

E2E/E2EQ NEXT Series

Long-distance Detection Prevents Unexpected Facility Stoppages

- The world's longest sensing distance*¹
Nearly double the sensing distance of previous
- With high-brightness LED, the indicator is visible anywhere from 360°.
- Only 10 Seconds*² to Replace a Proximity Sensor with the "e-jig" (Mounting Sleeve).
- Cables with enhanced oil resistance enabled 2-year oil resistance*³.
- UL certification (UL508) and CSA certification (CSA C22.2 No.14-13)



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

*1. Based on July 2017 OMRON investigation.

*2. Time required to adjust the distance when installing a Sensor. Based on OMRON investigation.

*3. Refer to page 16 and 18 for details. However, E2EQ series is excluded.

 Be sure to read *Safety Precautions* on page 23.

E2E/E2EQ NEXT Series Model Number Legend

E2E (1) - X (2) (3) (4) (5) (6) (7) - (8) - (9) (10) - (11) (12)

No.	Classification	Code	Meaning
(1)	Case	Blank	Without spatter-resistant coating
		Q	With spatter-resistant coating
(2)	Sensing distance	Number	Long-distance type, Spatter-resistant Long-distance type 3: 3 mm, 6: 6 mm, 7: 7 mm, 10: 10 mm, 11: 11 mm, 20: 20 mm, 40: 40 mm, Standard-distance type 1R5: 1.5 mm, 2R5: 2.5 mm, 5: 5 mm
(3)	Shielding	Blank	Shielded Models
		M	Unshielded Models
(4)	Output specifications	D	DC 2-wire
(5)	Operation mode	1	Normally open (NO)
		2	Normally closed (NC)
(6)	Body size	Blank	Standard
		L	Long Body
(7)	Size (Omitted for the Standard-distance type.)	8	M8
		12	M12
		18	M18
		30	M30
(8)	Connecting method	Blank	Pre-wired Models
		M1TGJ	M12 Pre-wired Smartclick Connector Models
(9)	Polarity	Blank	Polarity
		T	No polarity
(10)	Cable specifications	Blank	Standard PVC cable
		R	Robot (bending-resistant) PVC cable
(11)	New model	Blank	Other than Standard-distance type (Pre-wired Models)
		N	Standard-distance type (Applicable only to Pre-wired Models)
(12)	Cable length	Number M	Number M Cable length (Unit: m) (Applicable to Pre-wired Models and Pre-wired Connector Models)

Note: 1. 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.



2. Size description of the number 7 is not included in the Standard-distance type.

Ordering Information

Sensors

E2E NEXT Series (Long-distance type)

DC 2-wire [Refer to *Dimensions* on page 25.]

Appearance	Sensing distance	Connection method	Cable specifications	Polarity	Model		
					Operation mode: NO	Operation mode: NC	
Shielded *1 	M8 3 mm	Pre-wired Models (2 m) *2 *3 *4	Vinyl chloride (PVC) (oil-resistant reinforced)	Yes	E2E-X3D18 2M	E2E-X3D28 2M	
		M12 Pre-wired Smartclick Connector Models (0.3 m)		No	E2E-X3D18-T 2M	E2E-X3D28-T 2M	
		M12 7 mm		Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X3D18-M1TGJ 0.3M	E2E-X3D28-M1TGJ 0.3M
				M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X3D18-M1TGJ-T 0.3M	E2E-X3D28-M1TGJ-T 0.3M
	M18 11 mm	Pre-wired Models (2 m) *2 *3 *4		Yes	E2E-X7D112 2M	E2E-X7D212 2M	
		M12 Pre-wired Smartclick Connector Models (0.3 m)		No	E2E-X7D112-T 2M	E2E-X7D212-T 2M	
		M30 20 mm		Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X7D112-M1TGJ 0.3M	E2E-X7D212-M1TGJ 0.3M
				M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X7D112-M1TGJ-T 0.3M	E2E-X7D212-M1TGJ-T 0.3M
	M18 11 mm	Pre-wired Models (2 m) *2 *3 *4		Yes	E2E-X11D118 2M	E2E-X11D218 2M	
		M12 Pre-wired Smartclick Connector Models (0.3 m)		No	E2E-X11D118-T 2M	E2E-X11D218-T 2M	
		M30 20 mm		Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X11D118-M1TGJ 0.3M	E2E-X11D218-M1TGJ 0.3M
				M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X11D118-M1TGJ-T 0.3M	E2E-X11D218-M1TGJ-T 0.3M
M30 20 mm	Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X20D130 2M	E2E-X20D230 2M			
	M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X20D130-T 2M	E2E-X20D230-T 2M			
	M8 6 mm	Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X20D130-M1TGJ 0.3M	E2E-X20D230-M1TGJ 0.3M		
		M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X20D130-M1TGJ-T 0.3M	E2E-X20D230-M1TGJ-T 0.3M		
Unshielded 	M8 6 mm	Pre-wired Models (2 m) *2 *3 *4	Vinyl chloride (PVC) (oil-resistant reinforced)	Yes	E2E-X6MD18 2M	E2E-X6MD28 2M	
		M12 Pre-wired Smartclick Connector Models (0.3 m)		No	E2E-X6MD18-T 2M	E2E-X6MD28-T 2M	
		M12 10 mm		Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X6MD18-M1TGJ 0.3M	E2E-X6MD28-M1TGJ 0.3M
				M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X6MD18-M1TGJ-T 0.3M	E2E-X6MD28-M1TGJ-T 0.3M
	M18 20 mm	Pre-wired Models (2 m) *2 *3 *4		Yes	E2E-X10MD112 2M	E2E-X10MD212 2M	
		M12 Pre-wired Smartclick Connector Models (0.3 m)		No	E2E-X10MD112-T 2M	E2E-X10MD212-T 2M	
		M30 40 mm		Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X10MD112-M1TGJ 0.3M	E2E-X10MD212-M1TGJ 0.3M
				M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X10MD112-M1TGJ-T 0.3M	E2E-X10MD212-M1TGJ-T 0.3M
	M18 20 mm	Pre-wired Models (2 m) *2 *3 *4		Yes	E2E-X20MD1L18 2M	E2E-X20MD2L18 2M	
		M12 Pre-wired Smartclick Connector Models (0.3 m)		No	E2E-X20MD1L18-T 2M	E2E-X20MD2L18-T 2M	
		M30 40 mm		Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X20MD1L18-M1TGJ 0.3M	E2E-X20MD2L18-M1TGJ 0.3M
				M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X20MD1L18-M1TGJ-T 0.3M	E2E-X20MD2L18-M1TGJ-T 0.3M
	M30 40 mm	Pre-wired Models (2 m) *2 *3 *4		Yes	E2E-X40MD1L30 2M	E2E-X40MD2L30 2M	
		M12 Pre-wired Smartclick Connector Models (0.3 m)		No	E2E-X40MD1L30-T 2M	E2E-X40MD2L30-T 2M	
		M8 6 mm		Pre-wired Models (2 m) *2 *3 *4	Yes	E2E-X40MD1L30-M1TGJ 0.3M	E2E-X40MD2L30-M1TGJ 0.3M
				M12 Pre-wired Smartclick Connector Models (0.3 m)	No	E2E-X40MD1L30-M1TGJ-T 0.3M	E2E-X40MD2L30-M1TGJ-T 0.3M

*1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 24.

*2. Models with 5-m cable length are also available with "5M" suffix. (Example: E2E-X3D18 5M)

*3. Models with robot (bending-resistant) cable are also available with "-R" in the model number. (Example: E2E-X3D18-R 2M)


*4. Models with 5-m robot (bending-resistant) cable are also available with "-R" and the "5M" suffix in the model number. (Example: E2E-X3D18-R 5M)

E2E/E2EQ NEXT Series

Sensors

E2EQ NEXT Series (Spatter-resistant Long-distance type)

DC 2-wire [Refer to *Dimensions* on page 27.]


Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Model	
							Operation mode: NO	Operation mode: NC
Shielded *1 	M8	3 mm		Pre-wired Models (2 m) *2	Vinyl chloride (PVC) (oil-resistant reinforced)	Yes	E2EQ-X3D18 2M	E2EQ-X3D28 2M
						No	E2EQ-X3D18-T 2M	E2EQ-X3D28-T 2M
				Yes		E2EQ-X3D18-M1TGJ 0.3M	E2EQ-X3D28-M1TGJ 0.3M	
				No		E2EQ-X3D18-M1TGJ-T 0.3M	E2EQ-X3D28-M1TGJ-T 0.3M	
	M12	7 mm		Pre-wired Models (2 m) *2		Yes	E2EQ-X7D112 2M	E2EQ-X7D212 2M
						No	E2EQ-X7D112-T 2M	E2EQ-X7D212-T 2M
				Yes		E2EQ-X7D112-M1TGJ 0.3M	E2EQ-X7D212-M1TGJ 0.3M	
				No		E2EQ-X7D112-M1TGJ-T 0.3M	E2EQ-X7D212-M1TGJ-T 0.3M	
	M18	11 mm		Pre-wired Models (2 m) *2		Yes	E2EQ-X11D118 2M	E2EQ-X11D218 2M
						No	E2EQ-X11D118-T 2M	E2EQ-X11D218-T 2M
				Yes		E2EQ-X11D118-M1TGJ 0.3M	E2EQ-X11D218-M1TGJ 0.3M	
				No		E2EQ-X11D118-M1TGJ-T 0.3M	E2EQ-X11D218-M1TGJ-T 0.3M	
	M30	20 mm		Pre-wired Models (2 m) *2		Yes	E2EQ-X20D130 2M	E2EQ-X20D230 2M
						No	E2EQ-X20D130-T 2M	E2EQ-X20D230-T 2M
				Yes		E2EQ-X20D130-M1TGJ 0.3M	E2EQ-X20D230-M1TGJ 0.3M	
				No		E2EQ-X20D130-M1TGJ-T 0.3M	E2EQ-X20D230-M1TGJ-T 0.3M	

*1. When embedding the Proximity Sensor in metal, refer to *Influence of Surrounding Metal* on page 24.

*2. Models with 5-m cable length are also available with "5M" suffix. (Example: E2EQ-X3D18 5M)

E2E NEXT Series (Standard-distance type)

DC 2-wire [Refer to *Dimensions* on page 28.]

Appearance	Sensing distance			Connection method	Cable specifications	Polarity	Model	
							Operation mode: NO	Operation mode: NC
Shielded 	M8	1.5 mm		Pre-wired Models (2 m) *1 *2 *3	Vinyl chloride (PVC) (oil-resistant reinforced)	Yes	E2E-X1R5D1-N 2M	E2E-X1R5D2-N 2M
						No	E2E-X1R5D1-T-N 2M	E2E-X1R5D2-T-N 2M
				Yes		E2E-X1R5D1-M1TGJ 0.3M	E2E-X1R5D2-M1TGJ 0.3M	
				No		E2E-X1R5D1-M1TGJ-T 0.3M	E2E-X1R5D2-M1TGJ-T 0.3M	
	M12	2.5 mm		Pre-wired Models (2 m) *1 *2 *3		Yes	E2E-X2R5D1-N 2M	E2E-X2R5D2-N 2M
						No	E2E-X2R5D1-T-N 2M	E2E-X2R5D2-T-N 2M
				Yes		E2E-X2R5D1-M1TGJ 0.3M	E2E-X2R5D2-M1TGJ 0.3M	
				No		E2E-X2R5D1-M1TGJ-T 0.3M	E2E-X2R5D2-M1TGJ-T 0.3M	
	M18	5 mm		Pre-wired Models (2 m) *1 *2 *3		Yes	E2E-X5D1-N 2M	E2E-X5D2-N 2M
						No	E2E-X5D1-T-N 2M	E2E-X5D2-T-N 2M
				Yes		E2E-X5D1-M1TGJ 0.3M	E2E-X5D2-M1TGJ 0.3M	
				No		E2E-X5D1-M1TGJ-T 0.3M	E2E-X5D2-M1TGJ-T 0.3M	

*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2E-X1R5D1-N 5M)

*2. Models with robot (bending-resistant) cable are also available with "-R" in the model number. (Example: E2E-X1R5D1-R-N 2M)


*3. Models with 5-m robot (bending-resistant) cable are also available with "-R" and the "5M" suffix in the model number. (Example: E2E-X1R5D1-R-N 5M)

Accessories (Sold Separately)

Sensor I/O Connectors


(Models for Pre-wired Connectors) A Sensor I/O Connector is not provided with the Sensor. It must be ordered separately as required.

Round Oil-resistant Connectors XS5 NEXT series

Appearance	Cable Specification	Type	Cable diameter (mm)	Cable length (m)	Sensor I/O Connector model number	Applicable Proximity Sensor model number
M12 Straight, Smartclick Connector Models 	Fire-retardant, Oil-resistant reinforced PVC Cable	Sockets on One Cable End	6 dia.	1	XS5F-D421-C80-X	E2E-X□D□-M1TGJ(-T) E2EQ-X□D□-M1TGJ(-T)
				2	XS5F-D421-D80-X	
				3	XS5F-D421-E80-X	
				5	XS5F-D421-G80-X	
				10	XS5F-D421-J80-X	
		Socket and Plug on Cable Ends	6 dia.	1	XS5W-D421-C81-X	
				2	XS5W-D421-D81-X	
				3	XS5W-D421-E81-X	
				5	XS5W-D421-G81-X	
				10	XS5W-D421-J81-X	

Note: For details of the connector, refer to XS5 NEXT series on page 30.

Round Water-resistant Connectors XS5 series

Appearance	Cable Specification	Type	Cable diameter (mm)	Cable length (m)	Sensor I/O Connector model number	Applicable Proximity Sensor model number
M12 Straight, Smartclick Connector Models 	Fire-retardant, Robot cable	Sockets on One Cable End	6 dia.	1	XS5F-D421-C80-F	E2E-X□D□-M1TGJ(-T) E2EQ-X□D□-M1TGJ(-T)
				2	XS5F-D421-D80-F	
				3	XS5F-D421-E80-F	
				5	XS5F-D421-G80-F	
				10	XS5F-D421-J80-F	
		Socket and Plug on Cable Ends	6 dia.	1	XS5W-D421-C81-F	
				2	XS5W-D421-D81-F	
				3	XS5W-D421-E81-F	
				5	XS5W-D421-G81-F	
				10	XS5W-D421-J81-F	

Note: For details of the connector, refer to XS5 series on page 36.


Sensor I/O Connectors Oil resistance performance of mating combination

Model E2E NEXT Series	Applicable connector Model	
	XS5 NEXT series	XS5
E2E-X□D□-M1TGJ(-T)	2 years of oil resistance*	Water-resistant

* Applicable cutting oil type: specified in JIS K 2241:2000
 2 years of oil resistance indicates the median value of the product design and the oil-resistance performance criterion result (=Typical value).
 Products to be shipped will have around 2 years of oil resistance, but will vary depending on the product.

e-jig (Mounting Sleeves) [Refer to Dimensions on page 29.]

A Mounting Bracket is not provided with the Sensor. It must be ordered separately as required.

Appearance	Model	Applicable Sensors	Quantity
	Y92E-J8S12	E2E NEXT M8 Shielded Sensors	1
	Y92E-J12S18	E2E NEXT M12 Shielded Sensors	1
	Y92E-J18S30	E2E NEXT M18 Shielded Sensors	1

Note: Mounting Brackets are not Spatter-resistant Models.

E2E/E2EQ NEXT Series

Ratings and Specifications

E2E NEXT Series (Long-distance type) DC 2-wire

Item	Size Shielded Model	M8		M12		M18		M30	
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
		E2E-X3D□	E2E-X6MD□	E2E-X7D□	E2E-X10MD□	E2E-X11D□	E2E-X20MD□	E2E-X20D□	E2E-X40MD□
Sensing distance		3 mm ±10%	6 mm ±10%	7 mm ±10%	10 mm ±10%	11 mm ±10%	20 mm ±10%	20 mm ±10%	40 mm ±10%
Setting distance *1		0 to 2.4 mm	0 to 4.8 mm	0 to 5.6 mm	0 to 8 mm	0 to 8.8 mm	0 to 16 mm	0 to 16 mm	0 to 32 mm
Differential travel		15% max. of sensing distance							
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on page 19.)							
Standard sensing object		Iron, 9 × 9 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 21 × 21 × 1 mm	Iron, 30 × 30 × 1 mm	Iron, 33 × 33 × 1 mm	Iron, 60 × 60 × 1 mm	Iron, 60 × 60 × 1 mm	Iron, 120 × 120 × 1 mm
Response frequency *2		350 Hz	250 Hz	350 Hz	200 Hz	250 Hz	200 Hz	200 Hz	50 Hz
Power supply voltage		10 to 30 VDC, (including 10% ripple (p-p))							
Leakage current		0.8 mA max.							
Control output	Load current	3 to 100 mA							
	Residual voltage	Polarity: 3 V max. (Load current: 100 mA, Cable length: 2 m) No polarity: 5 V max. (Load current: 100 mA, Cable length: 2 m)							
Indicator		D1 Models: Operation indicator (orange), Setting indicator (green) D2 Models: Operation indicator (orange)							
Operation mode		D1 Models: NO D2 Models: NC Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 22 for details.							
Protection circuits		Surge suppressor, Load short-circuit protection							
Ambient temperature range		Operating: -25 to 70°C, Storage: -40 to 85°C (with no icing or condensation)							
Ambient humidity range		Operating and Storage: 35% to 95% (with no condensation)							
Temperature influence		±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C		±20% max. of sensing distance at 23°C in the temperature range of -25 to 70°C		±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C		±20% max. of sensing distance at 23°C in the temperature range of -25 to 70°C	
Voltage influence		±1% max. of sensing distance at rated voltage in the rated voltage ±15% range							
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case							
Dielectric strength		1,000 VAC, 50/60 Hz for 1 minute between current-carrying parts and case							
Vibration resistance (destruction)		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions							
Shock resistance (destruction)		500 m/s ² 10 times each in X, Y, and Z directions		1,000 m/s ² 10 times each in X, Y, and Z directions					
Degree of protection		Pre-wired Models/Pre-wired Connector Models: IP67 (IEC 60529), IP67G *3 (JIS C 0920 Annex 1) Passed OMRON's Oil-resistant Component Evaluation Standards *4 (Cutting oil type: specified in JIS K 2241:2000, Temperature: 35 °C max.) and IEC 60529 (old standard: DIN 40050 PART9) IP69K							
Connecting method		Pre-wired Models (Standard cable length: 2 m) and 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. 150 g	Approx. 180 g	Approx. 210 g
	Pre-wired Connector Models	Approx. 30 g		Approx. 40 g		Approx. 70 g	Approx. 90 g	Approx. 110 g	Approx. 140 g
Materials	Case	Nickel-plated brass	Stainless steel (SUS303)	Nickel-plated brass					
	Sensing surface	Polybutylene terephthalate (PBT)							
	Clamping nuts	Nickel-plated brass							
	Toothed washer	Zinc-plated iron							
Cable	Vinyl chloride (PVC)								
Accessories		Instruction manual, Clamping nuts, Toothed washer							

