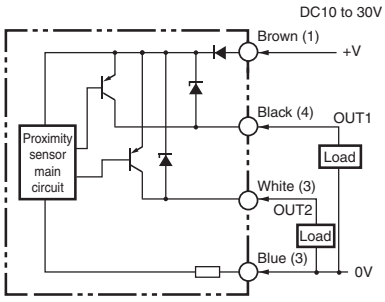
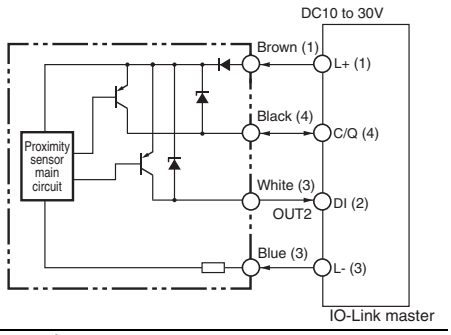
Size: M30
E2EQ-X22□30



I/O Circuit Diagrams/Timing charts

DC 3-wire

PNP output

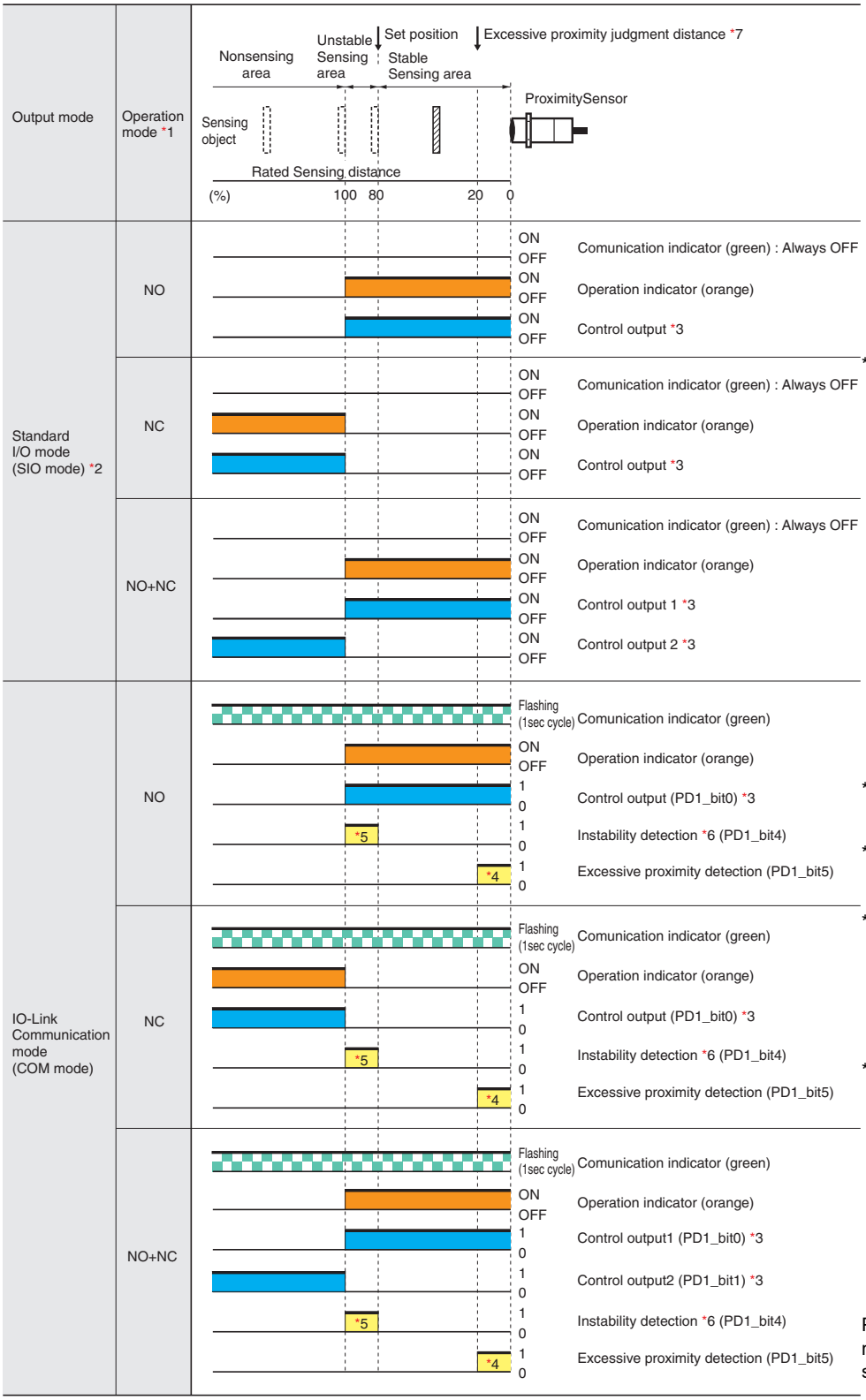
Operation mode	Model	Output circuit	
		Standard I/O mode (SIO mode) When using as a general	IO-Link Communication mode (COM mode) When using the Sensor connected to IO-Link Master Unit *
NO	E2EQ-□B1		
NC	E2EQ-□B2	 Note: M8 (3-pin) Connector: (1)(4)(3)	---
NO+NC	E2EQ-□B3		

