Standard Sensors for Detecting Ferrous Metals under Standard Conditions

- Wide array of variations. Ideal for a variety of applications.
- Lineup includes models with pre-wired connectors that use highly oil-resistant cables
- Lineup includes models with 3-mm diameter and sensing distance of 0.6 mm
- Cable protector provided as a standard feature.
- Sensing surface made from material that resists cutting oil for superior environment resistance.

⚠ Be sure to read *Safety Precautions* on page 22.

Cylindrical Proximity Sensor Selection Guide

Size

Determine the size based on the installation space.

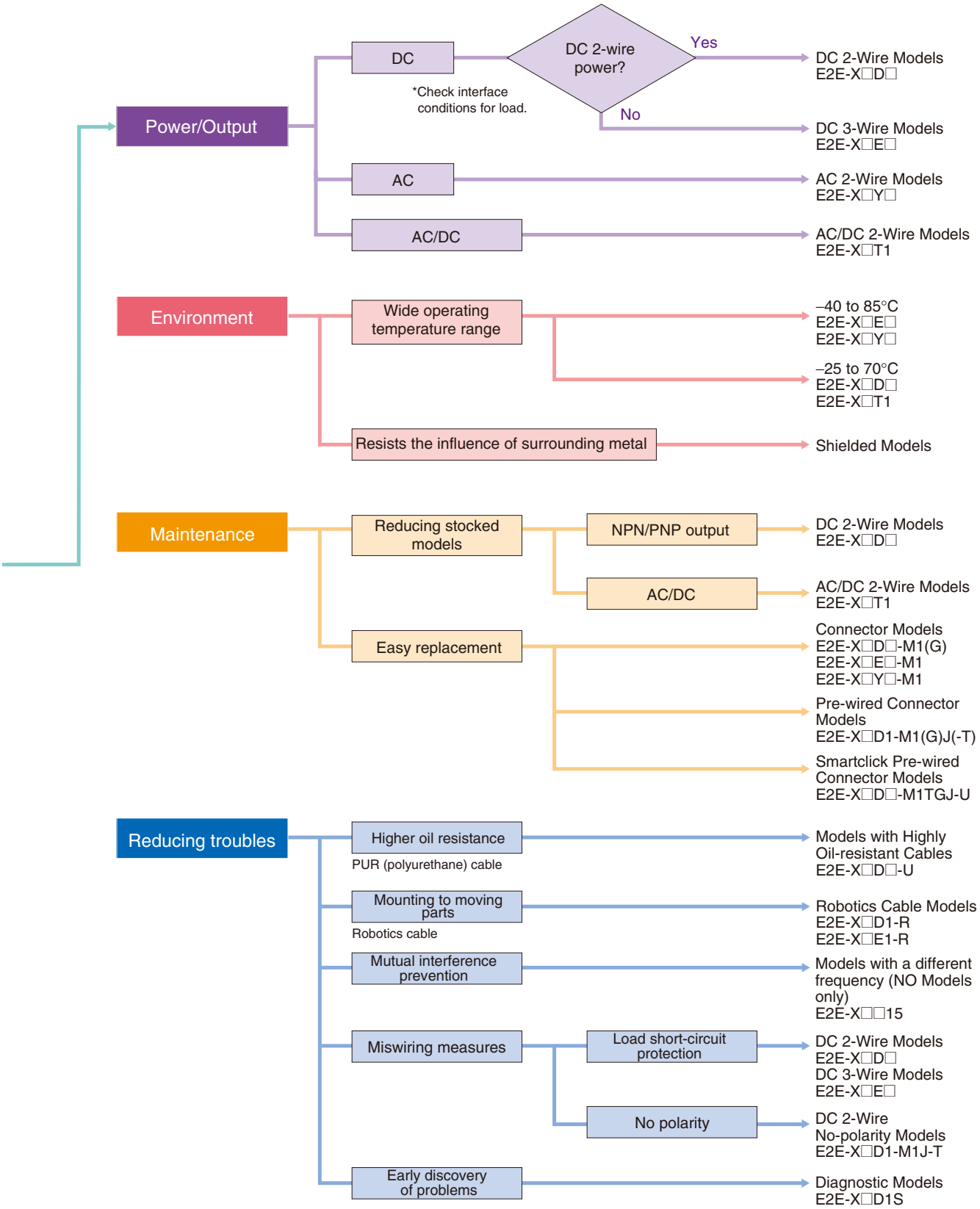
Diameter ↔ **Sensing distance**

The sensing distance depends on the diameter, shielding, and type of power supply.

Resists the influence of surrounding metal → Shielded

Long sensing distance → Unshielded

Shielding	Diameter	Power supply	Sensing distance (mm) 0.6	0.8	1.0	1.5	2	3	4	5	7	8	10	14	18	20
Shielded	3 dia.	DC 3-wire	○													
	4 dia.	DC 3-wire		○												
	M5	DC 3-wire			○											
	5.4 dia.	DC 3-wire			○											
	M8	DC 3-wire AC 2-wire				○										
		DC 2-wire					○									
	M12	DC 3-wire AC 2-wire					○									
		DC 2-wire AC/DC 2-wire						○								
	M18	DC 3-wire AC 2-wire								○						
		DC 2-wire AC/DC 2-wire									○					
	M30	DC 3-wire AC 2-wire DC 2-wire AC/DC 2-wire											○			
Unshielded	M8	DC 3-wire AC 2-wire					○									
		DC 2-wire							○							
	M12	DC 3-wire AC 2-wire								○						
		DC 2-wire										○				
	M18	DC 3-wire AC 2-wire											○			
		DC 2-wire												○		
	M30	DC 3-wire AC 2-wire													○	
		DC 2-wire														○



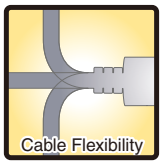
Note: Ask your OMRON sales representative for detail on Long Body Models, Transmission Couplers, and Power Couplers.

Features

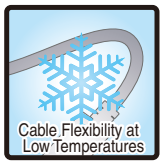
Additions to the Series

Proximity Sensors with Highly Oil-resistant Cables added to the lineup with the E2E-□-U

Oil Resistance (Insulation service life):
twice or three times
that of oil-resistant vinyl chloride

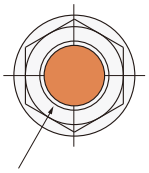


Cable Flexibility:
approximately twice
that of cinyl chloride cables

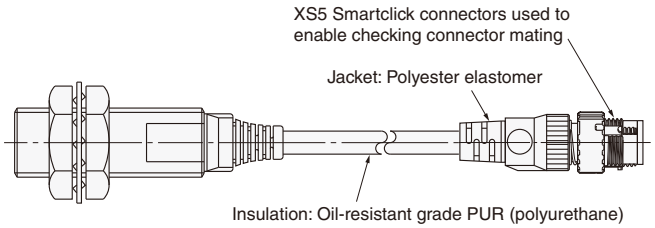


More Flexibility at -40°C

Models with Smartclick pre-wired connectors added to the E2E-□-U Series



Differentiation from standard models:
Orange Head



* The dimensions are the same as for standard models.

Ordering Information

Sensors

Higher Oil Resistance, DC 2-Wire, Pre-wired Models

Appearance		Sensing distance	Model	
			NO	NC
Shielded 	M8	2 mm	E2E-X2D1-U	E2E-X2D2-U
	M12	3 mm	E2E-X3D1-U	E2E-X3D2-U
	M18	7 mm	E2E-X7D1-U	E2E-X7D2-U
	M30	10 mm	E2E-X10D1-U	E2E-X10D2-U

Higher Oil Resistance, DC 2-Wire, M12 Smartclick Pre-wired Models

Appearance		Sensing distance	Model	
			NO	NC
Shielded 	M8	2 mm	E2E-X2D1-M1TGJ-U	E2E-X2D2-M1TGJ-U
	M12	3 mm	E2E-X3D1-M1TGJ-U	E2E-X3D2-M1TGJ-U
	M18	7 mm	E2E-X7D1-M1TGJ-U	E2E-X7D2-M1TGJ-U
	M30	10 mm	E2E-X10D1-M1TGJ-U	E2E-X10D2-M1TGJ-U

DC 2-Wire, Pre-wired Models (Models with self-diagnostic function are 3-wire.)

Self-diagnostic output	Appearance		Sensing distance	Model	
				NO	NC
Yes	Shielded	M12	3 mm	E2E-X3D1S *1	---
		M18	7 mm	E2E-X7D1S *1	---
		M30	10 mm	E2E-X10D1S *1	---
	Unshielded	M12	8 mm	E2E-X8MD1S *1	---
		M18	14 mm	E2E-X14MD1S *1	---
		M30	20 mm	E2E-X20MD1S *1	---
None	Shielded	M8	2 mm	E2E-X2D1-N *2*3	E2E-X2D2-N *3
		M12	3 mm	E2E-X3D1-N *1*2*3	E2E-X3D2-N *3
		M18	7 mm	E2E-X7D1-N *1*2*3	E2E-X7D2-N *3
		M30	10 mm	E2E-X10D1-N *1*2*3	E2E-X10D2-N
	Unshielded	M8	4 mm	E2E-X4MD1 *2*3	E2E-X4MD2
		M12	8 mm	E2E-X8MD1 *1*2*3	E2E-X8MD2
		M18	14 mm	E2E-X14MD1 *1*2*3	E2E-X14MD2
		M30	20 mm	E2E-X20MD1 *1*2*3	E2E-X20MD2

*1. Models with different frequencies are also available. The model numbers are E2E-X □D15 (example: E2E-X3D15-N).
*2. Models with robotics cables are also available. Add "-R" to the end of the model number (example: E2E-X4MD1-R).
The model number E2E-X2D1-N, however, becomes E2E-X2D1-R.
*3. Models are also available with 5-m cables. Add the cable length to the model number (example: E2E-X3D1-N 5M).

