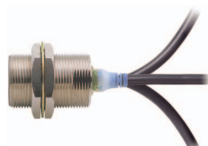


## Your Search for Proximity Sensors Starts with the World-leading Performance and Quality of the E2E

- Standard Sensors for detecting ferrous metals.
- Wide array of variations. Ideal for a variety of applications.
- Models with different frequencies are also available to prevent mutual interference.
- Superior environment resistance with standard cable made of oil-resistant PVC and sensing surface made of material that resists cutting oil.
- Useful to help prevent disconnection. Cable protector provided as a standard feature.



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

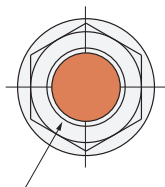


Be sure to read *Safety Precautions* on page 25.

## Features

### 2-Wire Models

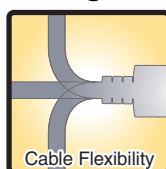
### Pre-wired Models with Oil-resistant Reinforced PUR Cables Added to the Lineup and Easy Differentiation with Orange Head



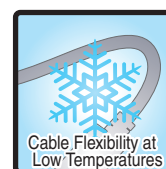
Differentiation from standard models: Orange Head



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

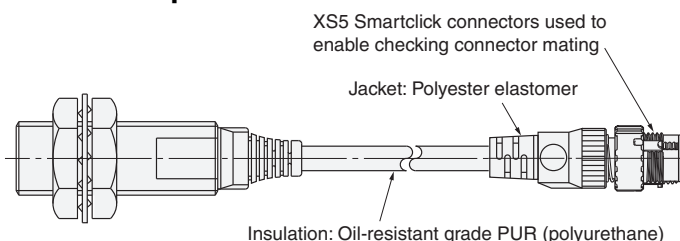


Cable Flexibility: approximately twice that of vinyl chloride cables



More Flexibility at  $-40^{\circ}\text{C}$

### Lineup includes models with Smartclick pre-wired connectors for fast connection.



XS5 Smartclick connectors used to enable checking connector mating

Jacket: Polyester elastomer

Insulation: Oil-resistant grade PUR (polyurethane)

### UL-recognized Models Available



---

**Lineup includes models with self-diagnostic output to provide notification of failures and unstable detection conditions, such as coil burnout.**

- Contributes to preventive maintenance to keep the line from stopping.

**Reduced wiring, fewer resources, and low power consumption contribute to environmentalism.**

- Wiring work and amount of copper wire used reduced to two thirds of that required for 3-wire models.
- Current consumption drastically reduced to less than 10% (when a DC 2-wire model is compared with a DC 3-wire model).

### 3-Wire Models

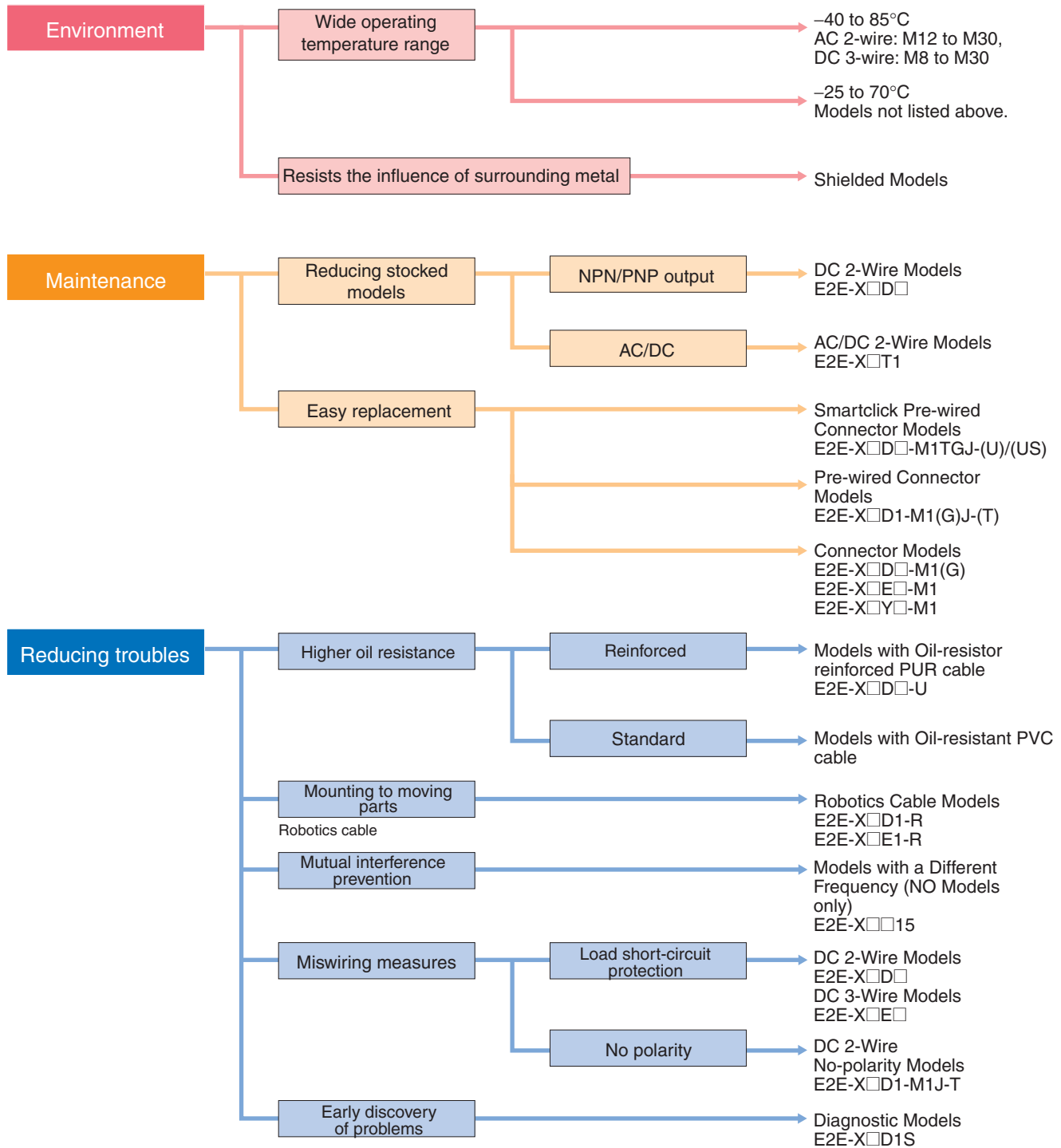
**Wide range of ambient operating temperatures:  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$  (M8 to M30 models)**

- Suitable for low-temperature and high-temperature applications, which are troublesome for photoelectric sensors.

**Lineup includes models with flexible cable (M8 to M30 models)**

- Reduced risk of disconnection in applications with moving parts.

## E2E Guide to Selection by Purpose



Note: Refer to *Models Not Listed in this Catalog* for Long Body Models, Transmission Couplers, and Power Couplers.

## E2E Model Number Legend

E2E- ① ② ③ ④ ⑤ ⑥ ⑦ - ⑧ ⑨ - ⑩ - ⑪ - ⑫ ⑬

No.	Classification	Code	Meaning	Remarks
①	Appearance	X	Cylindrical (threaded)	
②	Sensing distance	Number	Sensing distance (Unit: mm)	Example: 1R5: 1.5 mm
		R	Indication of decimal point	
③	Shielding	Blank	Shielded Model	
		M	Unshielded Model	
④	Power supply and output specifications	B	DC 3-wire PNP open-collector output	Whether D models have polarity is defined by number ⑩.
		C	DC 3-wire NPN open-collector output	
		D	DC 2-wire polarity/no polarity	
		E	DC 3-wire NPN collector load built-in output	
		F	DC 3-wire PNP collector load built-in output	
		T	AC/DC 2-wire	
		Y	AC 2-wire	
⑤	Form of output switching element	1	Normally open (NO)	
		2	Normally closed (NC)	
⑥	Oscillation frequency type	Blank	Standard frequency	Used to prevent mutual interference.
		5	Different frequency	
⑦	Self-diagnosis	Blank	No	
		5	Yes	
⑧	Connection method	Blank	Pre-wired	
		M1	M12-size metal connector	
		M3	M8-size metal connector	
⑨	Connector specifications	Blank	Connector Model DC 3-wire and AC 2-wire, DC 2-wire with self-diagnosis output, DC 2-wire with old pin arrangement	
		G	Connector Model DC 2-wire with IEC pin arrangement	
		J	Pre-wired Connector Model DC 3-wire and AC 2-wire, DC 2-wire with old pin arrangement	
		GJ	Pre-wired Connector Model DC 2-wire with IEC pin arrangement	
		TJ	Pre-wired Smartclick Connector Model DC 2-wire	
		TGJ	Pre-wired Smartclick Connector Model DC 2-wire with IEC pin arrangement	
⑩	DC 2-wire polarity	Blank	Polarity	
		T	No polarity	
⑪	Cable specifications	Blank	Standard PVC cable (oil resistant)	
		R	Flexible PVC cable (oil resistant)	
		U	Polyurethane cable (oil resistant and reinforced)	
⑫	New model	N	New model (Applies only to DC 2-wire pre-wired and shielded models.)	This is blank if the cable specification in number ⑪ is R or U.
	Standard-certified model	US	UL-recognized model (Applies to DC 2-wire pre-wired models and pre-wired connector models.)	
⑬	Cable length	Letter M	Cable length (Unit: m) (Applicable to Pre-wired Models and Pre-wired Connector Models.)	Example: 2M 0.3M

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







## Ordering Information

### 2-Wire Models

Shielded DC 2-wire Models with No Self-diagnostic Output [Refer to *Dimensions* on page 27.]



Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Operation mode	Pin arrangement	Applicable connector code *2	Model					
M8		2 mm		M12 Pre-wired Smart-click Connector Models (0.3m)	PUR (increased oil-resistant)	Yes	NO	1: +V, 4: 0 V	H	E2E-X2D1-M1TGJ-U 0.3M					
					PVC (oil-resistant)		NC	1: +V, 2: 0 V		E2E-X2D2-M1TGJ-U 0.3M					
					Pre-wired Models (2 m)		PUR (increased oil-resistant)	NO	1: +V, 4: 0 V	G	E2E-X2D1-M1TGJ 0.3M				
				PVC (oil-resistant)			NO	---	---	E2E-X2D1-U 2M					
							NC			E2E-X2D2-U 2M					
							NO			E2E-X2D1-N 2M					
				M12 Connector Models	---		NC			E2E-X2D2-N 2M					
				M8 Connector Models	---		NO	1: +V, 4: 0 V	A	E2E-X2D1-M1G					
							NC	1: +V, 2: 0 V	D	E2E-X2D2-M1G					
							NO	1: +V, 4: 0 V	I	E2E-X2D1-M3G					
				NC	1: +V, 2: 0 V		E2E-X2D2-M3G								
M12		3 mm		M12 Pre-wired Smart-click Connector Models (0.3m)	PUR (increased oil-resistant)	Yes	NO	1: +V, 4: 0 V	H	E2E-X3D1-M1TGJ-U 0.3M					
					PVC (oil-resistant)		NC	1: +V, 2: 0 V		E2E-X3D2-M1TGJ-U 0.3M					
					Pre-wired Models (2 m)		PUR (increased oil-resistant)	NO	1: +V, 4: 0 V	G	E2E-X3D1-M1TGJ 0.3M				
				PVC (oil-resistant)			NO	---	---	E2E-X3D1-U 2M					
							NC			E2E-X3D2-U 2M					
							NO			E2E-X3D1-N 2M *1					
				M12 Connector Models	---		NC			E2E-X3D2-N 2M					
				M12 Standard Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)		Yes	NO	1: +V, 4: 0 V	A	E2E-X3D1-M1G *1				
								NC	1: +V, 2: 0 V	D	E2E-X3D2-M1G				
							No *3	NO	1: +V, 4: 0 V	A	E2E-X3D1-M1GJ 0.3M				
				NC	1: +V, 2: 0 V			D	E2E-X3D2-M1GJ 0.3M						
				NO	(3, 4): (+V, 0 V)			C	E2E-X3D1-M1J-T 0.3M						
				NC	(1, 2): (+V, 0 V)		D	---							
				M18			7 mm		M12 Pre-wired Smart-click Connector Models (0.3m)	PUR (increased oil-resistant)	Yes	NO	1: +V, 4: 0 V	H	E2E-X7D1-M1TGJ-U 0.3M
										PVC (oil-resistant)		NC	1: +V, 2: 0 V		E2E-X7D2-M1TGJ-U 0.3M
Pre-wired Models (2 m)	PUR (increased oil-resistant)	NO	1: +V, 4: 0 V			G				E2E-X7D1-M1TGJ 0.3M					
	PVC (oil-resistant)	NO	---			---			E2E-X7D1-U 2M						
		NC							E2E-X7D2-U 2M						
		NO							E2E-X7D1-N 2M *1						
M12 Connector Models	---	NC							E2E-X7D2-N 2M						
M12 Standard Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	Yes	NO			1: +V, 4: 0 V			A	E2E-X7D1-M1G *1					
			NC			1: +V, 2: 0 V			D	E2E-X7D2-M1G					
		No *3	NO			1: +V, 4: 0 V			A	E2E-X7D1-M1GJ 0.3M					
NC	1: +V, 2: 0 V		D			E2E-X7D2-M1GJ 0.3M									
NO	(3, 4): (+V, 0 V)		C			E2E-X7D1-M1J-T 0.3M									
NC	(1, 2): (+V, 0 V)	D	E2E-X7D2-M1J-T 0.3M												
M30		10 mm				M12 Pre-wired Smart-click Connector Models (0.3m)			PUR (increased oil-resistant)	Yes		NO	1: +V, 4: 0 V	H	E2E-X10D1-M1TGJ-U 0.3M
									PVC (oil-resistant)			NC	1: +V, 2: 0 V		E2E-X10D2-M1TGJ-U 0.3M
				Pre-wired Models (2 m)	PUR (increased oil-resistant)		NO	1: +V, 4: 0 V	G		E2E-X10D1-M1TGJ 0.3M				
					PVC (oil-resistant)	NO	---	---	E2E-X10D1-U 2M						
						NC			E2E-X10D2-U 2M						
						NO			E2E-X10D1-N 2M *1						
				M12 Connector Models	---	NC			E2E-X10D2-N 2M						
				M12 Standard Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	Yes	NO	1: +V, 4: 0 V	A		E2E-X10D1-M1G *1				
							NC	1: +V, 2: 0 V	D		E2E-X10D2-M1G				
						No *3	NO	1: +V, 4: 0 V	A		E2E-X10D1-M1GJ 0.3M				
				NC	1: +V, 2: 0 V		D	E2E-X10D2-M1GJ 0.3M							
				NO	(3, 4): (+V, 0 V)		C	E2E-X10D1-M1J-T 0.3M							
				NC	(1, 2): (+V, 0 V)	D	E2E-X10D2-M1J-T 0.3M								

\*1. Models with different frequencies are also available. The model number is E2E-X □D15 (example: E2E-X3D15-N 2M).





\*2. Refer to page 22 for details.

\*3. The residual voltage for models without polarity is 5 V, so use caution concerning the connection load interface conditions (e.g., PLC ON voltage). Refer to page 26

## 2-Wire Models

Shielded DC 2-Wire UL-recognized Models with No Self-diagnostic Output [Refer to *Dimensions* on page 27.]



Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Operation mode	Pin arrangement	Applicable connector code *	Model
M8		2 mm		M12 Pre-wired Smart-click Connector Models (0.3 m)	PVC (oil-resistant)	Yes	NO	1: +V, 4: 0 V	G	E2E-X2D1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X2D2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X2D1-US 2M
							NC	---		E2E-X2D2-US 2M
M12		3 mm		M12 Pre-wired Smart-click Connector Models (0.3 m)			NO	1: +V, 4: 0 V	G	E2E-X3D1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X3D2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X3D1-US 2M
							NC	---		E2E-X3D2-US 2M
M18		7 mm		M12 Pre-wired Smart-click Connector Models (0.3 m)			NO	1: +V, 4: 0 V	G	E2E-X7D1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X7D2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X7D1-US 2M
							NC	---		E2E-X7D2-US 2M
M30		10 mm		M12 Pre-wired Smart-click Connector Models (0.3 m)			NO	1: +V, 4: 0 V	G	E2E-X10D1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X10D2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X10D1-US 2M
							NC	---		E2E-X10D2-US 2M

\* Refer to page 22 for details.

## 2-Wire Models

Unshielded DC 2-Wire Models with No Self-diagnosis Output [Refer to *Dimensions* on page 27.]



Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Operation mode	Pin arrangement	Applicable connector code *2	Model
M8	4 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	Yes	NO	---	---	E2E-X4MD1 2M
							NC			E2E-X4MD2 2M
				M12 Connector Models	---		NO	1: +V, 4: 0 V	A	E2E-X4MD1-M1G
							NC	1: +V, 2: 0 V	D	E2E-X4MD2-M1G
				M8 Connector Models	---		NO	1: +V, 4: 0 V	I	E2E-X4MD1-M3G
							NC	1: +V, 2: 0 V		E2E-X4MD2-M3G
M12	8 mm			M12 Pre-wired Smart-click Connector Models (0.3m)	PVC (oil-resistant)		NO	1: +V, 4: 0 V	G	E2E-X8MD1-M1TGJ 0.3M
				Pre-wired Models (2 m)	PVC (oil-resistant)		NO	---	---	E2E-X8MD1 2M *1
							NC			E2E-X8MD2 2M
				M12 Connector Models	---		NO	1: +V, 4: 0 V	A	E2E-X8MD1-M1G *1
							NC	1: +V, 2: 0 V	D	E2E-X8MD2-M1G
				M12 Standard Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)		NO	1: +V, 4: 0 V	A	E2E-X8MD1-M1GJ 0.3M
M18	14 mm			M12 Pre-wired Smart-click Connector Models (0.3m)	PVC (oil-resistant)		NO	1: +V, 4: 0 V	G	E2E-X14MD1-M1TGJ 0.3M
				Pre-wired Models (2 m)	PVC (oil-resistant)		NO	---	---	E2E-X14MD1 2M *1
							NC			E2E-X14MD2 2M
				M12 Connector Models	---		NO	1: +V, 4: 0 V	A	E2E-X14MD1-M1G *1
							NC	1: +V, 2: 0 V	D	E2E-X14MD2-M1G
				M12 Standard Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)		NO	1: +V, 4: 0 V	A	E2E-X14MD1-M1GJ 0.3M
M30	20 mm			M12 Pre-wired Smart-click Connector Models (0.3m)	PVC (oil-resistant)		NO	1: +V, 4: 0 V	G	E2E-X20MD1-M1TGJ 0.3M
				Pre-wired Models (2 m)	PVC (oil-resistant)		NO	---	---	E2E-X20MD1 2M *1
							NC			E2E-X20MD2 2M
				M12 Connector Models	---		NO	1: +V, 4: 0 V	A	E2E-X20MD1-M1G *1
							NC	1: +V, 2: 0 V	D	E2E-X20MD2-M1G
				M12 Standard Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)		NO	1: +V, 4: 0 V	A	E2E-X20MD1-M1GJ 0.3M
							NC	1: +V, 2: 0 V	D	---

\*1. Models with different frequencies are also available. The model number is E2E-X □D15 (example: E2E-X8MD15 2M).

\*2. Refer to page 22 for details.

## 2-Wire Models

Unshielded DC 2-Wire UL-recognized Models with No Self-diagnostic Output [Refer to *Dimensions* on page 27.]



Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Operation mode	Pin arrangement	Applicable connector code *	Model
M8	4 mm			M12 Pre-wired Smart-click Connector Models (0.3 m)	PVC (oil-resistant)	Yes	NO	1: +V, 4: 0 V	G	E2E-X4MD1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X4MD2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X4MD1-US 2M
							NC	---		E2E-X4MD2-US 2M
M12	8 mm			M12 Pre-wired Smart-click Connector Models (0.3 m)			NO	1: +V, 4: 0 V	G	E2E-X8MD1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X8MD2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X8MD1-US 2M
							NC	---		E2E-X8MD2-US 2M
M18	14 mm			M12 Pre-wired Smart-click Connector Models (0.3 m)			NO	1: +V, 4: 0 V	G	E2E-X14MD1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X14MD2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X14MD1-US 2M
							NC	---		E2E-X14MD2-US 2M
M30	20 mm			M12 Pre-wired Smart-click Connector Models (0.3 m)			NO	1: +V, 4: 0 V	G	E2E-X20MD1-M1TGJ-US 0.3M
							NC	1: +V, 2: 0 V		E2E-X20MD2-M1TGJ-US 0.3M
				Pre-wired Models (2 m)			NO	---	---	E2E-X20MD1-US 2M
							NC	---		E2E-X20MD2-US 2M

\* Refer to page 22 for details.

Shielded DC 2-Wire Models with Self-diagnosis Output [Refer to *Dimensions* on page 27.]



Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Operation mode	Pin arrangement	Applicable connector code *2	Model
M12	3 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	Yes	NO	---	---	E2E-X3D1S 2M *1
				M12 Connector Models	---			2: +V and diagnostic output 3: 0 V 4: +V and control output	D	E2E-X3D1S-M1
M18	7 mm			Pre-wired Models (2 m)	PVC (oil-resistant)			---	---	E2E-X7D1S 2M *1
				M12 Connector Models	---			2: +V and diagnostic output 3: 0 V 4: +V and control output	D	E2E-X7D1S-M1
M30	10 mm			Pre-wired Models (2 m)	PVC (oil-resistant)			---	---	E2E-X10D1S 2M *1
				M12 Connector Models	---			2: +V and diagnostic output 3: 0 V 4: +V and control output	D	E2E-X10D1S-M1

\*1. Models with different frequencies are also available. The model number is E2E-X □D15S (example: E2E-X3D15S 2M).

\*2. Refer to page 22 for details.

## 2-Wire Models

Unshielded DC 2-Wire Models with Self-diagnosis Output [Refer to *Dimensions* on page 27.]



Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Operation mode	Pin arrangement	Applicable connector code *2	Model
M12		8 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	Yes	NO	---	---	E2E-X8MD1S 2M *1
				M12 Connector Models	---			2: +V and diagnostic output 3: 0 V 4: +V and control output	D	E2E-X8MD1S-M1
M18		14 mm		Pre-wired Models (2 m)	PVC (oil-resistant)			---	---	E2E-X14MD1S 2M *1
				M12 Connector Models	---			2: +V and diagnostic output 3: 0 V 4: +V and control output	D	E2E-X14MD1S-M1
M30		20 mm		Pre-wired Models (2 m)	PVC (oil-resistant)			---	---	E2E-X20MD1S 2M *1
				M12 Connector Models	---			2: +V and diagnostic output 3: 0 V 4: +V and control output	D	E2E-X20MD1S-M1

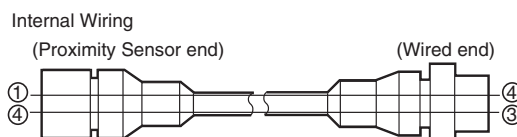
\*1. Models with different frequencies are also available. The model number is E2E-X □MD15S (example: E2E-X8MD15S 2M).

\*2. Refer to page 22 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 XW3D-P□55-G11/XW3B-P□55-G11 Connector Junction Box is already being used.

Cable length	Model
500 mm	XS2W-D421-BY1



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

\* Refer to page 22 for details.

## 2-Wire Models

AC 2-Wire Models Shielded Models [Refer to *Dimensions* on page 27.]

Appearance	Sensing distance		Connection method	Cable specifications	Operation mode	Pin arrangement	Applicable connector code *2	Model
M8	1.5 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X1R5Y1 2M
					NC			E2E-X1R5Y2 2M
M12	2 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X2Y1 2M *1
					NC			E2E-X2Y2 2M
			M12 Connector Models	---	NO	(3, 4): (AC, AC)	E	E2E-X2Y1-M1
					NC	(1, 2): (AC, AC)	F	E2E-X2Y2-M1
M18	5 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X5Y1 2M *1
					NC			E2E-X5Y2 2M
			M12 Connector Models	---	NO	(3, 4): (AC, AC)	E	E2E-X5Y1-M1
					NC	(1, 2): (AC, AC)	F	E2E-X5Y2-M1
M30	10 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X10Y1 2M *1
					NC			E2E-X10Y2 2M
			M12 Connector Models	---	NO	(3, 4): (AC, AC)	E	E2E-X10Y1-M1
					NC	(1, 2): (AC, AC)	F	E2E-X10Y2-M1

\*1. Models with different frequencies are also available. The model number is E2E-X □Y□5 (example: E2E-X5Y15 2M).