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

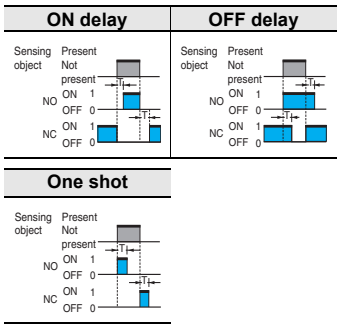
Connector Pin Arrangement

M12 Connector M12 Smartclick Connector	M8 (4-pin) Connector	M8 (3-pin) Connector
		

DC 3-wire
PNP output



*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, or one-shot 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 30%.)

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

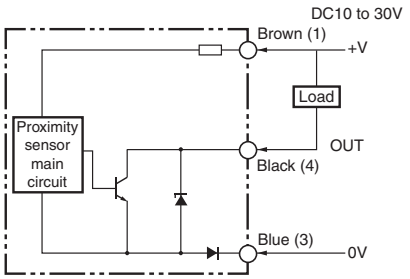
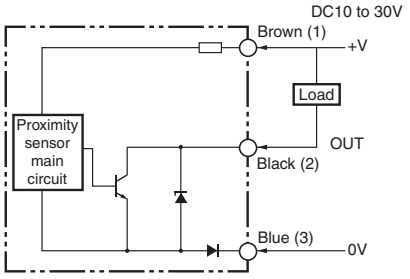
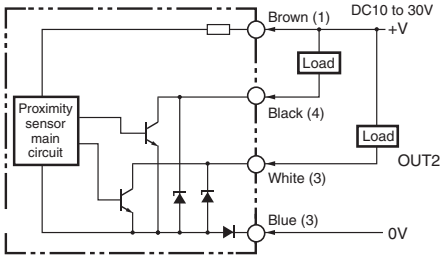
Please contact your OMRON sales representative regarding assignment of data.

*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).

