Small-diameter Proximity Sensor
E2E

Ultra small size, but surprisingly easy installation!

- With the addition of M4, 6.5-dia. size, unshielded, pre-wired connector model, and connector model, a total of 104 model variations are available.
- Sensing distance is 1.5 times* longer than that of previous models, for easy sensor positioning adjustment.
- High-speed response frequency stably detects moving objects: 5 kHz max.
- Indicator lamps have been increased from the previous one lamp to four lamps, making lamp positioning easier.
- Special mounting brackets reduce time and efforts for installation.
- Protective Stainless-steel Spiral Tube against wire breakage is available (M4, M5 only).

* When the 4-dia. shielded model is used.

Refer to *Safety Precautions* on page 10.

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

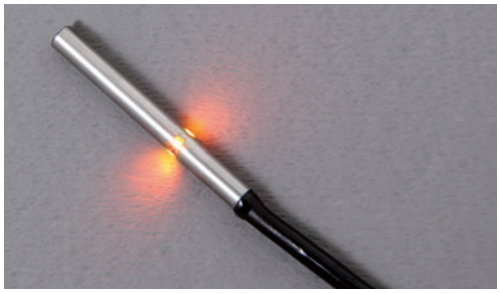
Features

Lineup of global small-diameter types (3 dia., 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 indictor 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.

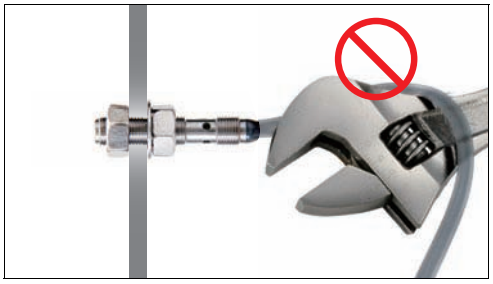
- Load short-circuit protection and output reverse polarity protection circuits are incorporated.

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	SUS, cylindrical
		S	SUS, threaded
②	Size	03	Outer diameter 3 mm
		04	Outer diameter 4 mm
		05	Outer diameter 5 mm
		06	Outer diameter 6.5 mm
③	Shielding	S	Shielded Models
		N	Unshielded Models
④	Sensing distance	Number	R8: 0.8 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) 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**
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)

Mounting Brackets

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

[Refer to *Dimensions* on page 15.]

Appearance	Model	Quantity	Remarks
	**Y92E-SC03**	1	Mounting block for 3 dia., M3-20 Hexagon socket head cap screws: 2pieces, M3 × P0.5 Hexagon nuts: 2pieces, Washers: 2pieces
	**Y92E-SC04**	1	Mounting block for 4 dia., M3-20 Hexagon socket head cap screws: 2pieces, M3 × P0.5 Hexagon nuts: 2pieces, Washers: 2pieces
	**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
	**Y92E-SS04**	1	L-shaped Mounting Bracket for M4 screws
	**Y92E-SS05**	1	L-shaped Mounting Bracket for M5 screws

Nut Set

Model	Applicable sensor outer diameter	Set contents
Y92E-NWS04	M4	Clamping nuts: 2 pieces, toothed washer: 1 piece
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.]

Model	Applicable sensor outer diameter	Length
Y92E-STS04-05	M4	0.5 m
Y92E-STS04-10		1 m
Y92E-STS05-05	M5	0.5 m
Y92E-STS05-10		1 m

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	Vibration-proof robot cable	3	2	**XS3F-M321-302-R**	**XS3F-M322-302-R**
			5	**XS3F-M321-305-R**	**XS3F-M322-305-R**

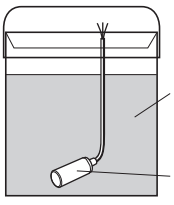
Ratings and Specifications

Size	3 dia.		4 dia.		6.5 dia.		M4		M5	
Type	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Item / Model	E2E-C03SR8□	E2E-C03N02□	E2E-C04S12□	E2E-C04N03□	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%	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 x 0.7)	0 to 0.56 mm	0 to 1.4 mm	0 to 0.84 mm	0 to 2.1 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, 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	5 kHz	3.5 kHz	4 kHz	2 kHz	3 kHz	3 kHz	5 kHz	3.5 kHz	4 kHz	2 kHz
Power supply voltage *2	10 to 30 VDC (including 10% ripple (p-p))									
Current consumption	10 mA max.									
Control output *3 — **Load current**	50 mA max.		100 mA max.		200 mA max. (60 to 70°C: 100 mA)		50 mA max.		100 mA max.	
Control output *3 — **Residual voltage**	2 V max. *5									
Indicators	Operation indicator: Yellow (complies with European standard EN60947-5-2) Lights during output.									
Operation mode (with sensing object approaching)	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-circit 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	
Connecting method — **M8 Pre-wired Connector Models**	Yes		Yes		Yes		Yes		Yes	
Connecting method — **M8 Connector Models**	No		Yes		Yes		No		Yes	
Weight (packed state) — **Pre-wired Models**	Approx. 25 g	Approx. 30 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
Weight (packed state) — **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
Weight (packed state) — **M8 Connector Models**	---	---	Approx. 10 g	Approx. 10 g	Approx. 10 g	Approx. 15 g	---	---	Approx. 15 g	Approx. 15 g
Materials — **Case**	SUS303 (EN1.4305 *7)									
Materials — **Sensing surface**	Heat-resistant ABS									
Materials — **Clamping nuts *4**	No						SUS430 (EN1.4016 *7)			
Materials — **Toothed washer *4**	No						SUS303 (EN1.4305 *7)			
Materials — **Cable**	PVC									
Accessories — **Instruction manual**	Yes									
Accessories — **Model label**	Yes									
Accessories — **Mounting brackets**	Sold separately									