DC 2-Wire, Connector Models (Models with self-diagnostic function are 3-wire.)

Con-nector	Self-diag-nostic output	Appearance		Sensing distance	Model			
					NO	Applicable connector code *2	NC	Applicable connector code *2
M12	Yes	Shielded	M12	3 mm	E2E-X3D1S-M1	D	---	---
			M18	7 mm	E2E-X7D1S-M1	D	---	---
			M30	10 mm	E2E-X10D1S-M1	D	---	---
		Unshielded	M12	8 mm	E2E-X8MD1S-M1	D	---	---
			M18	14 mm	E2E-X14MD1S-M1	D	---	---
			M30	20 mm	E2E-X20MD1S-M1	D	---	---
	None	Shielded	M8	2 mm	E2E-X2D1-M1G	A	E2E-X2D2-M1G	D
			M12	3 mm	E2E-X3D1-M1G *1	A	E2E-X3D2-M1G	D
			M18	7 mm	E2E-X7D1-M1G *1	A	E2E-X7D2-M1G	D
			M30	10 mm	E2E-X10D1-M1G *1	A	E2E-X10D2-M1G	D
		Unshielded	M8	4 mm	E2E-X4MD1-M1G	A	E2E-X4MD2-M1G	D
			M12	8 mm	E2E-X8MD1-M1G *1	A	E2E-X8MD2-M1G	D
			M18	14 mm	E2E-X14MD1-M1G *1	A	E2E-X14MD2-M1G	D
			M30	20 mm	E2E-X20MD1-M1G *1	A	E2E-X20MD2-M1G	D
M8		Shielded	M8	2 mm	E2E-X2D1-M3G	G	E2E-X2D2-M3G	G
		Unshielded		4 mm	E2E-X4MD1-M3G	G	E2E-X4MD2-M3G	G

*1. Models with different frequencies are also available. The model numbers are E2E-X□D15-M1G (example: E2E-X3D15-M1G).
*2. Refer to page 19 for details.

DC 2-Wire, Pre-wired Connector Models

Appearance		Sensing distance	Operate Mode	Model			
				Polarity: Yes	Applicable connector code *	Polarity: None	Applicable connector code *
Shielded	M12	3 mm	NO	**E2E-X3D1-M1GJ**	A	**E2E-X3D1-M1J-T**	B
	M18	7 mm		**E2E-X7D1-M1GJ**	A	**E2E-X7D1-M1J-T**	B
	M30	10 mm		**E2E-X10D1-M1GJ**	A	**E2E-X10D1-M1J-T**	B
Unshielded	M12	8 mm		**E2E-X8MD1-M1GJ**	A	---	---
	M18	14 mm		**E2E-X14MD1-M1GJ**	A	---	---
	M30	20 mm		**E2E-X20MD1-M1GJ**	A	---	---

Note: 1. A model with no polarity has a residual voltage of 5 V, which must be taken into consideration together with the interface conditions (the PLC's ON voltage, for example) when connecting the Proximity Sensor to a load. Refer to page 19 for details.
2. The standard cable length is 300 mm. Models are also available with 500 mm and 1 m cables.

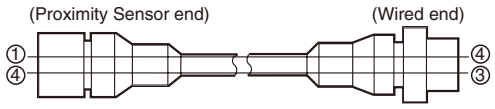
* Refer to page 19 for details.

Connector Pin Assignments of DC 2-Wire Models

- The connector pin assignments of each New E2E DC 2-Wire Model conform to IEC 947-5-2 Table III. (Only DC 2-Wire Models have been changed in comparison to the previous models.)
- The following models with conventional connector pin assignments are available as well. (Only NO Models can be used.)
  The cable at the right should also be used if the XW3A-P□45-G11 Connector Junction Box is already being used.

Cable length	Model
500 mm	**XS2W-D421-BY1**

Internal Wiring



Models with conventional connector pin assignments are available as well.

Appearance		Model			
		NO	Applicable connector code *	NC	Applicable connector code *
Shielded	M8	**E2E-X2D1-M1**	C	**E2E-X2D2-M1**	D
	M12	**E2E-X3D1-M1**	C	**E2E-X3D2-M1**	D
	M18	**E2E-X7D1-M1**	C	**E2E-X7D2-M1**	D
	M30	**E2E-X10D1-M1**	C	**E2E-X10D2-M1**	D
Unshielded	M8	**E2E-X4MD1-M1**	C	**E2E-X4MD2-M1**	D
	M12	**E2E-X8MD1-M1**	C	**E2E-X8MD2-M1**	D
	M18	**E2E-X14MD1-M1**	C	**E2E-X14MD2-M1**	D
	M30	**E2E-X20MD1-M1**	C	**E2E-X20MD2-M1**	D

Note: Refer to page 19 for details.

DC 3-Wire, Pre-Wired Models

Appearance		Sensing distance	Model	
			Output configuration: NPN NO	Output configuration: PNP NO
Shielded 	3 dia.	0.6 mm	E2E-CR6C1	E2E-CR6B1
	4 dia.	0.8 mm	E2E-CR8C1 *1*2	E2E-CR8B1 *2
	M5	1 mm	E2E-X1C1 *1*2	E2E-X1B1 *2
	5.4 dia.	1 mm	E2E-C1C1 *1*2	E2E-C1B1
	M8	1.5 mm	E2E-X1R5E1 *1*2	E2E-X1R5F1 *1*2
	M12	2 mm	E2E-X2E1 *1*2*3*4	E2E-X2F1 *1*2*3
	M18	5 mm	E2E-X5E1 *1*2*3*4	E2E-X5F1 *1*2*3
	M30	10 mm	E2E-X10E1 *1*2*3*4	E2E-X10F1 *2
Unshielded 	M8	2 mm	E2E-X2ME1 *2	E2E-X2MF1 *2
	M12	5 mm	E2E-X5ME1 *1*2*3*4	E2E-X5MF1 *2
	M18	10 mm	E2E-X10ME1 *1*2*3*4	E2E-X10MF1 *2
	M30	18 mm	E2E-X18ME1 *1*2*3*4	E2E-X18MF1 *2

Note: Models with NPN NC output configurations are also available for all of the above models.
*1. Models are also available with 5-m cables. Add the cable length to the model number (example: E2E-X2E1 5M).
*2. Models with robotics cables are also available. The model numbers are E2E-X □E1-R (example: E2E-X5E1-R).
*3. Models with different frequencies are also available. The model numbers are E2E-X □E□5 (example: E2E-X5E15).
*4. These models are also available with e-CON connectors (0.3-m cable). Add "-ECON" to the end of the model number (example: E2E-X2E1-ECON).

DC 3-Wire, Connector Models

Connector	Appearance		Sensing distance	Model		Applicable connector code *
				Output configuration: NPN NO	Output configuration: PNP NO	
M12	Shielded 	M8	1.5 mm	E2E-X1R5E1-M1	E2E-X1R5F1-M1	B
		M12	2 mm	E2E-X2E1-M1	E2E-X2F1-M1	B
		M18	5 mm	E2E-X5E1-M1	E2E-X5F1-M1	B
		M30	10 mm	E2E-X10E1-M1	E2E-X10F1-M1	B
	Unshielded 	M8	2 mm	E2E-X2ME1-M1	E2E-X2MF1-M1	B
		M12	5 mm	E2E-X5ME1-M1	E2E-X5MF1-M1	B
		M18	10 mm	E2E-X10ME1-M1	E2E-X10MF1-M1	B
		M30	18 mm	E2E-X18ME1-M1	E2E-X18MF1-M1	B
M8	Shielded 	M8	1.5 mm	E2E-X1R5E1-M3	E2E-X1R5F1-M3	G
	Unshielded 		2 mm	E2E-X2ME1-M3	E2E-X2MF1-M3	G

Note: Models with NPN NC output configurations are also available for all of the above models.
* Refer to page 19 for details.

AC 2-Wire, Pre-wired Models

Appearance		Sensing distance	Model	
			NO	NC
Shielded 	M8	1.5 mm	**E2E-X1R5Y1**	**E2E-X1R5Y2**
	M12	2 mm	**E2E-X2Y1 *1*2**	**E2E-X2Y2**
	M18	5 mm	**E2E-X5Y1 *1*2**	**E2E-X5Y2**
	M30	10 mm	**E2E-X10Y1 *1*2**	**E2E-X10Y2**
Unshielded 	M8	2 mm	**E2E-X2MY1**	**E2E-X2MY2**
	M12	5 mm	**E2E-X5MY1 *1*2**	**E2E-X5MY2**
	M18	10 mm	**E2E-X10MY1 *1**	**E2E-X10MY2**
	M30	18 mm	**E2E-X18MY1 *1**	**E2E-X18MY2**

*1. Models with different frequencies are also available. The model numbers are E2E-X □Y□5 (example: E2E-X5Y15).
*2. Models are also available with 5-m cables. Add the cable length to the model number (example: E2E-X2Y1 5M).