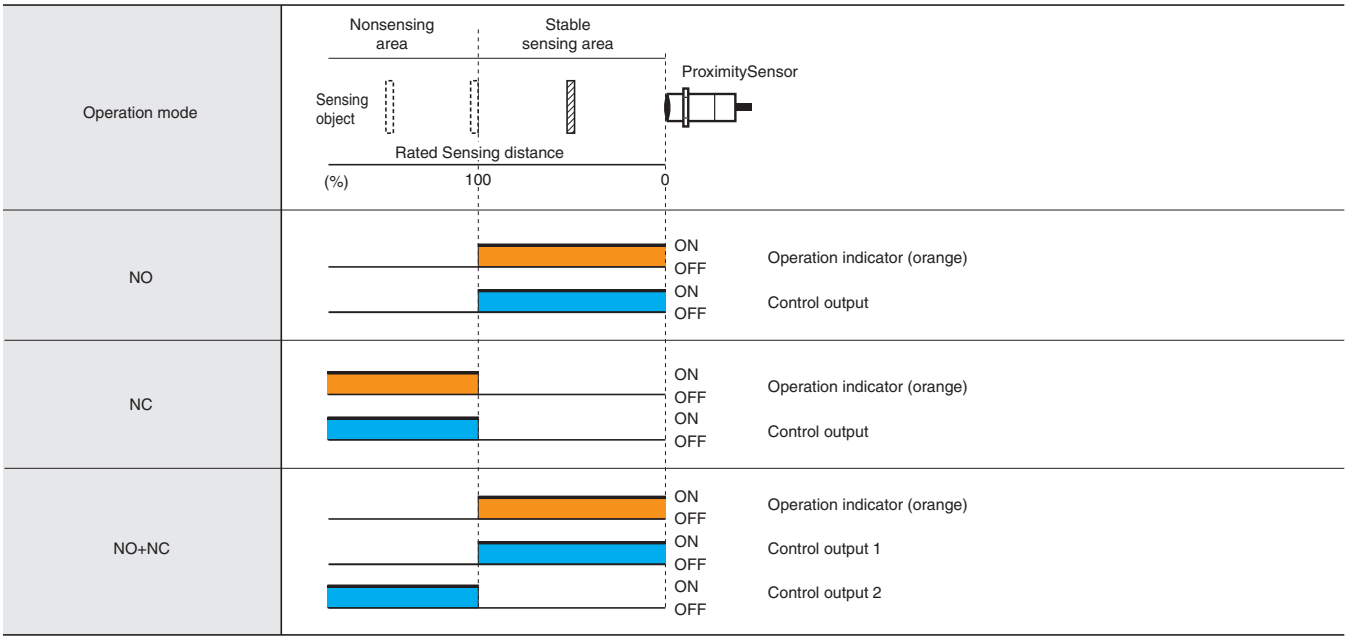
DC 3-wire

NPN output

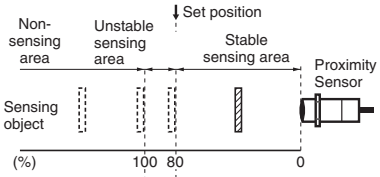
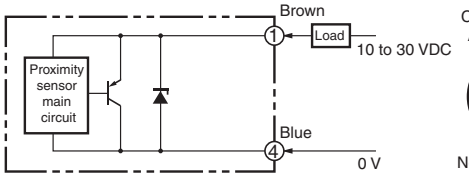
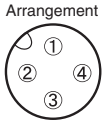
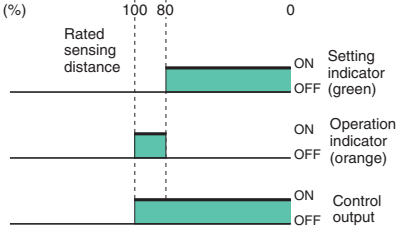
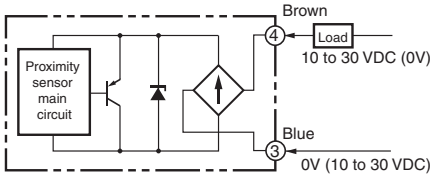
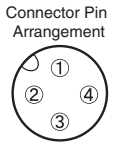
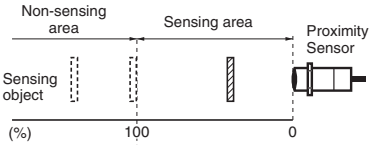
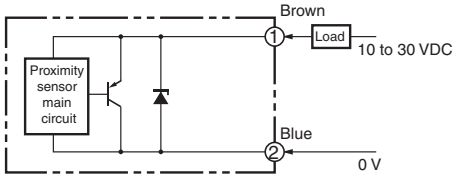
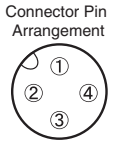
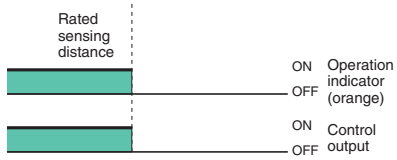
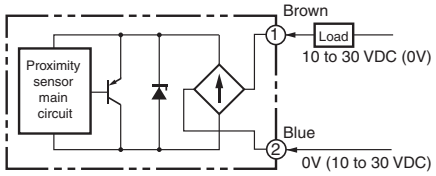
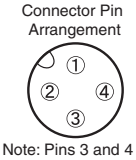
Operation mode	Model	Output circuit
NO	E2EQ-□C1	
NC	E2EQ-□C2	 Note: M8 (3-pin) Connector: (1)(4)(3)
NO+NC	E2EQ-□C3	