*1. Using within the set distance enables high-speed responsiveness and a more stable repeat accuracy.
*2. 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.
*3. 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.
*4. Nuts: 2 pieces, toothed washer: 1 piece
*5. 3 dia., M4: load current 50 mA, cable length 2 m
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.

Oil resistance test

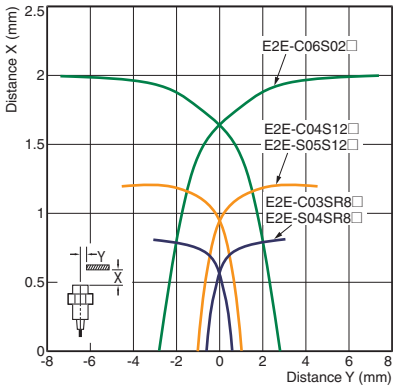
After the test time elapses, the characteristics below are checked for problems.
(1) Visual appearance (no damage that affects product characteristics)
(2) Operation check (ON/OFF)
(3) Insulation resistance (50 MΩ min. at 500 VDC)
(4) Dielectric strength (500 VAC, 1 min.)
(5) Water resistance (IP67)



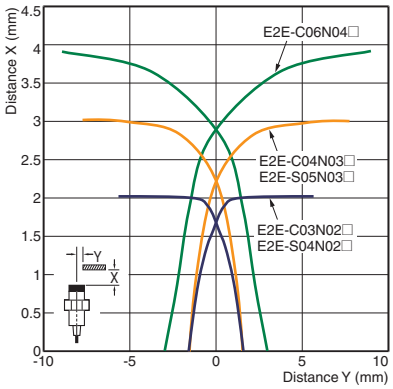
Engineering Data (Reference Value)

Sensing Area

Shielded Models
E2E-C/S□S□



Unshielded Models
E2E-C/S□N□

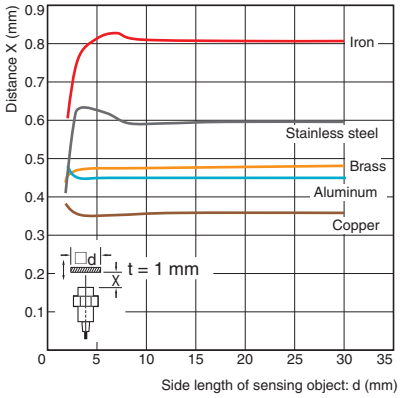


Note: The workpiece is a standard sensing object.
For details, refer to *Ratings and Specifications* on page 6.

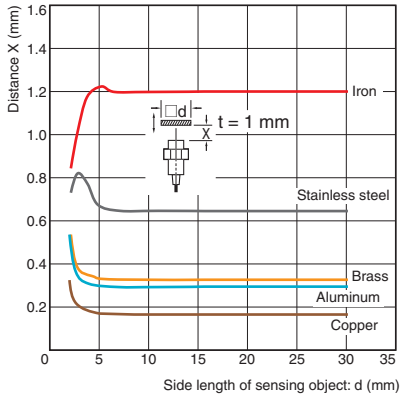
Influence of Sensing Object Size and Material

