

## Proximity Sensor with a Long Screw Length



- Increased tightening strength. Cable protectors provided as a standard feature.
- Increased indicator visibility. A milled section for wrench grip on all models.



Be sure to read *Safety Precautions* on page 9.

### Ordering Information

#### Sensors

##### DC 2-Wire Models

| Appearance | Sensing distance | Model          |                  |                |
|------------|------------------|----------------|------------------|----------------|
|            |                  | Operation mode |                  |                |
|            |                  | NO             | NC               |                |
|            | M12              | 3 mm           | E2E2-X3D1 2M *   | E2E2-X3D2 2M   |
|            | M18              | 7 mm           | E2E2-X7D1 2M *   | E2E2-X7D2 2M   |
|            | M30              | 10 mm          | E2E2-X10D1 2M *  | E2E2-X10D2 2M  |
|            | M12              | 8 mm           | E2E2-X8MD1 2M *  | E2E2-X8MD2 2M  |
|            | M18              | 14 mm          | E2E2-X14MD1 2M * | E2E2-X14MD2 2M |
|            | M30              | 20 mm          | E2E2-X20MD1 2M * | E2E2-X20MD2 2M |

\* Models with different frequencies are also available. The model numbers are E2E2-X□D15 (example: E2E2-X3D15).

##### DC 3-Wire Models

| Appearance | Sensing distance | Model          |                |                |
|------------|------------------|----------------|----------------|----------------|
|            |                  | Operation mode |                |                |
|            |                  | NO             | NC             |                |
|            | M12              | 2 mm           | E2E2-X2C1 2M   | E2E2-X2C2 2M   |
|            | M18              | 5 mm           | E2E2-X5C1 2M   | E2E2-X5C2 2M   |
|            | M30              | 10 mm          | E2E2-X10C1 2M  | E2E2-X10C2 2M  |
|            | M12              | 5 mm           | E2E2-X5MC1 2M  | E2E2-X5MC2 2M  |
|            | M18              | 10 mm          | E2E2-X10MC1 2M | E2E2-X10MC2 2M |
|            | M30              | 18 mm          | E2E2-X18MC1 2M | E2E2-X18MC2 2M |

##### AC 2-Wire Models

| Appearance | Sensing distance | Model          |                |                |
|------------|------------------|----------------|----------------|----------------|
|            |                  | Operation mode |                |                |
|            |                  | NO             | NC             |                |
|            | M12              | 2 mm           | E2E2-X2Y1 2M   | E2E2-X2Y2 2M   |
|            | M18              | 5 mm           | E2E2-X5Y1 2M   | E2E2-X5Y2 2M   |
|            | M30              | 10 mm          | E2E2-X10Y1 2M  | E2E2-X10Y2 2M  |
|            | M12              | 5 mm           | E2E2-X5MY1 2M  | E2E2-X5MY2 2M  |
|            | M18              | 10 mm          | E2E2-X10MY1 2M | E2E2-X10MY2 2M |
|            | M30              | 18 mm          | E2E2-X18MY1 2M | E2E2-X18MY2 2M |

