Distance-settable Photoelectric Sensor TOF Laser Sensor

**E3AS-F Series**

Optimal sensing distance (50 to 1,500 mm) for use on conveyor lines

- Wide sensing distance of 50 to 1,500 mm*, enabling use on any conveyor line width
- Time of flight (TOF) type sensors for use with any type of conveyed object
- Compact body can be mounted anywhere
- (Metal body (SUS316L), Plastic body type (PBT/PC))
- Teaching method allows anyone to set optimal threshold values
- Manufactured using Omron's proprietary laser sealing method (IP67/IP69K/IP67G)
- Antifouling coatings reduce the cleaning frequency on the lens.
- IO-Link reduces time required for startups and changeovers

* The sensing distance of the E3AS-F1500 series.

**Ordering Information**

**Sensors [Refer to Dimensions on page 11.]**

**SUS 316L Body**

<table>
<thead>
<tr>
<th>Connection method</th>
<th>Sensing distance (white paper)</th>
<th>Output</th>
<th>NPN output</th>
<th>PNP output</th>
<th>PNP output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPN output</td>
<td>PNP output</td>
<td>PNP output</td>
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<td></td>
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<td>NPN output</td>
<td>PNP output</td>
<td>PNP output</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>NPN output</td>
<td>PNP output</td>
<td>PNP output</td>
</tr>
<tr>
<td>Pre-wired (2 m) 1</td>
<td></td>
<td>50 mm</td>
<td>1,500 mm</td>
<td>E3AS-F1500IMN 2M</td>
<td>E3AS-F1500MD 2M</td>
</tr>
<tr>
<td>M8 Connector</td>
<td></td>
<td></td>
<td></td>
<td>E3AS-F1500IMN M3</td>
<td>E3AS-F1500MD M3</td>
</tr>
<tr>
<td>M8 Pre-wired Connector 2</td>
<td></td>
<td>0.3M</td>
<td>E3AS-F1500IM-M1TJ 0.3M</td>
<td>E3AS-F1500IM-M1TJ 0.3M</td>
<td>E3AS-F1500MT-M1TJ 0.3M</td>
</tr>
<tr>
<td>Pre-wired (2 m) 1</td>
<td></td>
<td>50 mm</td>
<td>1,000 mm</td>
<td>E3AS-F1000IMN 2M</td>
<td>E3AS-F1000MD 2M</td>
</tr>
<tr>
<td>M8 Connector</td>
<td></td>
<td></td>
<td></td>
<td>E3AS-F1000IMN M3</td>
<td>E3AS-F1000MD M3</td>
</tr>
<tr>
<td>M8 Pre-wired Connector 2</td>
<td></td>
<td>0.3M</td>
<td>E3AS-F1000IM-M1TJ 0.3M</td>
<td>E3AS-F1000IM-M1TJ 0.3M</td>
<td>E3AS-F1000MT-M1TJ 0.3M</td>
</tr>
</tbody>
</table>

**PBT Body**

<table>
<thead>
<tr>
<th>Connection method</th>
<th>Sensing distance (white paper)</th>
<th>Output</th>
<th>NPN output</th>
<th>PNP output</th>
<th>PNP output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPN output</td>
<td>PNP output</td>
<td>PNP output</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPN output</td>
<td>PNP output</td>
<td>PNP output</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPN output</td>
<td>PNP output</td>
<td>PNP output</td>
</tr>
<tr>
<td>Pre-wired (2 m) 1</td>
<td></td>
<td>50 mm</td>
<td>1,500 mm</td>
<td>E3AS-F1500IPN 2M</td>
<td>E3AS-F1500IPD 2M</td>
</tr>
<tr>
<td>M8 Connector</td>
<td></td>
<td></td>
<td></td>
<td>E3AS-F1500IPN M3</td>
<td>E3AS-F1500IPD M3</td>
</tr>
<tr>
<td>M8 Pre-wired Connector 2</td>
<td></td>
<td>0.3M</td>
<td>E3AS-F1500IPN-M1TJ 0.3M</td>
<td>E3AS-F1500IPD-M1TJ 0.3M</td>
<td>E3AS-F1500IPT-M1TJ 0.3M</td>
</tr>
<tr>
<td>Pre-wired (2 m) 1</td>
<td></td>
<td>50 mm</td>
<td>1,000 mm</td>
<td>E3AS-F1000IPN 2M</td>
<td>E3AS-F1000IPD 2M</td>
</tr>
<tr>
<td>M8 Connector</td>
<td></td>
<td></td>
<td></td>
<td>E3AS-F1000IPN M3</td>
<td>E3AS-F1000IPD M3</td>
</tr>
<tr>
<td>M8 Pre-wired Connector 2</td>
<td></td>
<td>0.3M</td>
<td>E3AS-F1000IPN-M1TJ 0.3M</td>
<td>E3AS-F1000IPD-M1TJ 0.3M</td>
<td>E3AS-F1000IPT-M1TJ 0.3M</td>
</tr>
</tbody>
</table>