Shielded Models

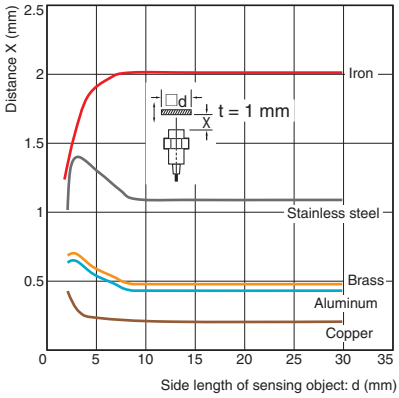
E2E-C03SR8□/E2E-S04SR8□



E2E-C04S12□/E2E-S05S12□

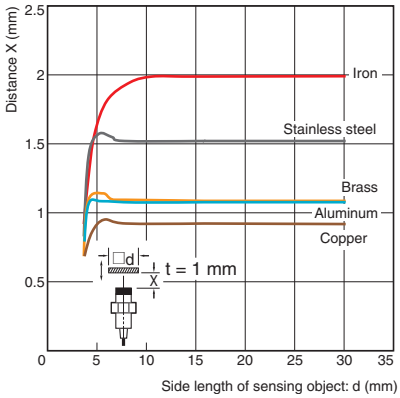


E2E-C06S02□

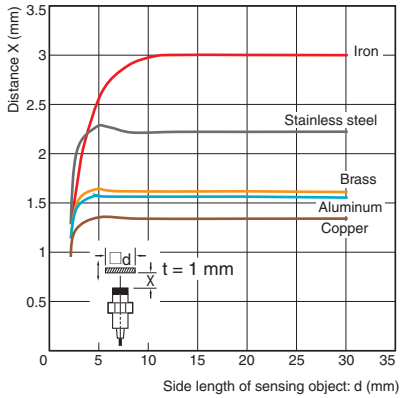


Unshielded Models

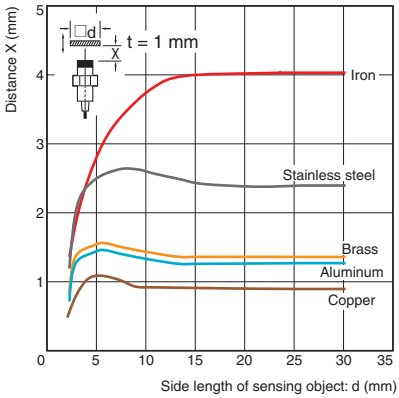
E2E-C03N02□/E2E-S04N02□



E2E-C04N03□/E2E-S05N03□



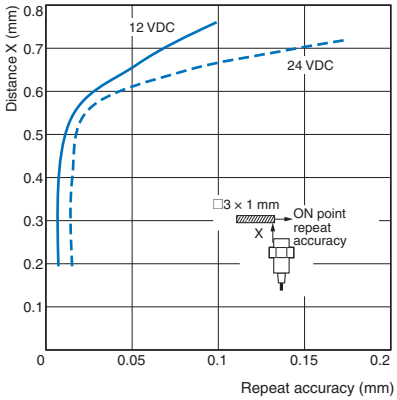
E2E-C06N04□



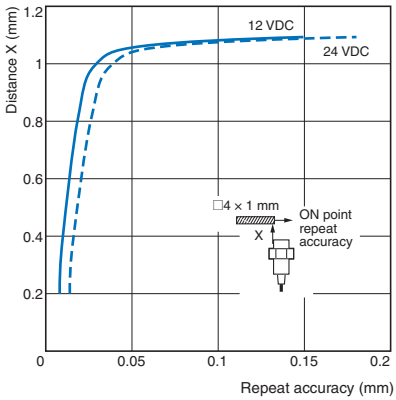
Distance - Horizontal Repeat Accuracy

Shielded Models

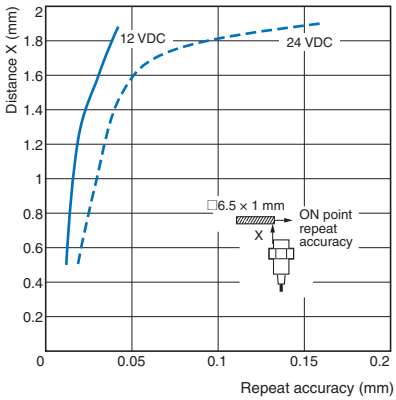
E2E-C03SR8□/E2E-S04SR8□



E2E-C04S12□/E2E-S05S12□

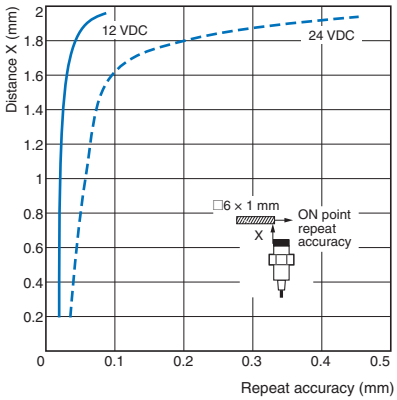


E2E-C06S02□

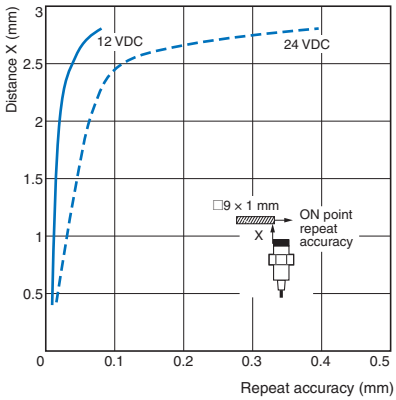


Unshielded Models

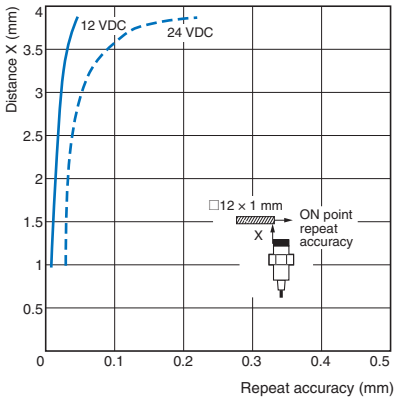
E2E-C03N02□/E2E-S04N02□



E2E-C04N03□/E2E-S05N03□



E2E-C06N04□



Sensing distance vs. repeat accuracy graphs

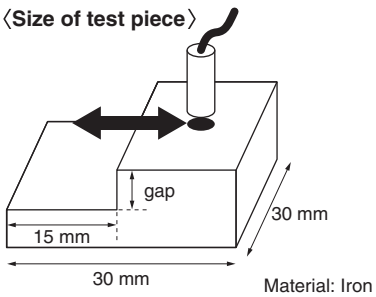
By using within the sensor installation distance, the repeat accuracy stabilizes.
This data is reference data based on a standard sensing object, and is not a guarantee of performance.
The repeat accuracy varies depending on the effects of temperature, the material and surface condition of the sensing 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-C06S	0.6
