

## 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.

 Refer to *Safety Precautions* on page 9.



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

## Ordering Information

### Sensors [Refer to *Dimensions* on page 11.] SUS 316L Body

 Infrared light

| Connection method                    | Sensing distance (white paper)  | Model                       |                         |                                |                                 |
|--------------------------------------|---|-----------------------------|-------------------------|--------------------------------|---------------------------------|
|                                      |   | Output<br>IO-Link baud rate | NPN output<br>---       | PNP output<br>COM2 (38.4 kbps) | PNP output<br>COM3 (230.4 kbps) |
| Pre-wired (2 m) <sup>1</sup>         |  |                             | E3AS-F1500IMN 2M        | E3AS-F1500IMD 2M               | E3AS-F1500IMT 2M                |
| M8 Connector                         |   |                             | E3AS-F1500IMN M3        | E3AS-F1500IMD M3               | E3AS-F1500IMT M3                |
| M8 Pre-wired Connector               |   |                             | E3AS-F1500IMN-M3J 0.3M  | E3AS-F1500IMD-M3J 0.3M         | E3AS-F1500IMT-M3J 0.3M          |
| M12 Pre-wired Connector <sup>2</sup> |   |                             | E3AS-F1500IMN-M1TJ 0.3M | E3AS-F1500IMD-M1TJ 0.3M        | E3AS-F1500IMT-M1TJ 0.3M         |
| Pre-wired (2 m) <sup>1</sup>         |  |                             | E3AS-F1000IMN 2M        | E3AS-F1000IMD 2M               | E3AS-F1000IMT 2M                |
| M8 Connector                         |   |                             | E3AS-F1000IMN M3        | E3AS-F1000IMD M3               | E3AS-F1000IMT M3                |
| M8 Pre-wired Connector               |   |                             | E3AS-F1000IMN-M3J 0.3M  | E3AS-F1000IMD-M3J 0.3M         | E3AS-F1000IMT-M3J 0.3M          |
| M12 Pre-wired Connector <sup>2</sup> |   |                             | E3AS-F1000IMN-M1TJ 0.3M | E3AS-F1000IMD-M1TJ 0.3M        | E3AS-F1000IMT-M1TJ 0.3M         |

### PBT Body

| Connection method                    | Sensing distance (white paper)  | Model                       |                         |                                |                                 |
|--------------------------------------|---|-----------------------------|-------------------------|--------------------------------|---------------------------------|
|                                      |   | Output<br>IO-Link baud rate | NPN output<br>---       | PNP output<br>COM2 (38.4 kbps) | PNP output<br>COM3 (230.4 kbps) |
| Pre-wired (2 m) <sup>1</sup>         |  |                             | E3AS-F1500IPN 2M        | E3AS-F1500IPD 2M               | E3AS-F1500IPT 2M                |
| M8 Connector                         |   |                             | E3AS-F1500IPN M3        | E3AS-F1500IPD M3               | E3AS-F1500IPT M3                |
| M8 Pre-wired Connector               |   |                             | E3AS-F1500IPN-M3J 0.3M  | E3AS-F1500IPD-M3J 0.3M         | E3AS-F1500IPT-M3J 0.3M          |
| M12 Pre-wired Connector <sup>2</sup> |   |                             | E3AS-F1500IPN-M1TJ 0.3M | E3AS-F1500IPD-M1TJ 0.3M        | E3AS-F1500IPT-M1TJ 0.3M         |
| Pre-wired (2 m) <sup>1</sup>         |  |                             | E3AS-F1000IPN 2M        | E3AS-F1000IPD 2M               | E3AS-F1000IPT 2M                |
| M8 Connector                         |   |                             | E3AS-F1000IPN M3        | E3AS-F1000IPD M3               | E3AS-F1000IPT M3                |
| M8 Pre-wired Connector               |   |                             | E3AS-F1000IPN-M3J 0.3M  | E3AS-F1000IPD-M3J 0.3M         | E3AS-F1000IPT-M3J 0.3M          |
| M12 Pre-wired Connector <sup>2</sup> |   |                             | E3AS-F1000IPN-M1TJ 0.3M | E3AS-F1000IPD-M1TJ 0.3M        | E3AS-F1000IPT-M1TJ 0.3M         |

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.