1. Models with 5-m cable length are also available with “5M” suffix. (Example: E3AS-F1500IMN 5M/E3AS-F1500IPN 5M)
2. The Pre-wired Connector (M12) is Smartclick Connector.

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 9.
E3AS-F Series

Accessories (Sold Separately)
Sensor I/O Connectors (Sockets on One Cable End)
(Models for Connectors / Pre-wired Connectors)
A Sensor I/O Connector is not provided with the Sensor. Order separately.
Round Water-resistant Connectors XS3F-M8 series

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Cable specification</th>
<th>Cable diameter (mm)</th>
<th>Cable connection direction</th>
<th>Cable length (m)</th>
<th>Sensor I/O Connector model number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8 Connector</td>
<td>Straight type</td>
<td>PVC cable</td>
<td>5 dia.</td>
<td>Straight</td>
<td>2</td>
</tr>
<tr>
<td>Right-angle type</td>
<td></td>
<td></td>
<td></td>
<td>Right-angle</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: 1. The XS3W (Socket and Plug on Cable Ends) is also available. Refer to XS3W-M8/XS3F-M8 Series Datasheet (Cat. No. G140).
2. The connectors will not rotate after they are connected.
3. The cable is fixed at an angle of 180° from the sensor emitter/receiver surface.

Round Water-resistant Connectors XS5 series

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Cable specification</th>
<th>Cable diameter (mm)</th>
<th>Cable connection direction</th>
<th>Cable length (m)</th>
<th>Sensor I/O Connector model number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Smartclick Connector</td>
<td>Straight type</td>
<td>PVC robot cable</td>
<td>6 dia.</td>
<td>Straight</td>
<td>2</td>
</tr>
<tr>
<td>Right-angle type</td>
<td></td>
<td></td>
<td></td>
<td>Right-angle</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: 1. The XS5W (Socket and Plug on Cable Ends) is also available. Refer to XS5 on your Omron website for details.
2. The connectors will not rotate after they are connected.
3. The cable is fixed at an angle of 180° from the sensor emitter/receiver surface.
### Mounting Brackets

[Refer to Dimensions on page 12.]

A Mounting Bracket is not enclosed with the Sensor. Order as needed.

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Model (material)</th>
<th>Pre-wired</th>
<th>M8 Pre-wired Connector</th>
<th>M12 Pre-wired Smartclick Connector</th>
<th>M8 Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-shaped Mounting Bracket</td>
<td>E39-L201 (SUS304)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>---</td>
</tr>
<tr>
<td>Horizontal Protective Cover Bracket</td>
<td>E39-L202 (SUS304)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>---</td>
</tr>
<tr>
<td>Rear Mounting Bracket</td>
<td>E39-L203 (SUS304)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes²</td>
</tr>
<tr>
<td>Robust Mounting Bracket</td>
<td>E39-L204 (SUS304)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>---</td>
</tr>
<tr>
<td>L-shaped Mounting Bracket</td>
<td>E39-L211 (SUS304)</td>
<td>---¹</td>
<td>---¹</td>
<td>---¹</td>
<td>Yes²</td>
</tr>
<tr>
<td>Horizontal Protective Cover Bracket</td>
<td>E39-L212 (SUS304)</td>
<td>---¹</td>
<td>---¹</td>
<td>---¹</td>
<td>Yes²</td>
</tr>
<tr>
<td>Robust Mounting Bracket</td>
<td>E39-L214 (SUS304)</td>
<td>---¹</td>
<td>---¹</td>
<td>---¹</td>
<td>Yes²</td>
</tr>
</tbody>
</table>

---¹: Can be used for Pre-wired models, M8 Pre-wired Connector models, and M12 Pre-wired Smartclick Connector models. However, confirm the bracket shape in advance.

---²: Confirm the installation environment and bracket shape of the Sensor I/O Connector to be connected.