## Accessories (Order Separately)

Mounting Brackets

Protective Covers

Sputter Protective Covers

## Ratings and Specifications

### E2E2-X□□ DC 2-Wire Models

| Item  | Size<br>Shielding<br>Model    | M12   |                         | M18                     |                         | M30                     |                         |
|---|-------------------------------|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|   |                               | Shielded  | Unshielded              | Shielded                | Unshielded              | Shielded                | Unshielded              |
|   |                               | E2E2-X3D□   | E2E2-X8MD□              | E2E2-X7D□               | E2E2-X14MD□             | E2E2-X10D□              | E2E2-X20MD□             |
| <b>Sensing distance</b>   |                               | 3 mm±10%  | 8 mm±10%                | 7 mm±10%                | 14 mm±10%               | 10 mm±10%               | 20 mm±10%               |
| <b>Set distance *1</b>  |                               | 0 to 2.4 mm   | 0 to 6.4 mm             | 0 to 5.6 mm             | 0 to 11.2 mm            | 0 to 8 mm               | 0 to 16 mm              |
| <b>Differential travel</b>  |                               | 10% max. of sensing distance  |                         |                         |                         |                         |                         |
| <b>Sensing object</b>   |                               | Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on page 5.)    |                         |                         |                         |                         |                         |
| <b>Standard sensing object</b>                                    |                               | Iron,<br>12 × 12 × 1 mm   | Iron,<br>30 × 30 × 1 mm | Iron,<br>18 × 18 × 1 mm | Iron,<br>30 × 30 × 1 mm | Iron,<br>30 × 30 × 1 mm | Iron,<br>54 × 54 × 1 mm |
| <b>Response frequency *2</b>                                      |                               | 1 kHz   | 800 Hz                  | 500 Hz                  | 400 Hz                  |                         | 100 Hz                  |
| <b>Power supply voltage<br/>(operating voltage range)</b>         |                               | 12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.   |                         |                         |                         |                         |                         |
| <b>Leakage current</b>  |                               | 0.8 mA max.   |                         |                         |                         |                         |                         |
| <b>Control<br/>output</b>   | <b>Switching<br/>capacity</b> | 3 to 100 mA   |                         |                         |                         |                         |                         |
|   | <b>Residual voltage</b>       | 3 V max. (Load current: 100 mA, Cable length: 2 m)  |                         |                         |                         |                         |                         |
| <b>Indicators</b>   |                               | D1 Models: Operation indicator (red) and setting indicator (green)<br>D2 Models: Operation indicator (red)            |                         |                         |                         |                         |                         |
| <b>Operation mode<br/>(with sensing object ap-<br/>proaching)</b> |                               | D1 Models: NO    Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 8 for details.<br>D2 Models: NC |                         |                         |                         |                         |                         |
| <b>Protection circuits</b>  |                               | Surge absorber, Load short-circuit protection   |                         |                         |                         |                         |                         |
| <b>Ambient temperature</b>  |                               | Operating/Storage: -25 to 70°C (with no icing or condensation)  |                         |                         |                         |                         |                         |
| <b>Ambient humidity</b>   |                               | Operating/Storage: 35% to 95% (with no condensation)  |                         |                         |                         |                         |                         |
| <b>Temperature influence</b>                                      |                               | ±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C   |                         |                         |                         |                         |                         |
| <b>Voltage influence</b>  |                               | ±1% max. of sensing distance at rated voltage in the rated voltage ±15% range   |                         |                         |                         |                         |                         |
| <b>Insulation resistance</b>                                      |                               | 50 MΩ min. (at 500 VDC) between current-carrying parts and case   |                         |                         |                         |                         |                         |
| <b>Dielectric strength</b>  |                               | 1000 VAC, 50/60 Hz for 1 minute between current-carrying parts and case   |                         |                         |                         |                         |                         |
| <b>Vibration resistance<br/>(destruction)</b>                     |                               | 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions                                       |                         |                         |                         |                         |                         |
| <b>Shock resistance<br/>(destruction)</b>                         |                               | 1,000 m/s <sup>2</sup> 10 times each in X, Y, and Z directions  |                         |                         |                         |                         |                         |
| <b>Degree of protection</b>                                       |                               | IEC IP67, in-house standard for oil resistance  |                         |                         |                         |                         |                         |
| <b>Connection method</b>  |                               | Pre-wired Models (Standard cable length: 2 m)   |                         |                         |                         |                         |                         |
| <b>Weight (packed state)</b>                                      |                               | Approx. 65 g  |                         | Approx. 150 g           |                         | Approx. 210 g           |                         |
| <b>Material-<br/>als</b>  | <b>Case</b>                   | Brass   |                         |                         |                         |                         |                         |
|   | <b>Sensing surface</b>        | PBT   |                         |                         |                         |                         |                         |
|   | <b>Clamping nuts</b>          | Nickel-plated brass   |                         |                         |                         |                         |                         |
|   | <b>Toothed washer</b>         | Zinc-plated iron  |                         |                         |                         |                         |                         |
| <b>Accessories</b>  |                               | Instruction sheet   |                         |                         |                         |                         |                         |

\*1. Use the E2E2 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.