E2E-C06N	1.2

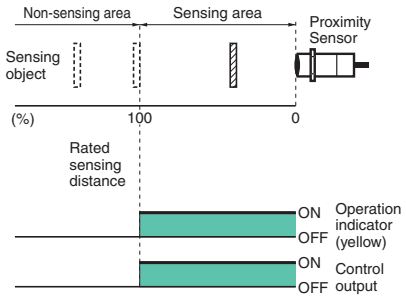
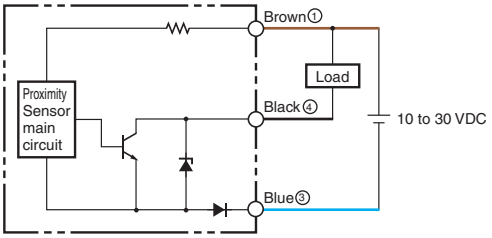
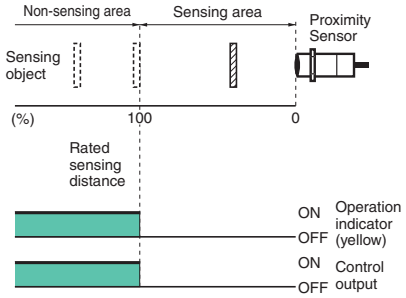
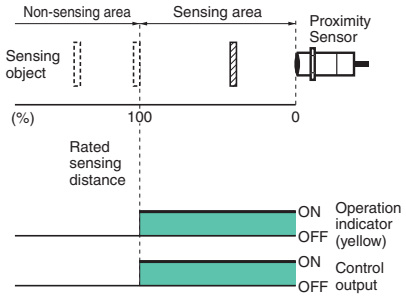
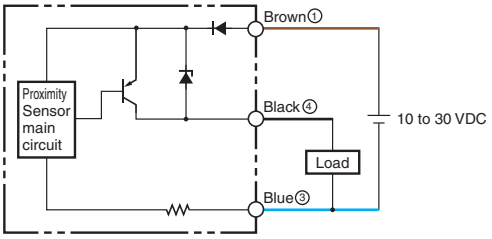
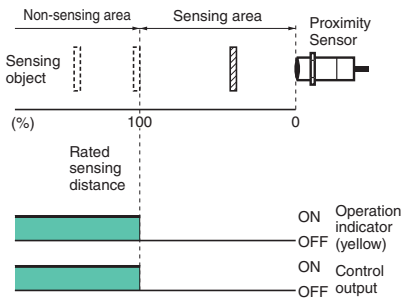
Note: Measured at constant temperature of 23°C using an iron sensing object of size at least as large as standard sensing object (see right).

〈Size of test piece〉

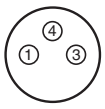


Material: Iron

I/O Circuit Diagrams

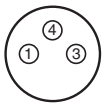
Operation mode	Output specifications	Model	Timing chart	Output circuit
NO	NPN open-collector output	E2E-□□□□-□□-C1		
NC		E2E-□□□□-□□-C2		
NO	PNP open-collector output	E2E-□□□□-□□-B1		
NC		E2E-□□□□-□□-B2		

Connector pin arrangement



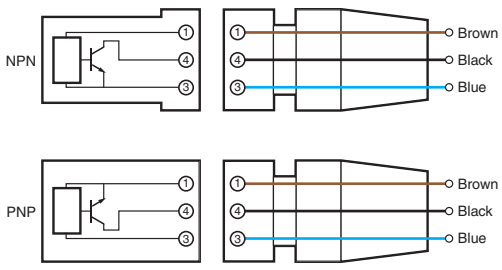
M8

Connector pin arrangement



M8

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



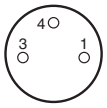
Sensor I/O Connector

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

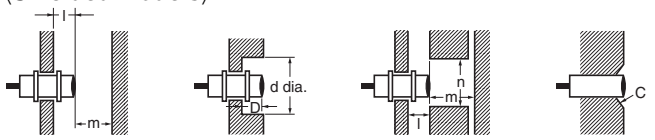
Do not use this product under ambient conditions that exceed the ratings.