## 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

| Appearance  | Cable specification | Cable diameter (mm) | Cable connection direction | Cable length (m) | Sensor I/O Connector model number |
|---|---------------------|---------------------|----------------------------|------------------|-----------------------------------|
| M8 Connector  | PVC cable           | 5 dia.              | Straight                   | 2                | XS3F-M8PVC4S2M                    |
| Straight type   |                     |                     |                            | 5                | XS3F-M8PVC4S5M                    |
| Right-angle type  |                     |                     | Right-angle                | 2                | XS3F-M8PVC4A2M                    |
|  |                     |                     |                            | 5                | XS3F-M8PVC4A5M                    |

- 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

| Appearance  | Cable specification | Cable diameter (mm) | Cable connection direction | Cable length (m) | Sensor I/O Connector model number |
|---|---------------------|---------------------|----------------------------|------------------|-----------------------------------|
| M12 Smartclick Connector  | PVC robot cable     | 6 dia.              | Straight                   | 2                | XS5F-D421-D80-F                   |
| Straight type   |                     |                     |                            | 5                | XS5F-D421-G80-F                   |
| Right-angle type  |                     |                     | Right-angle                | 2                | XS5F-D422-D80-F                   |
|  |                     |                     |                            | 5                | XS5F-D422-G80-F                   |

- 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.

| Appearance  | Model<br>(material)  | Applicable Sensor E3AS series |                           |                                       |                  |
|---|----------------------|-------------------------------|---------------------------|---------------------------------------|------------------|
|   |                      | Pre-wired                     | M8<br>Pre-wired Connector | M12 Pre-wired<br>Smartclick Connector | M8 Connector     |
| L-shaped<br>Mounting<br>Bracket<br>                | E39-L201<br>(SUS304) | Yes                           | Yes                       | Yes                                   | ---              |
| Horizontal<br>Protective<br>Cover<br>Bracket<br>   | E39-L202<br>(SUS304) | Yes                           | Yes                       | Yes                                   | ---              |
| Rear<br>Mounting<br>Bracket<br>                    | E39-L203<br>(SUS304) | Yes                           | Yes                       | Yes                                   | Yes <sup>2</sup> |
| Robust<br>Mounting<br>Bracket<br>                | E39-L204<br>(SUS304) | Yes                           | Yes                       | Yes                                   | ---              |
| L-shaped<br>Mounting<br>Bracket<br>              | E39-L211<br>(SUS304) | --- <sup>1</sup>              | --- <sup>1</sup>          | --- <sup>1</sup>                      | Yes <sup>3</sup> |
| Horizontal<br>Protective<br>Cover<br>Bracket<br> | E39-L212<br>(SUS304) | --- <sup>1</sup>              | --- <sup>1</sup>          | --- <sup>1</sup>                      | Yes <sup>3</sup> |
| Robust<br>Mounting<br>Bracket<br>                | E39-L214<br>(SUS304) | --- <sup>1</sup>              | --- <sup>1</sup>          | --- <sup>1</sup>                      | Yes <sup>3</sup> |

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

| Model   | Sensing method                            |   | TOF (Time of flight)   |  |
|---|---|---|--|--|
|   | Type                                      | Metal case (□: M), Plastic case (□: P)  |  |  |
| Item  | NPN output                                | E3AS-F1500I□N   | E3AS-F1000I□N  |  |
|   | PNP output/ COM2                          | E3AS-F1500I□D   | E3AS-F1000I□D  |  |
|   | PNP output/ COM3                          | E3AS-F1500I□T   | E3AS-F1000I□T  |  |
| 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)<br>100 to 1,000 mm (Black paper 200 × 200 mm)  | 100 to 1,000 mm (White paper 200 × 200 mm)<br>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.  |  |  |
| Input/output                                    | 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)  |  |  |
|   | NPN                                       | OUTPUT 1: NO (Normally open), OUTPUT 2: NC (Normally closed)  |  |  |
|   | PNP/COM2<br>PNP/COM3                      | OUTPUT 1: NO (Normally open)/COM□, 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)   |  |  |
| Insulation resistance                           |   | 20 MΩ min. at 500 VDC   |  |  |
| 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/s <sup>2</sup> for 3 times each in X, Y, and Z directions   |  |  |
| Degree of protection                            |   | IP67 (IEC60529) and IP67G <sup>1</sup> (JIS C 0920 Annex 1), IP69K (ISO20653)   |  |  |
| Indicators                                      |   | Operation indicator (orange), stability/communication indicator (green <sup>2</sup> )   |  |  |
| 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)              | Pre-wired (2 m)                           | Metal case type: Approx. 135 g/approx. 90 g<br>Plastic case type: Approx. 115 g/approx. 70 g  |  |  |
|   | M8 Connector                              | Metal case type: Approx. 75 g/approx. 30 g<br>Plastic case type: Approx. 60 g/approx. 15 g  |  |  |
|   | M8 Pre-wired Connector (0.3m)             | Metal case type: Approx. 85 g/approx. 40 g<br>Plastic case type: Approx. 70 g/approx. 25 g  |  |  |
|   | M12 Pre-wired Smartclick Connector (0.3m) | Metal case type: Approx. 95 g/approx. 50 g<br>Plastic case type: Approx. 75 g/approx. 30 g  |  |  |
| Materials                                       | Case                                      | Metal case type: Main unit/mounting part/connector part Stainless steel (SUS316L)<br>Plastic case type: Main unit Polybutylene terephthalate (PBT) /polycarbonate (PC),<br>Mounting part/connector part Nickel-plated brass   |  |  |
|   | Lens                                      | Methacrylate resin (PMMA)   |  |  |
|   | Display                                   | Metal case type: Polyamide 11 (PA11)<br>Plastic case type: Polyethersulfone (PES)   |  |  |
| 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            | IO-Link specification                     | Ver. 1.1  |  |  |
|   | Baud rate                                 | COM2 (38.4 kbps), COM3 (230.4 kbps)   |  |  |
|   | Data length                               | PD size: 4 bytes, OD size: 1 byte (M-sequence type: TYPE_2_V)   |  |  |
|   | Minimum cycle time                        | COM2: 3.5 ms, COM3: 1.2 ms  |  |  |
| Accessories                                     |   | Instruction manual, compliance sheet, index list (attached for IO-Link type only) and FDA certification label<br>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.