Connector Pin Arrangement

M12 Connector M12 Smartclick Connector	M8 (4-pin) Connector	M8 (3-pin) Connector
		



DC 2-wire

Operation mode	Model	Timing Chart	Output circuit
NO	E2EQ-X□D1□		 Note: The load can be connected to either the +V or 0 V side.  Note: Pins 2 and 3 are not used.
	E2EQ-X□D1□-T		 Note1. The load can be connected to either the +V or 0 V side. 2. The E2E□-X□D1□(-M1TGJ)-T has no polarity. There is no need to be concerned about the polarity of brown and blue wires, or pins 3 and 4.  Note: Pins 1 and 2 are not used.
NC	E2EQ-X□D2□		 Note: The load can be connected to either the +V or 0 V side.  Note: Pins 3 and 4 are not used.
	E2EQ-X□D2□-T		 Note1. The load can be connected to either the +V or 0 V side. 2. The E2E□-X□D1□(-M1TGJ)-T has no polarity. There is no need to be concerned about the polarity of brown and blue wires, or pins 1 and 2.  Note: Pins 3 and 4 are not used.

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. Be sure to insert a load when connecting the power supply.

Precautions for Correct Use

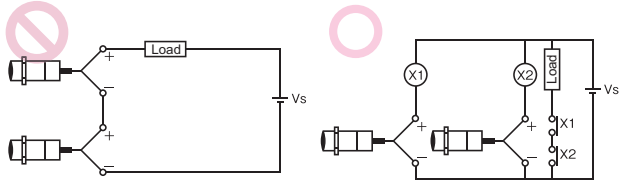
Do not use the product in any atmosphere or environment that exceeds the ratings.

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. The following conditions shall be observed if you use the product under an environment using cutting oil that may affect product's life and/or performance.
   • Usage under the cutting oil condition designated by the specification
   • Usage under the cutting oil dilution ratio recommended by its manufacturer
   • Usage in oil or water is prohibited
   Impact on the product life may differ depending on the oil you use. Before using the cutting oil, make sure that it should not cause deterioration or degradation of sealing components.
6. 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. (DC 3-wire only.)
7. The sensor is adjusted with a high degree of accuracy, so do not use in the environment with sudden temperature change. (DC 3-wire only.)
8. 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.)
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.)

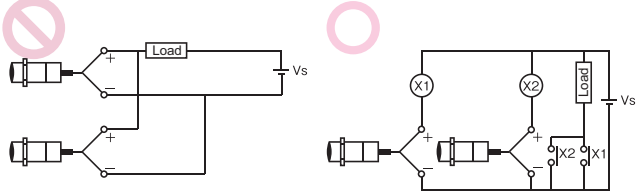
AND Connection of Proximity Sensors (DC 2-wire)

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)

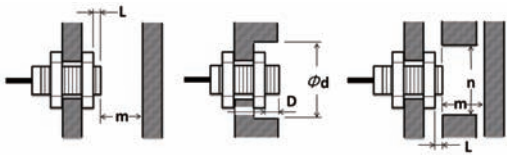
As a general principle, two or more sensors cannot be used in parallel on the OR circuit. It is possible only when sensors do not operate simultaneously and loads do not need to be maintained. When loads need to be maintained, use the sensors via a relay as shown on the figure.