● 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.

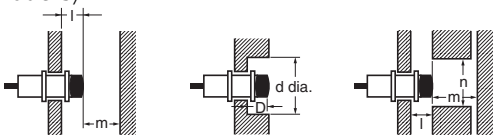
〈**Shielded Models**〉



(Unit: mm)

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

〈**Unshielded Models**〉



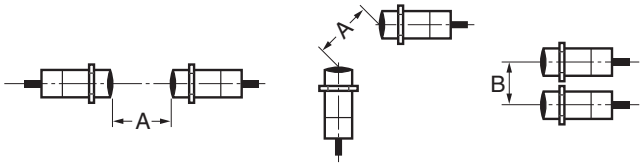
(Unit: mm)

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.		6.5 dia.		M4		M5	
	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
A	20	80	20	80	20	80	20	80	20	80
B *	15	60	15	60	15	60	15	60	15	60

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

● Mounting

Tightening Force

〈**Mounting threaded models (E2E-S□)**〉

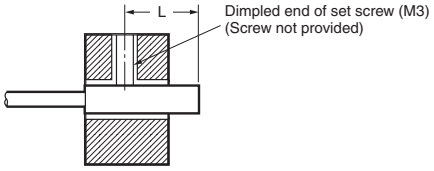
Do not tighten the nut with excessive force.
A washer must be used with the nut.

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 / Item	M4		M5	
	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 / Item	3 dia.		4 dia.		6.5 dia.	
	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
L *	9 to 21 mm	15 to 27 mm	8 to 21 mm	14 to 27 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.

● 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.

● Repeated cable bending tolerance

If you require repeated bending tolerance, use the 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.

● 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.
If you require repeated bending tolerance, use the 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.

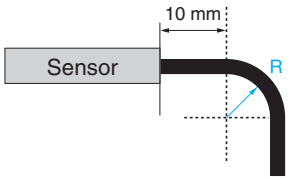
● Block type mounting accessories

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

● 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 its base.
When bending the cable, refer to the table below.

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



Dimensions

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

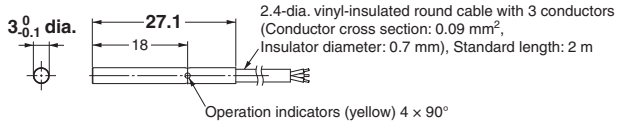
Sensors

Pre-wired Models (Shielded)

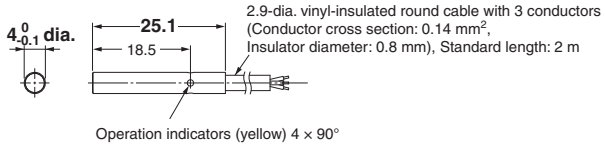
Mounting Hole Dimensions

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

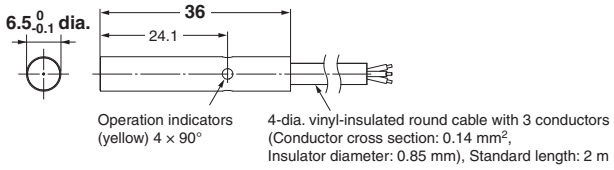
E2E-C03SR8-WC-□□



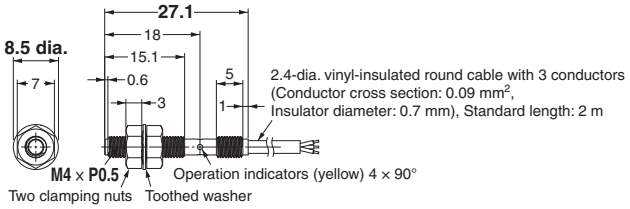
E2E-C04S12-WC-□□



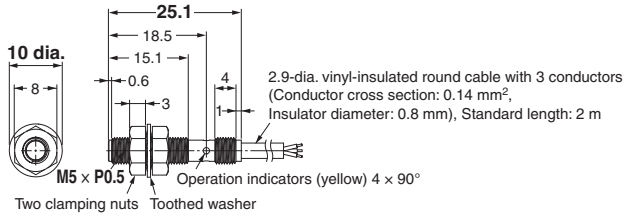
E2E-C06S02-WC-□□



E2E-S04SR8-WC-□□

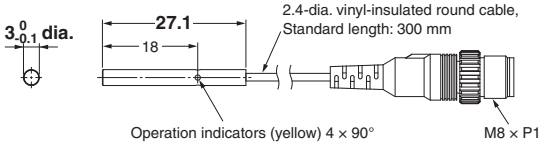


E2E-S05S12-WC-□□

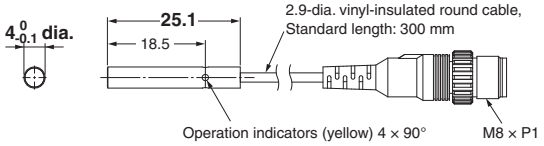


M8 Pre-wired Connector Models (0.3 m) (Shielded)