---³: Use an L-shaped Sensor I/O Connector. Straight types cannot be installed.
## E3AS-F Series
### Ratings and Specifications

<table>
<thead>
<tr>
<th>Sensing method</th>
<th>TOF (Time of flight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td></td>
</tr>
<tr>
<td>NPN output</td>
<td></td>
</tr>
<tr>
<td>E3AS-F1500□N</td>
<td>E3AS-F1000□N</td>
</tr>
<tr>
<td>PNP output/ COM2</td>
<td></td>
</tr>
<tr>
<td>E3AS-F1500□D</td>
<td>E3AS-F1000□D</td>
</tr>
<tr>
<td>PNP output/ COM3</td>
<td></td>
</tr>
<tr>
<td>E3AS-F1500□T</td>
<td>E3AS-F1000□T</td>
</tr>
</tbody>
</table>

### Sensing distance
- 50 mm to the set distance (White paper or black paper 200 × 200 mm)
- 50 mm to the set distance (White paper or black paper 200 × 200 mm)

### Setting range
- 100 to 1,500 mm (White paper 200 × 200 mm)
- 100 to 1,000 mm (Black paper 200 × 200 mm)
- 100 to 500 mm (Black paper 200 × 200 mm)

### Spot diameter (reference value)
95 mm dia. (at distance of 1,000 mm)

### Differential travel
15% max. of set distance (Set distance 200 mm min.)

### Reflectivity characteristic (black/white error)
10% max. of set distance (Set distance 200 mm min.)

### Light source (wavelength)
Infrared laser (940 nm) Class1 (IEC/EN60825-1:2014)

### Power supply voltage
10 to 30 VDC (including 10% ripple (p-p)), Class2

### Current consumption
30 mA max.

### Control output
- Load power supply voltage: 30 VDC max., Class2, Load current: 100 mA max.
- (Residual voltage: Load current of less than 10 mA: 1 V max. Load current of 10 to 100 mA: 2 V max.)
- Open-collector output (NPN/PNP output depending on model)
- OUTPUT 1: NO (Normally open), OUTPUT 2: NC (Normally closed)

### Protection circuits
- Power supply reverse polarity protection, Output short-circuit protection, and Output reverse polarity protection
- Response time: Operate or reset: 150 ms max.
- Operate or reset: 90 ms max.

### Distance setting
- Teaching method/IO-Link communications
- Ambient Illumination (Receiver side)
  - Incandescent lamp: 3,000 lx max., Sunlight: 10,000 lx max.
- Ambient temperature range
  - Operating: -20 to 55°C, Storage: -40 to 70°C (with no icing or condensation)
- Ambient humidity range
  - Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)
- Dielectric strength
  - 1,000 VAC, 50/60 Hz for 1 min
- Vibration resistance
  - 10 to 55 Hz with a 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
- Shock resistance
  - 500 m/s² for 3 times each in X, Y, and Z directions
- Degree of protection
  - IP67 (IEC60529) and IP67G (JIS C 0920 Annex 1), IP69K (ISO20653)
- Indicators
  - Operation indicator (orange), stability/communication indicator (green)

### Connection method
- Pre-wired (standard cable length: 2 m), M8 Connector, M8 Pre-wired Connector (standard cable length: 0.3m), M12 Pre-wired Smartclick Connector (standard cable length: 0.3m)

### Weight (packed state/ Sensor only)

<table>
<thead>
<tr>
<th>Weight (packed state/Sensor only)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-wired (2 m)</td>
<td>Metal case</td>
<td>Plastic case</td>
</tr>
<tr>
<td>M8 Connector</td>
<td>Approx. 135 g/approx. 90 g</td>
<td>Approx. 115 g/approx. 70 g</td>
</tr>
<tr>
<td>M8 Pre-wired Connector (0.3m)</td>
<td>Metal case</td>
<td>Plastic case</td>
</tr>
<tr>
<td></td>
<td>Approx. 85 g/approx. 40 g</td>
<td>Approx. 70 g/approx. 25 g</td>
</tr>
<tr>
<td>M12 Pre-wired Smartclick Connector (0.3m)</td>
<td>Metal case</td>
<td>Plastic case</td>
</tr>
<tr>
<td></td>
<td>Approx. 95 g/approx. 50 g</td>
<td>Approx. 75 g/approx. 30 g</td>
</tr>
</tbody>
</table>