Design

Influence of Surrounding Metal

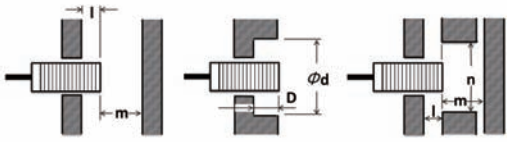
When mounting the Proximity Sensor using a nut, only use the provided nut. And ensure that the minimum distances given in the following table are maintained.
When mounting the Proximity Sensor using a nut, only use the provided nut. Nuts that are supplied along with each Sensor are different. Refer to Dimensions for details on shapes.



(Unit: mm)

Type	Model	L	d	D	m	n
DC 3-wire Spatter-resistant Triple distance model	E2EQ-X3□8	0	20	0	9	18
	E2EQ-X6□12	0	20	0	18	20
	E2EQ-X12□18	0	50	0	36	54
	E2EQ-X22□30	0	70	0	66	90
DC 2-wire Spatter-resistant Triple distance model	E2EQ-X3D□8	0	20	2	9	18
	E2EQ-X7D□12	0	20	4	18	20
	E2EQ-X11D□18	0	50	4	33	54
	E2EQ-X20D□30	0	70	8	60	90
DC 3-wire/DC 2-wire Spatter-resistant Double distance model	E2EQ-X2□8	0	8	0	4.5	12
	E2EQ-X4□12	0	18	0	12	18
	E2EQ-X8□18	0	27	0	24	27
	E2EQ-X15□30	0	45	0	45	45
DC 3-wire Spatter-resistant Single distance model	E2EQ-X1R5□8	0	8	0	4.5	12
	E2EQ-X2□12	0	12	0	8	18
	E2EQ-X5□18	0	18	0	20	27
	E2EQ-X10□30	0	30	0	40	45

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

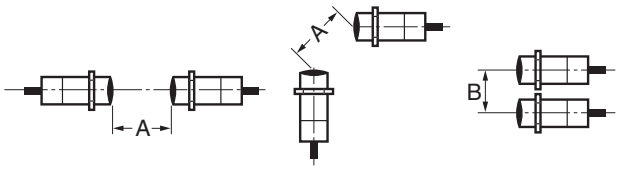


(Unit: mm)

Models	Model	l	d	D	m	n
DC 3-wire Spatter-resistant Triple distance model	E2EQ-X3□8	2	20	2	9	18
	E2EQ-X6□12	4	20	4	18	20
	E2EQ-X12□18	4	50	4	36	54
	E2EQ-X22□30	8	70	8	66	90
DC 2-wire Spatter-resistant Triple distance model	E2EQ-X3D□8	2	20	2	9	18
	E2EQ-X7D□12	4	20	4	18	20
	E2EQ-X11D□18	4	50	4	33	54
	E2EQ-X20D□30	8	70	8	60	90
DC 3-wire/DC 2-wire Spatter-resistant Double distance model	E2EQ-X2□8	0	8	0	4.5	12
	E2EQ-X4□12	2.4	18	2.4	12	18
	E2EQ-X8□18	3.6	27	3.6	24	27
	E2EQ-X15□30	6	45	6	45	45
DC 3-wire Spatter-resistant Single distance model	E2EQ-X1R5□8	0	8	0	4.5	12
	E2EQ-X2□12	0	12	0	8	18
	E2EQ-X5□18	0	18	0	20	27
	E2EQ-X10□30	0	30	0	40	45

Mutual Interference

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



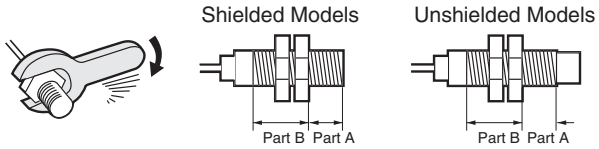
(Unit: mm)