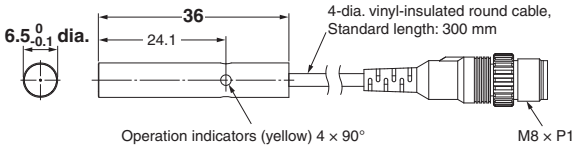
E2E-C03SR8-CJ-□□



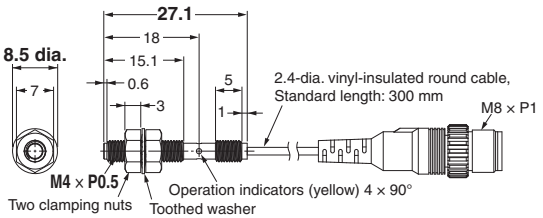
E2E-C04S12-CJ-□□



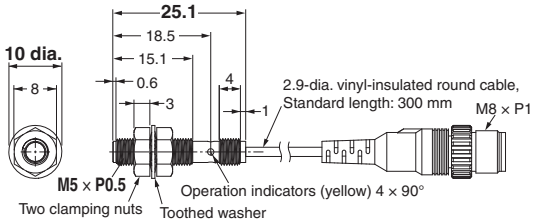
E2E-C06S02-CJ-□□



E2E-S04SR8-CJ-□□

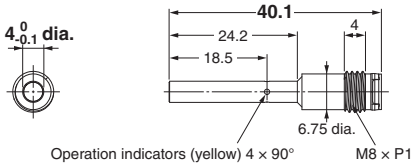


E2E-S05S12-CJ-□□

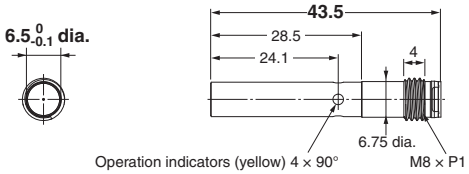


M8 Connector Models (Shielded)

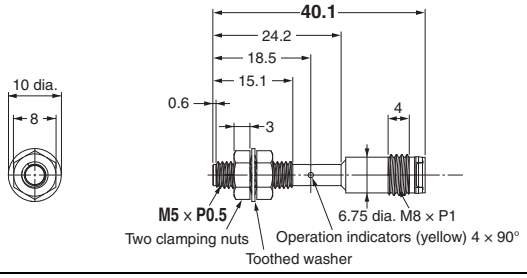
E2E-C04S12-MC-□□



E2E-C06S02-MC-□□



E2E-S05S12-MC-□□

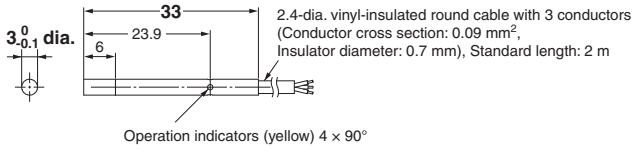


Pre-wired Models (Unshielded)