*1. Use the Sensor within the range in which the setting indicator (green LED) is ON (except D2 Models).

*2. The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.

*3. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards). The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

*4. The Oil-resistant Component Evaluation Standards are OMRON's own durability evaluation standards. 2-year oil resistance indicates the median value of the product design and the oil-resistance performance criterion result (=Typical value). The Pre-wired Connector Model verifies 2 years of oil resistance when mating with Round Oil-resistant Connectors XS5 NEXT series correctly. The degree of protection is not satisfied with the part where cable wires are uncovered for the Pre-wired Models.

E2EQ NEXT Series (Spatter-resistant Long-distance type)
DC 2-wire

Item	Size Shielded Model	M8	M12	M18	M30
		Shielded			
		E2EQ-X3D□	E2EQ-X7D□	E2EQ-X11D□	E2EQ-X20D□
Sensing distance		3 mm ±10%	7 mm ±10%	11 mm ±10%	20 mm ±10%
Setting distance *1		0 to 2.4 mm	0 to 5.6 mm	0 to 8.8 mm	0 to 16 mm
Differential travel		15% max. of sensing distance			
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on page 19.)			
Standard sensing object		Iron, 9 × 9 × 1 mm	Iron, 21 × 21 × 1 mm	Iron, 33 × 33 × 1 mm	Iron, 60 × 60 × 1 mm
Response frequency *2		250 Hz	250 Hz	250 Hz	200 Hz
Power supply voltage		10 to 30 VDC, (including 10% ripple (p-p))			
Leakage current		0.8 mA max.			
Control output	Load current	3 to 100 mA			
	Residual voltage	Polarity: 3 V max. (Load current: 100 mA, Cable length: 2 m) No polarity: 5 V max. (Load current: 100 mA, Cable length: 2 m)			
Indicator		D1 Models: Operation indicator (orange), Setting indicator (green) D2 Models: Operation indicator (orange)			
Operation mode		D1 Models: NO Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 22 for details. D2 Models: NC			
Protection circuits		Surge suppressor, Load short-circuit protection			
Ambient temperature range		Operating: -25 to 70°C, Storage: -40 to 85°C (with no icing or condensation)			
Ambient humidity range		Operating and Storage: 35% to 95% (with no condensation)			
Temperature influence		±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C		±20% max. of sensing distance at 23°C in the temperature range of -25 to 70°C	
Voltage influence		±1% max. of sensing distance at rated voltage in the rated voltage ±15% range			
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case			
Dielectric strength		1,000 VAC, 50/60 Hz for 1 minute between current-carrying parts and case			
Vibration resistance (destruction)		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions			
Shock resistance (destruction)		500 m/s ² 10 times each in X, Y, and Z directions	1,000 m/s ² 10 times each in X, Y, and Z directions		
Degree of protection		Pre-wired Models/Pre-wired Connector Models: IP67 (IEC 60529) and IP67G *3 (JIS C 0920 Annex 1)			
Connecting method		Pre-wired Models (Standard cable length: 2 m) and Pre-wired Connector Models (Standard cable length: 0.3 m)			
Weight (packed state)	Pre-wired Models	Approx. 60 g	Approx. 70 g	Approx. 150 g	Approx. 210 g
	Pre-wired Connector Models	Approx. 30 g	Approx. 40 g	Approx. 90 g	Approx. 140 g
Materials	Case	Fluororesin coating (Base material: brass)			
	Sensing surface	Fluororesin			
	Clamping nuts	Fluororesin coating (Base material: brass)			
	Toothed washer	Zinc-plated iron			
	Cable	Vinyl chloride (PVC)			
Accessories		Instruction manual, Clamping nuts, Toothed washer			

*1. Use the Sensor within the range in which the setting indicator (green LED) is ON (except D2 Models).

*2. The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.

*3. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards).

The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

E2E/E2EQ NEXT Series

E2E NEXT Series (Standard-distance type) DC 2-wire

Item	Size Shielded Model	M8	M12	M18
		Shielded		
		E2E-X1R5D□	E2E-X2R5D□	E2E-X5D□
Sensing distance		1.5 mm ±10%	2.5 mm ±10%	5 mm ±10%
Setting distance *1		0 to 1.2 mm	0 to 2 mm	0 to 4 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 19.)		
Standard sensing object		Iron, 10 × 10 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 18 × 18 × 1 mm
Response frequency *2		250 Hz	250 Hz	250 Hz
Power supply voltage		10 to 30 VDC, (including 10% ripple (p-p))		
Leakage current		0.8 mA max.		
Control output	Load current	3 to 100 mA		
	Residual voltage	Polarity: 3 V max. (Load current: 100 mA, Cable length: 2 m) No polarity: 5 V max. (Load current: 100 mA, Cable length: 2 m)		
Indicator		D1 Models: Operation indicator (orange), Setting indicator (green) D2 Models: Operation indicator (orange)		
Operation mode		D1 Models: NO Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 22 for details. D2 Models: NC		
Protection circuits		Surge suppressor, Load short-circuit protection		
Ambient temperature range		Operating: -25 to 70°C, Storage: -40 to 85°C (with no icing or condensation)		
Ambient humidity range		Operating and Storage: 35% to 95% (with no condensation)		
Temperature influence		±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C		
Voltage influence		±1% max. of sensing distance at rated voltage in the rated voltage ±15% range		
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case		
Dielectric strength		1,000 VAC, 50/60 Hz for 1 minute between current-carrying parts and case		
Vibration resistance (destruction)		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions		
Shock resistance (destruction)		500 m/s ² 10 times each in X, Y, and Z directions	1,000 m/s ² 10 times each in X, Y, and Z directions	
Degree of protection		Pre-wired Models/Pre-wired Connector Models: IP67 (IEC 60529), IP67G *3 (JIS C 0920 Annex 1) Passed OMRON's Oil-resistant Component Evaluation Standards *4 (Cutting oil type: specified in JIS K 2241:2000, Temperature: 35°C max.) and IEC 60529 (old standard: DIN 40050 PART9) IP69K		
Connecting method		Pre-wired Models (Standard cable length: 2 m) and 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
	Pre-wired Connector Models	Approx. 30 g	Approx. 40 g	Approx. 70 g
Materials	Case	Stainless steel (SUS303)	Nickel-plated brass	
	Sensing surface	Polybutylene terephthalate (PBT)		
	Clamping nuts	Nickel-plated brass		
	Toothed washer	Zinc-plated iron		
	Cable	Vinyl chloride (PVC)		
Accessories		Instruction manual, Clamping nuts, Toothed washer		

*1. Use the Sensor within the range in which the setting indicator (green LED) is ON (except D2 Models).

*2. The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard.

*3. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards).

The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

*4. The Oil-resistant Component Evaluation Standards are OMRON's own durability evaluation standards.

2-year oil resistance indicates the median value of the product design and the oil-resistance performance criterion result (=Typical value).

The Pre-wired Connector Model verifies 2 years of oil resistance when mating with Round Oil-resistant Connectors XS5 NEXT series correctly.

The degree of protection is not satisfied with the part where cable wires are uncovered for the Pre-wired Models.