Models	Model	Item	
		A	B
DC 3-wire Spatter-resistant Triple distance model	E2EQ-X3□8	25	20
	E2EQ-X6□12	40	30
	E2EQ-X12□18	70	45
	E2EQ-X22□30	150	90
DC 2-wire Spatter-resistant Triple distance model	E2EQ-X3D□8	25	20
	E2EQ-X7D□12	40	30
	E2EQ-X11D□18	70	45
	E2EQ-X20D□30	140	70
DC 3-wire/DC 2-wire Spatter-resistant Double distance model	E2EQ-X2□8	20	15
	E2EQ-X4□12	30	20
	E2EQ-X8□18	60	35
	E2EQ-X15□30	110	90
DC 3-wire Spatter-resistant Single distance model	E2EQ-X1R5□8	20	15
	E2EQ-X2□12	30	20
	E2EQ-X5□18	50	35
	E2EQ-X10□30	100	70

Mounting

Tightening Force

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



Note: 1. The allowable tightening strength depends on the distance from the edge of the head, as shown in the following table. (A is the distance from the edge of the head. B includes the nut on the head side. If the edge of the nut is in part A, the tightening torque for part A applies instead.)
2. The following strengths assume washers are being used.

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

Size	Part A		Part B
	Dimension (mm)	Torque	Torque
M8	9	4 N·m	10 N·m
M12	16	8 N·m	15 N·m
M18	16	15 N·m	30 N·m
M30	23	40 N·m	80 N·m

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

Size	Part A		Part B
	Dimension (mm)	Torque	Torque
M8	9	9 N·m	12 N·m
M12	---	30 N·m	
M18	---	70 N·m	
M30	---	100 N·m	

Dimensions

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

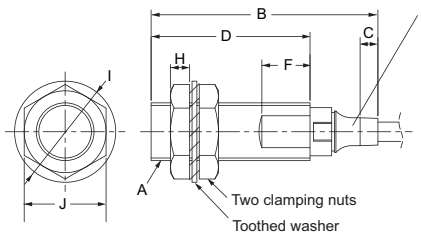
Sensors

BASIC Model

E2EQ NEXT Series (Spatter-resistant, Double distance/Single distance model)

DC 3-wire/DC 2-wire

Pre-wired Model/Pre-wired Connector Model



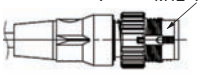
Indicators
DC 2-wire
D1 Models:
Operation indicator (orange),
Setting indicator (green)
D2 Models:
Operation indicator (orange)

DC 3-wire
Standard I/O mode (SIO mode):
Operation indicator (orange/ON),
Comunication indicator
(green/OFF)

IO-Link Communication mode
(COM mode):
Operation indicator (orange/ON),
Comunication indicator
(green/Flashing (1sec cycle))

Pre-wired Models

Pre-wired Connector Models (M1TJ/M1TGJ)



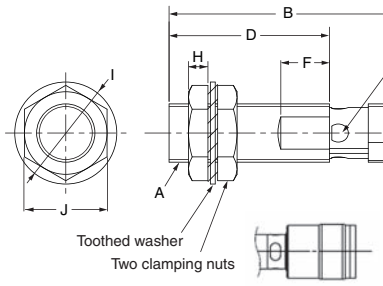
Operation mode, Output configuration (D1: NO, D2: NC)
Vinyl-insulated round cable with 2 conductors
M8, M12 size: 4-dia.
(Conductor cross section: 0.3 mm² (AWG23), Insulator diameter: 1.15 mm),
M18, M30 size: 6-dia.
(Conductor cross section: 0.5 mm² (AWG20), Insulator diameter: 1.5 mm),
Standard length: 2 m (Pre-wired Models), 0.3 m (Pre-wired Connector Models)