### Materials

<table>
<thead>
<tr>
<th>Materials</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
<td>Stainless steel (SUS316L)</td>
</tr>
<tr>
<td></td>
<td>Main unit Polybutylene terephthalate (PBT) (polycarbonate (PC), Polynickel-plated brass)</td>
</tr>
<tr>
<td>Lens</td>
<td>Methacrylate resin (PMMA)</td>
</tr>
<tr>
<td>Display</td>
<td>Polyamide 11 (PA11)</td>
</tr>
<tr>
<td></td>
<td>Polyethersulfone (PES)</td>
</tr>
</tbody>
</table>

### Main IO-Link functions
Operation mode switching between NO and NC, execution of teaching (2-point teaching, Background teaching), setup of the threshold, timer function of the control output and timer time selecting, monitor output (Detection level, Incident light level), Restore Factory Settings, Key Lock (Unlock, Lock, Lock (No Button))

### IO-Link Communication specifications

<table>
<thead>
<tr>
<th>IO-Link specification</th>
<th>Ver. 1.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud rate</td>
<td>COM2 (38.4 kbps), COM3 (230.4 kbps)</td>
</tr>
<tr>
<td>Data length</td>
<td>PD size: 4 bytes, OD size: 1 byte (M-sequence type: TYPE_2_V)</td>
</tr>
<tr>
<td>Minimum cycle time</td>
<td>COM2: 3.5 ms, COM3: 1.2 ms</td>
</tr>
</tbody>
</table>

### Accessories
- Instruction manual, compliance sheet, index list (attached for IO-Link type only) and FDA certification label
- Note: Mounting Brackets must be ordered separately.

1. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards). The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.
2. IO-Link mode: blinking
Engineering Data (Reference Value)

Operating Range

E3AS-F1500
Z directions

Y directions

E3AS-F1000
Z directions

Y directions

Spot Diameter vs. Sensing Distance

E3AS-F1500
E3AS-F1000

Set distance: 1,500 mm
Sensing object: White paper, 200 x 200 mm

Set distance: 1,000 mm
Sensing object: White paper, 200 x 200 mm

Set distance: 1,000 mm
Sensing object: White paper, 200 x 200 mm

Set distance: 1,500 mm
Sensing object: White paper, 200 x 200 mm
E3AS-F Series

Close-range Characteristics

**E3AS-F1500**

![Graph showing differential distance for each sensing object vs. distance for E3AS-F1500](image)

**E3AS-F1000**

![Graph showing differential distance for each sensing object vs. distance for E3AS-F1000](image)

**Sensing Object Angle Characteristics**

**E3AS-F1500**

**Vertical**

![Graph showing change in sensing distance for E3AS-F1500 in the vertical angle](image)

**Horizontal**

![Graph showing change in sensing distance for E3AS-F1500 in the horizontal angle](image)
**E3AS-F Series**

**Sensing Distance vs. Sensing Object Material**

**E3AS-F1500**
(Set Distance of 1,500 mm using White Paper)

**E3AS-F1000**
(Set Distance of 1,000 mm using White Paper)

**Sensing Object Size vs. Sensing Distance**

**E3AS-F1500**

**E3AS-F1000**
## E3AS-F Series
### I/O Circuit Diagrams/ Timing Charts

#### NPN Output

<table>
<thead>
<tr>
<th>Model</th>
<th>Timing chart</th>
<th>Output circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3AS-F1500</td>
<td><img src="image" alt="Timing Chart" /></td>
<td><img src="image" alt="Output Circuit" /></td>
</tr>
<tr>
<td>E3AS-F1000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. The initial value of control output 2 is reverse of control output 1.

#### PNP Output

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard I/O mode (SIO mode) 1</th>
<th>IO-Link Communication mode (COM mode) 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3AS-F1500</td>
<td><img src="image" alt="Timing Chart" /></td>
<td><img src="image" alt="Output Circuit" /></td>
</tr>
<tr>
<td>E3AS-F1000</td>
<td><img src="image" alt="Timing Chart" /></td>
<td><img src="image" alt="Output Circuit" /></td>
</tr>
</tbody>
</table>

1. Standard I/O mode is used as PNP ON/OFF output.
2. IO-Link Communication mode is used for communications with the IO-Link Master. C/Q performs IO-Link communications. Sensor output DO performs ON/OFF output.