AC 2-wire, Connector Models

Connector	Appearance		Sensing distance	Model			
				NO	Applicable connector code *	NC	Applicable connector code *
M12	Shielded 	M12	2 mm	**E2E-X2Y1-M1**	E	**E2E-X2Y2-M1**	F
		M18	5 mm	**E2E-X5Y1-M1**	E	**E2E-X5Y2-M1**	F
		M30	10 mm	**E2E-X10Y1-M1**	E	**E2E-X10Y2-M1**	F
	Unshielded 	M12	5 mm	**E2E-X5MY1-M1**	E	**E2E-X5MY2-M1**	F
		M18	10 mm	**E2E-X10MY1-M1**	E	**E2E-X10MY2-M1**	F
		M30	18 mm	**E2E-X18MY1-M1**	E	**E2E-X18MY2-M1**	F

* Refer to page 19 for details.

AC/DC 2-Wire, Pre-wired Models

Appearance		Sensing distance	Operation mode	Model
Shielded 	M12	3 mm	NO	**E2E-X3T1**
	M18	7 mm		**E2E-X7T1 ***
	M30	10 mm		**E2E-X10T1**

Note: These models do not conform to CE standards.
* Models are also available with 5-m cables. Add the cable length to the model number (example: E2E-X7T1 5M).

Accessories (Order Separately)

Sensor I/O Connectors

Refer to *Introduction to Sensor I/O Connectors* for details.

Mounting Brackets
Protective Covers
Sputter Protective Covers
Refer to Y92□ for details.

Ratings and Specifications

E2E-X□D□ DC 2-Wire Models

Item	Size	M8		M12		M18		M30	
	Shielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Model		E2E-X2D□	E2E-X4MD□	E2E-X3D□	E2E-X8MD□	E2E-X7D□	E2E-X14MD□	E2E-X10D□	E2E-X20MD□
Sensing distance		2 mm ±10%	4 mm ±10%	3 mm ±10%	8 mm ±10%	7 mm ±10%	14 mm ±10%	10 mm ±10%	20 mm ±10%
Set distance *1		0 to 1.6 mm	0 to 3.2 mm	0 to 2.4 mm	0 to 6.4 mm	0 to 5.6 mm	0 to 11.2 mm	0 to 8 mm	0 to 16 mm
Differential travel		15% max. of sensing distance		10% max. of sensing distance					
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on pages 13 and 14.							
Standard sensing object		Iron, 8 × 8 × 1 mm	Iron, 20 × 20 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 30 × 30 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 30 × 30 × 1 mm		Iron, 54 × 54 × 1 mm
Response frequency *2		1.5 kHz	1 kHz		0.8 kHz	0.5 kHz	0.4 kHz		0.1 kHz
Power supply voltage (operating voltage range)		12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.							
Leakage current		0.8 mA max.							
Control output	Load current	3 to 100 mA, Diagnostic output: 50 mA for -D1(5)S Models							
	Residual voltage *3	3 V max. (Load current: 100 mA, Cable length: 2 m, M1J-T Models only: 5 V max.)							
Indicators		D1 Models: Operation indicator (red) and setting indicator (green) D2 Models: Operation indicator (red)							
Operation mode (with sensing object approaching)		D1 Models: NO D2 Models: NC Refer to the timing charts under *I/O Circuit Diagrams* on page 16 for details.							
Diagnostic output delay		0.3 to 1 s							
Protection circuits		Surge suppressor, Load short-circuit protection (for control and diagnostic output)							
Ambient temperature range		Operating: –25 to 70°C, Storage: –40 to 85°C (with no icing or condensation)							
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 –25 to 70°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		1000 VAC, 50/60 Hz for 1 minute between current carry 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		Destruction: 1,000 m/s² 10 times each in X, Y, and Z directions					
Degree of protection		Pre-wired Models : IEC 60529 IP67, in-house standards: oil-resistant Connector Models : IEC 60529 IP67							
Connection method		Pre-wired Models (Standard cable length: 2 m), Connector Models, or Pre-wired Connector Models (Standard cable length: 0.3 m)							
Weight (packed state)	Pre-wired Models	Approx. 60 g		Approx. 70 g		Approx. 130 g		Approx. 175 g	
	Pre-wired Connector Models	---		Approx. 40 g		Approx. 70 g		Approx. 110 g	
	Connector Models	Approx. 15 g		Approx. 25 g		Approx. 40 g		Approx. 90 g	
Materials	Case	Stainless steel (SUS303)		Nickel-plated brass					
	Sensing surface	PBT							
	Clamping nuts	Nickel-plated brass							
	Toothed washer	Zinc-plated iron							
Accessories		Instruction manual							

*1. Use the E2E 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 residual voltage of each M1J-T Model is 5 V. When connecting to a device, make sure that the device can withstand the residual voltage. (Refer to page 23 for details.)

E2E-X□E□/F□ DC 3-Wire Models

Item	Size	M8		M12		M18		M30	
	Shielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
	Model	E2E -X1R5E□/F□	E2E -X2ME□/F□	E2E -X2E□/F□	E2E -X5ME□/F□	E2E -X5E□/F□	E2E -X10ME□/F□	E2E-X10E□/ F□	E2E -X18ME□/F□
Sensing distance		1.5 mm ±10%	2 mm ±10%		5 mm ±10%		10 mm ±10%		18 mm ±10%
Set distance		0 to 1.2 mm	0 to 1.6 mm		0 to 4 mm		0 to 8 mm		0 to 14 mm
Differential travel		10% max. of sensing distance							
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on pages 13 and 14.)							
Standard sensing object		Iron, 8 × 8 × 1 mm	Iron, 12 × 12 × 1 mm		Iron, 15 ×15 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 30 × 30 × 1 mm		Iron, 54 × 54 × 1 mm
Response frequency *1		2 kHz	0.8 kHz	1.5 kHz	0.4 kHz	0.6 kHz	0.2 kHz	0.4 kHz	0.1 kHz
Power supply voltage (operating voltage range) *2		12 to 24 VDC (10 to 40 VDC), ripple (p-p): 10% max.							
Current consumption		13 mA max.							
Control output	Load current *2	200 mA max.							
	Residual voltage	2 V max. (Load current: 200 mA, Cable length: 2 m)							
Indicators		Operation indicator (red)							
Operation mode (with sensing object approaching)		E1 Models: NO E2 Models: Refer to the timing charts under *I/O Circuit Diagrams* on page 16 for details. F1 Models: NO							
Protection circuits		Load short-circuit protection, Surge suppressor, Reverse polarity protection							
Ambient temperature range *2		Operating/Storage: –40 to 85°C (with no icing or condensation)							
Ambient humidity range		Operating/Storage: 35% to 95%							
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 carry 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		Destruction: 1,000 m/s² 10 times each in X, Y, and Z directions					
Degree of protection		Pre-wired Models : IEC 60529 IP67, in-house standards: oil-resistant Connector Models : IEC 60529 IP67							
Connection method		Pre-wired Models (Standard cable length: 2 m) and Connector Models							
Weight	Pre-wired Models	Approx. 65 g		Approx. 75 g		Approx. 150 g		Approx. 195 g	
	Connector Models	Approx. 15 g		Approx. 25 g		Approx. 40 g		Approx. 90 g	
Materials	Case	Stainless steel (SUS303)		Nickel-plated brass					
	Sensing surface	PBT							
	Clamping nuts	Nickel-plated brass							
	Toothed washer	Zinc-plated iron							
Accessories		Instruction manual							

*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. When using an M8 Model at an ambient temperature between 70 and 85°C, supply 10 to 30 VDC to the Sensor and make sure that the Sensor has a control output of 100 mA maximum.