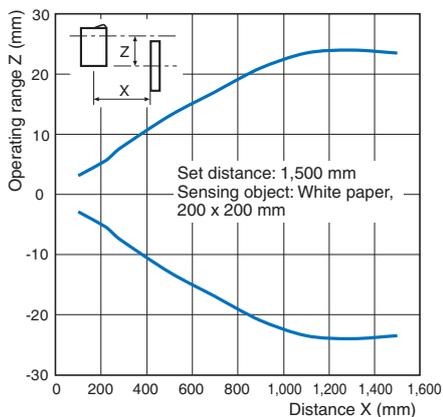
2. IO-Link mode: blinking

## Engineering Data (Reference Value)

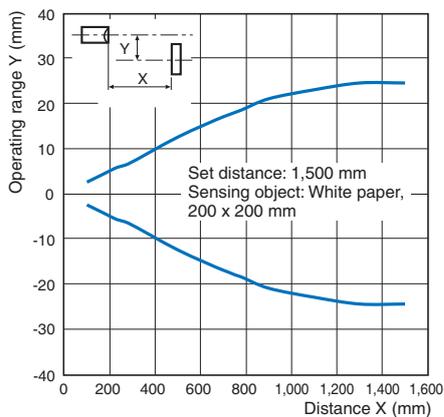
### Operating Range

#### E3AS-F1500□

##### Z directions

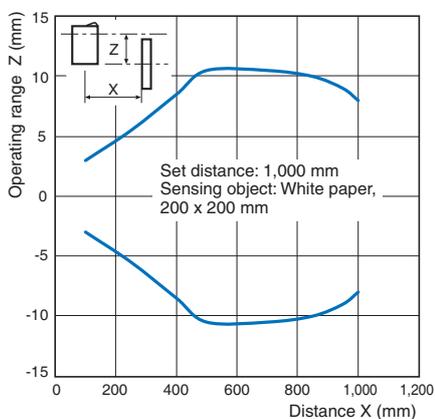


##### Y directions

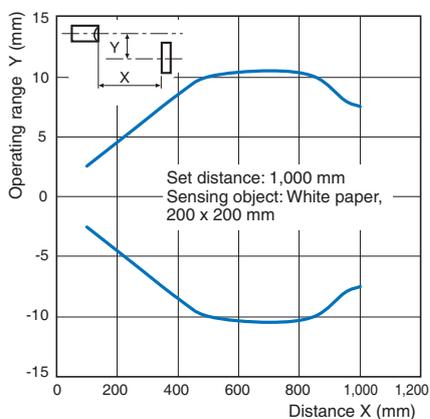


#### E3AS-F1000□

##### Z directions



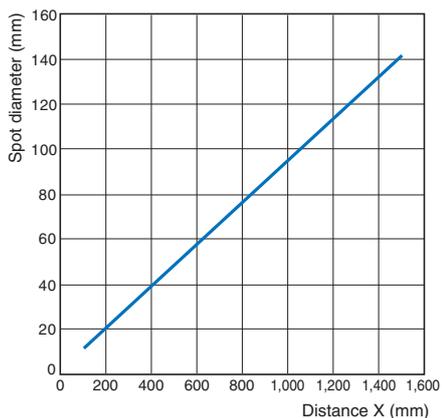
##### Y directions



### Spot Diameter vs. Sensing Distance

#### E3AS-F1500□

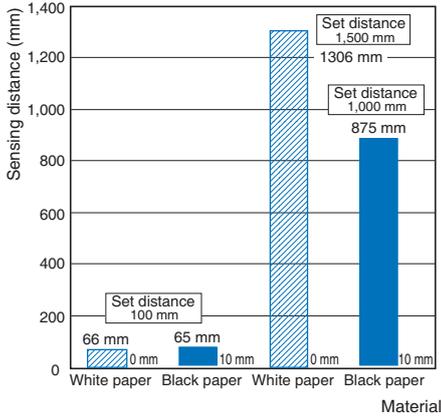
#### E3AS-F1000□



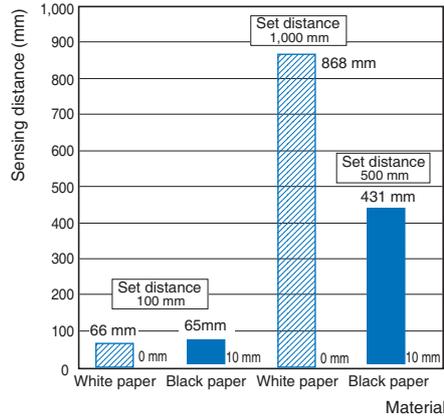
# E3AS-F Series

## Close-range Characteristics

### E3AS-F1500

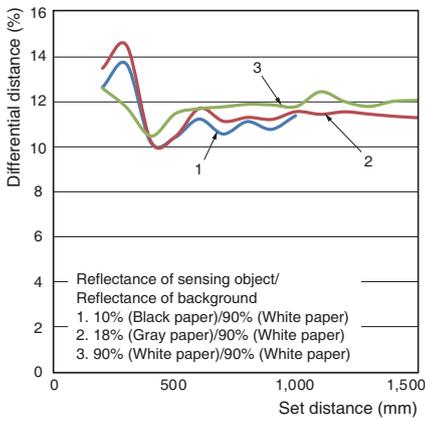


### E3AS-F1000

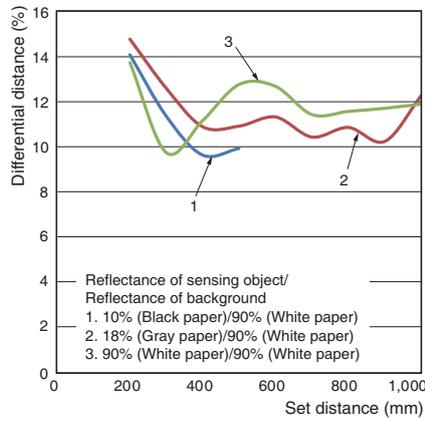


## Differential distance for each sensing object Vs. Distance

### E3AS-F1500



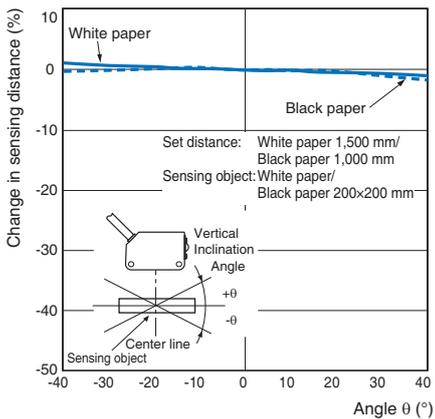
### E3AS-F1000



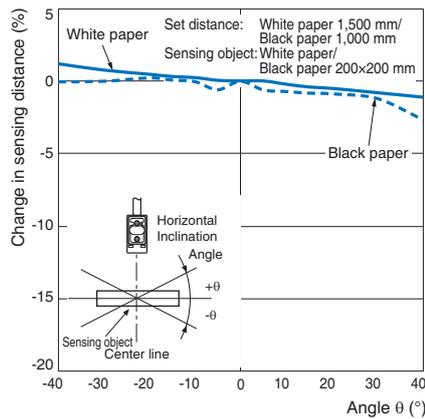