## E2E2-X□□ DC 3-Wire Models

| Item   | Size<br>Shielding<br>Model | M12  |                         | M18                     |                         | M30                     |                         |
|--|----------------------------|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|  |                            | Shielded   | Unshielded              | Shielded                | Unshielded              | Shielded                | Unshielded              |
|  |                            | E2E2-X2C□  | E2E2-X5MC□              | E2E2-X5C□               | E2E2-X10MC□             | E2E2-X10C□              | E2E2-X18MC□             |
| <b>Sensing distance</b>                                  |                            | 2 mm±10%   | 5 mm±10%                | 5 mm±10%                | 10 mm±10%               | 10 mm±10%               | 18 mm±10%               |
| <b>Set distance</b>                                      |                            | 0 to 1.6 mm  | 0 to 4 mm               | 0 to 4 mm               | 0 to 8 mm               | 0 to 8 mm               | 0 to 14 mm              |
| <b>Differential travel</b>                               |                            | 10% max. of sensing distance   |                         |                         |                         |                         |                         |
| <b>Sensing object</b>                                    |                            | Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on page 5.)   |                         |                         |                         |                         |                         |
| <b>Standard sensing object</b>                           |                            | Iron,<br>12 × 12 × 1 mm  | Iron,<br>15 × 15 × 1 mm | Iron,<br>18 × 18 × 1 mm | Iron,<br>30 × 30 × 1 mm | Iron,<br>30 × 30 × 1 mm | Iron,<br>54 × 54 × 1 mm |
| <b>Response frequency *1</b>                             |                            | 1.5 kHz  | 400 Hz                  | 600 Hz                  | 200 Hz                  | 400 Hz                  | 100 Hz                  |
| <b>Power supply voltage (operating voltage range) *2</b> |                            | 12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.  |                         |                         |                         |                         |                         |
| <b>Leakage current</b>                                   |                            | 13 mA max.   |                         |                         |                         |                         |                         |
| <b>Control output</b>                                    | <b>Load current</b>        | NPN open-collector output, 200 mA max. (30 VDC max.)   |                         |                         |                         |                         |                         |
|  | <b>Residual voltage</b>    | 2 V max. (Load current: 200 mA, Cable length: 2 m)   |                         |                         |                         |                         |                         |
| <b>Indicators</b>  |                            | Operation indicator (red)  |                         |                         |                         |                         |                         |
| <b>Operation mode (with sensing object approaching)</b>  |                            | C1 Models: NO    Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 8 for details.<br>C2 Models: NC  |                         |                         |                         |                         |                         |
| <b>Protection circuits</b>                               |                            | Reverse polarity protection, Surge absorber, Load short-circuit protection   |                         |                         |                         |                         |                         |
| <b>Ambient temperature</b>                               |                            | Operating/Storage: -40 to 85°C (with no icing or condensation)   |                         |                         |                         |                         |                         |
| <b>Ambient humidity</b>                                  |                            | Operating/Storage: 35% to 95% (with no condensation)   |                         |                         |                         |                         |                         |
| <b>Temperature influence</b>                             |                            | ±15% max. of sensing distance at 23°C in the temperature range of -40 to 85°C<br>±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C |                         |                         |                         |                         |                         |
| <b>Voltage influence</b>                                 |                            | ±1% max. of sensing distance at rated voltage in the rated voltage ±15% range  |                         |                         |                         |                         |                         |
| <b>Insulation resistance</b>                             |                            | 50 MΩ min. (at 500 VDC) between current-carrying parts and case  |                         |                         |                         |                         |                         |
| <b>Dielectric strength</b>                               |                            | 1,000 VAC, 50/60 Hz for 1 minute between current carry parts and case  |                         |                         |                         |                         |                         |
| <b>Vibration resistance (destruction)</b>                |                            | 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions  |                         |                         |                         |                         |                         |
| <b>Shock resistance (destruction)</b>                    |                            | 1,000 m/s <sup>2</sup> 10 times each in X, Y, and Z directions   |                         |                         |                         |                         |                         |
| <b>Degree of protection</b>                              |                            | IEC IP67, in-house standard for oil resistance   |                         |                         |                         |                         |                         |
| <b>Connection method</b>                                 |                            | Pre-wired Models (Standard cable length: 2 m) and Connector Models   |                         |                         |                         |                         |                         |
| <b>Weight (packed state)</b>                             |                            | Approx. 75 g   |                         | Approx. 160 g           |                         | Approx. 220 g           |                         |
| <b>Materials</b>   | <b>Case</b>                | Brass  |                         |                         |                         |                         |                         |
|  | <b>Sensing surface</b>     | PBT  |                         |                         |                         |                         |                         |
|  | <b>Clamping nuts</b>       | Nickel-plated brass  |                         |                         |                         |                         |                         |
|  | <b>Toothed washer</b>      | Zinc-plated iron   |                         |                         |                         |                         |                         |
| <b>Accessories</b>                                       |                            | Instruction sheet  |                         |                         |                         |                         |                         |