E2E-C□C/B□ and E2E-X1C/B□ DC 3-Wire Models

Item	Size	3 dia.	4 dia.	M5	5.4 dia.
	Shielded	Shielded			
	Model	E2E-CR6C/B□	E2E-CR8C/B□	E2E-X1C/B□	E2E-C1C/B□
Sensing distance		0.6 mm ±15%	0.8 mm ±15%	1 mm ±15%	
Set distance		0 to 0.4 mm	0 to 0.5 mm	0 to 0.7 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 14.)			
Standard sensing object		Iron, 3 × 3 × 1 mm	Iron, 5 × 5 × 1 mm		
Response frequency *		2 kHz	3 kHz		
Power supply voltage (operating voltage range)		12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.			
Current consumption		10 mA max.	17 mA max.		
Control output	Load current	Open-collector output, 80 mA max. (30 VDC max.)	Open-collector output, 100 mA max. (30 VDC max.)		
	Residual voltage	1 V max. (Load current: 80 mA, Cable length: 2 m)	2 V max. (Load current: 100 mA, Cable length: 2 m)		
Indicators		Operation indicator (red)			
Operation mode (with sensing object approaching)		C1/B1 Models: NO C2 Models: NC	Refer to the timing charts under *I/O Circuit Diagrams* on page 17 for details.		
Protection circuits		Reverse polarity protection, Surge suppressor			
Ambient temperature range		Operating/Storage: –25 to 70°C (with no icing or condensation)			
Ambient humidity range		Operating/Storage: 35% to 95%			
Temperature influence		±15% max. of sensing distance at 23°C in the temperature range of –25 to 70°C			
Voltage influence		±5% max. of sensing distance at rated voltage in the rated voltage ±10% range	±2.5% 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		500 VAC, 50/60 Hz for 1 min between current-carrying parts and case			
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions			
Shock resistance		Destruction: 500 m/s^2 10 times each in X, Y, and Z directions			
Degree of protection		IEC 60529 IP66	IEC 60529 IP67, in-house standards: oil-resistant		
Connection method		Pre-wired Models (Standard cable length: 2 m)			
Weight (packed state)		Approx. 60 g			
Materials	Case	Stainless steel (SUS303)		Nickel-plated brass	
	Sensing surface	Heat-resistant ABS			
	Clamping nuts	Nickel-plated brass (E2E-X1C/B□ only)			
	Toothed washer	Zinc-plated iron (E2E-X1C/B□ only)			
Accessories		Instruction manual			

* 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.

E2E-X□Y□ AC 2-Wire Models

Item	Size	M8		M12		M18		M30	
	Shielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
	Model	E2E-X1R5Y□	E2E-X2MY□	E2E-X2Y□	E2E-X5MY□	E2E-X5Y□	E2E-X10MY□	E2E-X10Y□	E2E-X18MY□
Sensing distance		1.5 mm ±10%	2 mm ±10%		5 mm ±10%		10 mm ±10%		18 mm ±10%
Set distance		0 to 1.2 mm	0 to 1.6 mm		0 to 4 mm		0 to 8 mm		0 to 14 mm
Differential travel		10% max. of sensing distance							
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on page 14.)							
Standard sensing object		Iron, 8 × 8 × 1 mm	Iron, 12 × 12 × 1 mm		Iron, 15 × 15 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 30 × 30 × 1 mm		Iron, 54 × 54 × 1 mm
Response frequency		25 Hz							
Power supply voltage (operating voltage range)*1		24 to 240 VAC (20 to 264 VAC), 50/60 Hz							
Leakage current		1.7 mA max.							
Control output	Load current *2	5 to 100 mA		5 to 200 mA		5 to 300 mA			
	Residual voltage	Refer to *Engineering Data* on page 15.							
Indicators		Operation indicator (red)							
Operation mode (with sensing object approaching)		Y1 Models: NO Y2 Models: NC	Refer to the timing charts under *I/O Circuit Diagrams* on page 18 for details.						
Protection circuits		Surge suppressor							
Ambient temperature range *1*2		Operating/Storage: –25 to 70°C (with no icing or condensation)		Operating/Storage: –40 to 85°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		±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		4,000 VAC (M8 Models: 2,000 VAC), 50/60 Hz for 1 min between current-carrying parts and case							
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions							
Shock resistance		Destruction: 500 m/s^2 10 times each in X, Y, and Z directions		Destruction: 1,000 m/s^2 10 times each in X, Y, and Z directions					
Degree of protection		Pre-wired Models : IEC 60529 IP67, in-house standards: oil-resistant Connector Models : IEC 60529 IP67							
Connection method		Pre-wired Models (Standard cable length: 2 m) and Connector Models							
Weight	Pre-wired Models Model	Approx. 60 g		Approx. 70 g		Approx. 130 g		Approx. 175 g	
	Connector Models	Approx. 15 g		Approx. 25 g		Approx. 40 g		Approx. 90 g	
Materials	Case	Stainless steel (SUS303)		Nickel-plated brass					
	Sensing surface	PBT							
	Clamping nuts	Nickel-plated brass							
	Toothed washer	Zinc-plated iron							
Accessories		Instruction manual							

*1. When supplying 24 VAC to any of the above models, make sure that the operating ambient temperature range is at least –25°C.
*2. When using an M18 or M30 Connector Model at an ambient temperature between 70 and 85°C, make sure that the Sensor has a control output (load current) of 5 to 200 mA max.

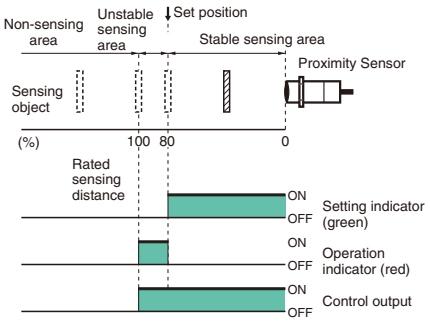
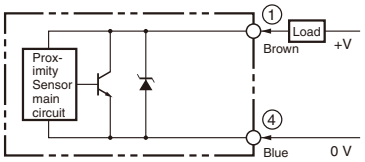
AC/DC 2-Wire Models

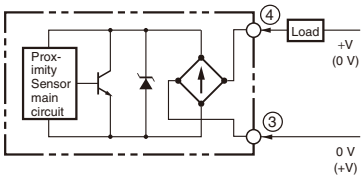
Item	Size	M12	M18	M30
	Shielded	Shielded		
	Model	E2E-X3T1	E2E-X7T1	E2E-X10T1
Sensing distance		3 mm ±10%	7 mm ±10%	10 mm ±10%
Set distance		0 to 2.4 mm	0 to 5.6 mm	0 to 8 mm
Differential travel		10% max. of sensing distance		
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on page 13.)		
Standard sensing object		Iron, 12 × 12 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 30 × 30 × 1 mm
Response frequency *1	DC	1 kHz	0.5 kHz	0.4 kHz
	AC	25 Hz		
Power supply voltage (operating voltage range) *2		24 to 240 VDC (20 to 264 VDC) 48 to 240 VAC (40 to 264 VAC)		
Leakage current		DC: 1 mA max. AC: 2 mA max.		
Control output	Load current	5 to 100 mA		
	Residual voltage	DC: 6 V max. (Load current: 100 mA, Cable length: 2 m) AC: 10 V max. (Load current: 5 mA, Cable length: 2 m)		
Indicators		Operation indicator (red), Setting indicator (green)		
Operation mode (with sensing object approaching)		NO (Refer to the timing charts under *I/O Circuit Diagrams* on page 16 for details.)		
Protection circuits		Load short-circuit protection (20 to 40 VDC only), Surge suppressor		
Ambient temperature range		Operating: –25 to 70°C, Storage: –40 to 85°C (with no icing or condensation)		
Ambient humidity range		Operating/Storage: 35% to 95%		
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		4,000 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, in-house standards: oil-resistant		
Connection method		Pre-wired Models (Standard cable length: 2 m)		
Weight (packed state)		Approx. 80 g	Approx. 140 g	Approx. 190 g
Materials	Case	Nickel-plated brass		
	Sensing surface	PBT		
	Clamping nuts	Nickel-plated brass		
	Toothed washer	Zinc-plated iron		
Accessories		Instruction manual		

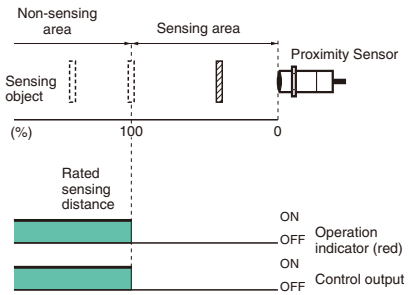
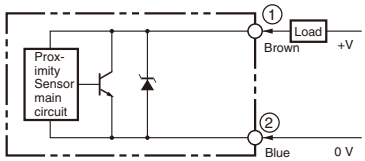
*1. The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.
*2. Power Supply Voltage Waveform:
Use a sine wave for the power supply. Using a rectangular AC power supply may result in faulty reset.