## Sensing Object Angle Characteristics

### E3AS-F1500

#### Vertical

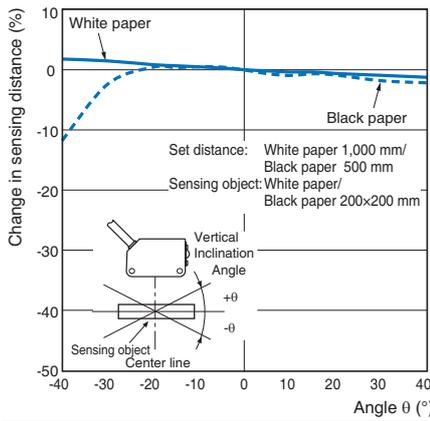


#### Horizontal

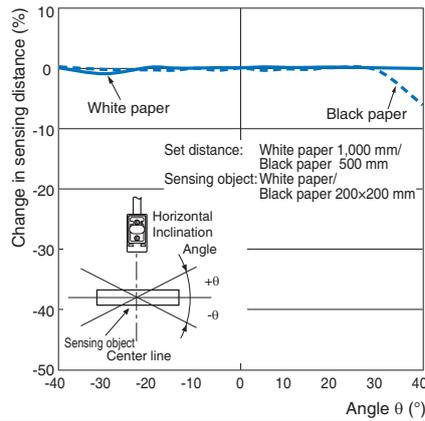


**E3AS-F1000**

**Vertical**



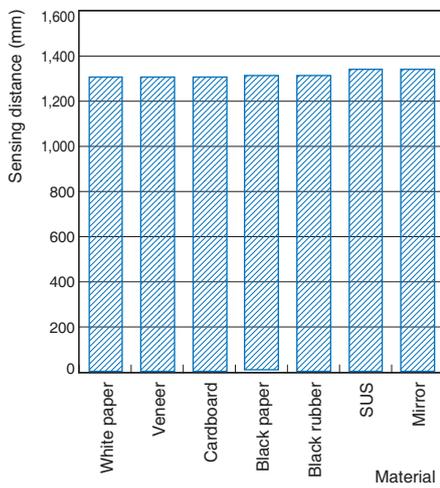
**Horizontal**



**Sensing Distance vs. Sensing Object Material**

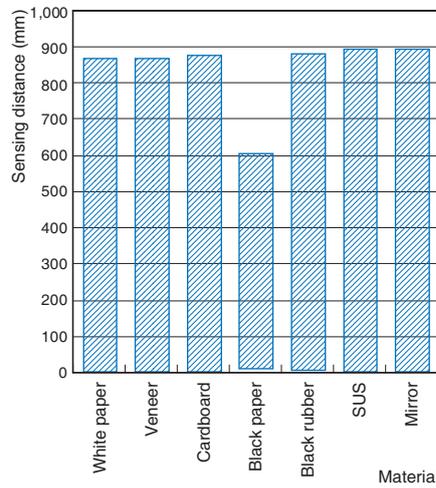
**E3AS-F1500**

(Set Distance of 1,500 mm using White Paper)



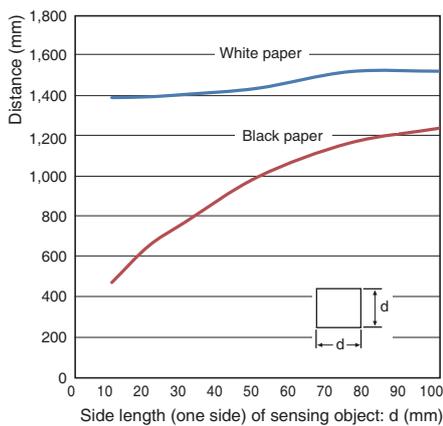
**E3AS-F1000**

(Set Distance of 1,000 mm using White Paper)

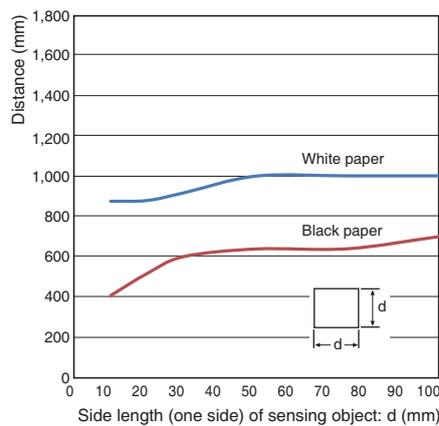


**Sensing Object Size vs. Sensing Distance**

**E3AS-F1500**



**E3AS-F1000**



# E3AS-F Series

## I/O Circuit Diagrams/ Timing Charts

### NPN Output

| Model                          | Timing chart  | Output circuit   |
|--------------------------------|---|--|