\*2. Refer to page 22 for details.

## Unshielded Models



Appearance	Sensing distance		Connection method	Cable specifications	Operation mode	Pin arrangement	Applicable connector code *2	Model
M8	2 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X2MY1 2M
					NC			E2E-X2MY2 2M
M12	5 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X5MY1 2M *1
					NC			E2E-X5MY2 2M
			M12 Connector Models	---	NO	(3, 4): (AC, AC)	E	E2E-X5MY1 2M
					NC	(1, 2): (AC, AC)	F	E2E-X5MY2-M1
M18	10 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X10MY1 2M *1
					NC			E2E-X10MY2 2M
			M12 Connector Models	---	NO	(3, 4): (AC, AC)	E	E2E-X10MY1-M1
					NC	(1, 2): (AC, AC)	F	E2E-X10MY2-M1
M30	18 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X18MY1 2M *1
					NC			E2E-X18MY2 2M
			M12 Connector Models	---	NO	(3, 4): (AC, AC)	E	E2E-X18MY1-M1
					NC	(1, 2): (AC, AC)	F	E2E-X18MY2-M1

\*1. Models with different frequencies are also available. The model number is E2E-X □MY□5 (example: E2E-X5MY15 2M).

\*2. Refer to page 22 for details.

AC 2-Wire Models Shielded Models [Refer to *Dimensions* on page 27.]

(There are no unshielded models.)

Appearance	Sensing distance		Connection method	Cable specifications	Operation mode	Pin arrangement	Applicable connector code	Model
M12	3 mm		Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X3T1 2M
M18	7 mm		Pre-wired Models (2 m)	PVC (oil-resistant)		---	---	E2E-X7T1 2M
M30	10 mm		Pre-wired Models (2 m)	PVC (oil-resistant)		---	---	E2E-X10T1 2M

## 3-Wire Models

Shielded DC 3-Wire Models [Refer to *Dimensions* on page 27.]

Appearance	Sensing distance			Connection method	Cable specifications	Operation mode	Pin arrangement	Applicable connector code *2	Model	
									NPN output	PNP output
M8	1.5 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X1R5E1 2M	E2E-X1R5F1 2M
					PVC (oil-resistant)	NC			E2E-X1R5E2 2M	E2E-X1R5F2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X1R5E1-M1	E2E-X1R5F1-M1
						NC	1: +V, 3: 0 V, 2: Control output	D	E2E-X1R5E2-M1	E2E-X1R5F2-M1
				M8 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	I	E2E-X1R5E1-M3	E2E-X1R5F1-M3
						NC	1: +V, 3: 0 V, 2: Control output		E2E-X1R5E2-M3	E2E-X1R5F2-M3
M12	2 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X2E1 2M *1	E2E-X2F1 2M *1
						NC			E2E-X2E2 2M	E2E-X2F2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X2E1-M1	E2E-X2F1-M1
						NC	1: +V, 3: 0 V, 2: Control output	D	E2E-X2E2-M1	E2E-X2F2-M1
M18	5 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X5E1 2M *1	E2E-X5F1 2M *1
						NC			E2E-X5E2 2M	E2E-X5F2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X5E1-M1	E2E-X5F1-M1
						NC	1: +V, 3: 0 V, 2: Control output	D	E2E-X5E2-M1	E2E-X5F2-M1
M30	10 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X10E1 2M *1	E2E-X10F1 2M
						NC			E2E-X10E2 2M	E2E-X10F2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X10E1-M1	E2E-X10F1-M1
						NC	1: +V, 3: 0 V, 2: Control output	D	E2E-X10E2-M1	E2E-X10F2-M1

\*1. Models with different frequencies are also available. The model number is E2E-X□□□5 (example: E2E-X5E15 2M).

\*2. Refer to page 22 for details.

## 3-Wire Models

Unshielded DC 3-Wire Models [Refer to *Dimensions* on page 27.]

Appearance	Sensing distance			Connection method	Cable specifications	Operation mode	Pin arrangement	Applicable connector code *2	Model	
									NPN output	PNP output
M8	2 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X2ME1 2M	E2E-X2MF1 2M
						NC			E2E-X2ME2 2M	E2E-X2MF2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X2ME1-M1	E2E-X2MF1-M1
						NC		D	E2E-X2ME2-M1	E2E-X2MF2-M1
				M8 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	I	E2E-X2ME1-M3	E2E-X2MF1-M3
						NC			E2E-X2ME2-M3	E2E-X2MF2-M3
M12	5 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X5ME1 2M *1	E2E-X5MF1 2M
						NC			E2E-X5ME2 2M	E2E-X5MF2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X5ME1-M1	E2E-X5MF1-M1
						NC		D	E2E-X5ME2-M1	E2E-X5MF2-M1
M18	10 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X10ME1 2M *1	E2E-X10MF1 2M
						NC			E2E-X10ME2 2M	E2E-X10MF2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X10ME1-M1	E2E-X10MF1-M1
						NC		D	E2E-X10ME2-M1	E2E-X10MF2-M1
M30	18 mm			Pre-wired Models (2 m)	PVC (oil-resistant)	NO	---	---	E2E-X18ME1 2M *1	E2E-X18MF1 2M
						NC			E2E-X18ME2 2M	E2E-X18MF2 2M
				M12 Connector Models	---	NO	1: +V, 3: 0 V, 4: Control output	B	E2E-X18ME1-M1	E2E-X18MF1-M1
						NC		D	E2E-X18ME2-M1	E2E-X18MF2-M1

\*1. Models with different frequencies are also available. The model number is E2E-X□M□□□5 (example: E2E-X5ME15 2M).

\*2. Refer to page 22 for details.



## Ratings and Specifications

### E2E-X□D□ DC 2-Wire Models

Size Shielded		M8		M12		M18		M30	
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Item	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 <i>Engineering Data</i> on pages 17 and 18.							
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)		Standard Models: 12 to 24 VDC, ripple (p-p): 10% max. (10 to 30 VDC) US Models and Connector Models Used as UL-certified Models: 12 to 24 VDC, ripple (p-p): 10% max. (The operating voltage range is also the same.) *3							
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 *4	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      Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 20 for details. D2 Models: NC							
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/s <sup>2</sup> 10 times each in X, Y, and Z directions		Destruction: 1,000 m/s <sup>2</sup> 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. For the information on UL-certified connector models, refer to your OMRON website.

\*4. 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 26 for details.)

## E2E-X□Y□ AC 2-Wire Models

Size Shielded		M8		M12		M18		M30	
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Item	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 <i>Engineering Data</i> on page 18.)							
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)* <sup>1</sup>		24 to 240 VAC (20 to 264 VAC), 50/60 Hz							
Leakage current		1.7 mA max.							
Control output	Load current * <sup>2</sup>	5 to 100 mA		5 to 200 mA		5 to 300 mA			
	Residual voltage	Refer to <i>Engineering Data</i> on page 19.							
Indicators		Operation indicator (red)							
Operation mode (with sensing object approaching)		Y1 Models: NO      Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 21 for details. Y2 Models: NC							
Protection circuits		Surge suppressor							
Ambient temperature range * <sup>1</sup> * <sup>2</sup>		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 <sup>2</sup> 10 times each in X, Y, and Z directions		Destruction: 1,000 m/s <sup>2</sup> 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 (packed state)	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							
	Clamp-ing 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.

## E2E-X□T1 AC/DC 2-Wire Models

Item	Size Shielded Model	M12	M18	M30
		Shielded		
		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 <i>Engineering Data</i> on page 17.)		
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>I/O Circuit Diagrams</i> on page 21 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% (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		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 <sup>2</sup> 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.

## E2E-X□E□/F□ DC 3-Wire Models

Size Shielded		M8		M12		M18		M30	
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Item	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 <i>Engineering Data</i> on page 18.)							
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, ripple(p-p): 10% max. (10 to 30 VDC) Connector Models Used as UL-certified Models: 12 to 24 VDC, ripple (p-p): 10% max. (The operating voltage range is also the same.) *3							
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/F1 Models: NO E2/F2 Models: NC Refer to the timing charts under <i>/O Circuit Diagrams</i> on page 21 for details.							
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% (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 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/s <sup>2</sup> 10 times each in X, Y, and Z directions		Destruction: 1,000 m/s <sup>2</sup> 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 (packed state)	Pre- wired Models	Approx. 65 g		Approx. 75 g		Approx. 150 g		Approx. 195 g	
	Connec- tor Models	Approx. 15 g		Approx. 25 g		Approx. 40 g		Approx. 90 g	
Materials	Case	Stainless steel (SUS303)		Nickel-plated brass					
	Sensing surface	PBT							
	Clamp- ing 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.

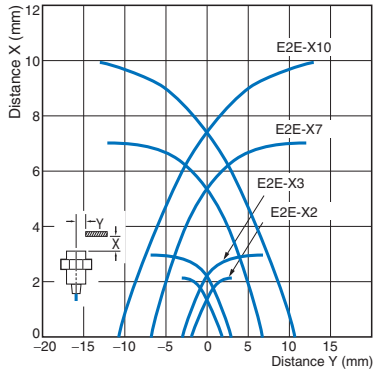
\*3. For the information on UL-certified connector models, refer to your OMRON website.