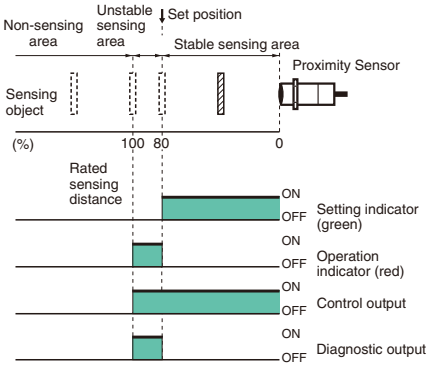
I/O Circuit Diagrams

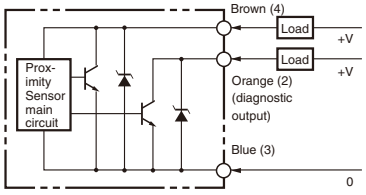
E2E-X□D□ DC 2-Wire Models

<table>
<tr><th>Operation mode</th><th>Model</th><th>Timing Chart</th><th>Output circuit</th></tr>
<tr><td rowspan="2">Without self-diagnostic output: NO</td><td>E2E-X□D1-N
E2E-X□D1-M1G(J)
E2E-X□D1-(M1TGJ)-U
E2E-X□D1-M3G</td><td rowspan="2"> 
</td><td>Polarity: Yes
 

Note: The load can be connected to either the +V or 0 V side.</td></tr>
<tr><td>E2E-X□D1-M1J-T</td><td>Polarity: None
 

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.</td></tr>
<tr><td>Without self-diagnostic output: NC</td><td>E2E-X□D2-N
E2E-X□D2-M1G
E2E-X□D2-(M1TGJ)-U
E2E-X□D2-M3G</td><td> 
</td><td> 

Note: The load can be connected to either the +V or 0 V side.</td></tr>
<tr><td>With self-diagnostic output: NO</td><td>E2E-X□D1S
E2E-X□D1S-M1</td><td> 

The diagnostic output is ON when there is a coil burnout or the sensing object is located in the unstable sensing area for 0.3 s or longer.</td><td> 

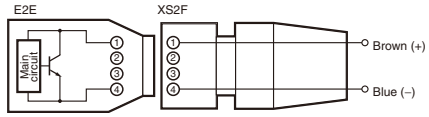
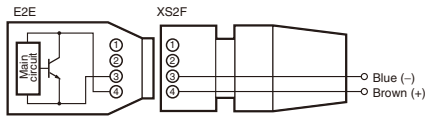
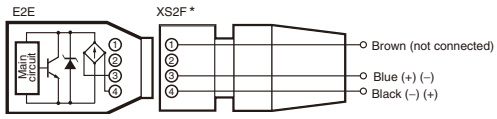
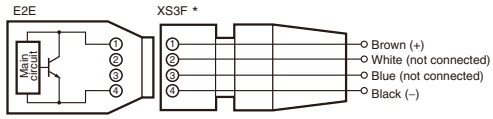
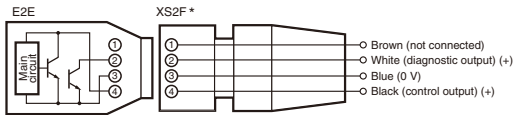
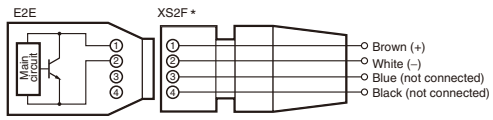
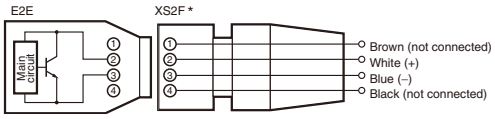
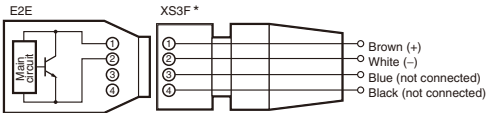
Note: Connect both the loads to the +V side of the control output and diagnostic output.</td></tr>
</table>

Sensor I/O Connectors

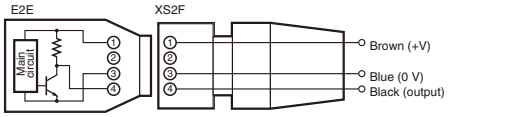
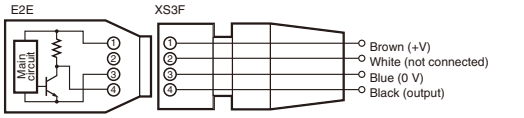
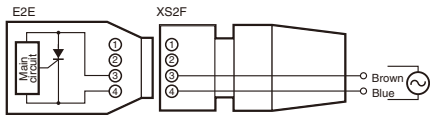
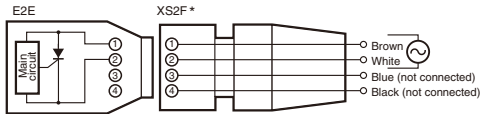
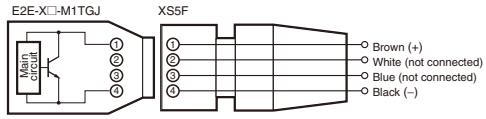
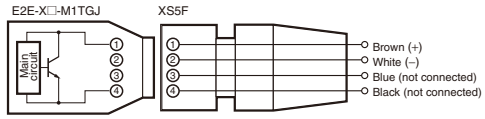
Connector			Applicable connector code	Connector model number	Applicable Proximity Sensor model number	Connection diagram No. *1
Screw	Appearance	Cable length				
M12	Straight 	2 m	A	**XS2F-D421-DA0-A**	E2E-X□D1-M1G	1
					E2E-X□D1-M1GJ	
			B	**XS2F-D421-DC0-A**	E2E-X□D1-M1J-T	3
					E2E-X□E/F1-M1	9
			C	**XS2F-D421-DD0**	E2E-X□D1-M1	2
			D	**XS2F-D421-D80-A**	E2E-X□D2-M1	7
					E2E-X□D2-M1(G)	6
					E2E-X□D1S-M1	5
			E	**XS2F-A421-DB0-A**	E2E-X□Y1-M1	11
			F	**XS2F-A421-D90-A**	E2E-X□Y2-M1	12
		5 m	A	**XS2F-D421-GA0-A**	E2E-X□D1-M1G	1
					E2E-X□D1-M1GJ	
			B	**XS2F-D421-GC0-A**	E2E-X□D1-M1J-T	3
					E2E-X□E/F1-M1	9
			C	**XS2F-D421-GD0**	E2E-X□D1-M1	2
			D	**XS2F-D421-G80-A**	E2E-X□D2-M1	7
					E2E-X□D2-M1(G)	6
					E2E-X□D1S-M1	5
			E	**XS2F-A421-GB0-A**	E2E-X□Y1-M1	11
			F	**XS2F-A421-G90-A**	E2E-X□Y2-M1	12
	L-shape 	2 m	A	**XS2F-D422-DA0-A**	E2E-X□D1-M1G	1
					E2E-X□D1-M1GJ	
			B	**XS2F-D422-DC0-A**	E2E-X□D1-M1J-T	3
					E2E-X□E/F1-M1	9
			C	**XS2F-D422-DD0**	E2E-X□D1-M1	2
			D	**XS2F-D422-D80-A**	E2E-X□D2-M1	7
					E2E-X□D2-M1(G)	6
					E2E-X□D1S-M1	5
			E	**XS2F-A422-DB0-A**	E2E-X□Y1-M1	11
		5 m	A	**XS2F-D422-GA0-A**	E2E-X□D1-M1G	1
					E2E-X□D1-M1GJ	
			B	**XS2F-D422-GC0-A**	E2E-X□D1-M1J-T	3
					E2E-X□E/F1-M1	9
			C	**XS2F-D422-GD0**	E2E-X□D1-M1	2
			D	**XS2F-D422-G80-A**	E2E-X□D2-M1	7
					E2E-X□D2-M1(G)	6
					E2E-X□D1S-M1	5
			E	**XS2F-A422-GB0-A**	E2E-X□Y1-M1	11
	Smartclick Connector, Straight 	2 m	H	**XS5F-D421-D80-P**	E2E-X□D□-M1TGJ-U	13, 14
		5 m		**XS5F-D421-G80-P**		
M8 *2	Straight 	2 m	G	**XS3F-M421-402-R**	E2E-X□D1-M3G	4
					E2E-X□D2-M3G	8
					E2E-X□E/F1-M3	10
		5 m		**XS3F-M421-405-R**	E2E-X□D1-M3G	4
					E2E-X□D2-M3G	8
					E2E-X□E/F1-M3	10
	L-shape 	2 m		**XS3F-M422-402-R**	E2E-X□D1-M3G	4
					E2E-X□D2-M3G	8
					E2E-X□E/F1-M3	10
		5 m		**XS3F-M422-405-R**	E2E-X□D1-M3G	4
					E2E-X□D2-M3G	8
					E2E-X□E/F1-M3	10

*1. Refer to *Connection Diagrams* on page 20 for information on Proximity Sensor and I/O Connector connections.
*2. Refer to *Introduction to Sensor I/O Connectors* for details and for information on Robotics Cables.

Connections for Sensor I/O Connectors

Connection diagram No.	Proximity Sensor			Sensor I/O Connector model number	Connections
	Type	Operation mode	Model		
1	DC 2-wire (IEC pin wiring)	NO	E2E-X□D1-M1G(J)	XS2F-D42□-□A0-A 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
2	DC 2-wire (previous pin wiring)		E2E-X□D1-M1	XS2F-D42□-□D0 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
3	DC 2-wire (no polarity)		E2E-X□D1-M1J-T	XS2F-D42□-□C0-A 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
4	DC 2-wire (M8 connector)		E2E-X□D1-M3G	XS3F-M42□-40□-R 1: Straight 2: L-shape 2: 2-m cable 5: 5-m cable	
5	DC 2-wire (diagnostic type)		E2E-X□D1S-M1	XS2F-D42□-□80-A 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
6	DC 2-wire (IEC pin wiring)	NC	E2E-X□D2-M1G	XS2F-D42□-□80-A 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
7	DC 2-wire (previous pin wiring)		E2E-X□D2-M1	XS2F-D42□-□80-A 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
8	DC 2-wire (M8 connector)		E2E-X□D2-M3G	XS3F-M42□-40□-R 1: Straight 2: L-shape 2: 2-m cable 5: 5-m cable	

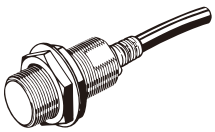
* Different from Proximity Sensor wire colors.

