Small-diameter Proximity Sensor
E2E

Ultra small size, but surprisingly easy installation!

- With the addition of M4, 5.4-dia., 6.5-dia. size, unshielded, pre-wired connector model, and connector model, a total of 108 model variations are available.
- High-speed response frequency stably detects moving objects: 5 kHz max.
- Four indicator lamps for easier indicator positioning.
- Special mounting brackets reduce time and efforts for installation.
- Protective Stainless-steel Spiral Tube against wire breakage is available (M4, M5 only).
- Models also available with standard cables that are 5 m long or with robot (bending-resistant) cables.



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

⚠ Refer to *Safety Precautions* on page 10.

Features

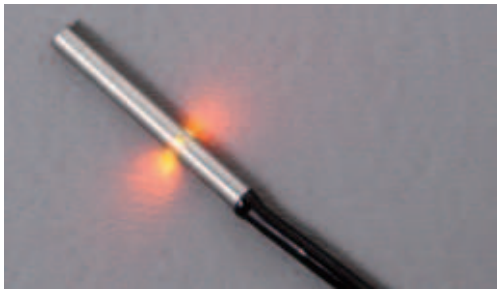
Lineup of global small-diameter types (3 dia., 4 dia., 5.4 dia., 6.5 dia., M4, M5)

- A lineup of unshielded models for long distance sensing is also available. Stable long distance sensing performance enables worry-free use even when the work flow is unsteady.



Bright operation indicators make it easy to check operation status

- Four indicator lamps in a 360 degree layout can be easily seen.



High-speed response enables sharp detection timing

- 5 kHz response frequency max.

Protection circuits prevent failures due to wiring mistakes.

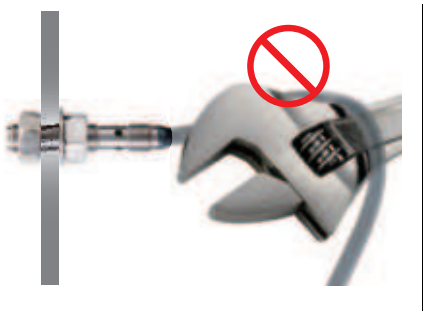
- Load short-circuit protection and output reverse polarity protection circuits are incorporated.

Environment friendly, low current consumption only 2/3 that of previous models

- All have a current consumption of 10 mA max.

Protective Stainless-steel Spiral Tube against wire breakage is available

- Lineup of protective tubes for M4 and M5 sizes. Reduces wire breakage due to catching and shock.



E2E (Small Diameter) Model Number Legend

E2E- ① ② ③ ④ - ⑤ - ⑥ ⑦ – ⑧ ⑨

No.	Classification	Code	Meaning
①	Case material and shape	C	Cylindrical
		S	SUS, threaded
②	Size	03	Outer diameter 3 mm
		04	Outer diameter 4 mm
		05	Threaded: Outer diameter 5 mm, Cylindrical: Outer diameter 5.4 mm
		06	Outer diameter 6.5 mm
③	Shielding	S	Shielded Models
		N	Unshielded Models
④	Sensing distance	Number	R8: 0.8 mm, 01: 1 mm, 12: 1.2 mm, 02: 2 mm, 03: 3 mm, 04: 4 mm
⑤	Connecting method	WC	PVC Pre-wired Model
		MC	M8 Connector, 3-pin
		CJ	M8 Pre-wired Connector, 3-pin
⑥	Output specifications	B	DC 3-wire PNP open-collector output
		C	DC 3-wire NPN open-collector output
⑦	Operation mode	1	Normally open (NO)
		2	Normally closed (NC)
⑧	Cable specifications	Blank	Standard PVC cable
		R	Robot (bending-resistant) PVC cable
⑨	Cable length	Blank	Connector Models
		Number M	Cable length (Unit: m) (Applicable to Pre-wired Models 2M/5M and Pre-wired Connector Models 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

Sensors

Shielded Models [Refer to *Dimensions* on page 12.]



Appearance	Sensing distance	Connecting method	Cable specifications	Operation mode	Wire color / pin arrangement	Model	
						NPN output	PNP output
3 dia.	0.8 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	E2E-C03SR8-WC-C1 2M *1	E2E-C03SR8-WC-B1 2M *1
				NC		E2E-C03SR8-WC-C2 2M *1	E2E-C03SR8-WC-B2 2M *1
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	E2E-C03SR8-CJ-C1 0.3M	E2E-C03SR8-CJ-B1 0.3M
				NC		E2E-C03SR8-CJ-C2 0.3M	E2E-C03SR8-CJ-B2 0.3M
4 dia.	1.2 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	E2E-C04S12-WC-C1 2M *1 *2 *3	E2E-C04S12-WC-B1 2M *1 *2 *3
				NC		E2E-C04S12-WC-C2 2M *1 *2 *3	E2E-C04S12-WC-B2 2M *1 *2 *3
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	E2E-C04S12-CJ-C1 0.3M	E2E-C04S12-CJ-B1 0.3M
				NC		E2E-C04S12-CJ-C2 0.3M	E2E-C04S12-CJ-B2 0.3M
		M8 Connector Models	---	NO		E2E-C04S12-MC-C1	E2E-C04S12-MC-B1
				NC		E2E-C04S12-MC-C2	E2E-C04S12-MC-B2
5.4 dia.	1 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	E2E-C05S01-WC-C1 2M *1 *2 *3	E2E-C05S01-WC-B1 2M *1 *2 *3
				NC		E2E-C05S01-WC-C2 2M *1 *2	E2E-C05S01-WC-B2 2M *1 *2
6.5 dia.	2 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	E2E-C06S02-WC-C1 2M *1 *2 *3	E2E-C06S02-WC-B1 2M *1 *2 *3
				NC		E2E-C06S02-WC-C2 2M *1 *2 *3	E2E-C06S02-WC-B2 2M *1 *2 *3
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	E2E-C06S02-CJ-C1 0.3M	E2E-C06S02-CJ-B1 0.3M
				NC		E2E-C06S02-CJ-C2 0.3M	E2E-C06S02-CJ-B2 0.3M
		M8 Connector Models	---	NO		E2E-C06S02-MC-C1	E2E-C06S02-MC-B1
				NC		E2E-C06S02-MC-C2	E2E-C06S02-MC-B2
M4	0.8 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	E2E-S04SR8-WC-C1 2M *1	E2E-S04SR8-WC-B1 2M *1
				NC		E2E-S04SR8-WC-C2 2M *1	E2E-S04SR8-WC-B2 2M *1
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	E2E-S04SR8-CJ-C1 0.3M	E2E-S04SR8-CJ-B1 0.3M
				NC		E2E-S04SR8-CJ-C2 0.3M	E2E-S04SR8-CJ-B2 0.3M
M5	1.2 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	E2E-S05S12-WC-C1 2M *1 *2 *3	E2E-S05S12-WC-B1 2M *1 *2 *3
				NC		E2E-S05S12-WC-C2 2M *1 *2 *3	E2E-S05S12-WC-B2 2M *1 *2 *3
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	E2E-S05S12-CJ-C1 0.3M	E2E-S05S12-CJ-B1 0.3M
				NC		E2E-S05S12-CJ-C2 0.3M	E2E-S05S12-CJ-B2 0.3M
		M8 Connector Models	---	NO		E2E-S05S12-MC-C1	E2E-S05S12-MC-B1
				NC		E2E-S05S12-MC-C2	E2E-S05S12-MC-B2

*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2E-C04S12-WC-C1 5M)
*2. Models with robot (bending-resistant) cable are also available with "-R" in the model number. (Example: E2E-C04S12-WC-C1-R 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-C04S12-WC-C1-R 5M)

Unshielded Models [Refer to *Dimensions* on page 13.]