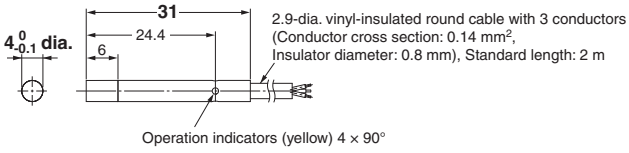
Mounting Hole Dimensions

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

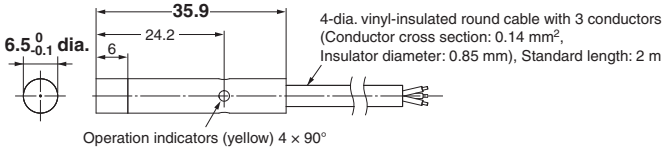
E2E-C03N02-WC-□□



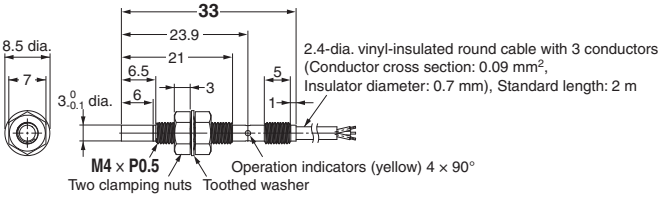
E2E-C04N03-WC-□□



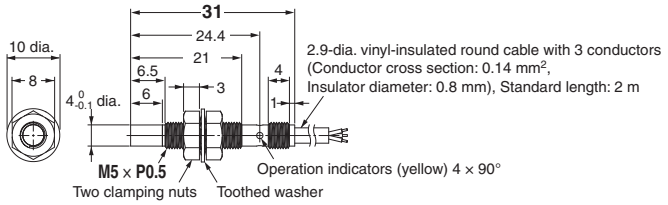
E2E-C06N04-WC-□□



E2E-S04N02-WC-□□

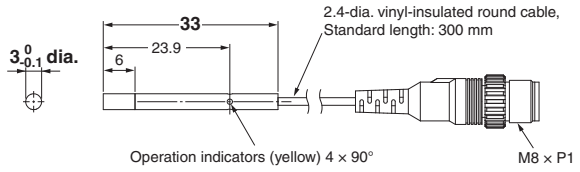


E2E-S05N03-WC-□□

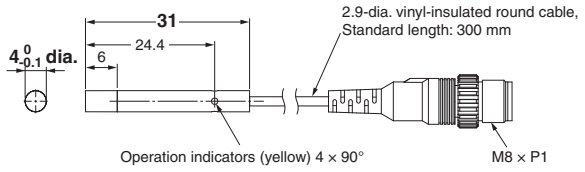


M8 Pre-wired Connector Models (0.3 mm) (Unshielded)

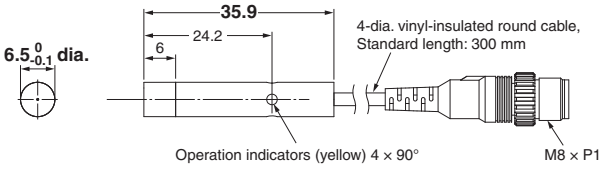
E2E-C03N02-CJ-□□



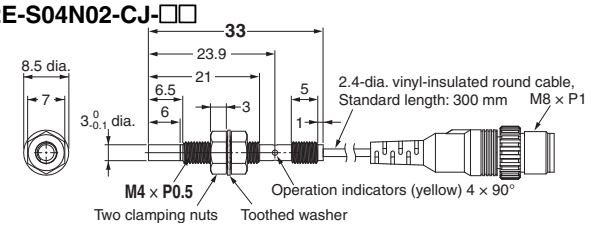
E2E-C04N03-CJ-□□



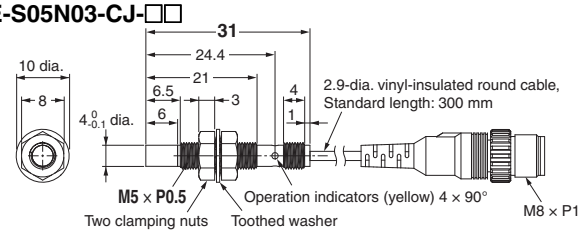
E2E-C06N04-CJ-□□



E2E-S04N02-CJ-□□

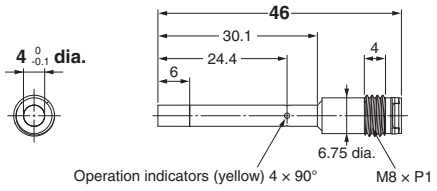


E2E-S05N03-CJ-□□

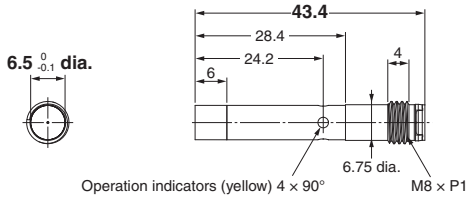


M8 Connector Models (Unshielded)

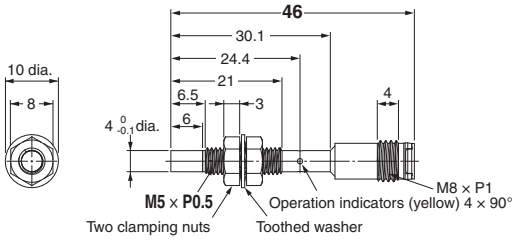
E2E-C04N03-MC-□□



E2E-C06N04-MC-□□



E2E-S05N03-MC-□□

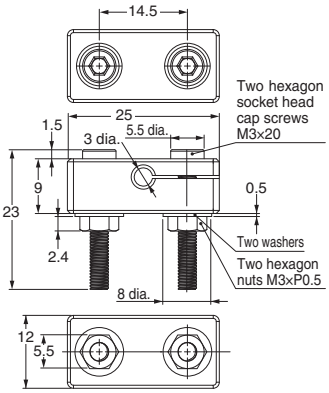


Accessories (Sold Separately)

Mounting Brackets

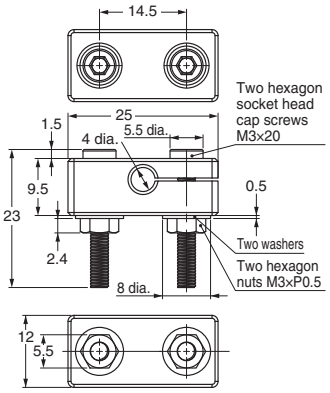
Y92E-SC03 (3-dia. block)