\*1. The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.

\*2. A full-wave rectification power supply of 24 VDC ±20% (average value) can be used.

## E2E2-X□Y□ AC 2-Wire Models

| Item   | Size<br>Shielding<br>Model | M12   |                         | M18                     |                         | M30                     |                         |
|--|----------------------------|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|  |                            | Shielded  | Unshielded              | Shielded                | Unshielded              | Shielded                | Unshielded              |
|  |                            | E2E2-X2Y□   | E2E2-X5MY□              | E2E2-X5Y□               | E2E2-X10MY□             | E2E2-X10Y□              | E2E2-X18MY□             |
| <b>Sensing distance</b>                                  |                            | 2 mm±10%  | 5 mm±10%                | 5 mm±10%                | 10 mm±10%               | 10 mm±10%               | 18 mm±10%               |
| <b>Set distance</b>                                      |                            | 0 to 1.6 mm   | 0 to 4 mm               | 0 to 4 mm               | 0 to 8 mm               | 0 to 8 mm               | 0 to 14 mm              |
| <b>Differential travel</b>                               |                            | 10% max. of sensing distance  |                         |                         |                         |                         |                         |
| <b>Sensing object</b>                                    |                            | Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on page 5.)  |                         |                         |                         |                         |                         |
| <b>Standard sensing object</b>                           |                            | Iron,<br>12 × 12 × 1 mm   | Iron,<br>15 × 15 × 1 mm | Iron,<br>18 × 18 × 1 mm | Iron,<br>30 × 30 × 1 mm | Iron,<br>30 × 30 × 1 mm | Iron,<br>54 × 54 × 1 mm |
| <b>Response frequency</b>                                |                            | 25 Hz   |                         |                         |                         |                         |                         |
| <b>Power supply voltage (operating voltage range) *1</b> |                            | 24 to 240 VAC (20 to 264 VAC), 50/60 Hz   |                         |                         |                         |                         |                         |
| <b>Leakage current</b>                                   |                            | 1.7 mA max.   |                         |                         |                         |                         |                         |
| <b>Control output</b>                                    | <b>Load current *2</b>     | 5 to 200 mA   |                         | 5 to 300 mA             |                         |                         |                         |
|  | <b>Residual voltage</b>    | Refer to <i>Engineering Data</i> on page 5.   |                         |                         |                         |                         |                         |
| <b>Indicators</b>  |                            | Operation indicator (red)   |                         |                         |                         |                         |                         |
| <b>Operation mode (with sensing object approaching)</b>  |                            | Y1 Models: NO    Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 8 for details.<br>Y2 Models: NC   |                         |                         |                         |                         |                         |
| <b>Ambient temperature *1, 2</b>                         |                            | Operating/Storage: -40 to 85°C (with no icing or condensation)  |                         |                         |                         |                         |                         |
| <b>Ambient humidity</b>                                  |                            | Operating/Storage: 35% to 95% (with no condensation)  |                         |                         |                         |                         |                         |
| <b>Temperature influence</b>                             |                            | ±15% max. of sensing distance at 23°C in the temperature range of -40 to 85°C,<br>±10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C |                         |                         |                         |                         |                         |
| <b>Voltage influence</b>                                 |                            | ±1% max. of sensing distance at rated voltage in the rated voltage ±15% range   |                         |                         |                         |                         |                         |
| <b>Insulation resistance</b>                             |                            | 50 MΩ min. (at 500 VDC) between current-carrying parts and case   |                         |                         |                         |                         |                         |
| <b>Dielectric strength</b>                               |                            | 4,000 VAC, 50/60 Hz for 1 minute between current carry parts and case   |                         |                         |                         |                         |                         |
| <b>Vibration resistance (destruction)</b>                |                            | 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions   |                         |                         |                         |                         |                         |
| <b>Shock resistance (destruction)</b>                    |                            | 1,000 m/s <sup>2</sup> 10 times each in X, Y, and Z directions  |                         |                         |                         |                         |                         |
| <b>Degree of protection</b>                              |                            | IEC IP67, in-house standard for oil resistance  |                         |                         |                         |                         |                         |
| <b>Connection method</b>                                 |                            | Pre-wired Models (Standard cable length: 2 m) and Connector Models  |                         |                         |                         |                         |                         |
| <b>Weight (packed state)</b>                             |                            | Approx. 65 g  |                         | Approx. 150 g           |                         | Approx. 210 g           |                         |
| <b>Materials</b>   | <b>Case</b>                | Brass   |                         |                         |                         |                         |                         |
|  | <b>Sensing surface</b>     | PBT   |                         |                         |                         |                         |                         |
|  | <b>Clamping nuts</b>       | Nickel-plated brass   |                         |                         |                         |                         |                         |
|  | <b>Toothed washer</b>      | Zinc-plated iron  |                         |                         |                         |                         |                         |
| <b>Accessories</b>                                       |                            | Instruction sheet   |                         |                         |                         |                         |                         |