Appearance	Sensing distance	Connecting method	Cable specifications	Operation mode	Wire color / pin arrangement	Model	
						NPN output	PNP output
3 dia.	2 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	**E2E-C03N02-WC-C1 2M *1**	**E2E-C03N02-WC-B1 2M *1**
				NC		**E2E-C03N02-WC-C2 2M *1**	**E2E-C03N02-WC-B2 2M *1**
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	**E2E-C03N02-CJ-C1 0.3M**	**E2E-C03N02-CJ-B1 0.3M**
				NC		**E2E-C03N02-CJ-C2 0.3M**	**E2E-C03N02-CJ-B2 0.3M**
4 dia.	3 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	**E2E-C04N03-WC-C1 2M *1 *2**	**E2E-C04N03-WC-B1 2M *1 *2**
				NC		**E2E-C04N03-WC-C2 2M *1 *2**	**E2E-C04N03-WC-B2 2M *1 *2**
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	**E2E-C04N03-CJ-C1 0.3M**	**E2E-C04N03-CJ-B1 0.3M**
				NC		**E2E-C04N03-CJ-C2 0.3M**	**E2E-C04N03-CJ-B2 0.3M**
		M8 Connector Models	---	NO		**E2E-C04N03-MC-C1**	**E2E-C04N03-MC-B1**
				NC		**E2E-C04N03-MC-C2**	**E2E-C04N03-MC-B2**
6.5 dia.	4 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	**E2E-C06N04-WC-C1 2M *1 *2**	**E2E-C06N04-WC-B1 2M *1 *2**
				NC		**E2E-C06N04-WC-C2 2M *1 *2**	**E2E-C06N04-WC-B2 2M *1 *2**
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	**E2E-C06N04-CJ-C1 0.3M**	**E2E-C06N04-CJ-B1 0.3M**
				NC		**E2E-C06N04-CJ-C2 0.3M**	**E2E-C06N04-CJ-B2 0.3M**
		M8 Connector Models	---	NO		**E2E-C06N04-MC-C1**	**E2E-C06N04-MC-B1**
				NC		**E2E-C06N04-MC-C2**	**E2E-C06N04-MC-B2**
M4	2 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	**E2E-S04N02-WC-C1 2M *1**	**E2E-S04N02-WC-B1 2M *1**
				NC		**E2E-S04N02-WC-C2 2M *1**	**E2E-S04N02-WC-B2 2M *1**
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	**E2E-S04N02-CJ-C1 0.3M**	**E2E-S04N02-CJ-B1 0.3M**
				NC		**E2E-S04N02-CJ-C2 0.3M**	**E2E-S04N02-CJ-B2 0.3M**
M5	3 mm	Pre-wired Models (2 m)	PVC (oil-resistant)	NO	Brown: +V Black: Output Blue: 0 V	**E2E-S05N03-WC-C1 2M *1 *2**	**E2E-S05N03-WC-B1 2M *1 *2**
				NC		**E2E-S05N03-WC-C2 2M *1 *2**	**E2E-S05N03-WC-B2 2M *1 *2**
		M8 Pre-wired Connector Models (0.3 m)	PVC (oil-resistant)	NO	1: +V, 3: 0 V, 4: Control output	**E2E-S05N03-CJ-C1 0.3M**	**E2E-S05N03-CJ-B1 0.3M**
				NC		**E2E-S05N03-CJ-C2 0.3M**	**E2E-S05N03-CJ-B2 0.3M**
		M8 Connector Models	---	NO		**E2E-S05N03-MC-C1**	**E2E-S05N03-MC-B1**
				NC		**E2E-S05N03-MC-C2**	**E2E-S05N03-MC-B2**

*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2E-C04N03-WC-C1 5M)
*2. Models with robot (bending-resistant) cable are also available with "-R" in the model number. (Example: E2E-C04N03-WC-C1-R 2M)

Accessories (Sold separately)

Sensor I/O Connector (Socket on One Cable End)

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

[Refer to *Dimensions* on page 16.]

Size	Cable specifications	Number of cable wires (conductors)	Cable length L (m)	Straight	Right-angle
				Model	
M8	Robot (bending-resistant) cable	3	2	XS3F-M321-302-R	XS3F-M322-302-R
			5	XS3F-M321-305-R	XS3F-M322-305-R

Mounting Brackets

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

[Refer to *Dimensions* on page 15.]

Applicable Sensors	Appearance	Model	Quantity	Remarks
E2E-C03□		**Y92E-SC03**	1	Mounting block for 3 dia., M3-20 Hexagon socket head cap screws: 2pieces, M3 × P0.5 Hexagon nuts: 2pieces, Washers: 2pieces
E2E-C04□		**Y92E-SC04**	1	Mounting block for 4 dia., M3-20 Hexagon socket head cap screws: 2pieces, M3 × P0.5 Hexagon nuts: 2pieces, Washers: 2pieces
E2E-C05□		**Y92E-SC05**	1	Mounting block for 5.4 dia., M3-20 Hexagon socket head cap screws: 2 pieces, M3 × P0.5 Hexagon nuts: 2 pieces, Washers: 2 pieces
E2E-C06□		**Y92E-SC06**	1	Mounting block for 6.5 dia., M3-20 Hexagon socket head cap screws: 2pieces, M3 × P0.5 Hexagon nuts: 2pieces, Washers: 2pieces
E2E-S04□		**Y92E-SS04**	1	L-shaped Mounting Bracket for M4 screws
E2E-S05□		**Y92E-SS05**	1	L-shaped Mounting Bracket for M5 screws

Nut Set

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

Applicable Sensors	Model	Applicable sensor outer diameter	Set contents
E2E-S04□	**Y92E-NWS04**	M4	Clamping nuts: 2 pieces, toothed washer: 1 piece
E2E-S05□	**Y92E-NWS05**	M5	

Protective Stainless-steel Spiral Tube against Wire Breakage

A Spiral Tube is not provided with the Sensor. It must be ordered separately as required.

[Refer to *Dimensions* on page 16.]

Applicable Sensors	Model	Applicable sensor outer diameter	Length
E2E-S04□	**Y92E-STS04-05**	M4	0.5 m
	Y92E-STS04-10		1 m
E2E-S05□	**Y92E-STS05-05**	M5	0.5 m
	Y92E-STS05-10		1 m