Connection diagram No.	Proximity Sensor			Sensor I/O Connector model number	Connections
	Type	Operation mode	Model		
9	DC 3-wire	NO	E2E-X□E/F1-M1	XS2F-D42□-□C0-A 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
10	DC 3-wire (M8 connector)		E2E-X□E/F1-M3	XS3F-M42□-40□-R 1: Straight 2: L-shape 2: 2-m cable 5: 5-m cable	
11	AC 2-wire	NO	E2E-X□Y1-M1	XS2F-A42□-□B0-A 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
12		NC	E2E-X□Y2-M1	XS2F-A421-□90-A D: 2-m cable G: 5-m cable	
13	DC 2-wire (Smartclick connector)	NO	E2E-X□D1-M1TGJ-U	XS5F-D421-□80-P D: 2-m cable G: 5-m cable	
14	DC 2-wire (Smartclick connector)	NC	E2E-X□D2-M1TGJ-U	XS5F-D421-□80-P D: 2-m cable G: 5-m cable	

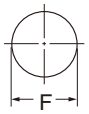
* Different from Proximity Sensor wire colors.

Refer to *Introduction to Sensor I/O Connectors* for details.

Pre-wired Models (Shielded)

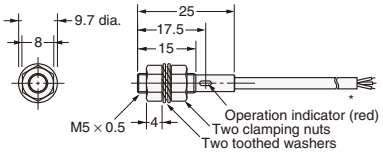


Mounting Hole Dimensions



Dimension	M5	M8	M12
F (mm)	$5.5^{+0.5}_{0}$ dia.	$8.5^{+0.5}_{0}$ dia.	$12.5^{+0.5}_{0}$ dia.

Diagram 4 E2E-X1□



*2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.9 mm), Standard length: 2 m
Robotics Cable Models:
2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.05 mm), Standard length: 2 m
The cable can be extended up to 100 m (separate metal conduit).

Pre-wired Models (Unshielded)

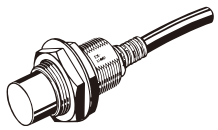
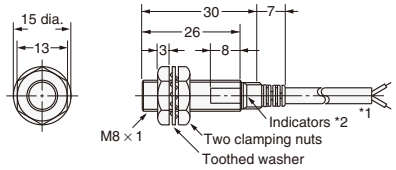
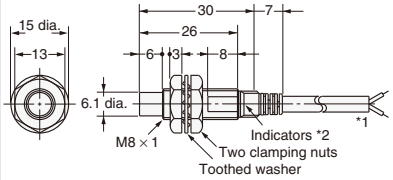


Diagram 5 E2E-X2D□ E2E-X1R5E□/F□



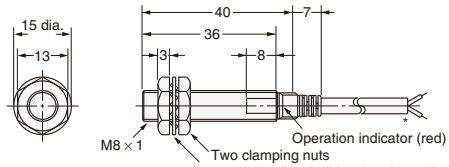
*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
Robotics Cable Models:
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
Models with Highly Oil-resistant Cables:
4-dia. polyurethane-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
The cable can be extended up to 200 m (separate metal conduit).
*2. D Models: Operation indicator (red) and setting indicator (green), E/F Models: Operation indicator (red)

Diagram 6 E2E-X4MD□ E2E-X2ME□/F□



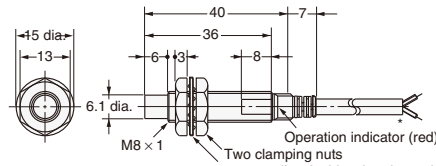
*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
Robotics Cable Models:
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
The cable can be extended up to 200 m (separate metal conduit).
*2. D Models: Operation indicator (red) and setting indicator (green), E/F Models: Operation indicator (red)

Diagram 7 E2E-X1R5Y□



4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
The cable can be extended up to 200 m (separate metal conduit).

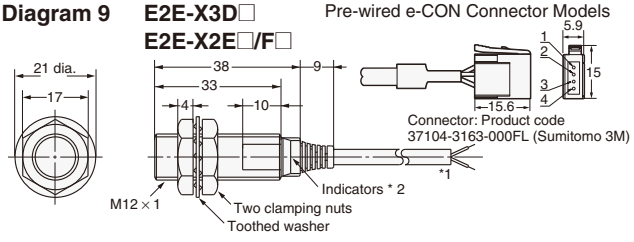
Diagram 8 E2E-X2MY□



4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
The cable can be extended up to 200 m (separate metal conduit).

Diagram 9 E2E-X3D□ E2E-X2E□/F□

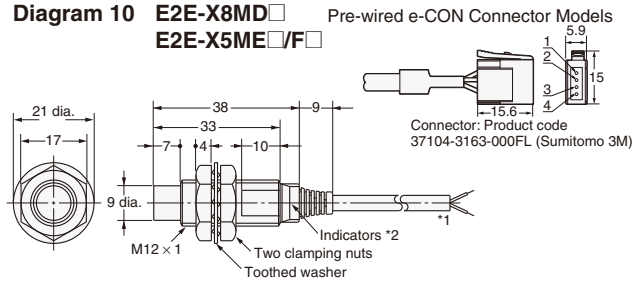
Pre-wired e-CON Connector Models



*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
Robotics Cable Models:
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
Models with Highly Oil-resistant Cables:
4-dia. polyurethane-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
The cable can be extended (separate metal conduit) up to 200 m for the control output and up to 100 m for the diagnostic output.
*2. D Models: Operation indicator (red) and setting indicator (green), E/F Models: Operation indicator (red)

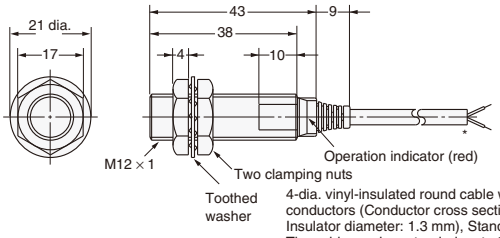
Diagram 10 E2E-X8MD□ E2E-X5ME□/F□

Pre-wired e-CON Connector Models



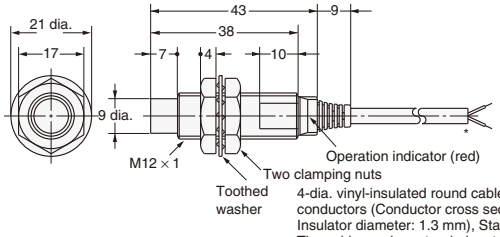
*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.3 mm), Standard length: 2 m
Robotics Cable Models:
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.27 mm), Standard length: 2 m
The cable can be extended (separate metal conduit) up to 200 m for the control output and up to 100 m for the diagnostic output.
*2. D Models: Operation indicator (red) and setting indicator (green), E/F Models: Operation indicator (red)

Diagram 11 E2E-X2Y□



4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm^2, Insulator diameter: 1.3 mm), Standard length: 2 m
The cable can be extended up to 200 m (separate metal conduit).

Diagram 12 E2E-X5MY□



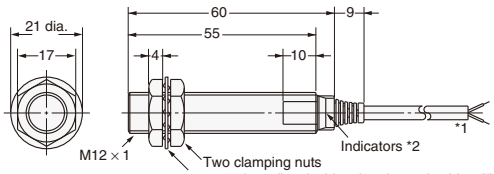
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm^2, Insulator diameter: 1.3 mm), Standard length: 2 m
The cable can be extended up to 200 m (separate metal conduit).

Pre-wired Models (Shielded)

Mounting Hole Dimensions

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

Diagram 13 E2E-X3T1



*1 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm^2, Insulator diameter: 1.3 mm), Standard length: 2 m
The cable can be extended up to 200 m (separate metal conduit).
*2 Operation indicator (red), Setting indicator (green)

Pre-wired Models (Unshielded)

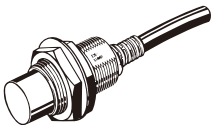
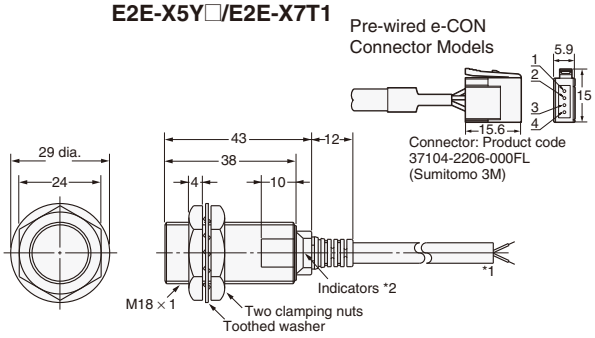
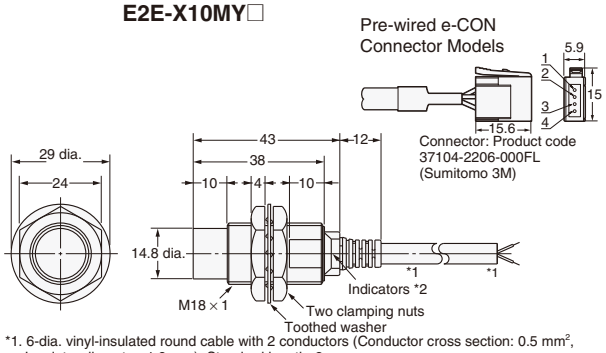