#### Timing charts

<table>
<thead>
<tr>
<th>Output mode</th>
<th>Stability&amp;Communication indicator (green)</th>
<th>Operation indicator (orange)</th>
<th>Control output 1</th>
<th>Control output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard I/O mode (SIO mode)</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>IO-Link Communication mode (COM mode)</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>

1. The initial value of control output 2 is reverse of control output 1.
2. The timer function of the control output can be set up by the IO-Link communications. (It is able to select ON delay, OFF delay, or one-shot function and select a timer time of 1 to 9,999 ms (T).)

#### Note:
- The indicators work differently depending on sensor status.
- The operation indicator (orange) lights up when control output 1 is ON or communication output is 1.

## Nomenclature

- **E3AS-F1500**: Operation indicator (orange)
- **E3AS-F1000**: Teach button

Note: The indicators work differently depending on sensor status.

---

*The initial value of control output 2 is reverse of control output 1.*
Safety Precautions

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

Warning Indications

<table>
<thead>
<tr>
<th>Warning level</th>
<th>Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CAUTION</th>
<th>Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.</th>
</tr>
</thead>
</table>

Precautions for Safe Use

Supplementary comments on what to do or avoid doing, to use the product safely.

Precautions for Correct Use

Supplementary comments on what to do or avoid doing, to prevent failure to operate, malfunction or undesirable effect on product performance.

Meaning of Product Safety Symbols

- **General prohibition**
  Indicates the instructions of unspecified prohibited action

- **Caution, explosion**
  Indicates the possibility of explosion under specific conditions

- **Laser Caution**
  Indicates information related to laser safety

**WARNING**

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

**CAUTION**

Never use the product with an AC power supply. Otherwise, explosion may result.

To safely use laser products

**WARNING**

Do not expose your eyes to the laser beam either directly or indirectly (i.e., after reflection from a mirror or shiny surface). The laser beam has a high power density and exposure may result in loss of sight.

Laser safety measures for laser equipment are stipulated in Japan and other countries. For usage in Japan and for export to other countries combined with other products, follow the instructions described below categorized in three cases respectively.

1. **Usage in Japan**
   The JIS C6802-2014 standard stipulates the safety precautions that users must take according to the class of the laser product. This product is classified into Class 1 defined by this standard.

2. **Usage in U.S.**
   When this product is installed in a device and exported to the U.S., it is subjected to the U.S. FDA (Food and Drug Administration) laser regulations. This product is classified into Class 1 by the IEC 60825-1:2007 standard according to the provisions of Laser Notice No. 50 of the FDA standard. This product is already reported to CDRH (Center for Devices and Radiological Health).
   Accession Number: 1920014-000
   Because the product is small, we can not attach an FDA certification label on the main body, so we enclose it in the packing box. When exporting a device equipped with the product to the U.S., attach an FDA certification label near the sensor mounting of customer equipment.

3. **Usage in China**
   This product is classified into Class 1 by the IEC60825-1:2007 standard.

4. **Usage in a country other than U.S. and China.**
   This product is classified into Class 1 by the IEC60825-1:2014 standard.
Precautions for Safe Use

The following precautions must be observed to ensure safe operation.

(1) Do not reverse the power supply connection or connect to an AC current.
(2) Do not short the load.
(3) Be sure that before making supply the supply voltage is less than the maximum rated supply voltage (30 VDC).
(4) Do not use the product in environments subject to flammable or explosive gases.
(5) Do not use the product under a chemical or an oil environment without prior evaluation.
(6) Do not attempt to modify the product.

Precautions for Correct Use

(1) Do not hit the product using a hammer for installation.
(2) The product must be installed with the specified torque or less. For M8 connector, the proper tightening torque is from 0.3 to 0.4 N·m. For M12 connector, the proper tightening torque is from 0.39 to 0.49 N·m. In case of M12 smartclick connector, manually tighten the connector.
(3) Do not use the product in any atmosphere or environment that exceeds the ratings.
(4) Output pulses may occur when the power supply is turned OFF. We recommend that you turn OFF the power supply to the load or load line first.
(5) Use an extension cable less than 100 m long for Standard I/O mode and less than 20 m for IO-Link Communication mode.
(6) Do not pull on the cable with excessive strength.
(7) Please wait for at least 500 ms after turning on the product’s power until it is available for use.
(8) Though this is type IP67, do not use in the water, rain or outdoors.
(9) If the Sensor wiring is placed in the same conduits or ducts as high-voltage or high-power lines, inductive noise may cause malfunction or damage. Wire the cables separately or use a shielded cable.
(10) Do not use the product in locations subject to direct sunlight.
(11) Do not use the product where humidity is high and dew condensation may occur.
(12) Do not use the product where corrosive gases may exist.
(13) If high-pressure washing water and so on hits the teach button, it might lead to malfunctioning. So, consider use of the key lock function.
(14) Do not apply high-pressure washing water directly to the sensor's light emitting / receiving surface from a short distance. As the antifouling feature may be impaired, keep a sufficient distance from the light emitting / receiving surface.
(15) Do not use the product at a location subject to shock or vibration.
(16) To use a commercially available switching regulator, FG (frame ground) must be grounded.
(17) Do not use organic solvents (e.g. paint thinner and alcohol) for cleaning. Otherwise optical properties and protective structure may deteriorate.
(18) Be sure to check the influence caused by surrounding environments such as background objects and LED lighting before using the product.
(19) Please dispose in accordance with applicable regulations.
**Dimensions**