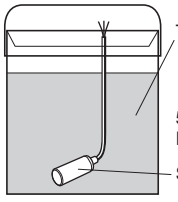
Ratings and Specifications

Item	Size	3 dia.		4 dia.		5.4 dia.	6.5 dia.		M4		M5	
	Type	Shielded	Unshielded	Shielded	Unshielded	Shielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
	Model	E2E-C03SR8□	E2E-C03N02□	E2E-C04S12□	E2E-C04N03□	E2E-C05S01□	E2E-C06S02□	E2E-C06N04□	E2E-S04SR8□	E2E-S04N02□	E2E-S05S12□	E2E-S05N03□
Sensing distance (at 23°C)		0.8 mm ±10%	2 mm ±10%	1.2 mm ±10%	3 mm ±10%	1mm ±10%	2 mm ±10%	4 mm ±10%	0.8 mm ±10%	2 mm ±10%	1.2 mm ±10%	3 mm ±10%
Setting distance *1 (Sensing distance × 0.7)		0 to 0.56 mm	0 to 1.4 mm	0 to 0.84 mm	0 to 2.1 mm	0 to 0.7 mm	0 to 1.4 mm	0 to 2.8 mm	0 to 0.56 mm	0 to 1.4 mm	0 to 0.84 mm	0 to 2.1 mm
Differential travel		15% max. of sensing distance										
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on page 7.)										
Standard sensing object		Iron, 3 × 3 × 1 mm	Iron, 6 × 6 × 1 mm	Iron, 4 × 4 × 1 mm	Iron, 9 × 9 × 1 mm	Iron, 5.4 × 5.4 × 1 mm	Iron, 6.5 × 6.5 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 3 × 3 × 1 mm	Iron, 6 × 6 × 1 mm	Iron, 4 × 4 × 1 mm	Iron, 9 × 9 × 1 mm
Response frequency *2		5 kHz	3.5 kHz	4 kHz	2 kHz	4 kHz	3 kHz	3 kHz	5 kHz	3.5 kHz	4 kHz	2 kHz
Power supply voltage *3		10 to 30 VDC (including 10% ripple (p-p))										
Current consumption		10 mA max.										
Control output *4	Load current	50 mA max.		100 mA max.			200 mA max. (60 to 70°C: 100 mA)		50 mA max.		100 mA max.	
	Residual voltage	2 V max. *5										
Indicators		Operation indicator: Yellow (complies with European standard EN60947-5-2) Lights during output.										
Operation mode		B1/B2: PNP open collector, C1/C2: NPN open collector B1/C1 models: NO, B2/C2 models: NC										
Protection circuits		Output reverse polarity protection, Power source circuit reverse polarity protection, Surge suppressor, Load short-circuit protection										
Ambient temperature range		Operation and storage: –25 to 70°C (with no icing or condensation)										
Ambient humidity range		Operation and storage: 35% to 95% (with no condensation)										
Temperature influence		±15% max. of sensing distance at 23°C within temperature range of –25 to 70°C										
Voltage influence		±2.5% max. of sensing distance at rated voltage in the rated voltage ±15% range										
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case										
Dielectric strength		500 VAC, 50/60 Hz for 1 minute between current-carrying parts and case										
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions										
Shock resistance		Destruction: 500 m/s² 10 times each in X, Y, and Z directions										
Degree of protection		IEC 60529 IP67, in-house standards: oil-resistant *6										
Connecting method	Pre-wired Models	Yes		Yes		Yes	Yes		Yes		Yes	
	M8 Pre-wired Connector Models	Yes		Yes		No	Yes		Yes		Yes	
	M8 Connector Models	No		Yes		No	Yes		No		Yes	
Weight (packed state)	Pre-wired Models	Approx. 25 g	Approx. 30 g	Approx. 35 g	Approx. 35 g	Approx. 35 g	Approx. 55 g	Approx. 55 g	Approx. 30 g	Approx. 30 g	Approx. 35 g	Approx. 40 g
	M8 Pre-wired Connector Models	Approx. 20 g	Approx. 20 g	Approx. 15 g	Approx. 20 g	---	Approx. 20 g	Approx. 25 g	Approx. 20 g	Approx. 20 g	Approx. 20 g	Approx. 20 g
	M8 Connector Models	---	---	Approx. 10 g	Approx. 10 g	---	Approx. 10 g	Approx. 15 g	---	---	Approx. 15 g	Approx. 15 g
Materials	Case	SUS303 (EN 1.4305) *7				Nickel-plated brass	SUS303 (EN 1.4305) *7					
	Sensing surface	Heat-resistant ABS										
	Clamping nuts *8	No							SUS430 (EN 1.4016) *7			
	Toothed washer *8	No							SUS303 (EN 1.4305) *7			
	Cable	Polyvinyl chloride (PVC)										
Accessories	Instruction manual	Yes										
	Model label	Yes										
	Mounting brackets	Sold separately										

*1. Using within the set distance enables high-speed responsiveness and a more stable repeat accuracy.
*2. The response frequency is an average value.
*3. When used at a power of 12 V, the Sensor is less susceptible to the effects of internal self heat generation and therefore a more stable repeat accuracy can be obtained.
*4. When the control output is 20 mA or less, the Sensor is less susceptible to the effects of internal self heat generation and therefore a more stable repeat accuracy can be obtained.
*5. 3 dia., M4: load current 50 mA, cable length 2 m
4 dia., 5.4 dia., M5: load current 100 mA, cable length 2 m
6.5 dia.: load current 200 mA, cord length 2 m
*6. Oil resistance in-house standard: Performance with respect to water insoluble oil.
(Test at right)
*7. Material name in EN standards.
*8. Clamping nuts: 2 pieces, toothed washer: 1 piece

Oil resistance test

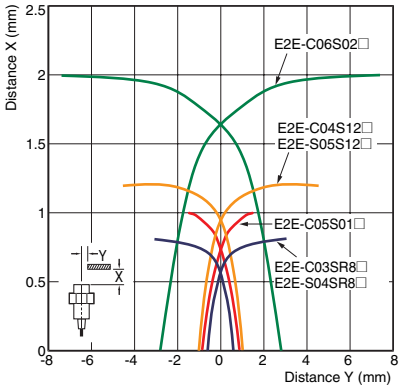
After the test time elapses, the characteristics below are checked for problems.
(1) Visual appearance (no damage that affects product characteristics)
(2) Operation check (ON/OFF)
(3) Insulation resistance (50 MΩ min. at 500 VDC)
(4) Dielectric strength (500 VAC, 1 min.)
(5) Water resistance (IP67)



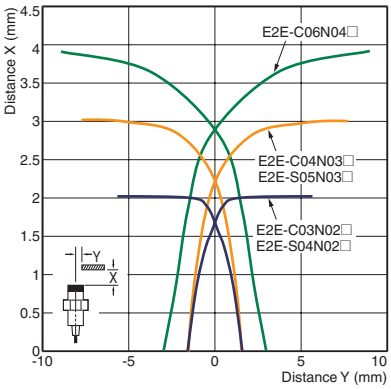
Engineering Data (Reference Value)

Sensing Area

Shielded Models
E2E-C/S□S□



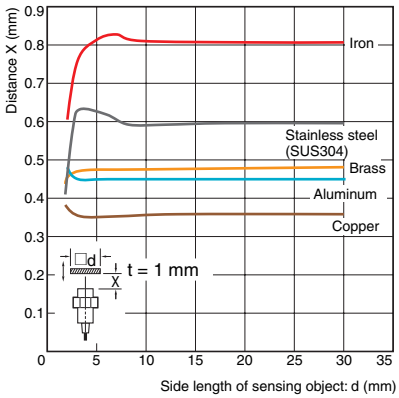
Unshielded Models
E2E-C/S□N□



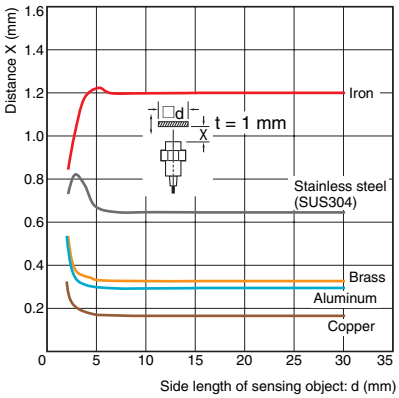
Note: The workpiece is a standard sensing object.
For details, refer to *Ratings and Specifications* on page 6.