\*1. When supplying 24 VAC to any of the above models, make sure that the operating ambient temperature range is at least -25°C to 85°C.

\*2. When using an M18 or M30 Connector Model at an ambient temperature between 70 and 85°C, make sure that the Sensor has a control output (load current) of 5 to 200 mA max.

## Engineering Data (Reference Value)

### Sensing Area Shielded Models E2E2-X□D□



### E2E2-X□C□/-X□Y□



### Unshielded Models E2E2-X□MD□



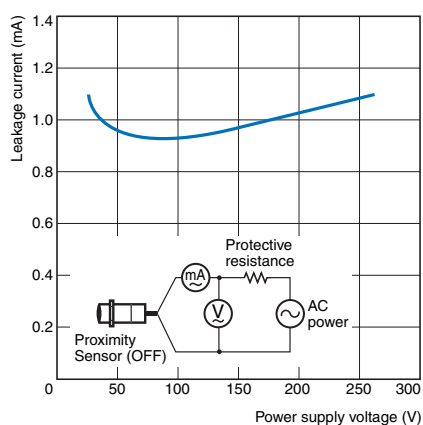
### E2E2-X□MC□/-X□MY□



### Leakage Current E2E2-X□D□



### E2E2-X□Y□



### Residual Output Voltage E2E2-X□D□



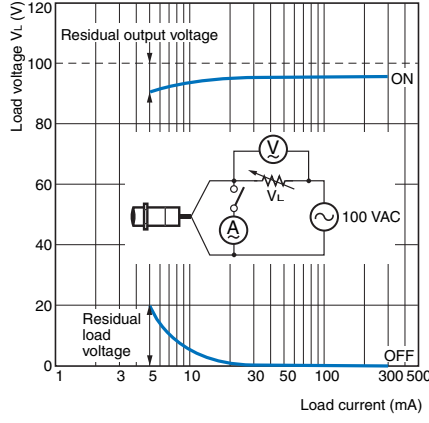
E2E2-X□Y□

at 24 VAC



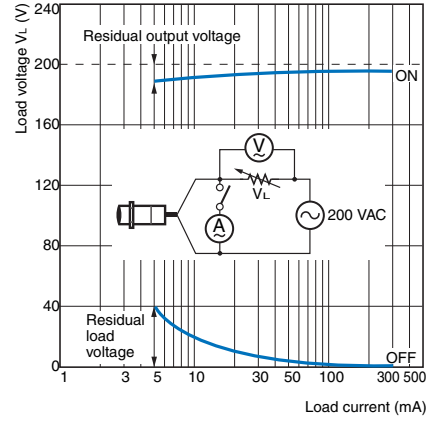
E2E2-X□Y□

at 100 VAC



E2E2-X□Y□

at 200 VAC



Influence of Sensing Object Size and Material

E2E2-X3D□



E2E2-X7D□



E2E2-X10D□



E2E2-X8MD□



E2E2-X14MD□



E2E2-X20MD□



**E2E2-X2C□/-X2Y□**



**E2E2-X5C□/-X5Y□**



**E2E2-X10C□/-X10Y□**



**E2E2-X5MC□/-X5MY□**



**E2E2-X10MC□/-X10MY□**



**E2E2-X18MC□/-X18MY□**



## I/O Circuit Diagrams

### DC 2-Wire Models

| Operation mode | Model  | Timing Charts | Output circuit   |
|----------------|--|---------------|--|
| NO             | E2E2-X3D1<br>E2E2-X7D1<br>E2E2-X10D1<br>E2E2-X8MD1<br>E2E2-X14MD1<br>E2E2-X20MD1 |               | <p>Note: The load can be connected to either the +V or 0 V side.</p> |
| NC             | E2E2-X3D2<br>E2E2-X7D2<br>E2E2-X10D2<br>E2E2-X8MD2<br>E2E2-X14MD2<br>E2E2-X20MD2 |               |  |

### DC 3-Wire Models

| Operation mode | Model  | Timing Charts | Output circuit |
|----------------|--|---------------|----------------|
| NO             | E2E2-X2C1<br>E2E2-X5C1<br>E2E2-X10C1<br>E2E2-X5MC1<br>E2E2-X10MC1<br>E2E2-X18MC1 |               |                |
| NC             | E2E2-X2C2<br>E2E2-X5C2<br>E2E2-X10C2<br>E2E2-X5MC2<br>E2E2-X10MC2<br>E2E2-X18MC2 |               |                |



AC 2-Wire Models

| Operation mode | Model       | Timing Charts  | Output circuit |
|----------------|-------------|--|----------------|