**Pre-wired Models/Pre-wired Connector Models**

**E3AS-F1500□ (-M1TJ/-M3J)**  
**E3AS-F1000□ (-M1TJ/-M3J)**

- **Teach button**
- **Stability&Communication indicator (green)**
- **Operation indicator (orange)**

**Minimum bending radius/unbendable length of cord**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Unit: mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two, M3</td>
<td>11.4</td>
</tr>
<tr>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>37.9</td>
<td></td>
</tr>
<tr>
<td>Emitter lens</td>
<td>5.7</td>
</tr>
<tr>
<td>Receiver lens</td>
<td>3.3</td>
</tr>
<tr>
<td>Minimum bending radius R13</td>
<td>mm</td>
</tr>
</tbody>
</table>

**Metal case type**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Unit: mm</th>
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<tbody>
<tr>
<td>Two, M3</td>
<td>23.4</td>
</tr>
<tr>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>39.3</td>
<td>25.4</td>
</tr>
<tr>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>7.9</td>
<td></td>
</tr>
</tbody>
</table>

**Plastic case type**

<table>
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<th>Dimensions</th>
<th>Unit: mm</th>
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<tbody>
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<td>23.4</td>
</tr>
<tr>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td></td>
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<tr>
<td>39.3</td>
<td>25.4</td>
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<tr>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>7.9</td>
<td></td>
</tr>
</tbody>
</table>

**Unbendable length**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Unit: mm</th>
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</thead>
<tbody>
<tr>
<td>5 mm</td>
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</tr>
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</table>

**Minimum bending radius**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Unit: mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>R13 mm</td>
<td></td>
</tr>
</tbody>
</table>

**4.25 dia. vinyl-insulated round cable with 4 conductors**

- **Conductor cross section:** 0.2 mm² (AWG24)  
- **Insulator diameter:** 1.1 mm

**Standard length:** 2 m

**Connector Models**

- **E3AS-F1500□ - M3**
- **E3AS-F1000□ - M3**

**M8 Pre-wired connector type**

**E3AS-F1500□ - M3J/E3AS-F1000□ - M1TJ**

- **4.25 dia. vinyl-insulated round cable with 4 conductors.**

**M12 Pre-wired Smartclick Connector type**

**E3AS-F1500□ - M1TJ/E3AS-F1000□ - M1TJ**

- **4.25 dia. vinyl-insulated round cable with 4 conductors.**

**Connector Models**

**E3AS-F1500□ - M3**

**E3AS-F1000□ - M3**

**Connector Models**

**E3AS-F1500□ - M3**

**E3AS-F1000□ - M3**
E3AS-F Series

Accessories (Sold Separately)

Mounting Brackets

E39-L201

Material: Stainless steel (SUS304)
* Accessories
2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L202

Material: Stainless steel (SUS304)
* Accessories
2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L203

Material: Stainless steel (SUS304)
* Accessories
2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)
**E39-L204**

Photoelectric Sensor Accessory are installed (Example of E3AS-F1500□)

Material: Stainless steel (SUS304)
* Accessories
  2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

**E39-L211**

Photoelectric Sensor Accessory are installed (Example of E3AS-F1500□)

Material: Stainless steel (SUS304)
* Accessories
  2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)
E3AS-F Series

E39-L212

Photoelectric Sensor Accessory are installed (Example of E3AS-F1500□)

Material: Stainless steel (SUS304)
* Accessories
2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L214

Photoelectric Sensor Accessory are installed (Example of E3AS-F1500□)

Material: Stainless steel (SUS304)
* Accessories
2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)