| E3AS-F1500□N□<br>E3AS-F1000□N□ | <p>Distance threshold</p> <p>Unstable NEAR   Stable NEAR   Unstable FAR   Stable FAR</p> <p>Stability&amp;Communication indicator (green)<br/>ON OFF</p> <p>Operation indicator (orange)<br/>ON OFF</p> <p>Control output 1<br/>ON OFF</p> <p>Control output 2 *<br/>ON OFF</p> | <p>Connector Pin Arrangement</p> <p>M12 Pre-wired Smartclick Connector</p> <p>M8 Connector, M8 Pre-wired Connector</p> |

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

### PNP Output

| Model  | Output circuit   |   |
|--|--|---|
|  | Standard I/O mode (SIO mode) <sup>1</sup>  | IO-Link Communication mode (COM mode) <sup>2</sup>  |
| E3AS-F1500□D□<br>E3AS-F1500□T□<br>E3AS-F1000□D□<br>E3AS-F1000□T□ | <p>Connector Pin Arrangement</p> <p>M12 Pre-wired Smartclick Connector</p> <p>M8 Connector, M8 Pre-wired Connector</p> | <p>IO-Link Master Unit</p> <p>Connector Pin Arrangement</p> <p>M12 Pre-wired Smartclick Connector</p> <p>M8 Connector, M8 Pre-wired Connector</p> |