| NO             | E2E2-X2Y1   | <p>Sensing object Present (ON), Not present (OFF)<br/>                     Operation indicator (red) ON, OFF<br/>                     Control output ON, OFF</p> |                |
|                | E2E2-X5Y1   |  |                |
|                | E2E2-X10Y1  |  |                |
|                | E2E2-X5MY1  |  |                |
|                | E2E2-X10MY1 |  |                |
| NC             | E2E2-X2Y2   | <p>Sensing object Present (ON), Not present (OFF)<br/>                     Operation indicator (red) ON, OFF<br/>                     Control output ON, OFF</p> |                |
|                | E2E2-X5Y2   |  |                |
|                | E2E2-X10Y2  |  |                |
|                | E2E2-X5MY2  |  |                |
|                | E2E2-X10MY2 |  |                |

Safety Precautions

**WARNING**

This product is not designed or rated for ensuring safety of persons either directly or indirectly.



Do not use it for such purposes.

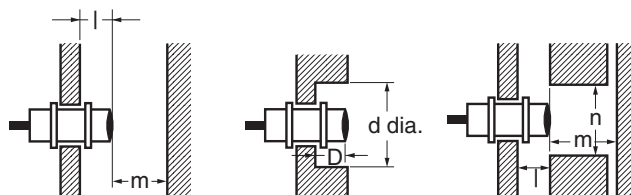
**Precautions for Correct Use**

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.



(Unit: mm)

| Model  | Item       | M12 | M18 | M30 |    |
|--|------------|-----|-----|-----|----|
| DC 2-Wire Models<br>E2E2-X□D□                                  | Shielded   | l   | 0   | 0   | 0  |
|  |            | d   | 12  | 18  | 30 |
|  |            | D   | 0   | 0   | 0  |
|  |            | m   | 8   | 20  | 40 |
|  |            | n   | 18  | 27  | 45 |
|  | Unshielded | l   | 15  | 22  | 30 |
|  |            | d   | 40  | 70  | 90 |
|  |            | D   | 15  | 22  | 30 |
|  |            | m   | 20  | 40  | 70 |
|  |            | n   | 40  | 70  | 90 |
| DC 3-Wire Models<br>E2E2-X□C□<br>AC 2-Wire Models<br>E2E2-X□Y□ | Shielded   | l   | 0   | 0   | 0  |
|  |            | d   | 12  | 18  | 30 |
|  |            | D   | 0   | 0   | 0  |
|  |            | m   | 8   | 20  | 40 |
|  |            | n   | 18  | 27  | 45 |
|  | Unshielded | l   | 15  | 22  | 30 |
|  |            | d   | 40  | 55  | 90 |
|  |            | D   | 15  | 22  | 30 |
|  |            | m   | 20  | 40  | 70 |
|  |            | n   | 36  | 54  | 90 |