Influence of Sensing Object Size and Material

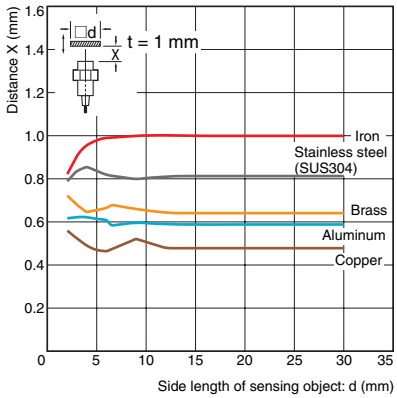
Shielded Models
E2E-C03SR8□/E2E-S04SR8□



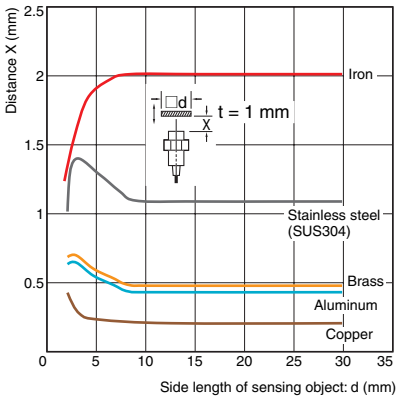
E2E-C04S12□/E2E-S05S12□



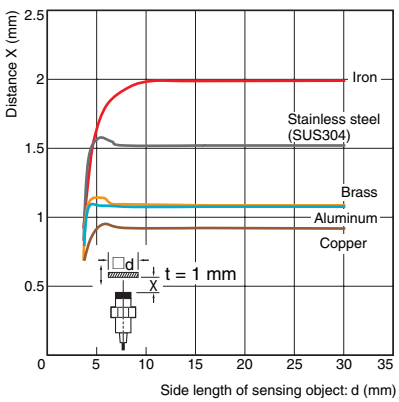
E2E-C05S01□



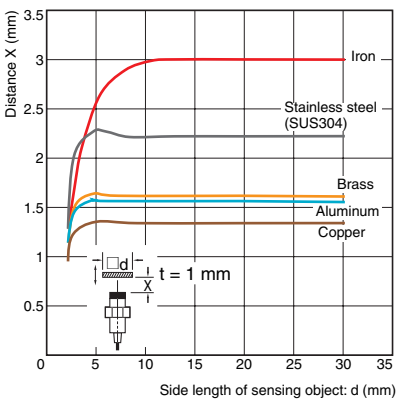
E2E-C06S02□



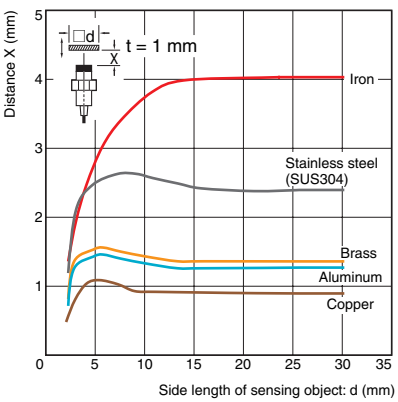
Unshielded Models
E2E-C03N02□/E2E-S04N02□



E2E-C04N03□/E2E-S05N03□



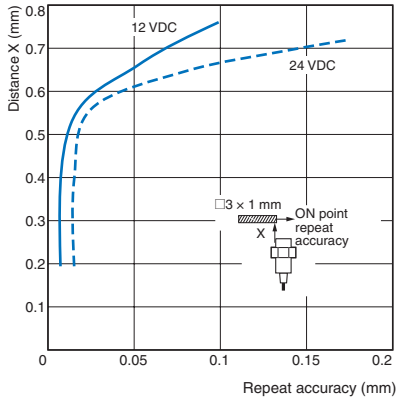
E2E-C06N04□



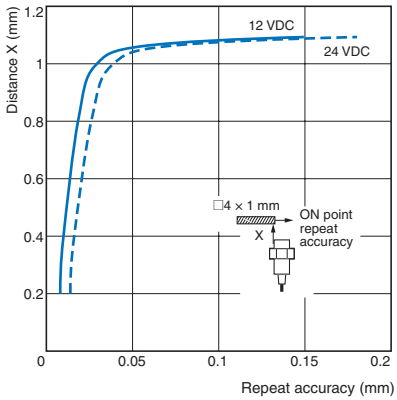
Distance - Horizontal Repeat Accuracy

Shielded Models

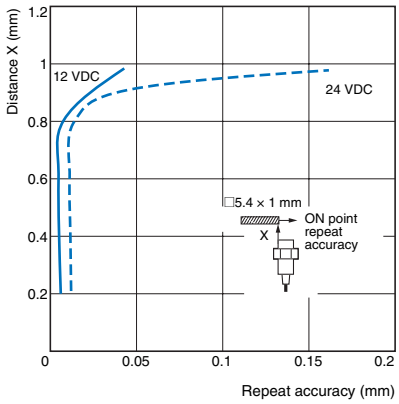
E2E-C03SR8□/E2E-S04SR8□



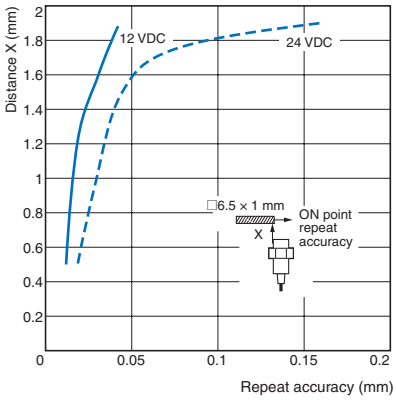
E2E-C04S12□/E2E-S05S12□



E2E-C05S01□

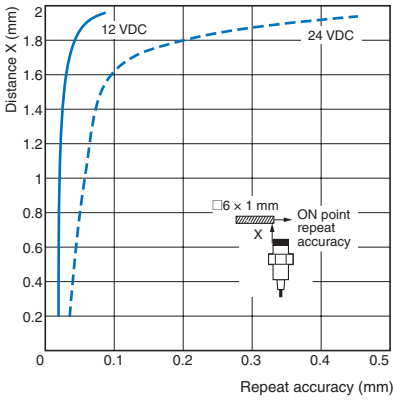


E2E-C06S02□

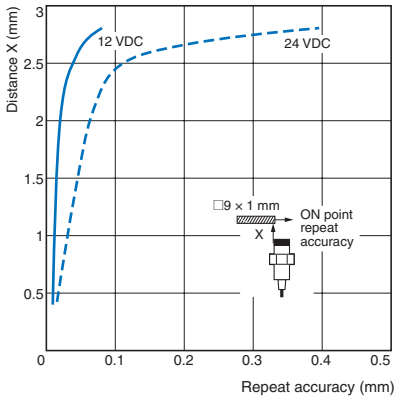


Unshielded Models

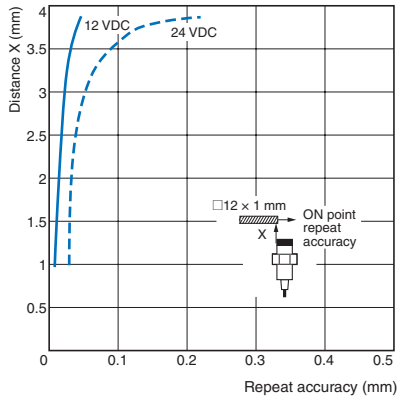
E2E-C03N02□/E2E-S04N02□



E2E-C04N03□/E2E-S05N03□



E2E-C06N04□



Sensing distance vs. repeat accuracy graphs

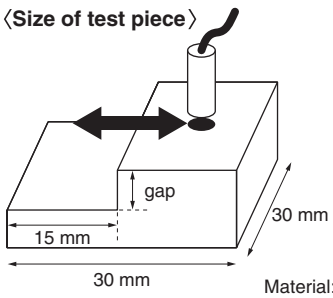
By using within the sensor installation distance, the repeat accuracy stabilizes.
This data is reference data based on a standard sensing object, and is not a guarantee of performance.
The repeat accuracy varies depending on the effects of temperature, the material and surface condition of the sensing object, and other conditions.