## Engineering Data (Reference Value)

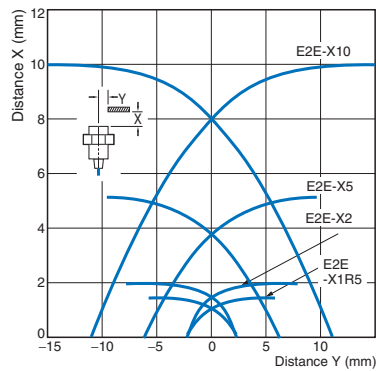
### Sensing Area

#### Shielded Models

##### E2E-X□D□/-X□T1

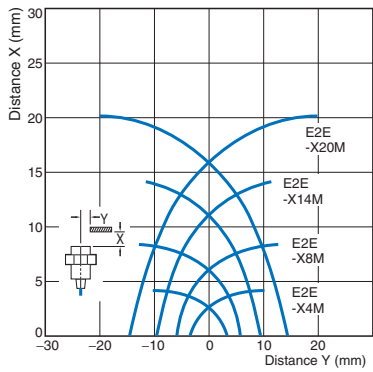


##### E2E-X□E□/-X□Y□/-X□F□

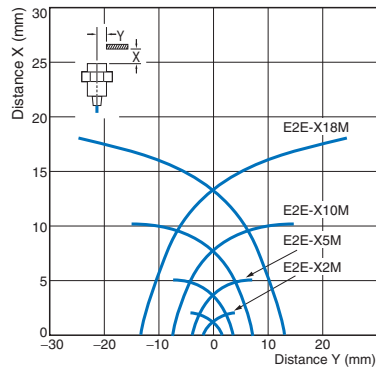


#### Unshielded Models

##### E2E-X□MD□

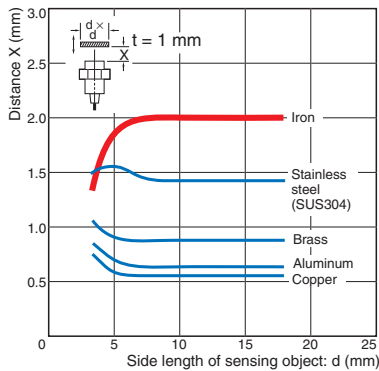


##### E2E-X□ME□/-X□MY□/-X□MF□

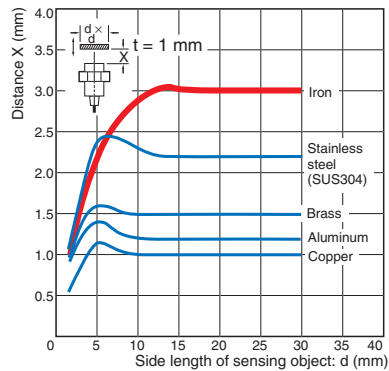


### Influence of Sensing Object Size and Material

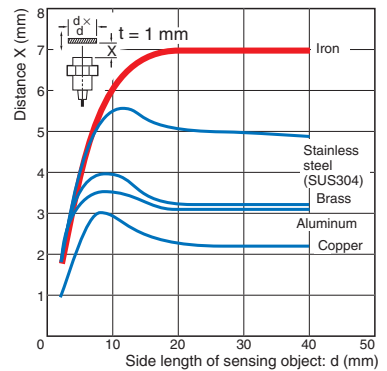
##### E2E-X2D□



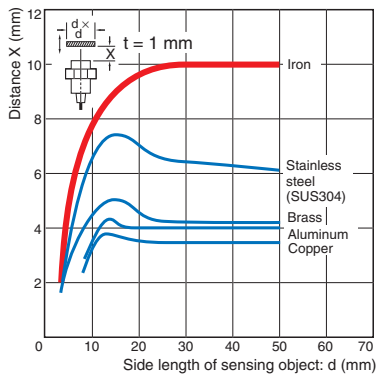
##### E2E-X3D□/-X3T1



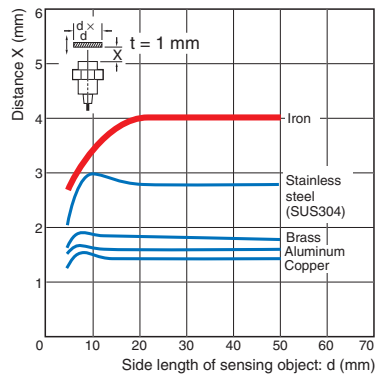
##### E2E-X7D□/-X7T1



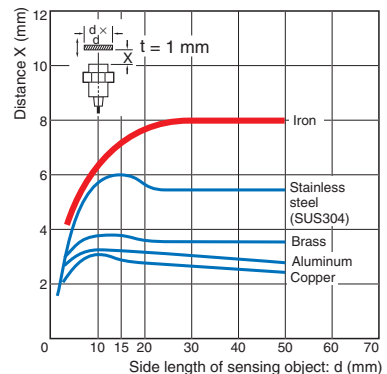
##### E2E-X10D□/-X10T1

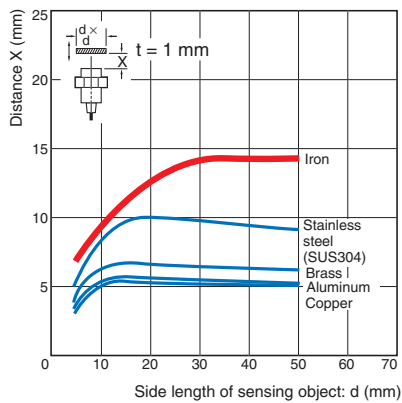
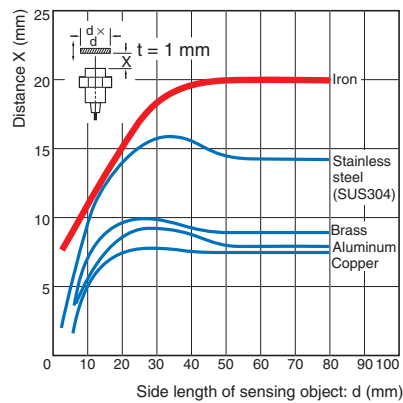
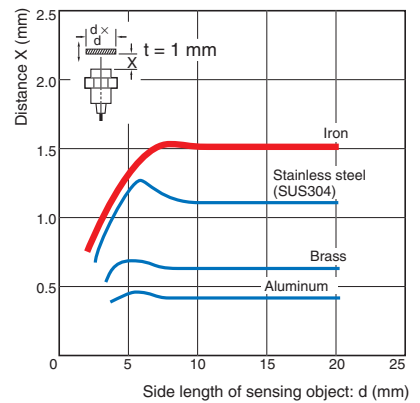
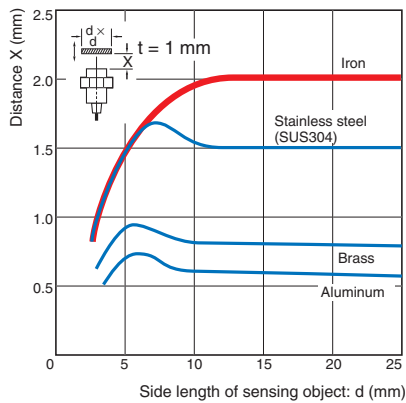
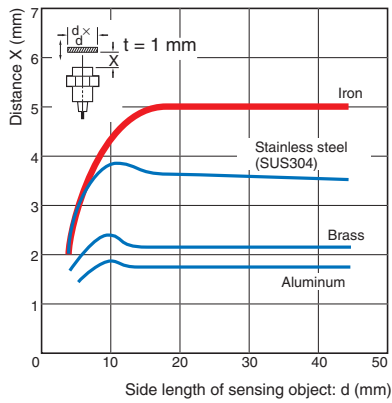
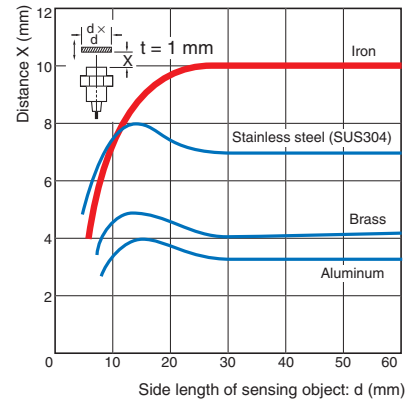
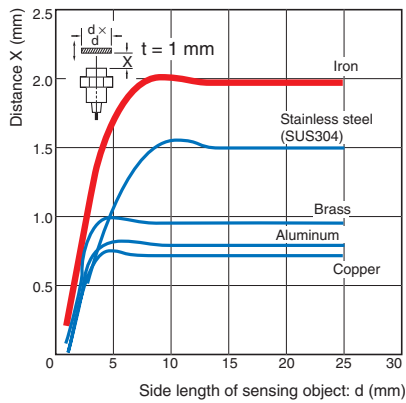
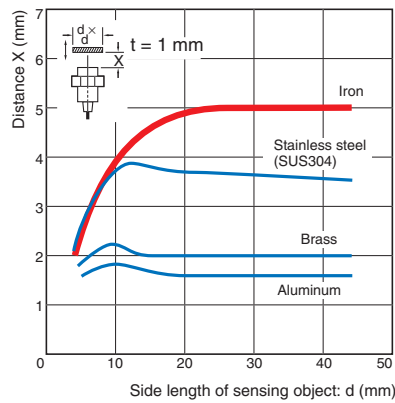
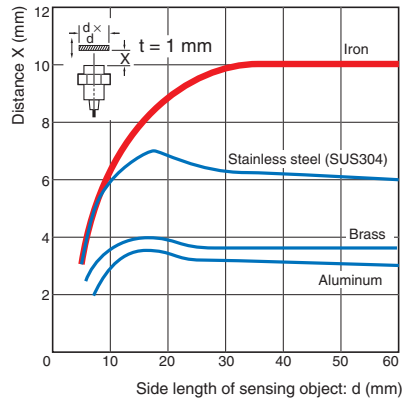
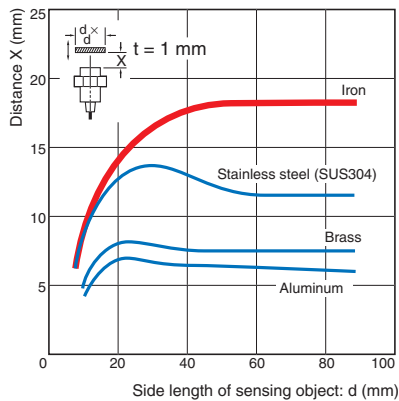


##### E2E-X4MD□



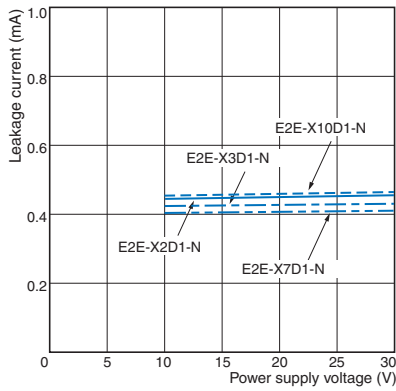
##### E2E-X8MD□



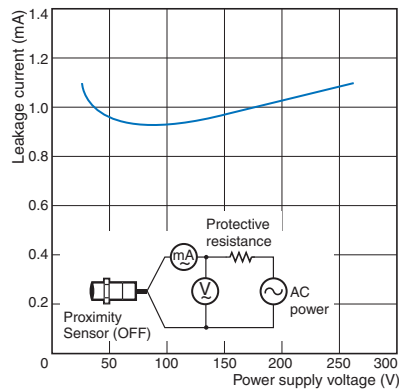
**E2E-X14MD****E2E-X20MD****E2E-X1R5E/-X1R5Y/-X1R5F****E2E-X2E/-X2Y/-X2F****E2E-X5E/-X5Y/-X5F****E2E-X10E/-X10Y/-X10F****E2E-X2ME/-X2MY/-X2MF****E2E-X5ME/-X5MY/-X5MF****E2E-X10ME/-X10MY/-X10MF****E2E-X18ME/-X18MY/-X18MF**