Material: Iron



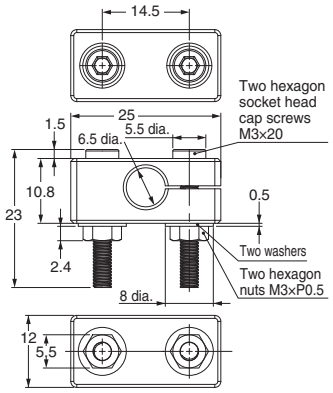
Y92E-SC04 (4-dia. block)

Material: Iron

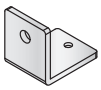


Y92E-SC06 (6.5-dia. block)

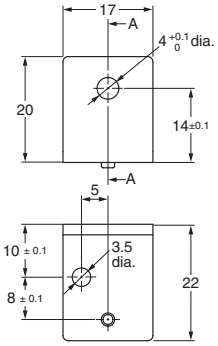
Material: Iron

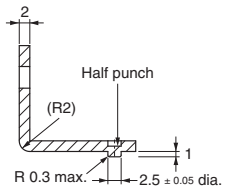


Y92E-SS04 (for M4 screw)



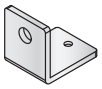
Material: Iron



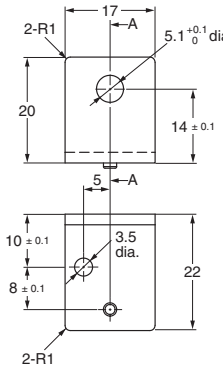


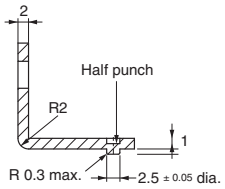
Cross sectional diagram A-A

Y92E-SS05 (for M5 screw)



Material: Iron

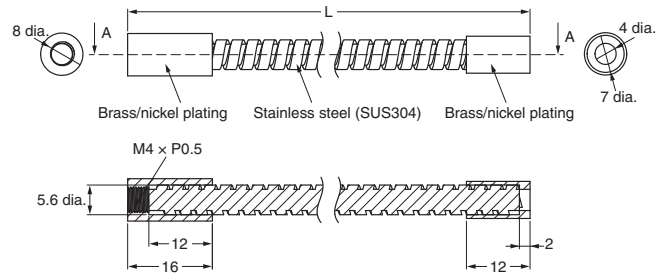




Cross sectional diagram A-A

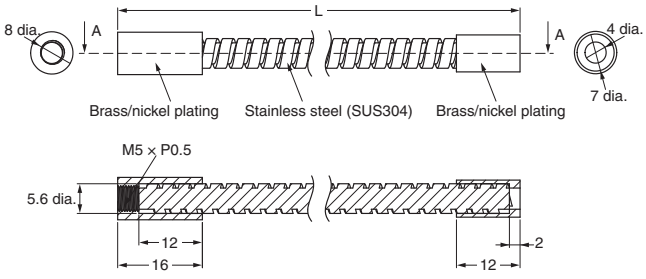
Protective Stainless-steel Spiral Tubes against Wire Breakage

Y92E-STS04-□



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

Y92E-STS05-□

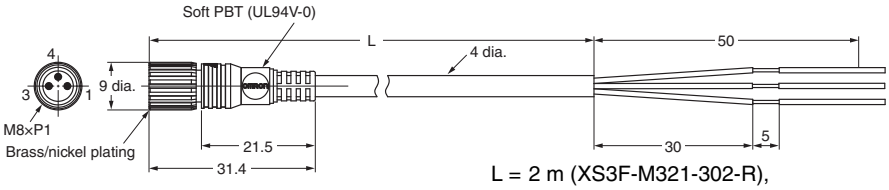


L = 0.5 m (Y92E-STS05-05), 1 m (Y92E-STS05-10)

Sensor I/O Connectors

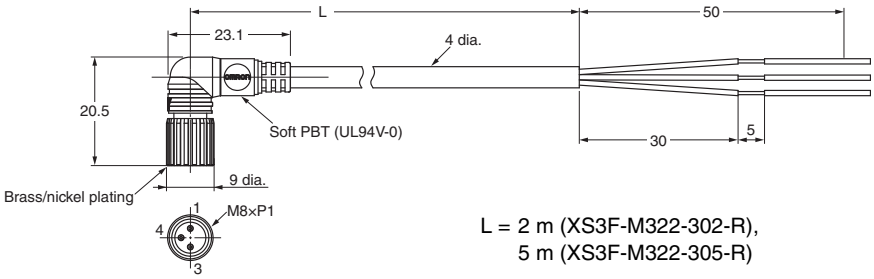
XS3F-M32□-3□□-R

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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