Minimum measurement gap

Model	Minimum gap (mm)
E2E-C03S/S04S	0.3
E2E-C03N/S04N	0.6
E2E-C04S/S05S	0.4
E2E-C04N/S05N	0.9
E2E-C05S	0.3
E2E-C06S	0.6
E2E-C06N	1.2

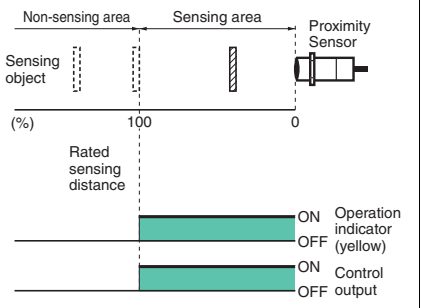
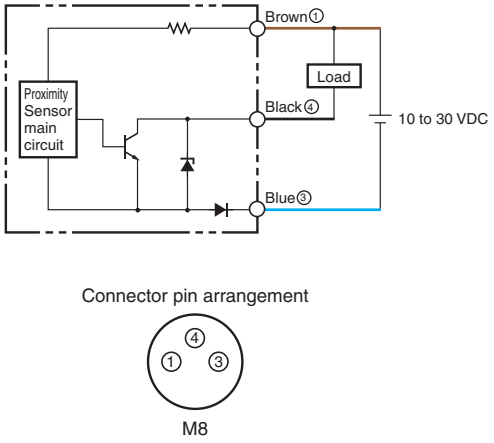
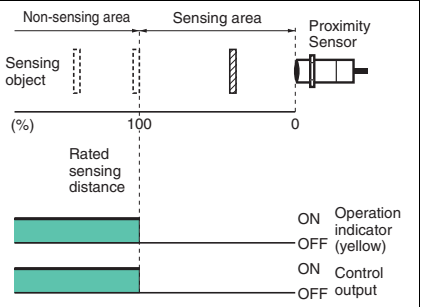
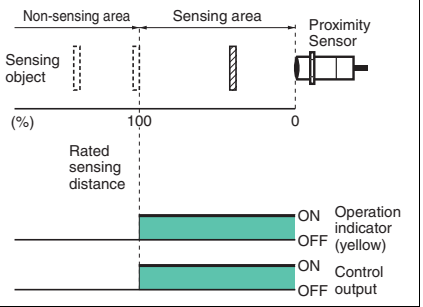
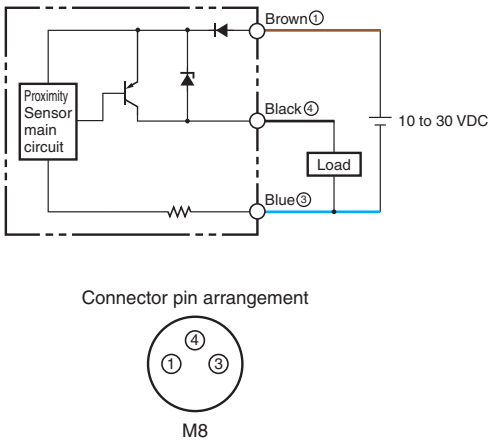
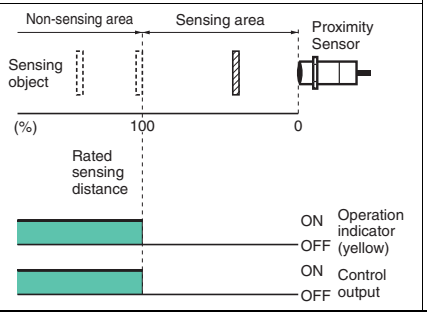
Note: Measured at constant temperature of 23°C using an iron sensing object of size at least as large as standard sensing object (see right).

〈Size of test piece〉

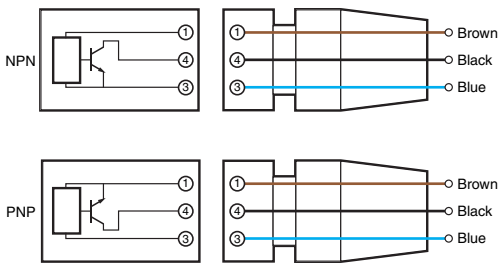


Material: Iron

I/O Circuit Diagrams

Operation mode	Output specifications	Model	Timing chart	Output circuit
NO	NPN open-collector output	E2E-□□□□ -□□-C1		
NC		E2E-□□□□ -□□-C2		
NO	PNP open-collector output	E2E-□□□□ -□□-B1		
NC		E2E-□□□□ -□□-B2		

Connection to I/O Connector (Connector Models, Pre-wired Connector Models)

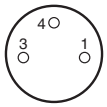


Sensor I/O Connector

XS3F-M32□-3□□-R

02: 2 m
05: 5 m

1: Straight
2: Right-angle

I/O connector cable, connector arrangement diagram


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

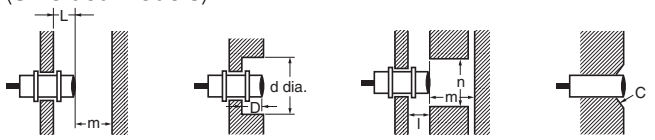
Do not use this product under ambient conditions that exceed the ratings.

● **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.

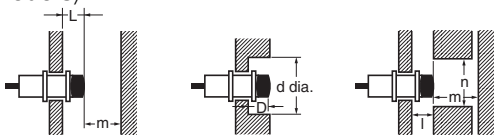
〈**Shielded Models**〉



(Unit: mm)

Item \ Size	3 dia.	4 dia.	5.4 dia.	6.5 dia.	M4	M5
L	0	0	0	0	0	0
m	3	5	3	6	3	5
d	3	4	5.4	6.5	4	5
D	0	0	0	0	0	0
n	8	10	8	12	8	10
c	0	0	0	2	0	0

〈**Unshielded Models**〉



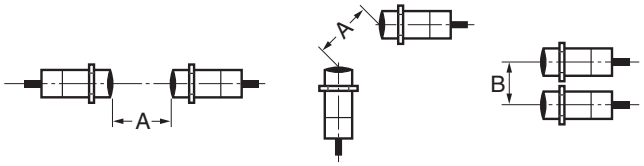
(Unit: mm)

Item \ Size	3 dia.	4 dia.	6.5 dia.	M4	M5
L	6	6	12	6	6
m	6	9	8	6	9
d	9	12	24	9	12
D	6	6	12	6	6
n	16	20	24	16	20

If mounted in a surrounding non-magnetic metal such as aluminum or copper, the sensing distance may shorten by about 40 to 50%.
If used in a recessed installation, take into consideration the effects of the material on the sensing distance.

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)

Item \ Size	3 dia.		4 dia.		5.4 dia.	6.5 dia.		M4		M5	
	Shielded	Unshielded	Shielded	Unshielded	Shielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
A	20	80	20	80	20	20	80	20	80	20	80
B *	15	60	15	60	15	15	60	15	60	15	60

* Values when the connector size is not taken into consideration.

● Mounting

Tightening Force

〈Mounting threaded models (E2E-S□)〉

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

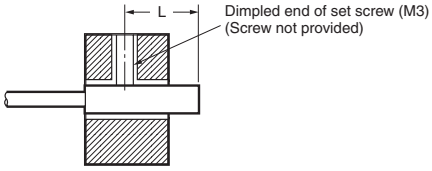


Note: 1. Only use the provided nut and toothed washer.
Risk of changes in the sensing distance and damage if a different material is used. If you lose the nut or washer, purchase an optional nut set.
2. The following strengths assume washers are being used.