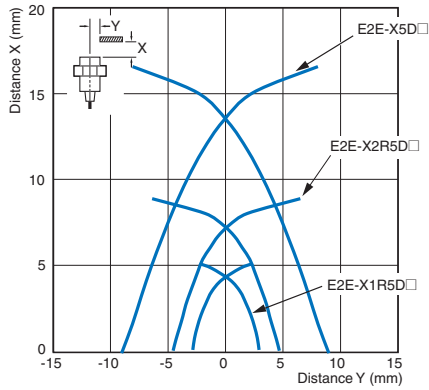
Engineering Data (Reference Value)

Sensing Area

Long-distance type, Spatter-resistant Long-distance type

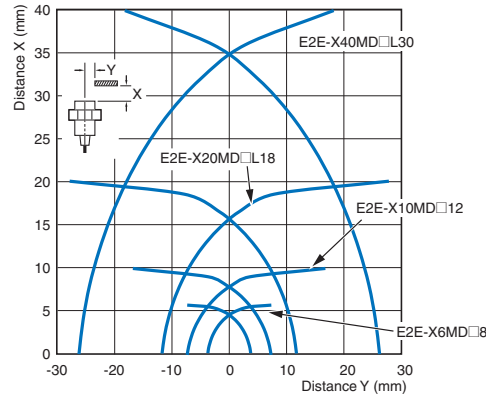
Shielded Models

E2E-X□D□/E2EQ-X□D□



Unshielded Models

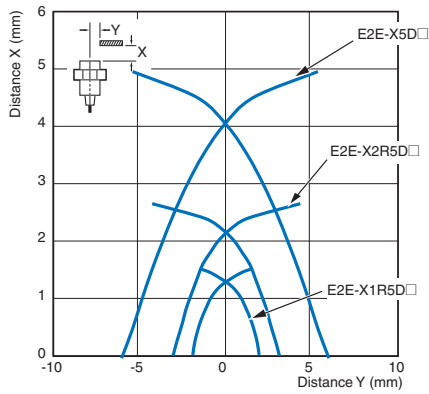
E2E-X□MD□



Standard-distance type

Shielded Models

E2E-X1R5D□/-X2R5D□/-X5D□

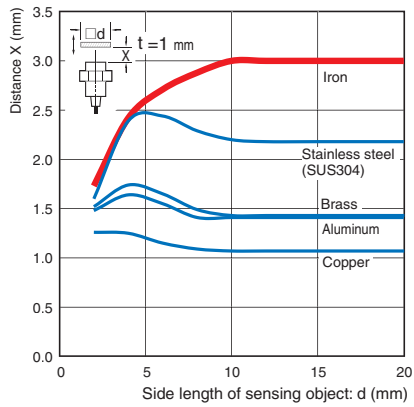


E2E/E2EQ NEXT Series

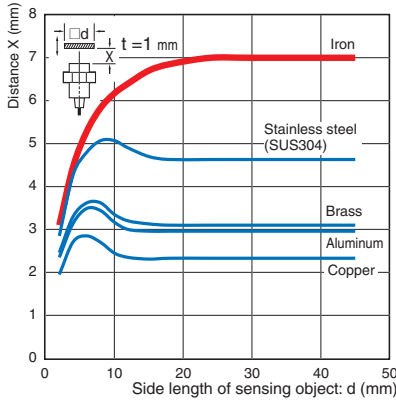
Influence of Sensing Object Size and Materials

Long-distance type, Spatter-resistant Long-distance type
Shielded Models

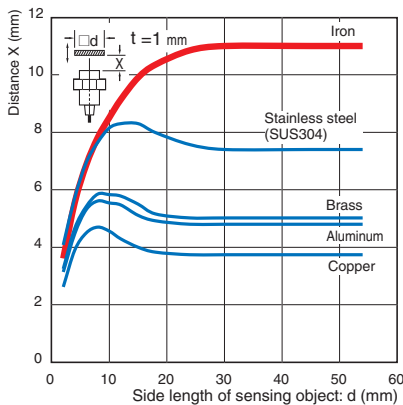
E2E-X3D□8/E2EQ-X3D□8



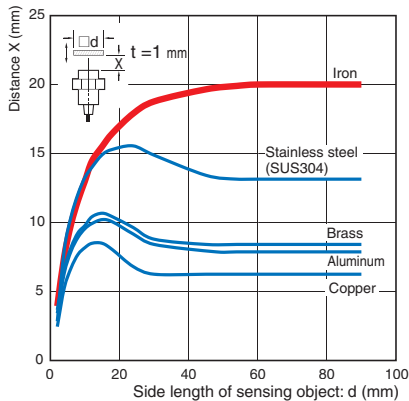
E2E-X7D□12/E2EQ-X7D□12



E2E-X11D□18/E2EQ-X11D□18

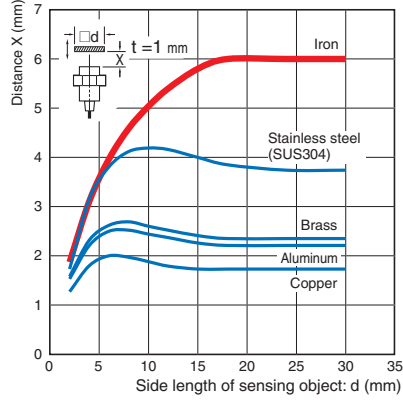


E2E-X20D□30/E2EQ-X20D□30

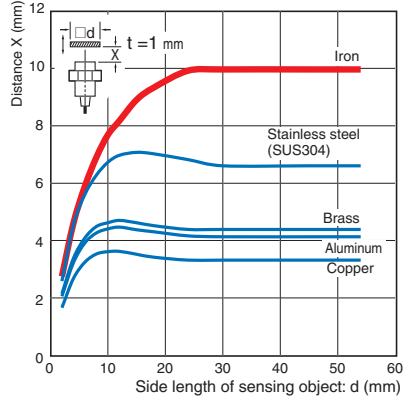


Unshielded Models

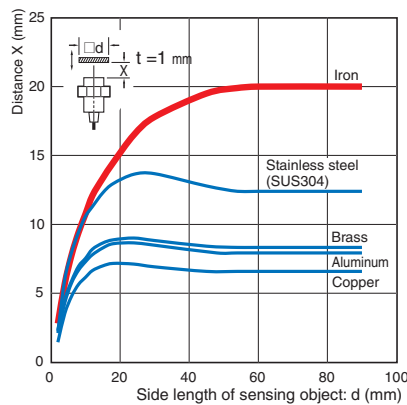
E2E-X6MD□8



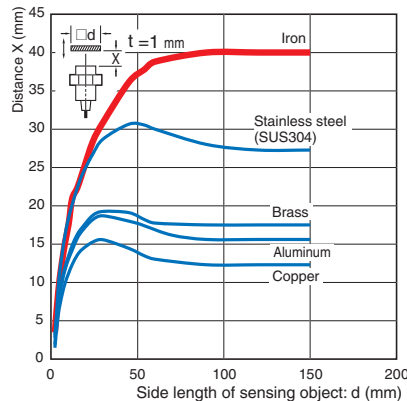
E2E-X10MD□12



E2E-X20MD□L18



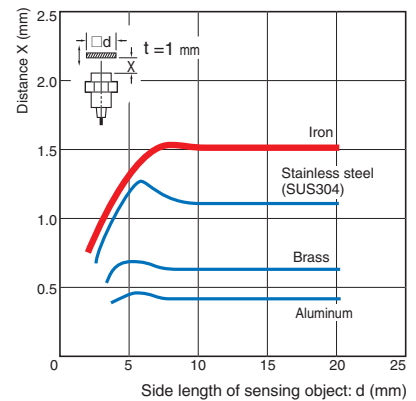
E2E-X40MD□L30



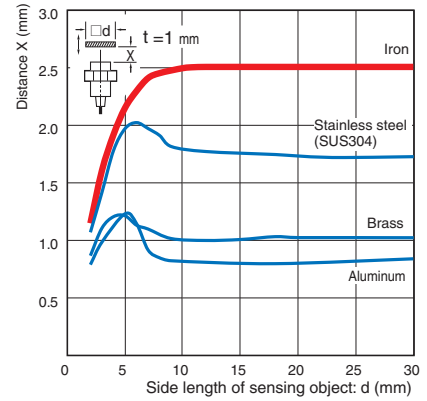
Standard-distance type

Shielded Models

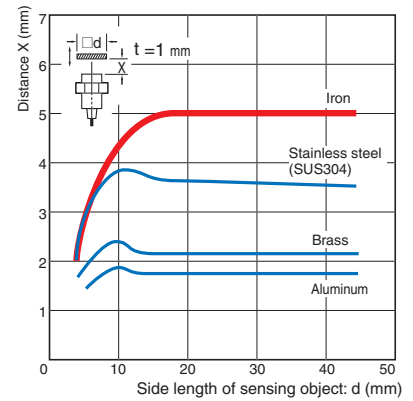
E2E-X1R5D□



E2E-X2R5D□



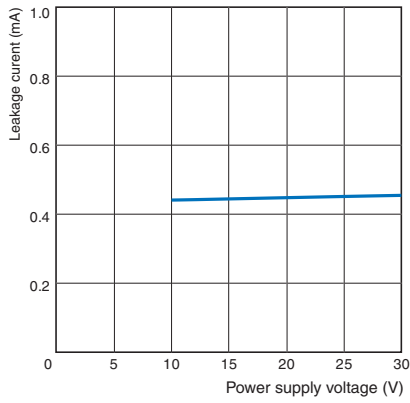
E2E-X5D□



Leakage Current

Long-distance type / Spatter-resistant Long-distance type / Standard-distance type