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                         |   |
|---------------------------------------|---|
| Output mode                           |   |
| Standard I/O mode (SIO mode)          | <p>Distance threshold</p> <p>Unstable NEAR   Stable NEAR   Unstable FAR   Stable FAR</p> <p>Stability&amp;Communication indicator (green)<br/>ON OFF</p> <p>Operation indicator (orange)<br/>ON OFF</p> <p>Control output 1<br/>ON OFF</p> <p>Control output 2<br/>ON OFF</p> |
| IO-Link Communication mode (COM mode) | <p>Flashing (1 second cycle)</p> <p>Stability&amp;Communication indicator (green)<br/>ON OFF</p> <p>Operation indicator (orange)<br/>ON OFF</p> <p>Communication output<br/>1<br/>0</p> <p>Control output 2<br/>ON OFF</p>  |

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).)

| ON delay       |                       | OFF delay      |                       | One Shot       |                       |
|----------------|-----------------------|----------------|-----------------------|----------------|-----------------------|
| Sensing object | Present / Not present | Sensing object | Present / Not present | Sensing object | Present / Not present |
| NO             | ON 1 / OFF 0          | NO             | ON 1 / OFF 0          | NO             | ON 1 / OFF 0          |
| NC             | ON 1 / OFF 0          | NC             | ON 1 / OFF 0          | NC             | ON 1 / OFF 0          |

Please contact your Omron sales representative regarding the IO-Link setup file (IODD file).

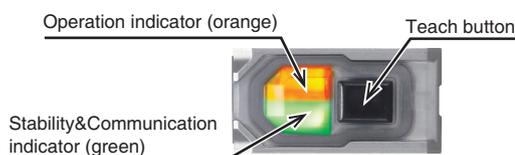
**Note:** Shown above are the factory settings. Refer to the index list for the default settings at time of shipment from factory.

PNP/COM output logic can be reversed by IO-Link communication.

The operation indicator (orange) lights up when control output 1 is ON or communication output is 1.

## Nomenclature

E3AS-F1500□  
E3AS-F1000□



Note: The indicators work differently depending on sensor status.



## Safety Precautions

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

### Warning Indications

|  |  |
|--|--|
|  <b>WARNING</b> | <b>Warning level</b><br>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. |
|  <b>CAUTION</b> | <b>Caution level</b><br>Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.   |
| <b>Precautions for Safe Use</b>  | Supplementary comments on what to do or avoid doing, to use the product safely.  |
| <b>Precautions for Correct Use</b>   | 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

|  |   |
|--|---|
|   | <b>General prohibition</b><br>Indicates the instructions of unspecified prohibited action     |
|   | <b>Caution, explosion</b><br>Indicates the possibility of explosion under specific conditions |
|  | <b>Laser Caution</b><br>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.

This laser product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007  
OMRON Corporation  
Shikokoji Horikawa, Shimoogyo-ku,  
Kyoto 800-8530 JAPAN  
Place of manufacture:  
Shanghai Factory, OMRON Corp.  
Manufactured In

FDA certification label

**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.

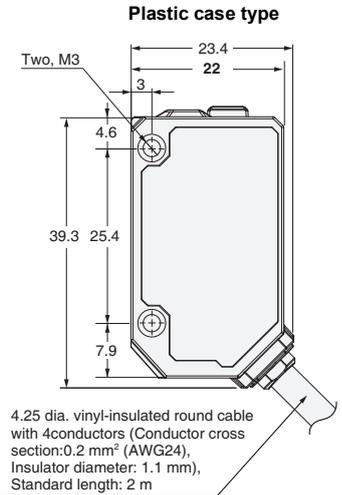
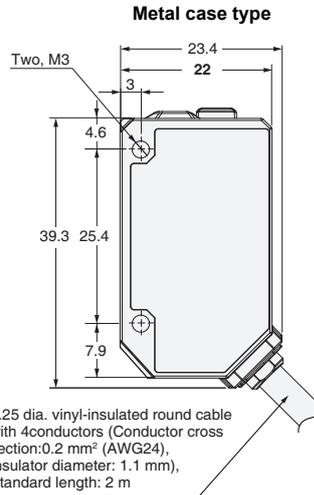
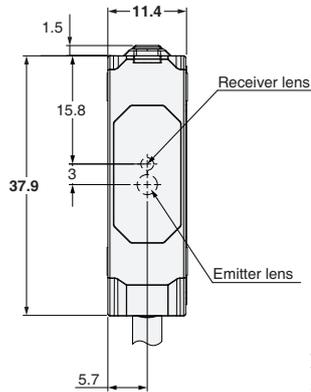
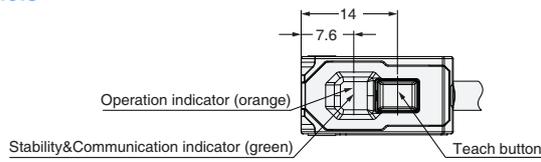
## Dimensions

### Sensors

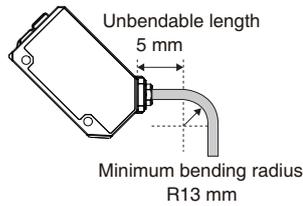
#### Pre-wired Models/Pre-wired Connector Models