Operation mode, Output configuration (B1/C1: NO, B2/C2: NC)
Vinyl-insulated round cable with 3 conductors
M8, M12 size: 4-dia.
M18, M30 size: 6-dia.
(Conductor cross section: 0.2 mm² (AWG24), Insulator diameter: 1.5 mm),
Standard length: 2 m (Pre-wired Models), 0.3 m (Pre-wired Connector Models)

Operation mode, Output configuration (B3/C3: NO+NC Type)
Vinyl-insulated round cable with 4 conductors
M8, M12 size: 4.3-dia.
M18, M30 size: 6-dia.
(Conductor cross section: 0.2 mm² (AWG24), Insulator diameter: 1.5 mm),
Standard length: 2 m (Pre-wired Models), 0.3 m (Pre-wired Connector Models)

Model	A	B	C	D	F	H	I	J
E2EQ-X□8	M8XP1	37.8	4.4	26	8	3	15	13
E2EQ-X□12	M12XP1	47.1	3.7	33	10	4	21	17
E2EQ-X□18	M18XP1	55.3	8.5	38	10	4	29	24
E2EQ-X□30	M30XP1.5	60.3	8.3	43	10	5	42	36

Connector Models (M12 Connector, M8 (4-pin) Connector and M8 (3-pin) Connector)



Indicators
Standard I/O mode (SIO mode):
Operation indicator (orange/ON),
Comunication indicator
(green/OFF)

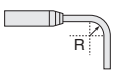
IO-Link Communication mode
(COM mode):
Operation indicator (orange/ON),
Comunication indicator
(green/Flashing (1sec cycle)

Model	A	B	C	D	F	H	I	J
E2EQ-X□8-M3/M5	M8XP1	39	M8XP1	26	8	3	15	13
E2EQ-X□8-M1	M8XP1	43	M12XP1	26	8	3	15	13
E2EQ-X□12-M1	M12XP1	48	M12XP1	33	10	4	21	17
E2EQ-X□18-M1	M18XP1	53	M12XP1	38	10	4	29	24
E2EQ-X□30-M1	M30XP1.5	58	M12XP1	43	10	5	42	36

Mounting Hole Dimensions

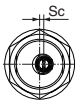
Dimensions	F (mm)
M8	8.5 dia. $^{+0.5}_{0}$
M12	12.5 dia. $^{+0.5}_{0}$
M18	18.5 dia. $^{+0.5}_{0}$
M30	30.5 dia. $^{+0.5}_{0}$

Angle R of the Bending Wire



Dimensions	R (mm)
M8	12
M12	
M18	18
M30	

Wire pullout position



Dimensions	Sc (mm)
M8	- (0)
M12	
M18	2.5
M30	

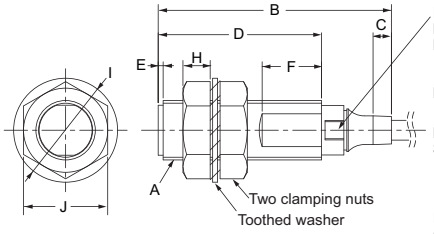
Note: When installed with a long hole, there is a possibility that the nut may be damaged due to the force applied during tightening, and therefore it cannot be used.

PREMIUM Model

E2EQ NEXT Series (Spatter-resistant, Triple distance model)

DC 3-wire/DC 2-wire

Pre-wired Model/Pre-wired Connector Model



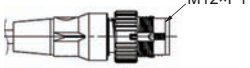
Indicators
DC 2-wire
D1 Models:
Operation indicator (orange),
Setting indicator (green)
D2 Models:
Operation indicator (orange)

DC 3-wire
Standard I/O mode (SIO mode):
Operation indicator (orange/ON),
Comunication indicator
(green/OFF)

IO-Link Communication mode
(COM mode):
Operation indicator (orange/ON),
Comunication indicator
(green/Flashing (1sec cycle))

Pre-wired Models

Pre-wired Connector Models (M1TJ/M1TGJ)