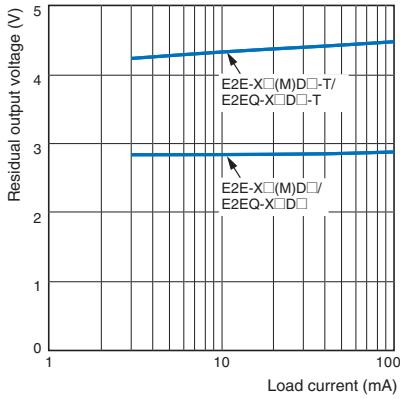
E2E-X□(M)D□(-T)/E2EQ-X□D□(-T)



Residual Output Voltage

Long-distance type / Spatter-resistant Long-distance type / Standard-distance type

E2E-X□(M)D□(-T)/E2EQ-X□D□(-T)



E2E/E2EQ NEXT Series

I/O Circuit Diagrams

DC 2-Wire Models

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

Connections to Sensor I/O Connectors

Proximity Sensor				Sensor I/O Connector model number	Connections
Type	Polarity	Operation mode	Model		
DC 2-wire (Smartclick Connector)	Yes	NO	E2E-X□D1□-M1TGJ E2EQ-X□D1□-M1TGJ	XS5F-D421-□80-X or XS5F-D421-□80-F The box □ is replaced by the cable length. C: 1-m cable D: 2-m cable E: 3-m cable G: 5-m cable J: 10-m cable	
	No	NC	E2E-X□D2□-M1TGJ E2EQ-X□D2□-M1TGJ		
	Yes	NO	E2E-X□D1□-M1TGJ-T E2EQ-X□D1□-M1TGJ-T		
	No	NC	E2E-X□D2□-M1TGJ-T E2EQ-X□D2□-M1TGJ-T		


Note: Different from Proximity Sensor wire colors.

* If the XS5W-D421-□81-X or XS5W-D421-□81-F Connector which has a socket and plug on the cable ends is connected to the Sensor, this part will be a plug.



Safety Precautions




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

Warning Indications

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

Meaning of Product Safety Symbols

	General prohibition Indicates the instructions of unspecified prohibited action.
	Caution, explosion Indicates the possibility of explosion under specific conditions.

 WARNING
<p>This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.</p> <div style="text-align: right;"></div>
<p>Risk of explosion.</p> <p>Do not connect sensor to AC power supply.</p> <div style="text-align: right;"></div>

Precautions for Safe Use

The following precautions must be observed to ensure safe operation.

1. Do not use the product in an environment where flammable or explosive gas is present.
2. Do not attempt to disassemble, repair, or modify the product.
3. Do not use a voltage that exceeds the rated operating voltage range. Applying a voltage that is higher than the operating voltage range may result in damage or burnout.
4. Be sure that the power supply polarity and other wiring is correct. Incorrect wiring may cause explosion or burnout.
5. If the power supply is connected directly without a load, the internal elements may explode or burn. Be sure to insert a load when connecting the power supply.
6. Dispose of this product as industrial waste.

Precautions for Correct Use

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

● Operating Environment

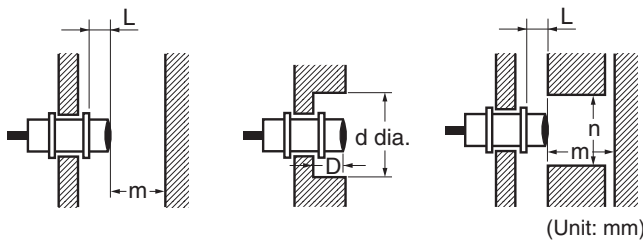
1. Do not install the product in the following locations. Doing so may result in product failure or malfunction.
 - (1) Outdoor locations directly subject to sunlight, rain, snow, water droplets, or oil.
 - (2) Locations subject to atmospheres with chemical vapors, in particular solvents and acids.
 - (3) Locations subject to corrosive gases.
2. The Sensor may malfunction if used near ultrasonic cleaning equipment, high-frequency equipment, transceivers, cellular phones, inverters, or other devices that generate a high-frequency electric field. Please refer to the Precautions for Correct Use on the OMRON website (www.ia.omron.com) for typical measures.
3. Laying the Proximity Sensor wiring in the same conduit or duct as high-voltage wires or power lines may result in incorrect operation and damage due to induction. Wire the Sensor using a separate conduit or independent conduit.
4. Never use thinner or other solvents. Otherwise, the Sensor surface may be dissolved.
5. The following conditions shall be observed if you use the product under an environment using cutting oil that may affect product's life and/or performance.
 - Usage under the cutting oil condition designated by the specification
 - Usage under the cutting oil dilution ratio recommended by its manufacturer
 - Usage in oil or water is prohibited

Impact on the product life may differ depending on the oil you use. Before using the cutting oil, make sure that it should not cause deterioration or degradation of sealing components.

● Design

Influence of Surrounding Metal

When mounting the Proximity Sensor using a nut, only use the provided nut. And ensure that the minimum distances given in the following table are maintained.

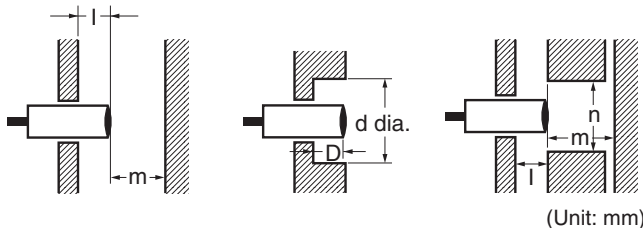


(Unit: mm)

Type	Item	M8	M12	M18	M30
Long-distance type E2E-X□D□(-T) Spatter-resistant Long-distance type E2EQ-X□D□(-T) *1	L	0	0	0	0
	d	20	20	50	70
	D	2	4	4	8
	m	9	18	33	60
Long-distance type E2E-X□MD□(-T) *2	n	18	20	54	90
	L	10	16	31	50
	d	30	50	80	130
	D	13	20	35	55
Standard-distance type E2E-X□R5D□(-T) E2E-X5D□(-T) *2	m	18	30	60	120
	n	30	50	80	130
	L	0	0	0	---
	d	8	12	18	---
Standard-distance type E2E-X□R5D□(-T) E2E-X5D□(-T) *2	D	0	0	0	---
	m	4.5	8	20	---
	n	12	18	27	---

Note: Nuts that are supplied along with each Sensor (*1, *2) are different. Refer to *Dimensions* for details on shapes.

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

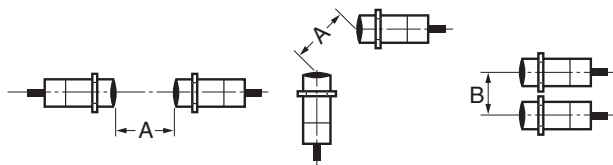


(Unit: mm)

Type	Item	M8	M12	M18	M30
Long-distance type E2E-X□D□(-T) Spatter-resistant Long-distance type E2EQ-X□D□(-T)	l	2	4	4	8
	d	20	20	50	70
	D	2	4	4	8
	m	9	18	33	60
Long-distance type E2E-X□MD□(-T)	n	18	20	54	90
	l	13	20	35	55
	d	30	50	80	130
	D	13	20	35	55
Standard-distance type E2E-X□R5D□(-T) E2E-X5D□(-T)	m	18	30	60	120
	n	30	50	80	130
	l	0	0	0	---
	d	8	12	18	---
Standard-distance type E2E-X□R5D□(-T) E2E-X5D□(-T)	D	0	0	0	---
	m	4.5	8	20	---
	n	12	18	27	---

● Mutual Interference

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



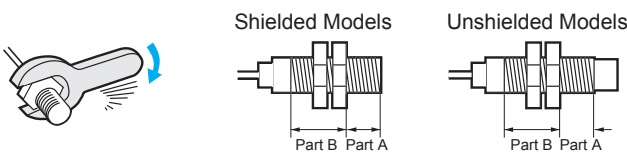
(Unit: mm)