Diagram 14 E2E-X7D□/E2E-X5E□/F□ E2E-X5Y□/E2E-X7T1



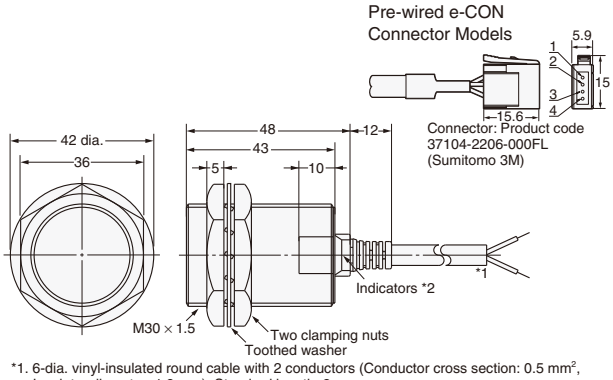
*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm), Standard length: 2 m
Robotics Cable Models:
6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.74 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.74 mm), Standard length: 2 m
Models with Highly Oil-resistant Cables:
6-dia. polyurethane-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm), Standard length: 2 m
The cable can be extended (separate metal conduit) up to 200 m for the control output and up to 100 m for the diagnostic output.
*2. D/T Models: Operation indicator (red), Setting indicator (green)
E/F/Y Models: Operation indicator (red)

Diagram 15 E2E-X14MD□/E2E-X10ME□/F□ E2E-X10MY□



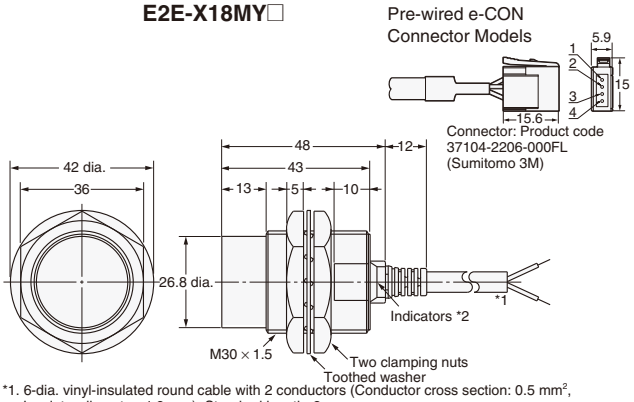
*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm), Standard length: 2 m
Robotics Cable Models:
6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.74 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm^2, Insulator diameter: 1.74 mm), Standard length: 2 m
The cable can be extended (separate metal conduit) up to 200 m for the control output and up to 100 m for the diagnostic output.
*2. D/T Models: Operation indicator (red), Setting indicator (green)
E/F/Y Models: Operation indicator (red)

Diagram 16 E2E-X10D□/E2E-X10E□/F□ E2E-X10Y□/E2E-X10T1



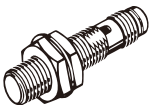
*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m
Robotics Cable Models:
6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.74 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.74 mm), Standard length: 2 m
Models with Highly Oil-resistant:
6-dia. polyurethane-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m
The cable can be extended (separate metal conduit) up to 200 m for the control output and up to 100 m for the diagnostic output.
*2. D/T Models: Operation indicator (red), Setting indicator (green)
E/F/Y Models: Operation indicator (red)

Diagram 17 E2E-X20MD□/E2E-X18ME□/F□ E2E-X18MY□



*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m
Robotics Cable Models:
6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.74 mm), Standard length: 2 m
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.74 mm), Standard length: 2 m
The cable can be extended (separate metal conduit) up to 200 m for the control output and up to 100 m for the diagnostic output.
*2. D/T Models: Operation indicator (red), Setting indicator (green)
E/F/Y Models: Operation indicator (red)

M8 Connector Models (Shielded)



M8 Connector Models (Unshielded)

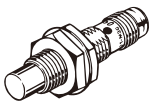
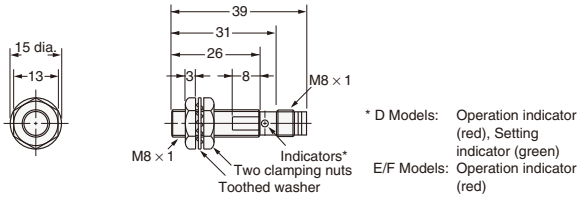
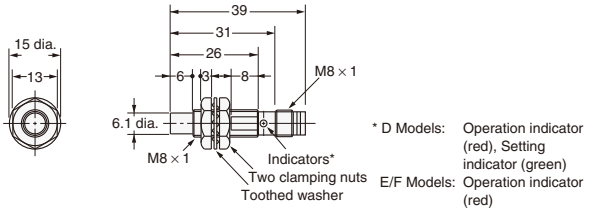


Diagram 28 E2E-X2D□-M3G/E2E-X1R5E1-M3/F□



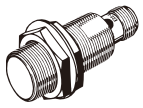
* D Models: Operation indicator (red), Setting indicator (green)
E/F Models: Operation indicator (red)

Diagram 29 E2E-X4MD□-M3G/E2E-X2ME1-M3/F□



* D Models: Operation indicator (red), Setting indicator (green)
E/F Models: Operation indicator (red)

M12 Connector Models (Shielded)



M12 Connector Models (Unshielded)

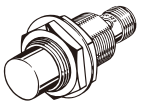
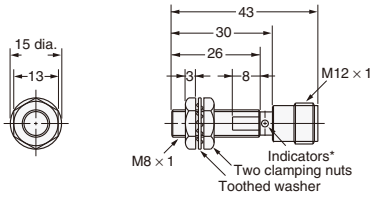
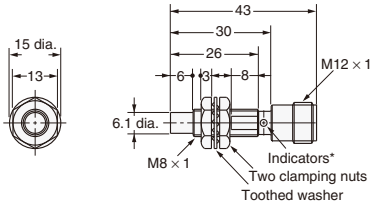


Diagram 18 E2E-X2D□-M1(G) E2E-X1R5E1-M1/F□



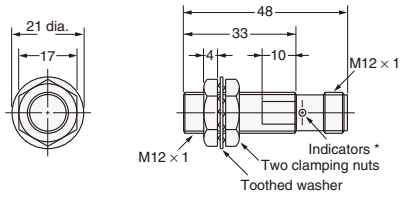
* D Models: Operation indicator (red), Setting indicator (green)
E/F Models: Operation indicator (red)

Diagram 19 E2E-X4MD□-M1(G) E2E-X2ME1-M1/F□



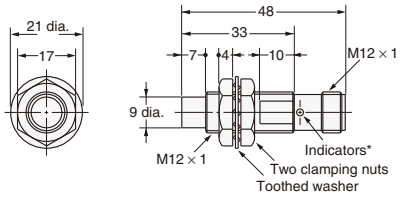
* D Models: Operation indicator (red), Setting indicator (green)
E/F Models: Operation indicator (red)

Diagram 20 E2E-X3D□-M1(G) E2E-X2E1-M1/F□



* D Models: Operation indicator (red), Setting indicator (green)
E/F Models: Operation indicator (red)

Diagram 21 E2E-X8MD□-M1(G) E2E-X5ME1-M1/F□



* D Models: Operation indicator (red), Setting indicator (green)
E/F Models: Operation indicator (red)

Diagram 22 E2E-X2Y□-M1

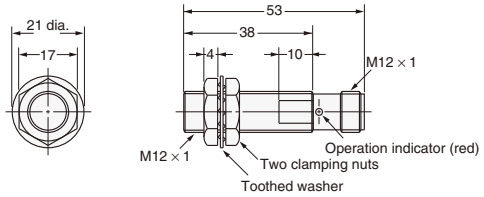


Diagram 23 E2E-X5MY□-M1

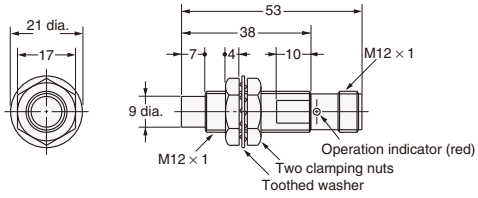
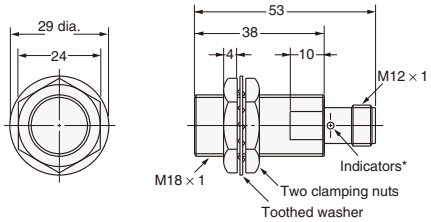
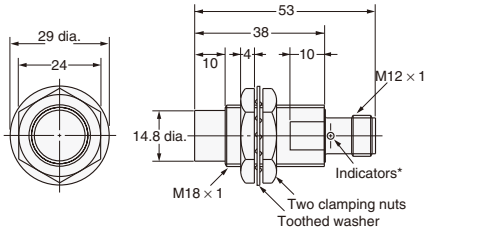