Operation mode,Output configuration (D1: NO, D2: NC)
Vinyl-insulated round cable with 2 conductors
M8, M12 size: 4-dia.
(Conductor cross section: 0.3 mm² (AWG23), Insulator diameter: 1.15 mm),
M18, M30 size: 6-dia.
(Conductor cross section: 0.5 mm² (AWG20), Insulator diameter: 1.5 mm),
Standard length: 2 m (Pre-wired Models), 0.3 m (Pre-wired Connector Models)

Operation mode, Output configuration (B1/C1: NO, B2/C2: NC)
Vinyl-insulated round cable with 3 conductors
M8, M12 size: 4-dia.
M18, M30 size: 6-dia.
(Conductor cross section: 0.2 mm² (AWG24), Insulator diameter: 1.5 mm),
Standard length: 2 m (Pre-wired Models), 0.3 m (Pre-wired Connector Models)

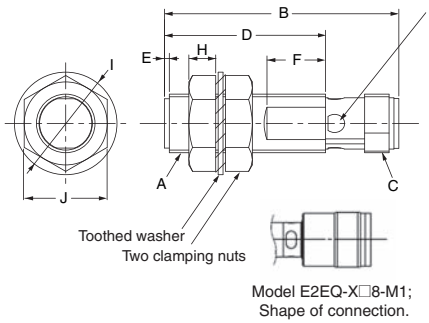
Operation mode, Output configuration (B3/C3: NO+NC Type)
Vinyl-insulated round cable with 4 conductors
M8, M12 size: 4.3-dia.
M18, M30 size: 6-dia.
(Conductor cross section: 0.2 mm² (AWG24), Insulator diameter: 1.5 mm),
Standard length: 2 m (Pre-wired Models), 0.3 m (Pre-wired Connector Models)

Model	A	B	C	D	E	F	H	I	J
E2EQ-X□□8	M8XP1	37.8	4.4	26	1	10 (8 *)	4	15	13
E2EQ-X□□12	M12XP1	47.1	3.7	33	1	12 (10*)	5.5	21	17
E2EQ-X□□18	M18XP1	55.3	8.5	38	1	12	6	29	24
E2EQ-X□□30	M30XP1.5	60.3	8.3	43	1	12	7	42	36

* If using the E2EQ-X□D□8, E2EQ-X□D□12, refer to ( ) dimensions.

Connector Models
(M12 Connector, M8 (4-pin) Connector and M8 (3-pin) Connector)

Note: DC 3-wire only



Model E2EQ-X□8-M1;
Shape of connection.

Indicators
Standard I/O mode (SIO mode):
Operation indicator (orange/ON),
Comunication indicator
(green/OFF)

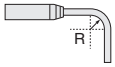
IO-Link Communication mode
(COM mode):
Operation indicator (orange/ON),
Comunication indicator
(green/Flashing (1sec cycle))

Model	A	B	C	D	E	F	H	I	J
E2EQ-X□8-M3/M5	M8XP1	39	M8XP1	26	1	10	4	15	13
E2EQ-X□8-M1	M8XP1	43	M12XP1	26	1	10	4	15	13
E2EQ-X□12-M1	M12XP1	48	M12XP1	33	1	12	5.5	21	17
E2EQ-X□18-M1	M18XP1	53	M12XP1	38	1	12	6	29	24
E2EQ-X□30-M1	M30XP1.5	58	M12XP1	43	1	12	7	42	36

Mounting Hole Dimensions

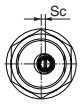
Dimensions	F (mm)
M8	8.5 dia. $^{+0.5}_{0}$
M12	12.5 dia. $^{+0.5}_{0}$
M18	18.5 dia. $^{+0.5}_{0}$
M30	30.5 dia. $^{+0.5}_{0}$

Angle R of the Bending Wire



Dimensions	R (mm)
M8	12
M12	
M18	18
M30	

Wire pullout position



Dimensions	Sc (mm)
M8	- (0)
M12	
M18	2.5
M30	

Note: When installed with a long hole, there is a possibility that the nut may be damaged due to the force applied during tightening, and therefore it cannot be used.