Size	M4		M5	
Item	Shielded	Unshielded	Shielded	Unshielded
Tr	0.8 N·m		1 N·m	

Note: Only use the provided nut.

〈Mounting unthreaded cylindrical models (E2E-C□)〉



Size	3 dia.		4 dia.		5.4 dia.	6.5 dia.	
Item	Shielded	Unshielded	Shielded	Unshielded	Shielded	Shielded	Unshielded
L *	9 to 21 mm	15 to 27 mm	8 to 21 mm	14 to 27 mm	8 to 21 mm	12 to 26 mm	
Torque	0.2 N·m max.				0.4 N·m max.		

* Excluding the operation indicator area.

When using a set screw, tighten it to the torque indicated in the table above. Using a set screw in any area other than specified by the above dimensions may result in fire or other occurrences due to damage to the internal circuit.

● Oil resistance

In accordance with our oil resistance standard, we test oil resistance based on water insoluble oil (complies with test oil based on JIS C0920, Appendix 1).
When water soluble cutting oil is used, durability varies due to the dilution ratio and other factors.
Please test oil resistance using the actual oil that will be used.

● High-speed responsiveness

To obtain a better high-speed response, it is recommended that you use the sensor at about 50% of the possible sensing distance.
A high-speed response may not be obtained with some sensing object surfaces, materials, and shapes, or when the sensing distance is greater than the set distance.
For the effects of materials, refer to *Engineering Data* on page 7.

● Protective Stainless-steel Spiral Tube

The spiral tube is in a fixed state and is intended to provide protection against wire breakage due to shock from tools or other objects.

● Repeated cable bending tolerance

If you require repeated bending tolerance, use a sensor with a robot (bending-resistant) cable or use a Connector Model together with a connector cable that is specified for bending tolerance. (Example: XS3F-M321-□□□-R)
Refer to *Sensor I/O Connector* on page 5.

● Block type mounting accessories

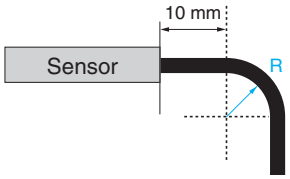
Due to differences in dimensional tolerances, these cannot be used with older small diameter proximity sensors. (E2E-CR6□, E2E-CR8□, E2E-C1□)

● Bending radius for mounting

If the cable is bent from its base, the resin on the surface of the cable may peel off, however, this will not affect the protective structure or sensing performance.
Avoid bending the cable at less than 10 mm from the base.
When bending the cable, refer to the table below.

Cable diameter	Bending radius*
3 dia., M4	7 mm
4 dia., 5.4 dia., M5	9 mm
6.5 dia.	12 mm

* For a robot (bending-resistant) cable, multiply the bending radius in the above table by 1.7.



● Total Cable Length

If you extend the cable length, use a conductor cross section of 0.14 mm^2 or greater and do not exceed a total length of 200 m for standard cables or robot (bending-resistant) cables. It is assumed that an independent metal conduit will be used.

Dimensions

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

Sensors

Pre-wired Models (Shielded)

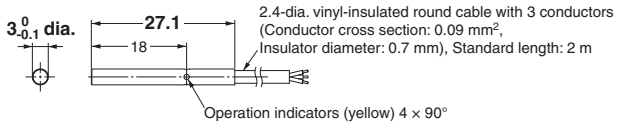


Mounting Hole Dimensions

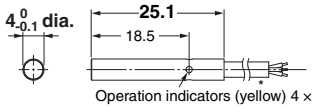


Dimension	3 dia.	4 dia.	5.4 dia.	6.5 dia.	M4	M5
F (mm)	$3.3^{+0.5}_{0}$	$4.2^{+0.5}_{0}$	$5.7^{+0.5}_{0}$	$7^{+0.5}_{0}$	$4.5^{+0.5}_{0}$	$5.5^{+0.5}_{0}$

E2E-C03SR8-WC-□□

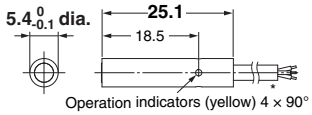


E2E-C04S12-WC-□□



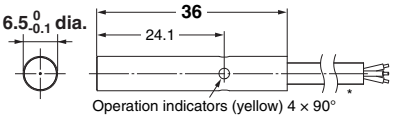
* 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.8 mm), Standard length: 2 m
Model with robot (bending-resistant) cable: 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.05 mm), Standard length: 2 m

E2E-C05S01-WC-□□



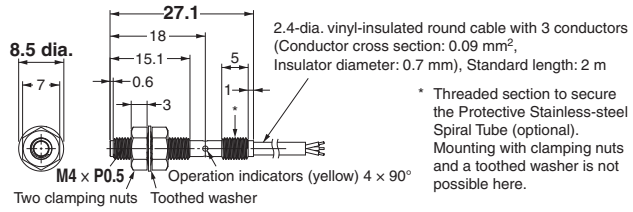
* 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.8 mm), Standard length: 2 m
Model with robot (bending-resistant) cable: 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.05 mm), Standard length: 2 m

E2E-C06S02-WC-□□



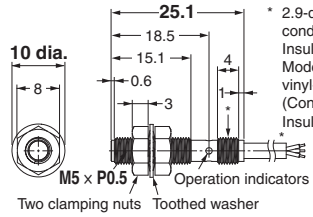
* 4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.85 mm), Standard length: 2 m
Model with robot (bending-resistant) cable: 4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.2 mm), Standard length: 2 m

E2E-S04SR8-WC-□□



* Threaded section to secure the Protective Stainless-steel Spiral Tube (optional). Mounting with clamping nuts and a toothed washer is not possible here.

E2E-S05S12-WC-□□



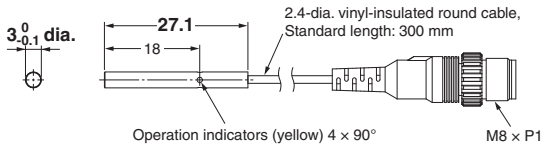
* 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.8 mm), Standard length: 2 m
Model with robot (bending-resistant) cable: 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.05 mm), Standard length: 2 m

* Threaded section to secure the Protective Stainless-steel Spiral Tube (optional). Mounting with clamping nuts and a toothed washer is not possible here.

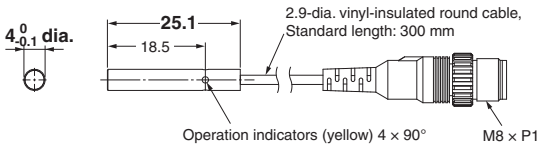
M8 Pre-wired Connector Models (0.3 m) (Shielded)



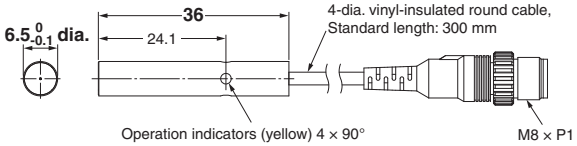
E2E-C03SR8-CJ-□□



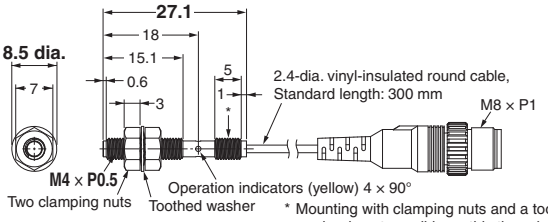
E2E-C04S12-CJ-□□



E2E-C06S02-CJ-□□

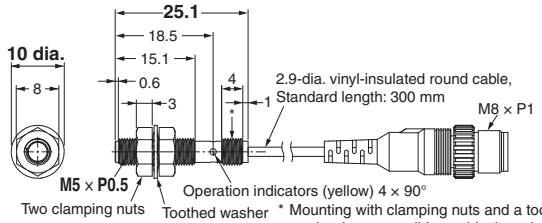


E2E-S04SR8-CJ-□□



* Mounting with clamping nuts and a toothed washer is not possible on this threaded section.