## Leakage Current

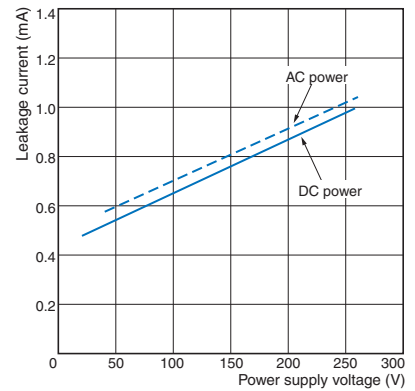
### E2E-X□D□



### E2E-X□Y□

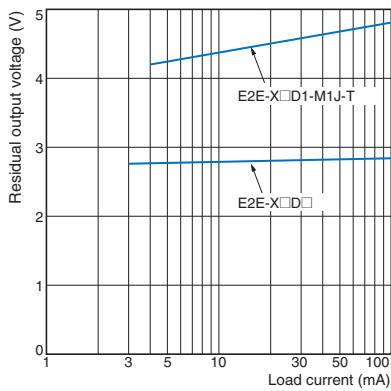


### E2E-X□T1

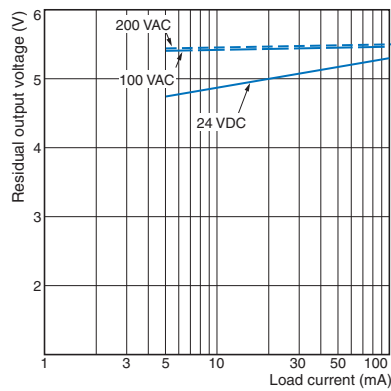


## Residual Output Voltage

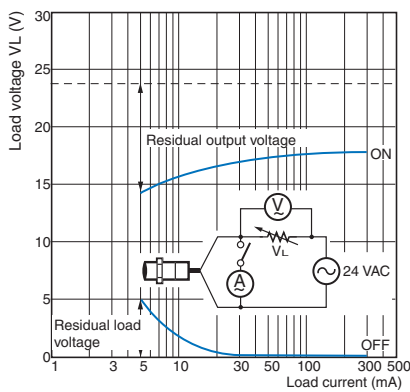
### E2E-X□D□



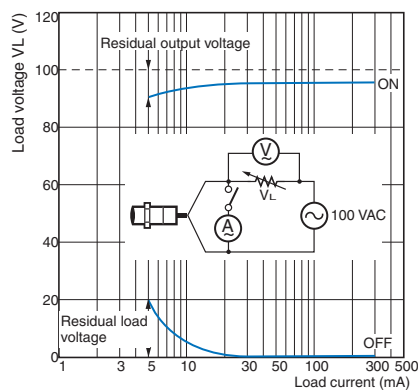
### E2E-X□T1



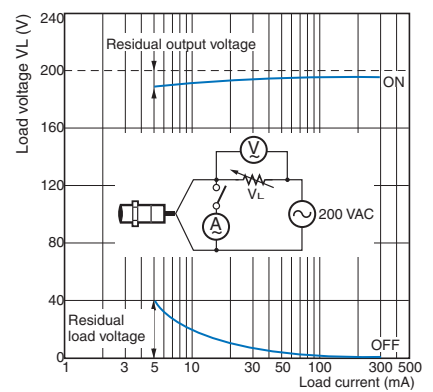
### E2E-X□Y□ at 24 VAC



### E2E-X□Y□ at 100 VAC



### E2E-X□Y□ at 200 VAC



## I/O Circuit Diagrams

### E2E-X□D□ DC 2-Wire Models

Operation mode	Model	Timing Chart	Output circuit
Without self-diagnostic output: NO	E2E-X□D1-N E2E-X□D1-M1G(J) E2E-X□D1(-M1TGJ)-U E2E-X□D1-M3G E2E-X□D1(-M1TGJ)-US	<p>Non-sensing area    Unstable sensing area    Stable sensing area</p> <p>Sensing object</p> <p>(%)    100    80    0</p> <p>Rated sensing distance</p> <p>ON    OFF    ON    OFF    ON    OFF</p> <p>Setting indicator (green)</p> <p>Operation indicator (red)</p> <p>Control output</p> <p>Proximity Sensor</p>	<p>Polarity: Yes</p> <p>Note: The load can be connected to either the +V or 0 V side.</p>
	E2E-X□D1-M1J-T	<p>Non-sensing area    Sensing area</p> <p>Sensing object</p> <p>(%)    100    0</p> <p>Rated sensing distance</p> <p>ON    OFF    ON    OFF    ON    OFF</p> <p>Setting indicator (green)</p> <p>Operation indicator (red)</p> <p>Control output</p> <p>Proximity Sensor</p>	<p>Polarity: None</p> <p>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.</p>
Without self-diagnostic output: NC	E2E-X□D2-N E2E-X□D2-M1G E2E-X□D2(-M1TGJ)-U E2E-X□D2-M3G E2E-X□D2(-M1TGJ)-US	<p>Non-sensing area    Sensing area</p> <p>Sensing object</p> <p>(%)    100    0</p> <p>Rated sensing distance</p> <p>ON    OFF    ON    OFF</p> <p>Operation indicator (red)</p> <p>Control output</p> <p>Proximity Sensor</p>	<p>Note: The load can be connected to either the +V or 0 V side.</p>
With self-diagnostic output: NO	E2E-X□D1S E2E-X□D1S-M1	<p>Non-sensing area    Unstable sensing area    Stable sensing area</p> <p>Sensing object</p> <p>(%)    100    80    0</p> <p>Rated sensing distance</p> <p>ON    OFF    ON    OFF    ON    OFF    ON    OFF</p> <p>Setting indicator (green)</p> <p>Operation indicator (red)</p> <p>Control output</p> <p>Diagnostic output*</p> <p>Proximity Sensor</p> <p>* 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.</p>	<p>Note: Connect both the loads to the +V side of the control output and diagnostic output.</p>



## DC 3-Wire Models

Operation mode	Output specifications	Model	Timing Chart	Output circuit
NO	NPN output	E2E-X□E□ E2E-X□E□-M1 E2E-X□E□-M3	Sensing object Present Sensing object Not present	 *Constant current output is 1.5 to 3 mA. Note: For Connector Models, the connection between pins 1, 4 and 3 uses an NO contact, and the connection between pins 1, 2 and 3 uses an NC contact.
NC			Sensing object Present Sensing object Not present	
NO	PNP output	E2E-X□F□ E2E-X□F□-M1 E2E-X□F□-M3	Sensing object Present Sensing object Not present	 *When a transistor is connected Note: For Connector Models, the connection between pins 1, 4 and 3 uses an NO contact, and the connection between pins 1, 2 and 3 uses an NC contact.
NC			Sensing object Present Sensing object Not present	

## AC 2-Wire Models

Operation mode	Model	Timing Chart	Output circuit
NO	E2E-X□Y□ E2E-X□Y□-M1	Sensing object Present Sensing object Not present	 Note: For Connector Models, the connection between pins 3 and 4 uses an NO contact, and the connection between pins 1 and 2 uses an NC contact.
NC		Sensing object Present Sensing object Not present	

## AC/DC 2-Wire Models

Operation mode	Model	Timing Chart	Output circuit
NO	E2E-X□T1	 Sensing object Present Sensing object Not present	 Note: The load can be connected to either the +V or 0 V side. There is no need to be concerned about the polarity (brown/blue) of the Proximity Sensor.

## Sensor I/O Connectors (Sockets on One Cable End)

Model for Connectors and Pre-wired Connectors: A Connector is not provided with the Sensor. Be sure to order a Connector separately.  
**[Refer to Dimensions for the XS2, XS3, and XS5.]**

Applicable connector code	Connector				Applicable Proximity Sensor model number	Connection diagram No. *2	
	Screw	Appearance *1	Cable length 2m	Cable length 5m			
			CablConnector model number	CablConnector model number			
A	M12	Straight	XS2F-D421-DA0-F	XS2F-D421-GA0-F	E2E-X□D1-M1G(J)	1	
		L-shape	XS2F-D422-DA0-F	XS2F-D422-GA0-F			
B		Straight	XS2F-D421-DC0-F	XS2F-D421-GC0-F	E2E-X□E1-M1 E2E-X□F1-M1	10	
		L-shape	XS2F-D422-DC0-F	XS2F-D422-GC0-F			
C		Straight	XS2F-D421-DD0	XS2F-D421-GD0	E2E-X□D1-M1J-T	3	
					E2E-X□D1-M1	2	
		L-shape	XS2F-D422-DD0	XS2F-D422-GD0	E2E-X□D1-M1J-T	3	
					E2E-X□D1-M1	2	
D		Straight	XS2F-D421-D80-F	XS2F-D421-G80-F	E2E-X□D2-M1G(J)	6	
					E2E-X□D2-M1J-T	8	
					E2E-X□D2-M1	7	
					E2E-X□D1S-M1	5	
					E2E-X□E2-M1 E2E-X□F2-M1	11	
					L-shape	XS2F-D422-D80-F	XS2F-D422-G80-F
		E2E-X□D2-M1J-T	8				
		E2E-X□D2-M1	7				
		E2E-X□D1S-M1	5				
		E2E-X□E2-M1 E2E-X□F2-M1	11				
		Straight	XS2F-A421-DB0-F	XS2F-A421-GB0-F			
					L-shape	XS2F-A422-DB0-F	XS2F-A422-GB0-F
F		Straight	XS2F-A421-D90-F	XS2F-A421-G90-F	E2E-X□Y2-M1	15	
G		Smartclick Connector, Straight	XS5F-D421-D80-F	XS5F-D421-G80-F	E2E-X□D1-M1TGJ(-US)	16	
					E2E-X□D2-M1TGJ-US	17	
H		Smartclick Connector, Straight Oil-resistant Reinforced Cables	XS5F-D421-D80-P	XS5F-D421-G80-P	E2E-X□D1-M1TGJ-U	18	
					E2E-X□D2-M1TGJ-U	19	
I		M8	Straight	XS3F-M421-402-A	XS3F-M421-405-A	E2E-X□D1-M3G	4
						E2E-X□D2-M3G	9
	E2E-X□E1-M3 E2E-X□F1-M3					12	
	E2E-X□E2-M3 E2E-X□F2-M3					13	
	L-shape		XS3F-M422-402-A	XS3F-M422-405-A	E2E-X□D1-M3G	4	
					E2E-X□D2-M3G	9	
					E2E-X□E1-M3 E2E-X□F1-M3	12	
					E2E-X□E2-M3 E2E-X□F2-M3	13	

Note: Refer to *Introduction to Sensor I/O Connectors/Sensor Controllers* for details and for information on Cable length and Robotics Cables.

\*1. Images of straight and L-shaped connectors.

M12 Straight



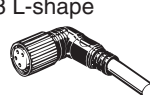
M12 L-shape



M8 Straight



M8 L-shape



\*2. Refer to *Connection Diagrams* on page 23 for information on Proximity Sensor and I/O Connector connections.

## 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/M1GJ	XS2F-D42□□A0-F 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□□D0 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□-A 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-F 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/M1GJ	XS2F-D42□□80-F 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-F 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
8	DC 2-wire (no polarity)		E2E-X□D2-M1J-T	XS2F-D42□□80-F 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
9	DC 2-wire (M8 connector)		E2E-X□D2-M3G	XS3F-M42□□40□-A 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		
10	DC 3-wire	NO	E2E-X□E/F1-M1	XS2F-D42□-□C0-F 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
11		NC	E2E-X□E2/F2-M1	XS2F-D42□-□80-F 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
12	DC 3-wire (M8 connector)	NO	E2E-X□E1/F1-M3	XS3F-M42□-□40□-A 1: Straight 2: L-shape 2: 2-m cable 5: 5-m cable	
13		NC	E2E-X□E2/F2-M3	XS3F-M42□-□40□-A 1: Straight 2: L-shape 2: 2-m cable 5: 5-m cable	
14	AC 2-wire	NO	E2E-X□Y1-M1	XS2F-A42□-□B0-F 1: Straight 2: L-shape D: 2-m cable G: 5-m cable	
15		NC	E2E-X□Y2-M1	XS2F-A421□-□90-F D: 2-m cable G: 5-m cable	
16	DC 2-wire (Smartclick connector)	NO	E2E-X□D1-M1TGJ(-US)	XS5F-D421□-□80-F D: 2-m cable G: 5-m cable	
17		NC	E2E-X□D2-M1TGJ-US	XS5F-D421□-□80-F D: 2-m cable G: 5-m cable	
18		NO	E2E-X□D1-M1TGJ-U	XS5F-D421□-□80-P D: 2-m cable G: 5-m cable	
19		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/Sensor Controllers for details.**

## Safety Precautions

Refer to *Warranty and Limitations of Liability*.

### ⚠ WARNING

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



### CAUTION

- Do not short the load. Explosion or burning may result.
- Do not supply power to the Sensor with no load, otherwise Sensor may be damaged.

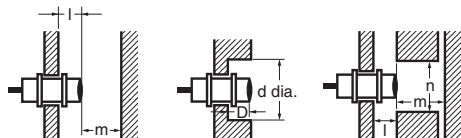
### Precautions for Correct Use

Do not use this product under ambient conditions that exceed the ratings.

#### ● Design

##### Influence of Surrounding Metal

When mounting the Sensor within a metal panel, ensure that the clearances given in the following table are maintained. Failure to maintain these distances may cause deterioration in the performance of the Sensor.