Type	Item	M8	M12	M18	M30
Long-distance type E2E-X□D□(-T) Spatter-resistant Long-distance type E2EQ-X□D□(-T)	A	25	40	70	140
	B	20	30	45	70
Long-distance type E2E-X□MD□(-T)	A	80	120	200	380
	B	60	100	120	280
Standard-distance type E2E-X□R5D□(-T) E2E-X5D□(-T)	A	20	30	50	---
	B	15	20	35	---

● Mounting

Tightening Force

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



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

2. The following strengths assume washers are being used.

Long-distance type

Model		Part A		Part B
		Dimension (mm)	Torque	Torque
M8	Shielded	9	4 N·m	10 N·m
	Unshielded	3		
M12	Shielded	16	6 N·m	15 N·m
	Unshielded	9		
M18	Shielded	16	15 N·m	60 N·m
	Unshielded	3		
M30	Shielded	23	40 N·m	80 N·m
	Unshielded	8		

Spatter-resistant Long-distance type

Model	Part A		Part B
	Dimension (mm)	Torque	Torque
M8	9	4 N·m	10 N·m
M12	16	6 N·m	15 N·m
M18	16	15 N·m	30 N·m
M30	23	40 N·m	80 N·m

Standard-distance type

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

Dimensions

Sensors

E2E NEXT Series (Long-distance type)

Pre-wired Models Shielded

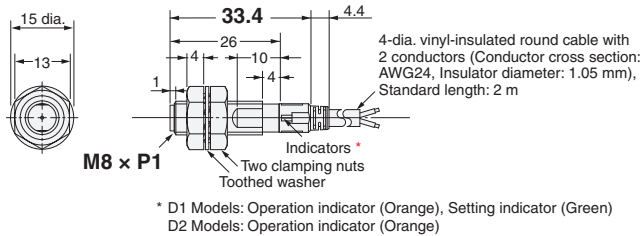


DC 2-wire

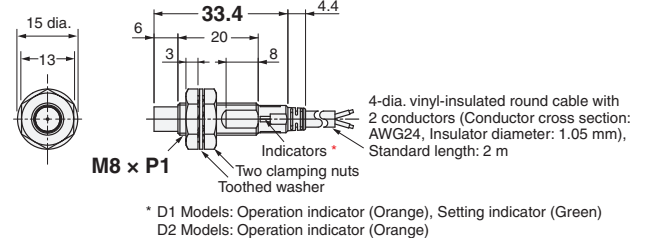
Pre-wired Models Unshielded



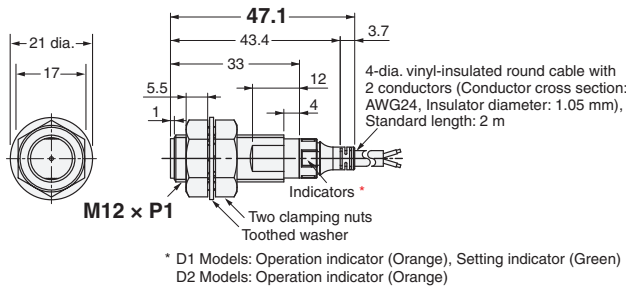
E2E-X3D□8



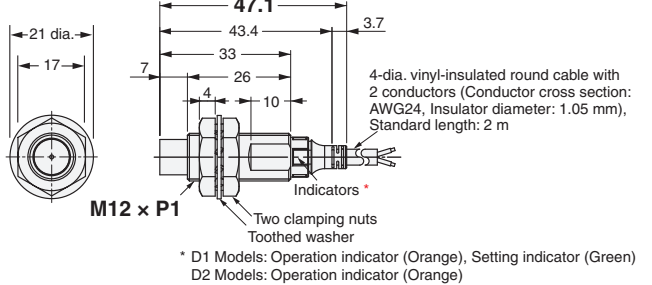
E2E-X6MD□8



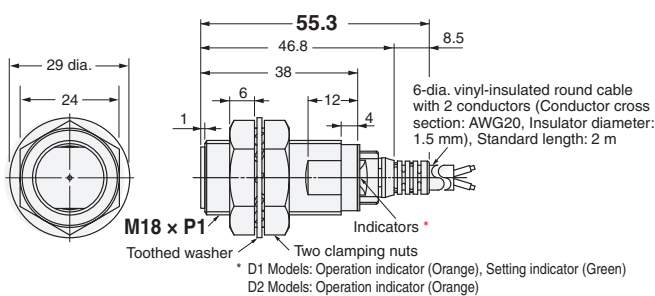
E2E-X7D□12



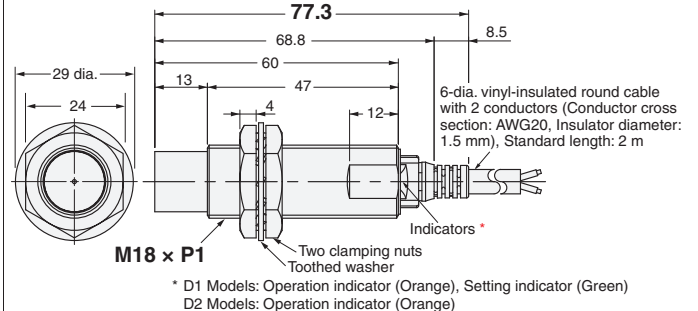
E2E-X10MD□12



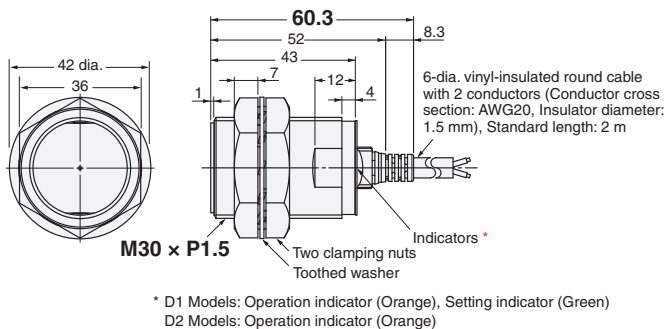
E2E-X11D□18



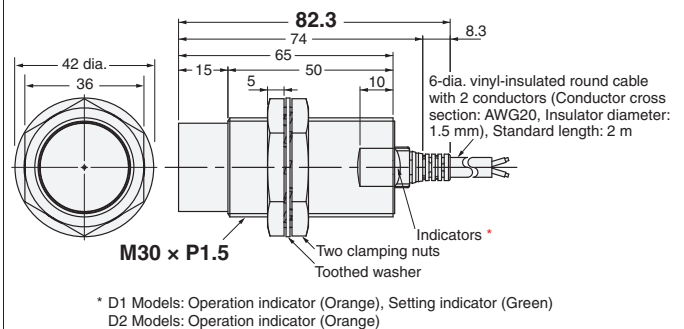
E2E-X20MD□L18



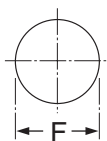
E2E-X20D□30



E2E-X40MD□L30

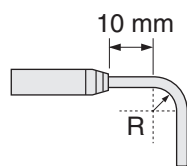


Mounting Hole Dimensions



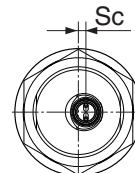
Dimensions	F (mm)
M8	8.5 dia. $^{+0.5}_0$
M12	12.5 dia. $^{+0.5}_0$
M18	18.5 dia. $^{+0.5}_0$
M30	30.5 dia. $^{+0.5}_0$