E2E-S05S12-CJ-□□

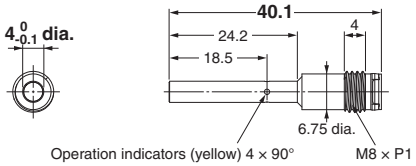


* Mounting with clamping nuts and a toothed washer is not possible on this threaded section.

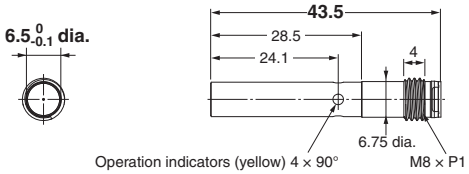
M8 Connector Models (Shielded)



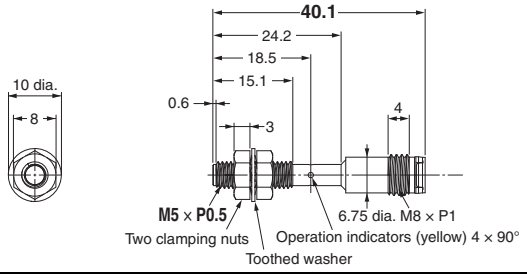
E2E-C04S12-MC-□□



E2E-C06S02-MC-□□



E2E-S05S12-MC-□□



Pre-wired Models (Unshielded)

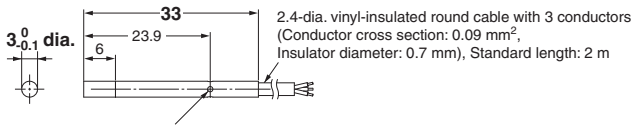


Mounting Hole Dimensions

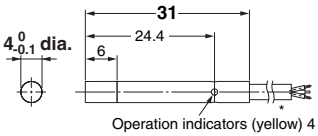


Dimension	3 dia.	4 dia.	6.5 dia.	M4	M5
F (mm)	$3.3^{+0.5}_{0}$	$4.2^{+0.5}_{0}$	$7^{+0.5}_{0}$	$4.5^{+0.5}_{0}$	$5.5^{+0.5}_{0}$

E2E-C03N02-WC-□□

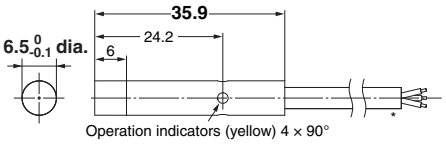


E2E-C04N03-WC-□□



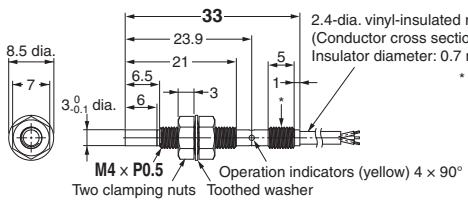
* 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.8 mm), Standard length: 2 m
Model with robot (bending-resistant) cable: 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.05 mm), Standard length: 2 m

E2E-C06N04-WC-□□



* 4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.85 mm), Standard length: 2 m
Model with robot (bending-resistant) cable: 4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm², Insulator diameter: 1.2 mm), Standard length: 2 m

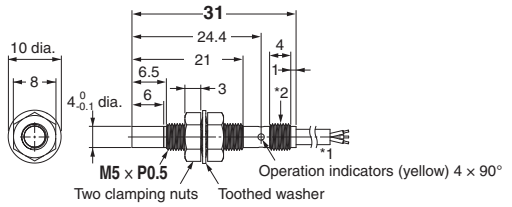
E2E-S04N02-WC-□□



2.4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.09 mm², Insulator diameter: 0.7 mm), Standard length: 2 m

* Threaded section to secure the Protective Stainless-steel Spiral Tube (optional). Mounting with clamping nuts and a toothed washer is not possible here.

E2E-S05N03-WC-□□

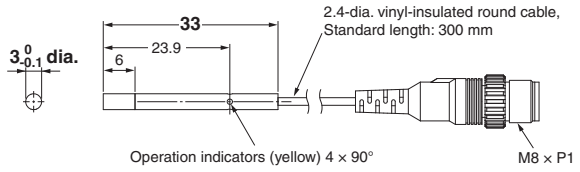


*1 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm², Insulator diameter: 0.8 mm), Standard length: 2 m
Model with robot (bending-resistant) cable: 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.05 mm), Standard length: 2 m
*2 Threaded section to secure the Protective Stainless-steel Spiral Tube (optional). Mounting with clamping nuts and a toothed washer is not possible here.

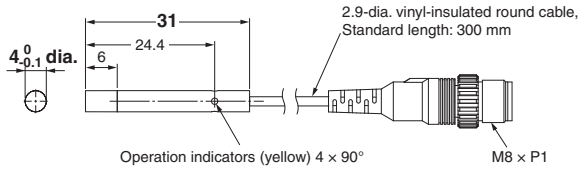
M8 Pre-wired Connector Models (0.3 mm) (Unshielded)



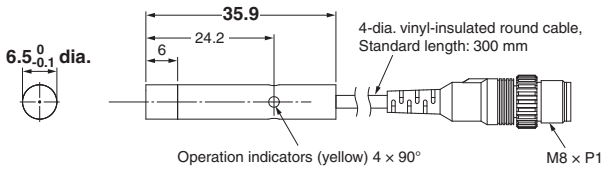
E2E-C03N02-CJ-□□



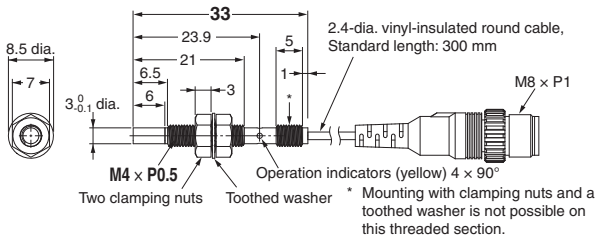
E2E-C04N03-CJ-□□



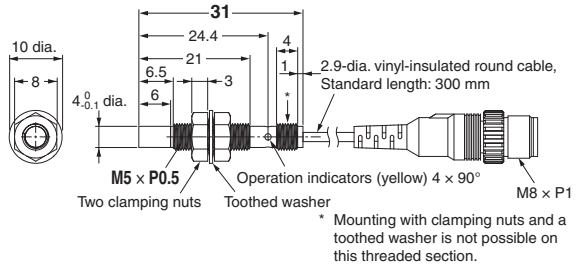
E2E-C06N04-CJ-□□



E2E-S04N02-CJ-□□



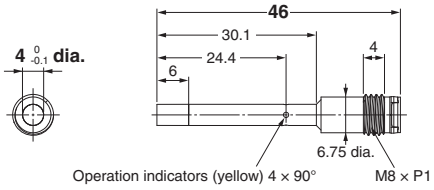
E2E-S05N03-CJ-□□



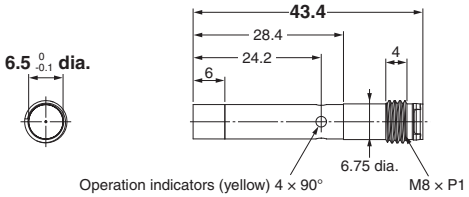
M8 Connector Models (Unshielded)