E3AS-F1500□ (-M1TJ/-M3J)

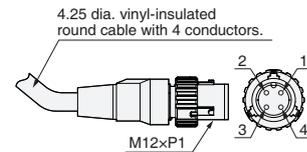
E3AS-F1000□ (-M1TJ/-M3J)



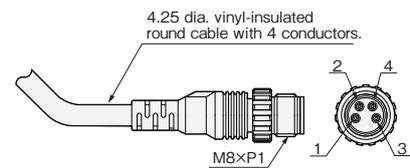
Minimum bending radius/unbendable length of cord



M12 Pre-wired Smartclick Connector type  
E3AS-F1500□-M1TJ/E3AS-F1000□-M1TJ



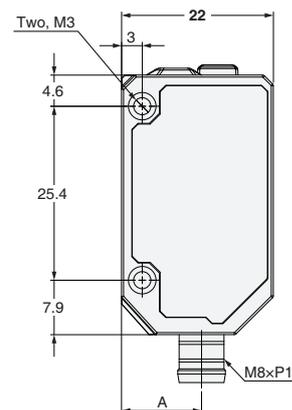
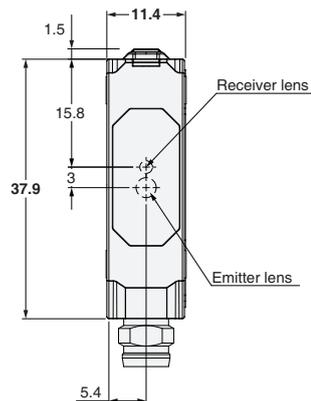
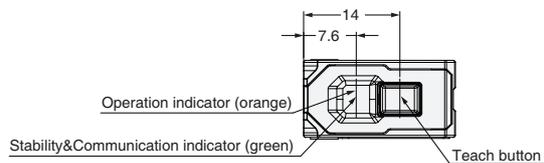
M8 Pre-wired connector type  
E3AS-F1500□-M3J/E3AS-F1000□-M3J



#### Connector Models

E3AS-F1500□ M3

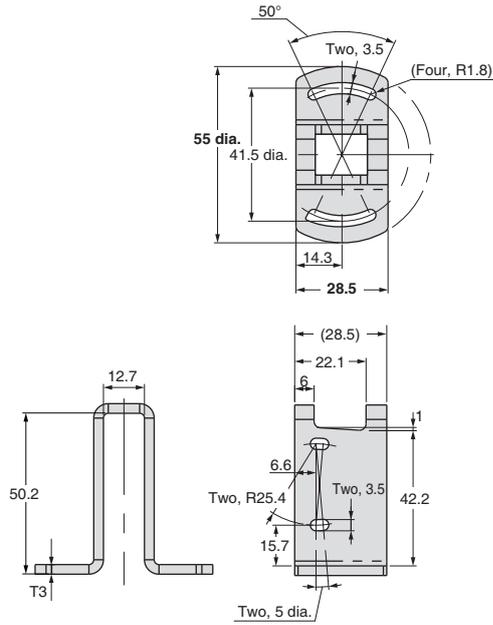
E3AS-F1000□ M3



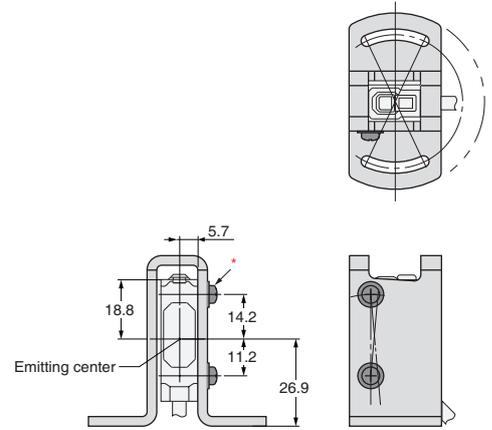
A:  
Metal case type (E3AS-F□□ M3) :9.6mm  
Plastic case type (E3AS-F□□□ M3) :11.6mm



E39-L204

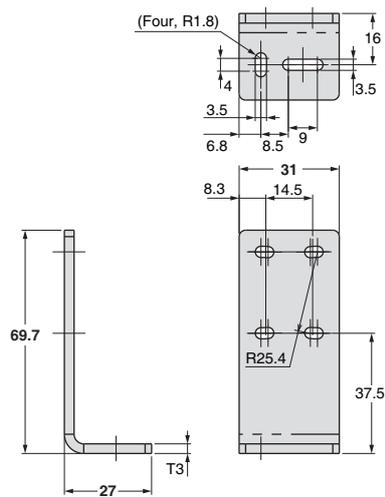


Photoelectric Sensor Accessory  
are installed  
(Example of E3AS-F1500□)