### Mutual Interference

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



### Mutual Interference

(Unit: mm)

| Model                         | Item       | M12 | M18         | M30          |              |
|-------------------------------|------------|-----|-------------|--------------|--------------|
| DC 2-Wire Models<br>E2E2-X□D□ | Shielded   | A   | 30<br>(20)  | 50<br>(30)   | 100<br>(50)  |
|                               |            | B   | 20          | 35<br>(18)   | 70<br>(35)   |
|                               | Unshielded | A   | 120<br>(60) | 200<br>(100) | 300<br>(100) |
|                               |            | B   | 100<br>(50) | 110<br>(60)  | 200<br>(100) |
| DC 3-Wire Models<br>E2E2-X□C□ | Shielded   | A   | 30          | 50           | 100          |
|                               |            | B   | 20          | 35           | 70           |
| AC 2-Wire Models<br>E2E2-X□Y□ | Unshielded | A   | 120         | 200          | 300          |
|                               |            | B   | 100         | 110          | 200          |

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

### ● Mounting



### tening Torque

Do not tighten the nut with excessive force.

A washer must be used with the nut.

The following strengths assume washers are being used.

| Model | Torque  |
|-------|---------|
| M12   | 30 N·m  |
| M18   | 70 N·m  |
| M30   | 180 N·m |

### Relationship between Sizes and Models

| Size       | Model      |  |   |
|------------|------------|--|---|
| M12        | Shielded   | E2E2-X3D□<br>E2E2-X2C□<br>E2E2-X2Y□    |   |
|            | Unshielded | E2E2-X8MD□<br>E2E2-X5MC□<br>E2E2-X5MY□ |   |
|            |            | M18                                    | Shielded                                  |
| Unshielded |            |  | E2E2-X14MD□<br>E2E2-X10MC□<br>E2E2-X10MY□ |
|            | M30        |  | Shielded                                  |
|            |            | Unshielded                             | E2E2-X20MD□<br>E2E2-X18MC□<br>E2E2-X18MY□ |

Dimensions

Unless otherwise specified, the tolerance class IT16 is used for dimensions in this data sheet.

Shielded



Unshielded



E2E2-X3D□/E2E2-X2C□/E2E2-X2Y□



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

E2E2-X8MD□/E2E2-X5MC□/E2E2-X5MY□



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

E2E2-X7D□/E2E2-X5C□/E2E2-X5Y□



- \*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- 6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- The cable can be extended to up to 200 m (Separate metal conduit.)
- \*2. D Models: Operation indicator (red) and setting indicator (green), C/Y Models: Operation indicator (red)

E2E2-X14MD□/E2E2-X10MC□/E2E2-X10MY□



- \*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- 6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- The cable can be extended to up to 200 m (Separate metal conduit.)
- \*2. D Models: Operation indicator (red) and setting indicator (green), C/Y Models: Operation indicator (red)

E2E2-X10D□/E2E2-X10C□/E2E2-X10Y□



- \*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- 6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- The cable can be extended to up to 200 m (Separate metal conduit.)
- \*2. D Models: Operation indicator (red) and setting indicator (green), C/Y Models: Operation indicator (red)

E2E2-X20MD□/E2E2-X18MC□/E2E2-X18MY□



- \*1. 6-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- 6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.5 mm<sup>2</sup>, Insulator diameter: 1.9 mm), Standard length: 2 m
- The cable can be extended to up to 200 m (Separate metal conduit.)
- \*2. D Models: Operation indicator (red) and setting indicator (green), C/Y Models: Operation indicator (red)

Mounting Hole Dimensions



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

- Note 1. Two clamping nuts and one toothed washer are provided with each Sensors.
- 2. The model number is laser-marked on the cable section and milled section.

In the interest of product improvement, specifications are subject to change without notice.

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