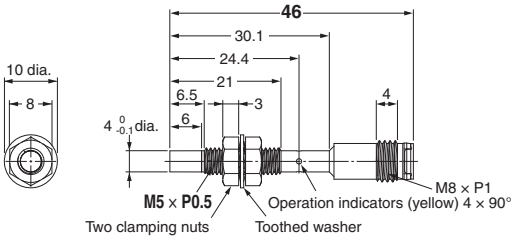
E2E-C04N03-MC-□□



E2E-C06N04-MC-□□



E2E-S05N03-MC-□□



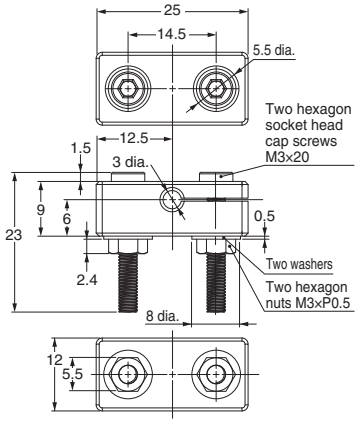
Accessories (Sold Separately)

Mounting Brackets

Y92E-SC03 (3-dia. block)



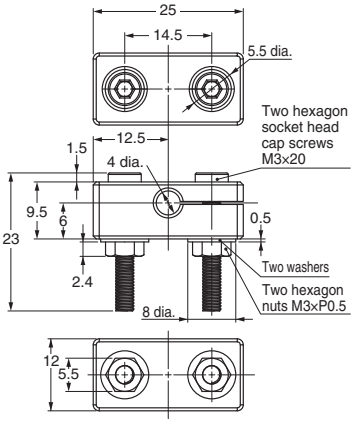
Material: Iron



Y92E-SC04 (4-dia. block)



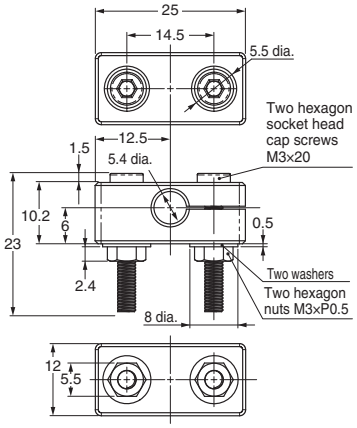
Material: Iron



Y92E-SC05 (5.4-dia. block)



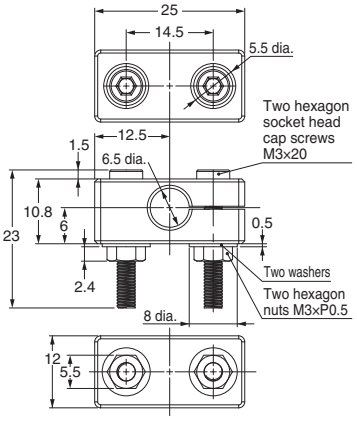
Material: Iron



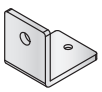
Y92E-SC06 (6.5-dia. block)



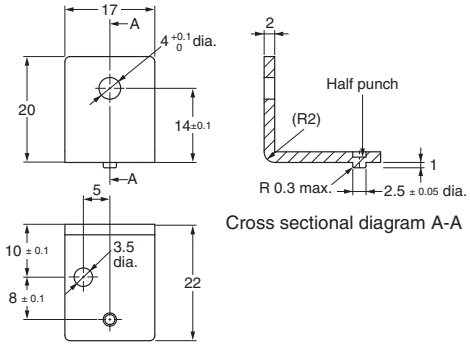
Material: Iron



Y92E-SS04 (for M4 screw)

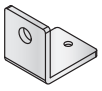


Material: Iron

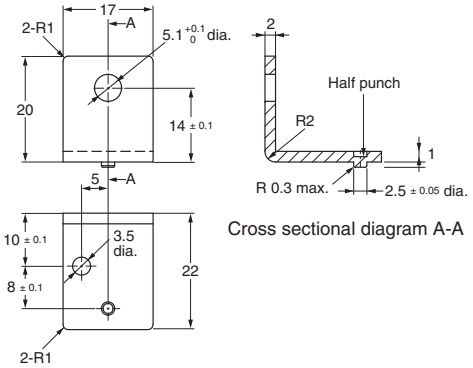


Cross sectional diagram A-A

Y92E-SS05 (for M5 screw)



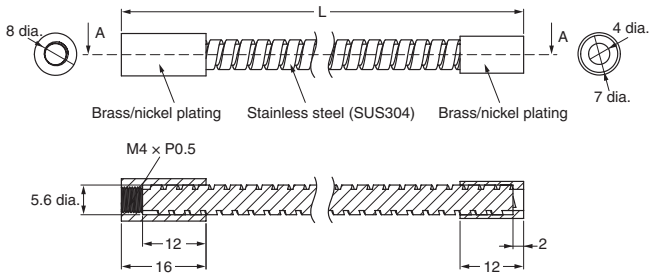
Material: Iron



Cross sectional diagram A-A

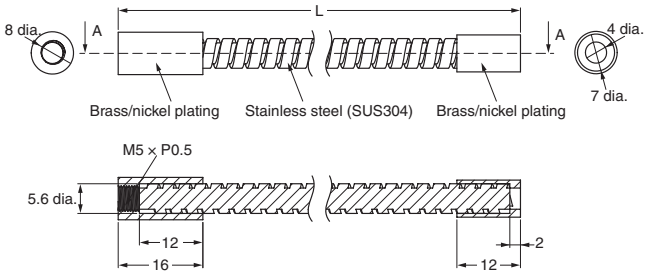
Protective Stainless-steel Spiral Tubes against Wire Breakage

Y92E-STS04-□



L = 0.5 m (Y92E-STS04-05), 1 m (Y92E-STS04-10)

Y92E-STS05-□



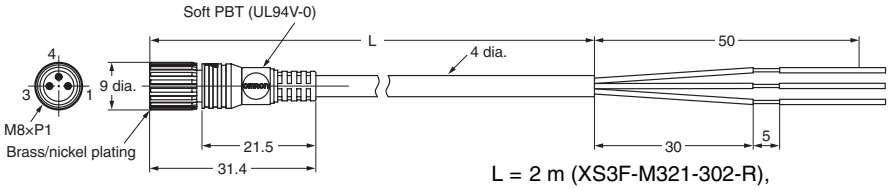
L = 0.5 m (Y92E-STS05-05), 1 m (Y92E-STS05-10)

Sensor I/O Connectors

XS3F-M32□-3□□-R

Straight

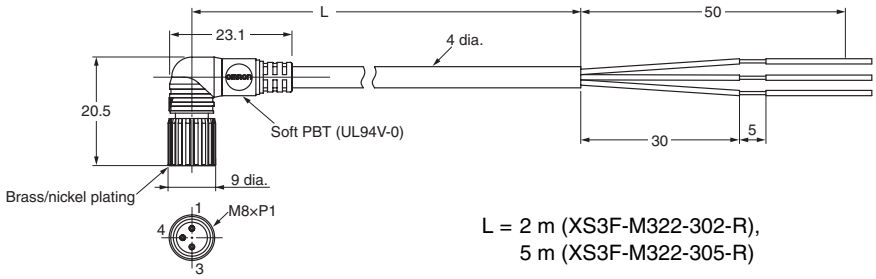




L = 2 m (XS3F-M321-302-R),
5 m (XS3F-M321-305-R)

Right-angle





L = 2 m (XS3F-M322-302-R),
5 m (XS3F-M322-305-R)

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