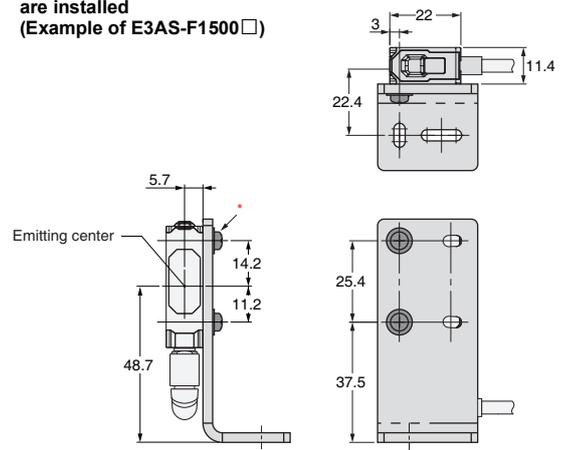


Material: Stainless steel (SUS304)  
\* Accessories  
2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L211



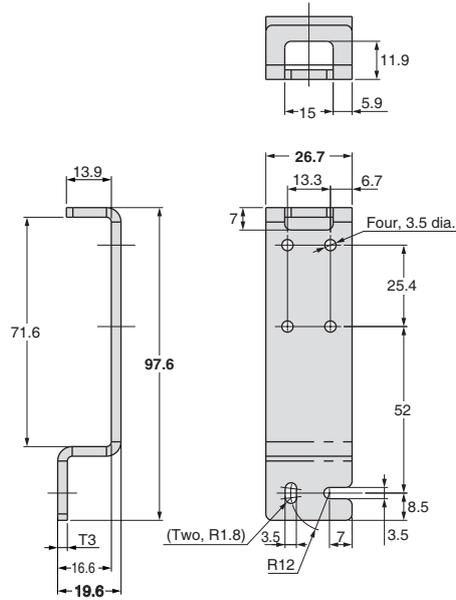
Photoelectric Sensor Accessory  
are installed  
(Example of E3AS-F1500□)



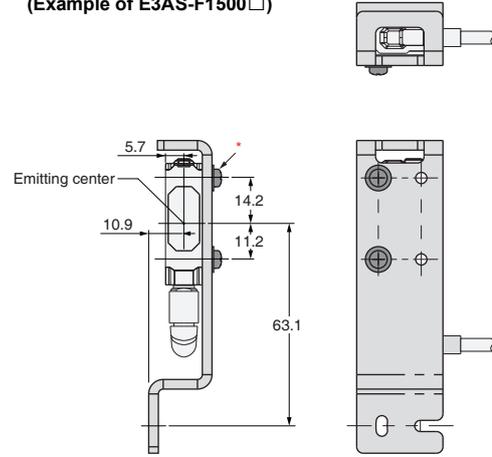
Material: Stainless steel (SUS304)  
\* Accessories  
2-M3-L12 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

# E3AS-F Series

## E39-L212



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

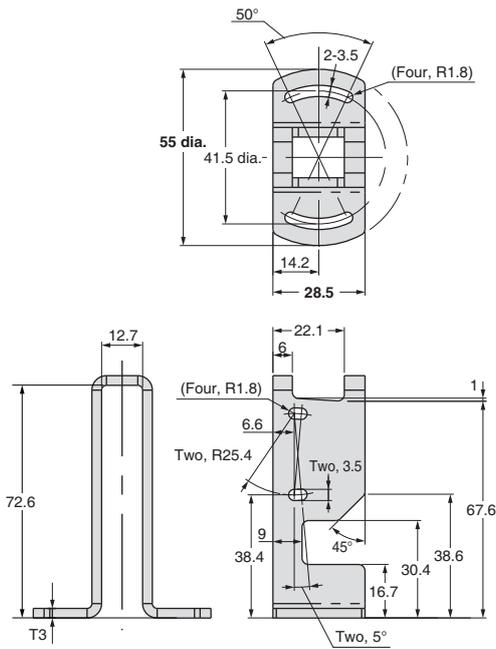


Material: Stainless steel (SUS304)

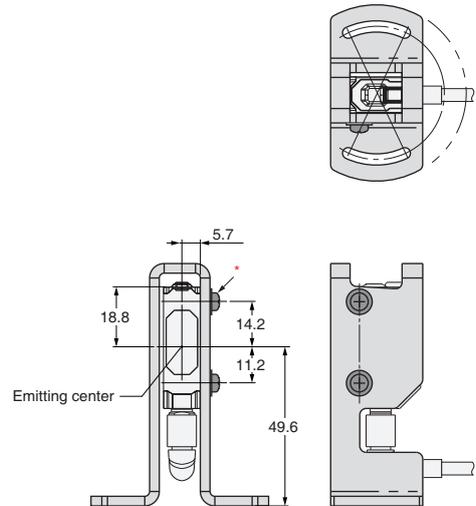
\* Accessories

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)