##### Influence of Surrounding Metal

(Unit: mm)

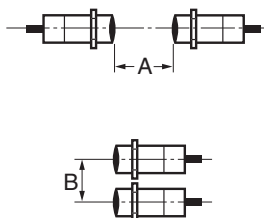
Model		Item	M8	M12	M18	M30
DC 2-Wire Models E2E-X□D□  AC/DC 2-Wire Models E2E-X□T1	Shielded	l	0			
		d	8	12	18	30
		D	0			
		m	4.5	8	20	40
		n	12	18	27	45
	Unshielded	l	12	15	22	30
		d	24	40	70	90
		D	12	15	22	30
		m	8	20	40	70
		n	24	40	70	90
DC 3-Wire Models E2E-X□E□ E2E-X□F□  AC 2-Wire Models E2E-X□Y□	Shielded	l	0			
		d	8	12	18	30
		D	0			
		m	4.5	8	20	40
		n	12	18	27	45
	Unshielded	l	6	15	22	30
		d	24	40	55	90
		D	6	15	22	30
		m	8	20	40	70
		n	24	36	54	90

### Relationship between Sizes and Models

Model		Model
M8	Shielded	E2E-X2D□
		E2E-X1R5E□
		E2E-X1R5F□
		E2E-X1R5Y□
	Unshielded	E2E-X4MD□
		E2E-X2ME□
		E2E-X2MF□
		E2E-X2MY□
M12	Shielded	E2E-X3D□
		E2E-X2E□
		E2E-X2F□
		E2E-X2Y□
		E2E-X3T1
	Unshielded	E2E-X8MD□
		E2E-X5ME□
		E2E-X5MF□
M18	Shielded	E2E-X7D□
		E2E-X5E□
		E2E-X5F□
		E2E-X5Y□
		E2E-X7T1
	Unshielded	E2E-X14MD□
		E2E-X10ME□
		E2E-X10MF□
		E2E-X10MY□
M30	Shielded	E2E-X10D□
		E2E-X10E□
		E2E-X10F□
		E2E-X10Y□
	Unshielded	E2E-X10T1
		E2E-X20MD□
		E2E-X18ME□
		E2E-X18MF□
	E2E-X18MY□	

## Mutual Interference

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



## Mutual Interference

(Unit: mm)

Model	Item	M8	M12	M18	M30
DC 2-Wire Models E2E-X□D□	Shielded	A: 20 B: 15	30 (20) 20 (12) *	50 (30) 35 (18) *	100 (50) 70 (35)
	Unshielded	A: 80 B: 60	120 (60) 100 (50)	200 (100) 110 (60)	300 (100) 200 (100)
AC/DC 2-Wire Models E2E-X□T1	Shielded	A: 20 B: 15	30 (20) 20 (12) *	50 (30) 35 (18) *	100 (50) 70 (35)
	Unshielded	A: 80 B: 60	120 (60) 100 (50)	200 (100) 110 (60)	300 (100) 200 (100)
DC 3-Wire Models E2E-X□E□/X□F□	Shielded	A: 20 B: 15	30 (20) 20 (12) *	50 (30) 35 (18) *	100 (50) 70 (35)
	Unshielded	A: 80 B: 60	120 (60) 100 (50)	200 (100) 110 (60)	300 (100) 200 (100)
AC 2-Wire Models E2E-X□Y□	Shielded	A: 20 B: 15	30 (20) 20 (12) *	50 (30) 35 (18) *	100 (50) 70 (35)
	Unshielded	A: 80 B: 60	120 (60) 100 (50)	200 (100) 110 (60)	300 (100) 200 (100)

Note: Values in parentheses apply to Sensors operating at different frequencies.

\* Mutual interference will not occur for close-proximity mounting if models with different frequencies are used together.

## Loads with Large Surge Currents (E2E-X□T□)

If a load with a large surge current is connected, such as a relay, lamp, or motor, the surge current may cause the load short-circuit protection circuit to operate, resulting in operating errors.

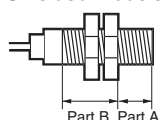
## ● Mounting

### Tightening Force

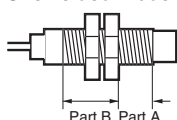
Do not tighten the nut with excessive force.  
A washer must be used with the nut.



Shielded Models



Unshielded Models



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.

Model		Part A		Part B
		Dimension	Torque	Torque
M8	Shielded	9	9 N·m	12 N·m
	Unshielded	3		
M12			30 N·m	
M18			70 N·m	
M30			180 N·m	

## Connecting a DC 2-Wire Proximity Sensor to a PLC (Programmable Controller)

### Required Conditions

Connection to a PLC is possible if the specifications of the PLC and the Proximity Sensor satisfy the following conditions. (The meanings of the symbols are given at the right.)

- The ON voltage of the PLC and the residual voltage of the Proximity Sensor must satisfy the following.

$$V_{ON} \leq V_{CC} - V_R$$

- The OFF current of the PLC and the leakage current of the Proximity Sensor must satisfy the following.

$$I_{OFF} \geq I_{leak}$$

(If the OFF current is not listed in the PLC's input specifications, take it to be 1.3 mA.)

- The ON current of the PLC and the control output of the Proximity Sensor must satisfy the following.

$$I_{OUT} (\text{min.}) \leq I_{ON} \leq I_{OUT} (\text{max.})$$

The ON current of the PLC will vary, however, with the power supply voltage and the input impedance, as shown in the following equation.

$$I_{ON} = (V_{CC} - V_R - V_{PC}) / R_{IN}$$

### Example

In this example, the above conditions are checked when the Proximity Sensor is the E2E-X7D1-N and the power supply voltage is 24 V.

- $V_{ON} (14.4 \text{ V}) \leq V_{CC} (20.4 \text{ V}) - V_R (3 \text{ V}) = 17.4 \text{ V}$ : OK
- $I_{OFF} (1.3 \text{ mA}) \geq I_{leak} (0.8 \text{ mA})$ : OK
- $I_{ON} = [V_{CC} (20.4 \text{ V}) - V_R (3 \text{ V}) - V_{PC} (4 \text{ V})] / R_{IN} (3 \text{ k}\Omega)$   
= Approx. 4.5 mA

Therefore,  $I_{OUT} (\text{min.}) (3 \text{ mA}) \leq I_{ON} (4.5 \text{ mA})$ : OK  
Connection is thus possible.

### Connection Example (Reference)

PLC	$V_{ON}$ : ON voltage (14.4 V) $I_{ON}$ : ON current (typically 7 mA) $I_{OFF}$ : OFF current (1.3 mA) $R_{IN}$ : Input impedance (3 k $\Omega$ ) $V_{PC}$ : Internal residual voltage (4 V)
Proximity Sensor	$V_R$ : Output residual voltage (3 V) $I_{leak}$ : Leakage current (0.8 mA) $I_{OUT}$ : Control output (3 to 100 mA) $V_{CC}$ : Power supply voltage (PLC: 20.4 to 26.4 V)

## Dimensions

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

### Main Units

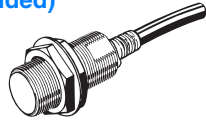
#### Model Number-Dimensions Drawing Number Lookup Table

Model			DC 2-Wire Models		DC 3-Wire Models		AC 2-Wire Models		AC/DC 2-Wire Models							
Model	Shielded		Model	No.	Model	No.	Model	No.	Model	No.						
Pre-wired Models	Shielded	M8	E2E-X2D□(-US)	1	E2E-X1R5E□/F□	1	E2E-X1R5Y□	3	---							
		M12	E2E-X3D□(-US)	5	E2E-X2E□/F□	5	E2E-X2Y□	7	E2E-X3T1	9						
		M18	E2E-X7D□(-US)	10	E2E-X5E□/F□	10	E2E-X5Y□	10	E2E-X7T1	10						
		M30	E2E-X10D□(-US)	12	E2E-X10E□/F□	12	E2E-X10Y□	12	E2E-X10T1	12						
	Unshielded	M8	E2E-X4MD□(-US)	2	E2E-X2ME□/F□	2	E2E-X2MY□	4	---							
		M12	E2E-X8MD□(-US)	6	E2E-X5ME□/F□	6	E2E-X5MY□	8								
		M18	E2E-X14MD□(-US)	11	E2E-X10ME□/F□	11	E2E-X10MY□	11								
		M30	E2E-X20MD□(-US)	13	E2E-X18ME□/F□	13	E2E-X18MY□	13								
Connector Models (M12)	Shielded	M8	E2E-X2D□-M1(G)	14	E2E-X1R5E/F□-M1	14	---		---							
		M12	E2E-X3D□-M1(G)	16	E2E-X2E/F□-M1	16	E2E-X2Y□-M1	18								
		M18	E2E-X7D□-M1(G)	20	E2E-X5E/F□-M1	20	E2E-X5Y□-M1	20								
		M30	E2E-X10D□-M1(G)	22	E2E-X10E/F□-M1	22	E2E-X10Y□-M1	22								
	Unshielded	M8	E2E-X4MD□-M1(G)	15	E2E-X2ME/F□-M1	15	---		---							
		M12	E2E-X8MD□-M1(G)	17	E2E-X5ME/F□-M1	17	E2E-X5MY□-M1	19								
		M18	E2E-X14MD□-M1(G)	21	E2E-X10ME/F□-M1	21	E2E-X10MY□-M1	21								
		M30	E2E-X20MD□-M1(G)	23	E2E-X18ME/F□-M1	23	E2E-X18MY□-M1	23								
Connector Models (M8)	Shielded	M8	E2E-X2D□-M3G	24	E2E-X1R5E/F□-M3	24	---		---							
	Unshielded		E2E-X4MD□-M3G	25	E2E-X2ME/F□-M3	25										
Pre-wired Connector Models	Shielded	M8	E2E-X2D□-M1(T)GJ(-U)	26	---		---		---							
			E2E-X2D□-M1TGJ-US													
		M12	E2E-X3D□-M1(T)GJ(-U)	27												
			E2E-X3D□-M1TGJ-US													
		M18	E2E-X7D□-M1(T)GJ(-U)	28												
			E2E-X7D□-M1TGJ-US													
	M30	E2E-X10D□-M1(T)GJ(-U)	29													
		E2E-X10D□-M1TGJ-US														
	Unshielded	M8	E2E-X4MD□-M1TGJ-US	30							---		---		---	
			E2E-X8MD1-M1(T)GJ													
		M12	E2E-X8MD□-M1TGJ-US	31												
			E2E-X14MD1-M1(T)GJ													
M18		E2E-X14MD□-M1TGJ-US	32													
		E2E-X20MD1-M1(T)GJ														
M30	E2E-X20MD□-M1TGJ-US	33														
	E2E-X20MD□-M1TGJ-US															
Pre-wired Connector Models (no polarity)	Shielded	M12	E2E-X3D1-M1J-T	27	---		---		---							
		M18	E2E-X7D□-M1J-T	28												
		M30	E2E-X10D□-M1J-T	29												

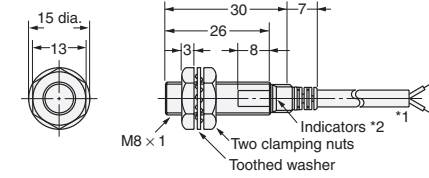
Note 1. Two clamping nuts and one toothed washer are provided with M8 to M30 Models.

2. The model numbers of M8 to M30 Pre-wired Models are laser-marked on the milled section and cable section. This does not apply, however, to models that end in -U.

Pre-wired Models (Shielded)

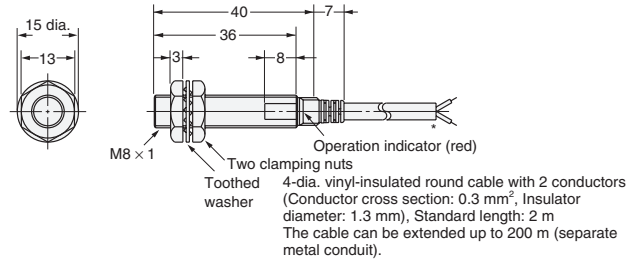


**Diagram 1** E2E-X2D□  
E2E-X1R5E□/F□

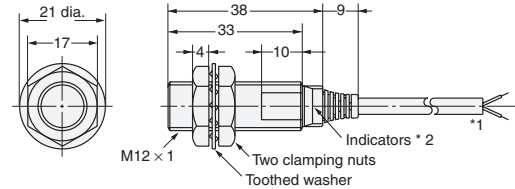


\*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
Robotics Cable Models:  
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.27 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, 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 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
The cable can be extended up to 200 m (separate metal conduit).  
\*2. D1 Models: Operation indicator (red) and setting indicator (green), D2/E/F Models: Operation indicator (red)

**Diagram 3** E2E-X1R5Y□

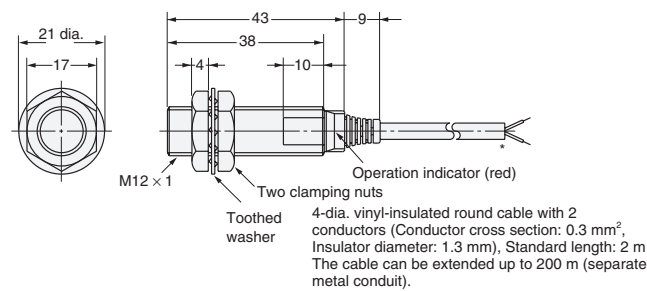


**Diagram 5** E2E-X3D□  
E2E-X2E□/F□

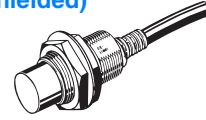


\*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
Robotics Cable Models:  
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.27 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, 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 mm<sup>2</sup>, 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. D1 Models: Operation indicator (red) and setting indicator (green), D2/E/F Models: Operation indicator (red)

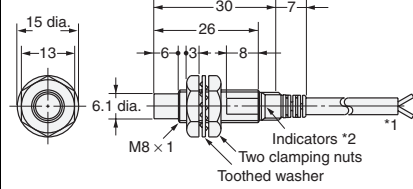
**Diagram 7** E2E-X2Y□



Pre-wired Models (Unshielded)