Diagram 24 E2E-X7D□-M1(G)/E2E-X5E1-M1 E2E-X5Y□-M1



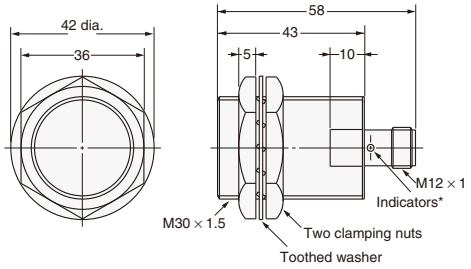
* D Models: Operation indicator (red), Setting indicator (green)
E/Y Models: Operation indicator (red)

Diagram 25 E2E-X14MD□-M1(G)/E2E-X10ME1-M1 E2E-X10MY□-M1



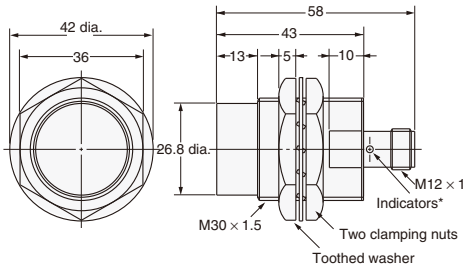
* D Models: Operation indicator (red), Setting indicator (green)
E/Y Models: Operation indicator (red)

Diagram 26 E2E-X10D□-M1(G)/E2E-X10E1-M1 E2E-X10Y□-M1



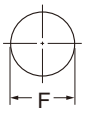
* D Models: Operation indicator (red), Setting indicator (green)
E/Y Models: Operation indicator (red)

Diagram 27 E2E-X20MD□-M1(G)/E2E-X18ME1-M1 E2E-X18MY□-M1



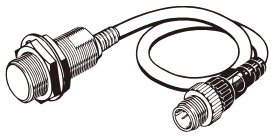
* D Models: Operation indicator (red), Setting indicator (green)
E/Y Models: Operation indicator (red)

Mounting Hole Dimensions



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

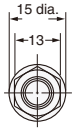
Pre-wired Connector Models (Shielded)

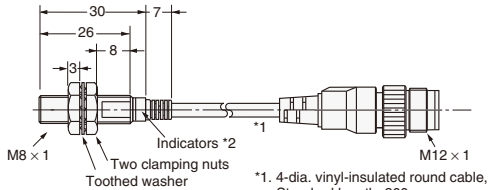


Mounting Hole Dimensions

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

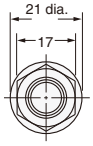
Diagram 30 E2E-X2D1-M1TGJ-U *3

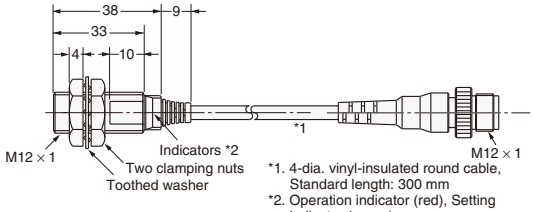




*1. 4-dia. vinyl-insulated round cable, Standard length: 300 mm
*2. Operation indicator (red), Setting indicator (green)
*3. The connectors for M1TGJ models are XS5 Smartclick connectors

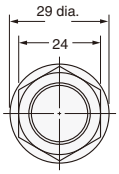
Diagram 31 E2E-X3D1-M1GJ / E2E-X3D1-M1J-T / E2E-X3D1-M1TGJ-U *3

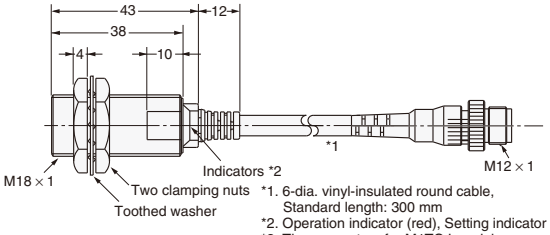




*1. 4-dia. vinyl-insulated round cable, Standard length: 300 mm
*2. Operation indicator (red), Setting indicator (green)
*3. The connectors for M1TGJ models are XS5 Smartclick connectors

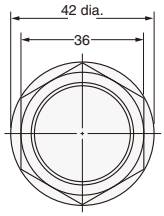
Diagram 33 E2E-X7D1-M1GJ / E2E-X7D1-M1J-T / E2E-X7D1-M1TGJ-U *3

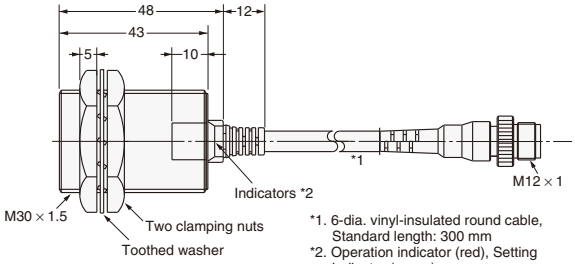




*1. 6-dia. vinyl-insulated round cable, Standard length: 300 mm
*2. Operation indicator (red), Setting indicator (green)
*3. The connectors for M1TGJ models are XS5 Smartclick connectors

Diagram 35 E2E-X10D1-M1GJ / E2E-X10D1-M1J-T / E2E-X10D1-M1TGJ-U *3

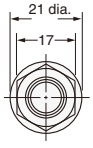


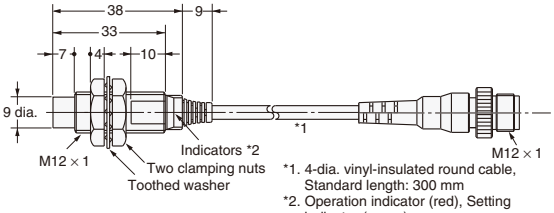


*1. 6-dia. vinyl-insulated round cable, Standard length: 300 mm
*2. Operation indicator (red), Setting indicator (green)
*3. The connectors for M1TGJ models are XS5 Smartclick connectors

Pre-wired Connector Models (Unshielded)

Diagram 32 E2E-X8MD1-M1GJ





*1. 4-dia. vinyl-insulated round cable, Standard length: 300 mm
*2. Operation indicator (red), Setting indicator (green)

Diagram 34 E2E-X14MD1-M1GJ

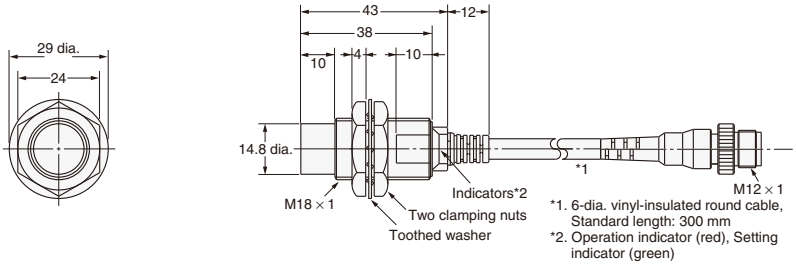
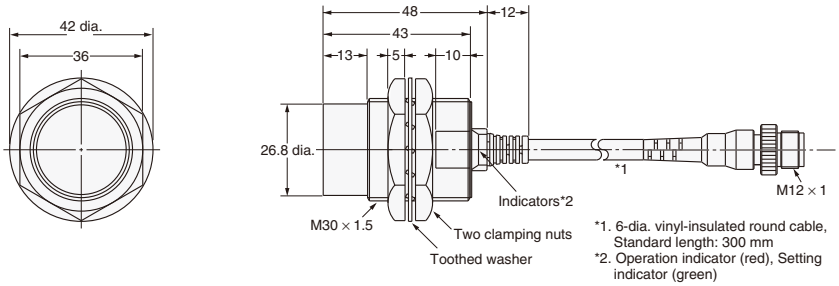


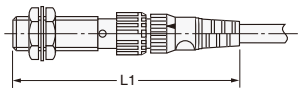
Diagram 36 E2E-X20MD1-M1GJ



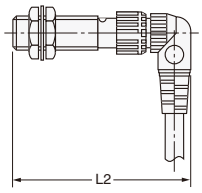
Dimensions for Proximity Sensors with Sensor I/O Connectors

Shielded Models

Straight Connectors

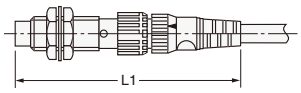


L-shape Connectors

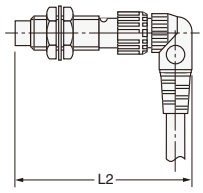


Unshielded Models

Straight Connectors



L-shape Connectors



Dimensions with the XS2F Connected (Unit: mm)

Dimension / Sensor diameter		L1	L2
M8		Approx. 75	Approx. 62
M12*	DC	Approx. 80	Approx. 67
	AC	Approx. 85	Approx. 72
M18		Approx. 85	Approx. 72
M30		Approx. 90	Approx. 77

* The overall length of the Sensor is different between AC and DC Models for Sensors with diameters of M12. This will change the dimension when the I/O Connector is connected.

Dimensions with the XS3F Connected (Unit: mm)

Dimension / Sensor diameter	L1	L2
M8	Approx. 65	Approx. 54

Accessories (Order Separately)

Sensor I/O Connectors

Refer to *Introduction to Sensor I/O Connectors* for details.

Mounting Brackets
Protective Covers
Sputter Protective Covers
Refer to Y92□ for details.