Angle R of the Bending Wire



Dimensions	R (mm)
M8	12
M12	12
M18	18
M30	18

Wire pullout position



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

E2E/E2EQ NEXT Series

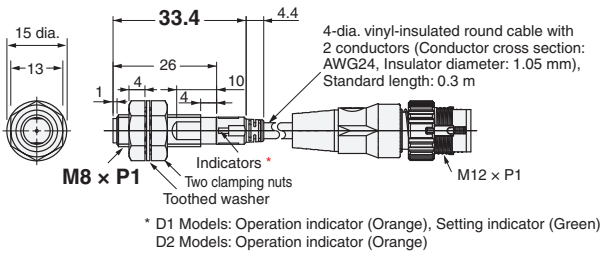
Pre-wired Connector Models Shielded



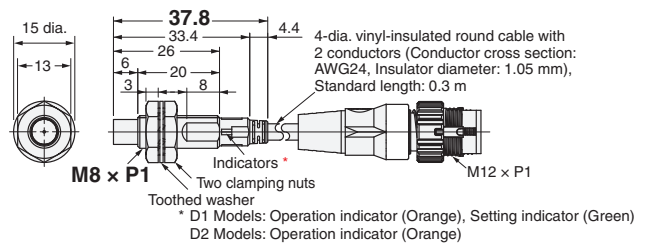
Pre-wired Connector Models Unshielded



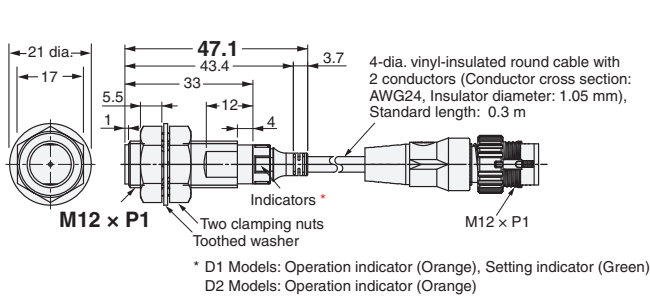
E2E-X3D□8-M1TGJ



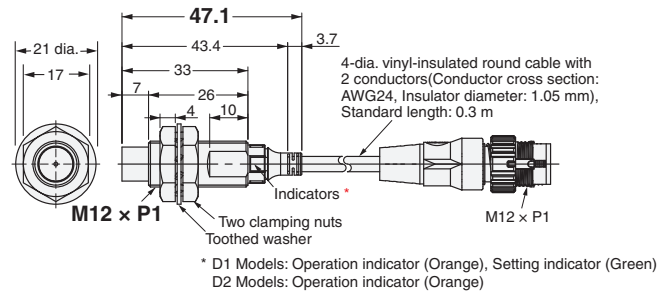
E2E-X6MD□8-M1TGJ



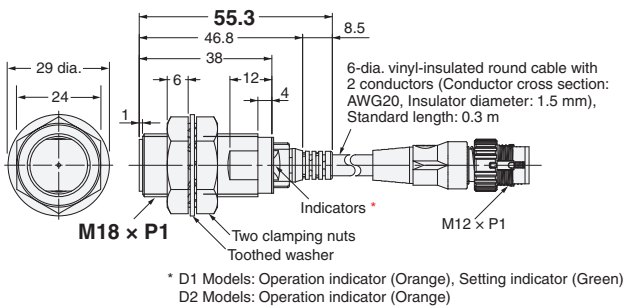
E2E-X7D□12-M1TGJ



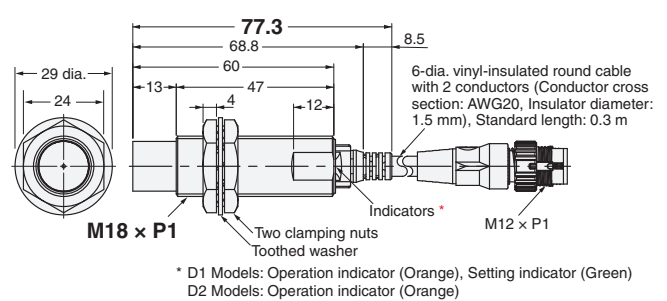
E2E-X10MD□12-M1TGJ



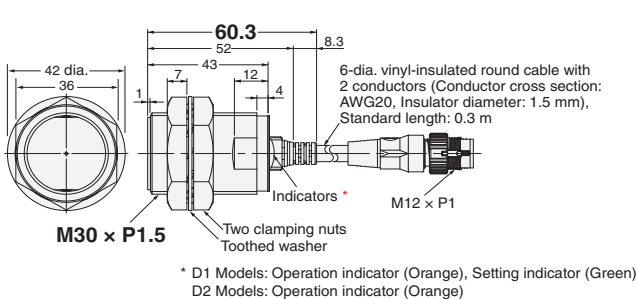
E2E-X11D□18-M1TGJ



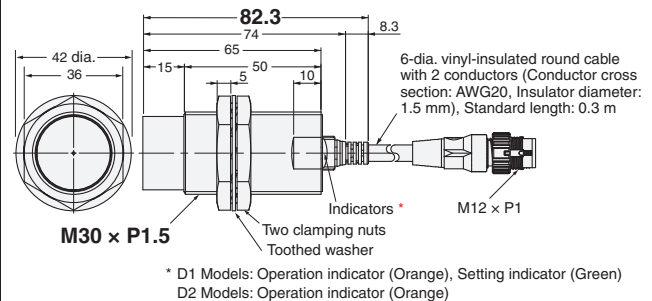
E2E-X20MD□18-M1TGJ



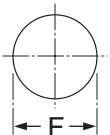
E2E-X20D□30-M1TGJ



E2E-X40MD□L30-M1TGJ

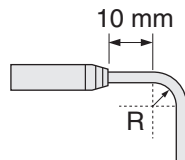


Mounting Hole Dimensions



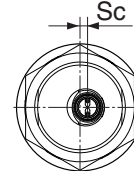
Dimensions	F (mm)
M8	8.5 dia. $^{+0.5}_0$
M12	12.5 dia. $^{+0.5}_0$
M18	18.5 dia. $^{+0.5}_0$
M30	30.5 dia. $^{+0.5}_0$

Angle R of the Bending Wire



Dimensions	R (mm)
M8	12
M12	12
M18	18
M30	18

Wire pullout position



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

Sensors

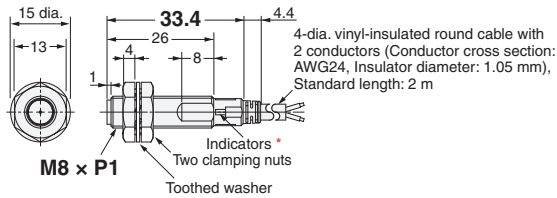
E2EQ NEXT Series (Spatter-resistant Long-distance type)

DC 2-wire

Pre-wired Models
Shielded

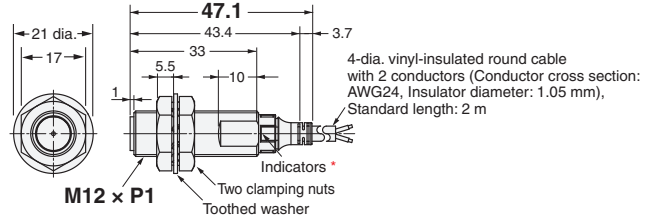


E2EQ-X3D□8



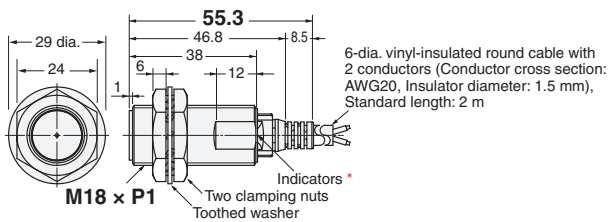
* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

E2EQ-X7D□12



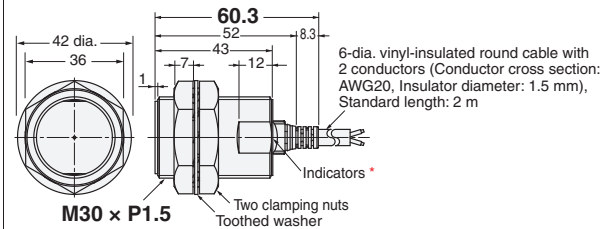
* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

E2EQ-X11D□18



* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

E2EQ-X20D□30

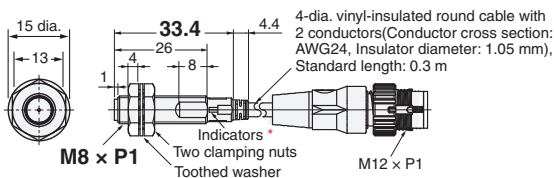


* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

Pre-wired Connector Models
Shielded

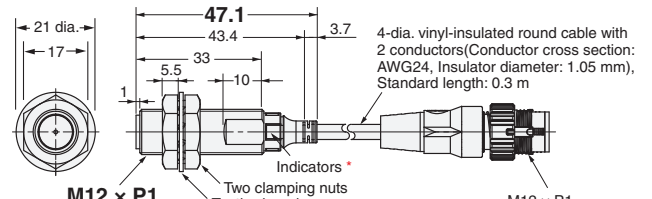


E2EQ-X3D□8-M1TGJ



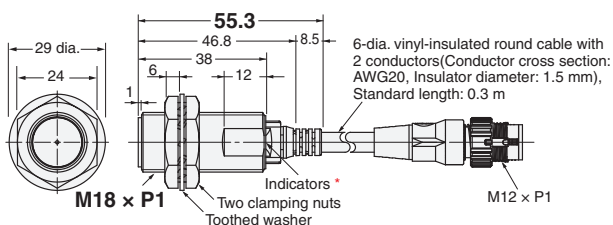
* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

E2EQ-X7D□12-M1TGJ



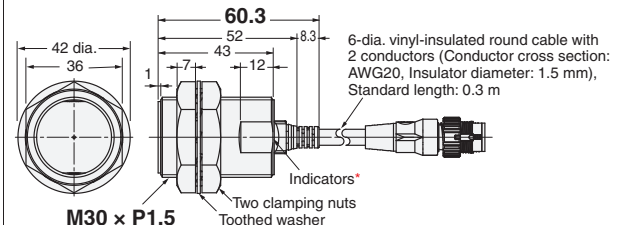
* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