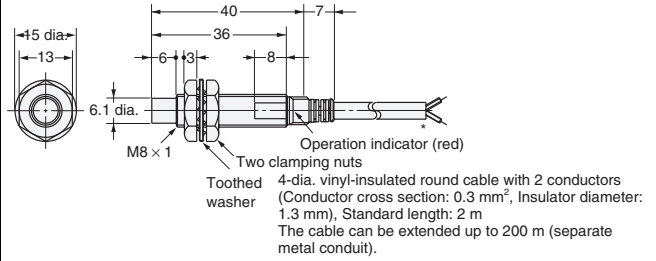


**Diagram 2** E2E-X4MD□  
E2E-X2ME□/F□

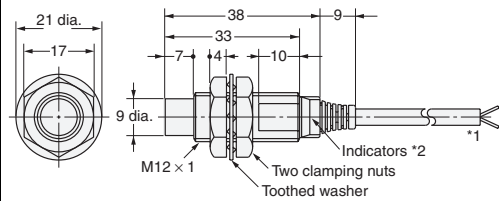


\*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
Robotics Cable Models:  
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.27 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.27 mm), Standard length: 2 m  
The cable can be extended up to 200 m (separate metal conduit).  
\*2. D1 Models: Operation indicator (red) and setting indicator (green), D2/E/F Models: Operation indicator (red)

**Diagram 4** E2E-X2MY□

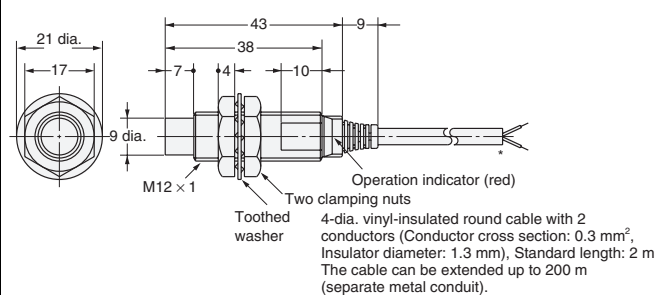


**Diagram 6** E2E-X8MD□  
E2E-X5ME□/F□

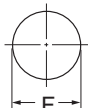


\*1. 4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.3 mm), Standard length: 2 m  
Robotics Cable Models:  
4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.27 mm), Standard length: 2 m  
4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, 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. D1 Models: Operation indicator (red) and setting indicator (green), D2/E/F Models: Operation indicator (red)

**Diagram 8** E2E-X5MY□



Mounting Hole Dimensions



Dimension	M8	M12
F (mm)	8.5 <sup>+0.5</sup> <sub>0</sub> dia.	12.5 <sup>+0.5</sup> <sub>0</sub> dia.



Pre-wired Models (Shielded)

Pre-wired Models (Unshielded)

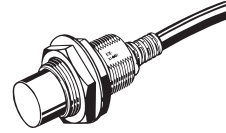


Diagram 9 E2E-X3T1

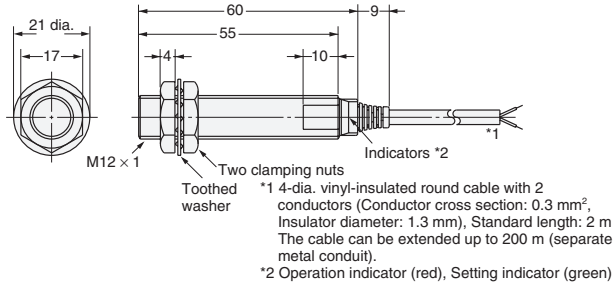
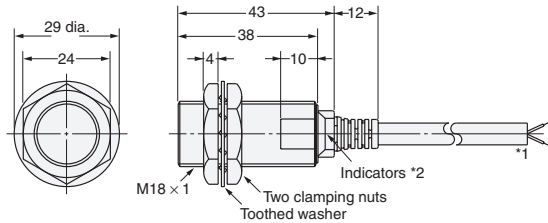
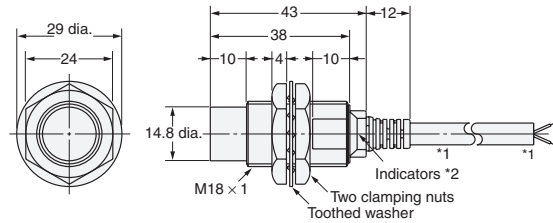


Diagram 10 E2E-X7D□/E2E-X5E□/F□  
E2E-X5Y□/E2E-X7T1



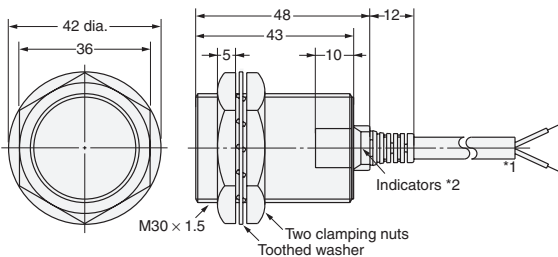
- \*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m  
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m  
Robotics Cable 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 Cables:  
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. D1/T Models: Operation indicator (red), Setting indicator (green)  
D2/E/F/Y Models: Operation indicator (red)

Diagram 11 E2E-X14MD□/E2E-X10ME□/F□  
E2E-X10MY□



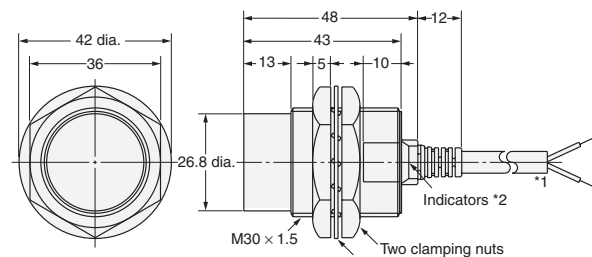
- \*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m  
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m  
Robotics Cable 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. D1/T Models: Operation indicator (red), Setting indicator (green)  
D2/E/F/Y Models: Operation indicator (red)

Diagram 12 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. D1/T Models: Operation indicator (red), Setting indicator (green)  
D2/E/F/Y Models: Operation indicator (red)

Diagram 13 E2E-X20MD□/E2E-X18ME□/F□  
E2E-X18MY□



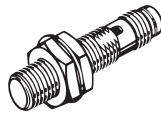
- \*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m  
6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm², Insulator diameter: 1.9 mm), Standard length: 2 m  
Robotics Cable 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. D1/T Models: Operation indicator (red), Setting indicator (green)  
D2/E/F/Y Models: Operation indicator (red)

Mounting Hole Dimensions

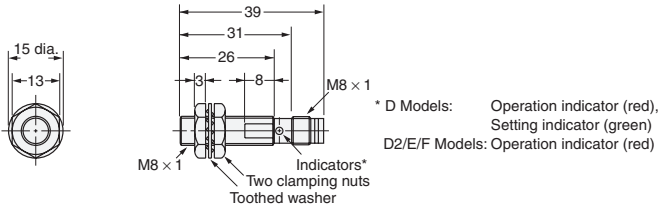


Dimension	M12	M18	M30
F (mm)	12.5 <sup>+0.5</sup> <sub>0</sub> dia.	18.5 <sup>+0.5</sup> <sub>0</sub> dia.	30.5 <sup>+0.5</sup> <sub>0</sub> dia.

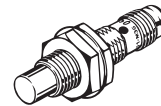
### M8 Connector Models (Shielded)



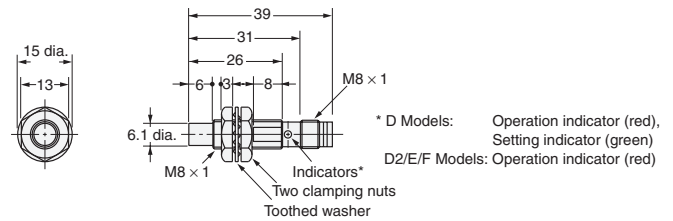
**Diagram 24** E2E-X2D□-M3G/E2E-X1R5E□-M3/X1RF□-M3



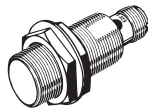
### M8 Connector Models (Unshielded)



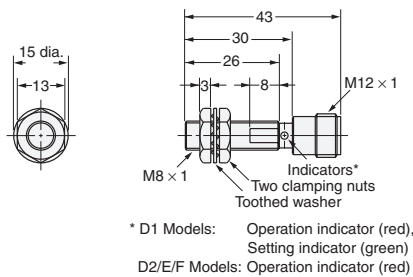
**Diagram 25** E2E-X4MD□-M3G/E2E-X2ME□-M3/X2MF□-M3



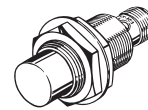
### M12 Connector Models (Shielded)



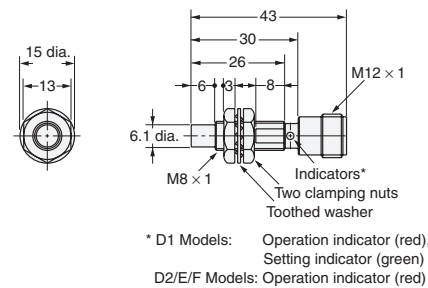
**Diagram 14** E2E-X2D□-M1(G)  
E2E-X1R5E□-M1/E2E-X1R5F□-M1



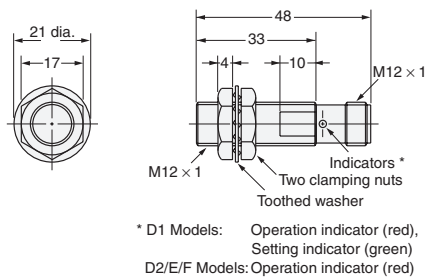
### M12 Connector Models (Unshielded)



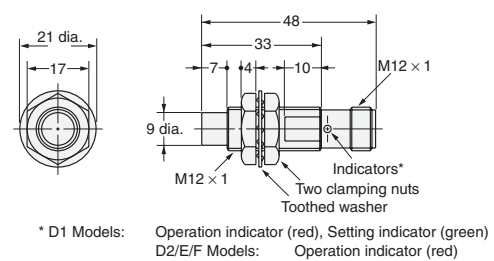
**Diagram 15** E2E-X4MD□-M1(G)  
E2E-X2ME□-M1/E2E-X2MF□-M1



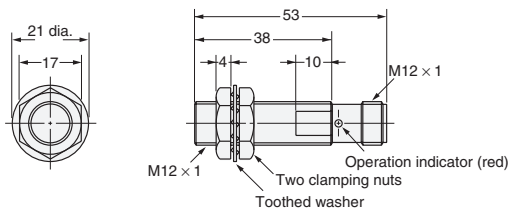
**Diagram 16** E2E-X3D□-M1(G)  
E2E-X2E□-M1/E2E-X2F□-M1



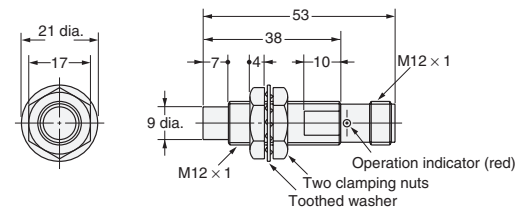
**Diagram 17** E2E-X8MD□-M1(G)  
E2E-X5ME□-M1/E2E-X5MF□-M1



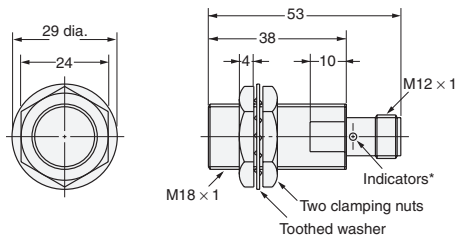
**Diagram 18** E2E-X2Y□-M1



**Diagram 19** E2E-X5MY□-M1

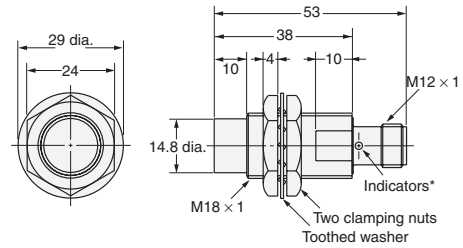


**Diagram 20** E2E-X7D□-M1(G)/E2E-X5E□-M1/X5F□-M1  
E2E-X5Y□-M1



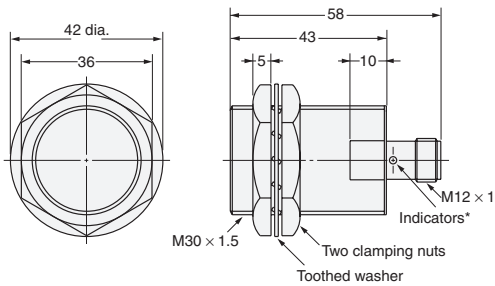
\* D1 Models: Operation indicator (red), Setting indicator (green)  
D2/E/Y Models: Operation indicator (red)

**Diagram 21** E2E-X14MD□-M1(G)/E2E-X10ME□-M1  
X10MF□-M1  
E2E-X10MY□-M1



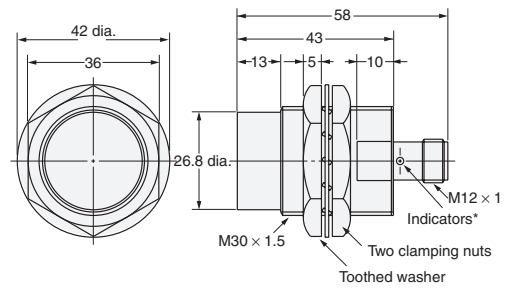
\* D1 Models: Operation indicator (red), Setting indicator (green)  
D2/E/Y Models: Operation indicator (red)

**Diagram 22** E2E-X10D□-M1(G)/E2E-X10E□-M1/X10F□-M1  
E2E-X10Y□-M1



\* D1 Models: Operation indicator (red), Setting indicator (green)  
D2/E/Y Models: Operation indicator (red)

**Diagram 23** E2E-X20MD□-M1(G)/E2E-X18ME□-M1/  
X18MF□-M1  
E2E-X18MY□-M1



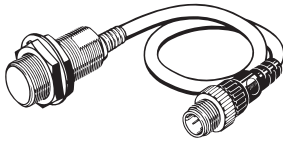
\* D1 Models: Operation indicator (red), Setting indicator (green)  
D2/E/Y Models: Operation indicator (red)

## Mounting Hole Dimensions

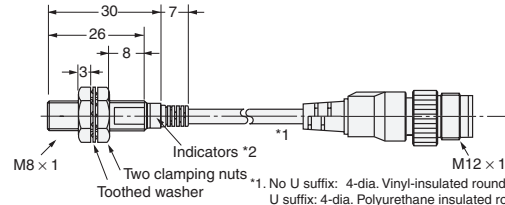
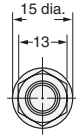


Dimensions	M8	M12	M18	M30
F (mm)	$8.5^{+0.5}_0$ dia.	$12.5^{+0.5}_0$ dia.	$18.5^{+0.5}_0$ dia.	$30.5^{+0.5}_0$ dia.

## Pre-wired Connector Models (Shielded)

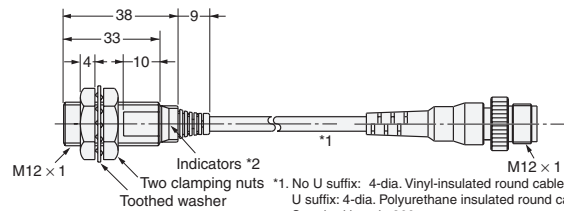
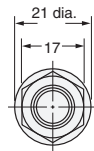


**Diagram 26** E2E-X2D-M1TGJ-U \*3  
E2E-X2D1-M1TGJ  
E2E-X2D-M1TGJ-US



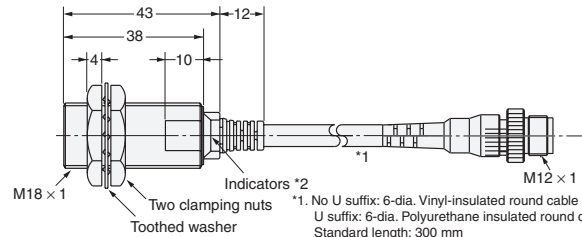
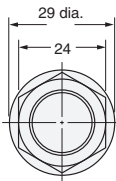
- \*1. No U suffix: 4-dia. Vinyl-insulated round cable  
U suffix: 4-dia. Polyurethane insulated round cable,  
Standard length: 300 mm  
\*2. D1 Models: Operation indicator (red), Setting indicator (green)  
D2 Models: Operation indicator (red)  
\*3. The connectors for M1TGJ models are XS5 Smartclick connectors.

**Diagram 27** E2E-X3D-M1GJ  
E2E-X3D1-M1J-T  
E2E-X3D-M1TGJ-U \*3  
E2E-X3D1-M1TGJ  
E2E-X3D-M1TGJ-US



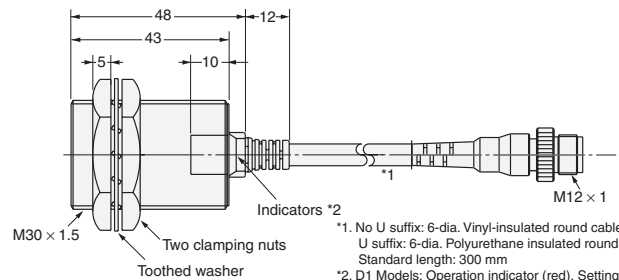
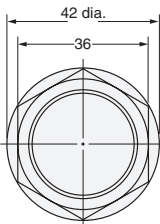
- \*1. No U suffix: 4-dia. Vinyl-insulated round cable  
U suffix: 4-dia. Polyurethane insulated round cable,  
Standard length: 300 mm  
\*2. D1 Models: Operation indicator (red), Setting indicator (green)  
D2 Models: Operation indicator (red)  
\*3. The connectors for M1TGJ models are XS5 Smartclick connectors.

**Diagram 28** E2E-X7D-M1GJ  
E2E-X7D-M1J-T  
E2E-X7D-M1TGJ-U \*3  
E2E-X7D1-M1TGJ  
E2E-X7D-M1TGJ-US



- \*1. No U suffix: 6-dia. Vinyl-insulated round cable  
U suffix: 6-dia. Polyurethane insulated round cable,  
Standard length: 300 mm  
\*2. D1 Models: Operation indicator (red), Setting indicator (green)  
D2 Models: Operation indicator (red)  
\*3. The connectors for M1TGJ models are XS5 Smartclick connectors.

**Diagram 29** E2E-X10D-M1GJ  
E2E-X10D-M1J-T  
E2E-X10D-M1TGJ-U \*3  
E2E-X10D1-M1TGJ  
E2E-X10D-M1TGJ-US



- \*1. No U suffix: 6-dia. Vinyl-insulated round cable  
U suffix: 6-dia. Polyurethane insulated round cable,  
Standard length: 300 mm  
\*2. D1 Models: Operation indicator (red), Setting indicator (green)  
D2 Models: Operation indicator (red)  
\*3. The connectors for M1TGJ models are XS5 Smartclick connectors.

Pre-wired Connector Models (Unshielded)

Diagram 30 E2E-X4MD□-M1TGJ-US

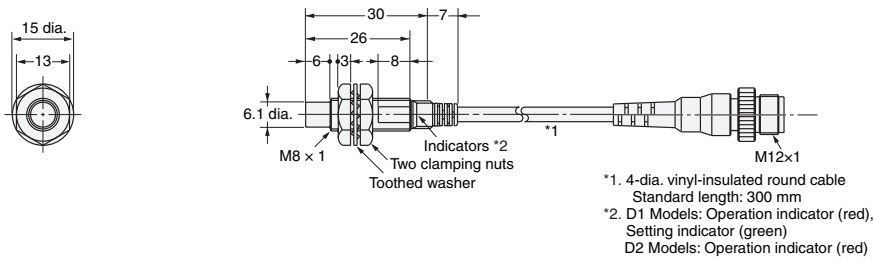


Diagram 31 E2E-X8MD1-M1GJ  
E2E-X8MD1-M1TGJ  
E2E-X8MD□-M1TGJ-US

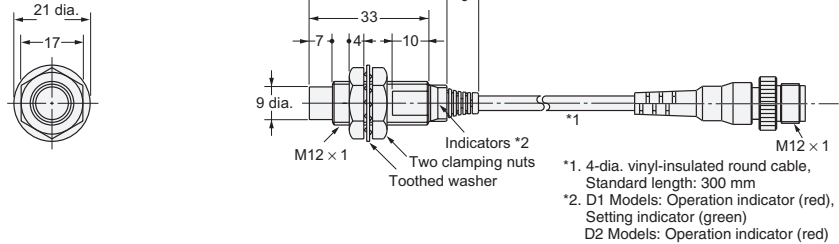


Diagram 32 E2E-X14MD□-M1GJ  
E2E-X14MD1-M1TGJ  
E2E-X14MD□-M1TGJ-US

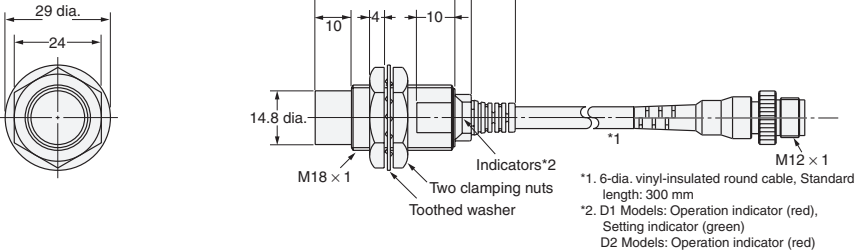
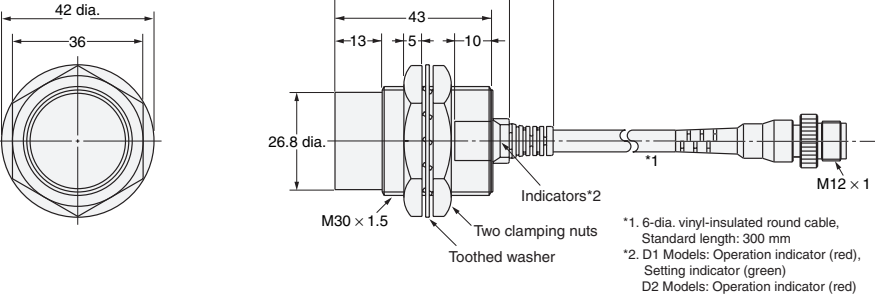
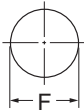


Diagram 33 E2E-X20MD1-M1GJ  
E2E-X20MD1-M1TGJ  
E2E-X20MD□-M1TGJ-US



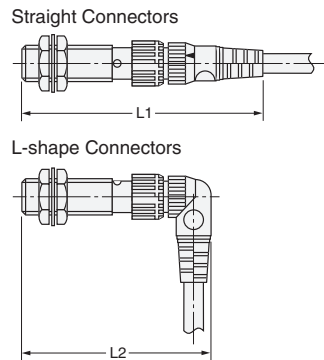
Mounting Hole Dimensions



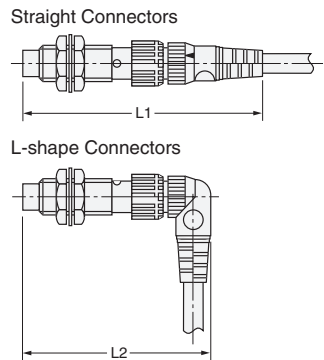
Dimension	M8	M12	M18	M30
F (mm)	8.5 <sup>+0.5</sup> <sub>0</sub> dia.	12.5 <sup>+0.5</sup> <sub>0</sub> dia.	18.5 <sup>+0.5</sup> <sub>0</sub> dia.	30.5 <sup>+0.5</sup> <sub>0</sub> dia.

Dimensions for Proximity Sensors with Sensor I/O Connectors

Shielded Models



Unshielded Models



Dimensions with the XS2F/XS5F Connected (Unit: mm)

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

Accessories (Order Separately)

Sensor I/O Connectors

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

[Mounting Brackets](#)

[Protective Covers](#)

[Sputter Protective Covers](#)

Refer to [Y92□](#) for details.

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