E2EQ-X11D□18-M1TGJ



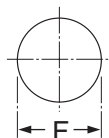
* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

E2EQ-X20D□30-M1TGJ



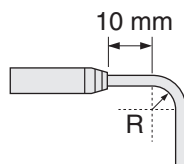
* D1 Models: Operation indicator (Orange), Setting indicator (Green)
D2 Models: Operation indicator (Orange)

Mounting Hole Dimensions



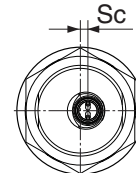
Dimensions	F (mm)
M8	8.5 dia. ^{+0.5} / ₀
M12	12.5 dia. ^{+0.5} / ₀
M18	18.5 dia. ^{+0.5} / ₀
M30	30.5 dia. ^{+0.5} / ₀

Angle R of the Bending Wire



Dimensions	R (mm)
M8	12
M12	12
M18	18
M30	18

Wire pullout position



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

E2E/E2EQ NEXT Series

Sensors

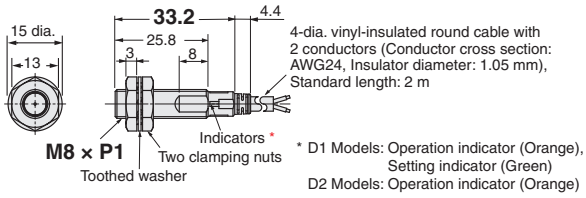
E2E NEXT Series (Standard-distance type)

DC 2-wire

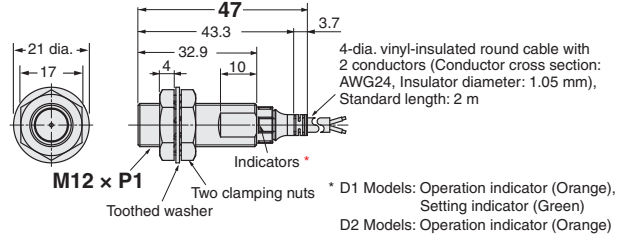
Pre-wired Models Shielded



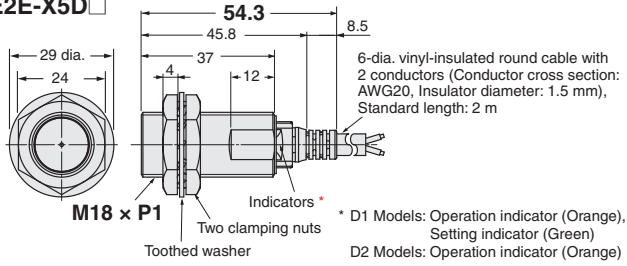
E2E-X1R5D



E2E-X2R5D



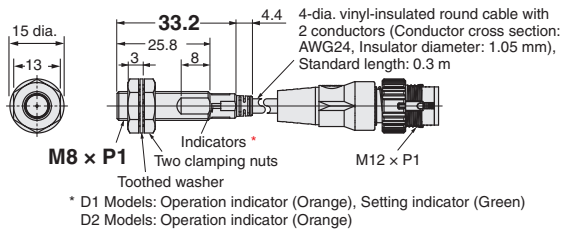
E2E-X5D



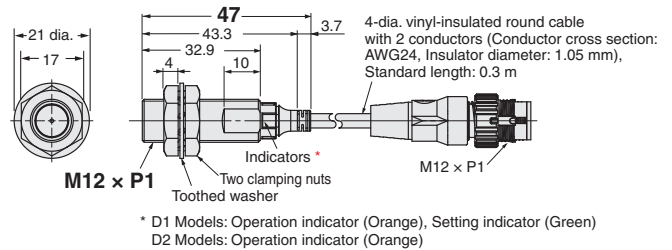
Pre-wired Connector Models Shielded



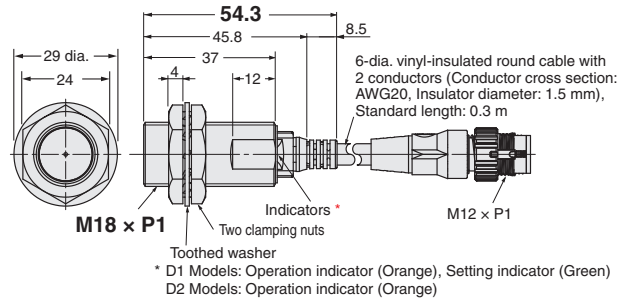
E2E-X1R5D-M1TGJ



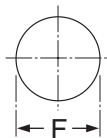
E2E-X2R5D-M1TGJ



E2E-X5D-M1TGJ

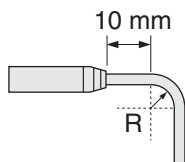


Mounting Hole Dimensions



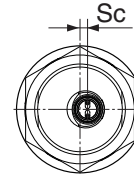
Dimensions	F (mm)
M8	8.5 dia. $+0.5_0$
M12	12.5 dia. $+0.5_0$
M18	18.5 dia. $+0.5_0$
M30	30.5 dia. $+0.5_0$

Angle R of the Bending Wire



Dimensions	R (mm)
M8	12
M12	12
M18	18
M30	18

Wire pullout position

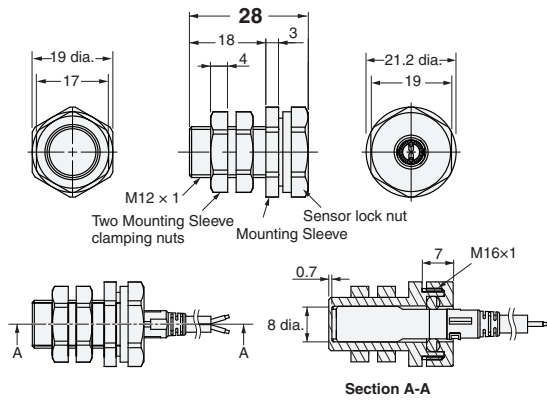


Dimensions	Sc (mm)
M8	- (0)
M12	- (0)
M18	2.5
M30	2.5

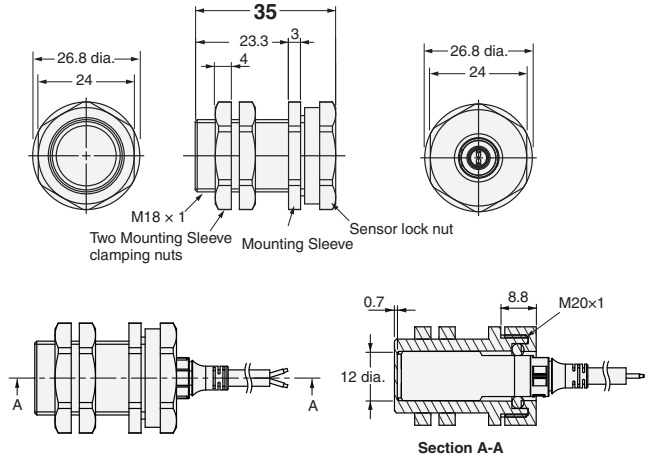
Accessories (Sold Separately)

e-jig (Mounting Sleeves)

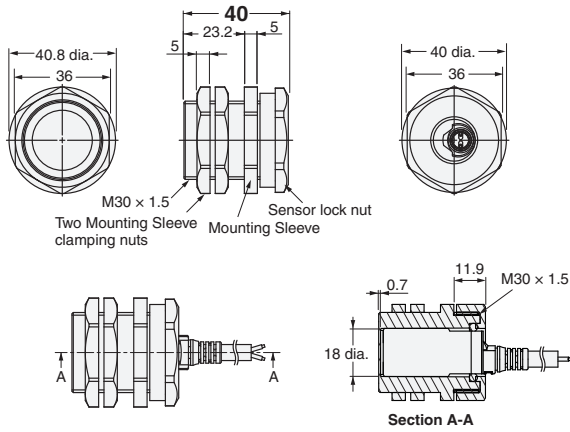
Y92E-J8S12



Y92E-J12S18



Y92E-J18S30



Material

Mounting Sleeve	Polyetheretherketone (PEEK) / Polybutylene terephthalate (PBT)
Mounting Sleeve clamping nut	Polybutylene terephthalate (PBT)
Sensor lock nut	Polybutylene terephthalate (PBT)
Sensor lock O-ring	Material combining HNBR and fluororubber

Tightening Force

Model	Torque	
	Mounting Sleeve clamping nut	Sensor lock nut
Y92E-J8S12	0.6 N·m	0.6 N·m
Y92E-J12S18	1.2 N·m	1.2 N·m
Y92E-J18S30	5 N·m	3.5 N·m