

# Distance-settable Photoelectric Sensors

## E3AS-HL Series

### E3AS-HL Series CMOS Photoelectric Sensor for precise part detection

- CMOS photoelectric sensor for advanced part detection capabilities
- Spot beam and line beam options for small part or uneven surfaces
- 500mm and 150mm sensing options fit for most sensing applications
- Antifouling coating prevents contamination on the sensing surface
- Ecolab certified in addition to IP67/69K/67G protection
- All models with IO-Link connectivity allowing users to collect and use measurement values (NPN type excluded)



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




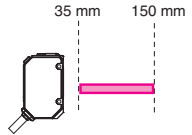
Refer to *Safety Precautions* on page 13.

## Ordering Information


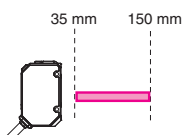
### E3AS-HL models [Refer to Dimensions on page 15]

#### Line beam type

Red light

Connection method	Sensing distance (white paper)	Model		
		Output	NPN output	PNP output
		IO-Link baud rate	---	COM3 (230.4 kbps) <sup>3</sup>
Pre-wired (2 m) <sup>1</sup>		E3AS-HL500LMN 2M	E3AS-HL500LMT 2M	
M8 Connector		E3AS-HL500LMN M3	E3AS-HL500LMT M3	
M12 Pre-wired Smartclick Connector (0.3m) <sup>2</sup>		E3AS-HL500LMN-M1TJ 0.3M	E3AS-HL500LMT-M1TJ 0.3M	
Pre-wired (2 m) <sup>1</sup>		E3AS-HL150LMN 2M	E3AS-HL150LMT 2M	
M8 Connector		E3AS-HL150LMN M3	E3AS-HL150LMT M3	
M12 Pre-wired Smartclick Connector (0.3m) <sup>2</sup>		E3AS-HL150LMN-M1TJ 0.3M	E3AS-HL150LMT-M1TJ 0.3M	

#### Spot type

Connection method	Sensing distance (white paper)	Model		
		Output	NPN output	PNP output
		IO-Link baud rate	---	COM3 (230.4 kbps) <sup>3</sup>
Pre-wired (2 m) <sup>1</sup>		E3AS-HL500MN 2M	E3AS-HL500MT 2M	
M8 Connector		E3AS-HL500MN M3	E3AS-HL500MT M3	
M12 Pre-wired Smartclick Connector (0.3m) <sup>2</sup>		E3AS-HL500MN-M1TJ 0.3M	E3AS-HL500MT-M1TJ 0.3M	
Pre-wired (2 m) <sup>1</sup>		E3AS-HL150MN 2M	E3AS-HL150MT 2M	
M8 Connector		E3AS-HL150MN M3	E3AS-HL150MT M3	
M12 Pre-wired Smartclick Connector (0.3m) <sup>2</sup>		E3AS-HL150MN-M1TJ 0.3M	E3AS-HL150MT-M1TJ 0.3M	

- Note:**
1. Models with 5-m cable length are also available with "5M" suffix. (Example: E3AS-HL500MN 5M/E3AS-HL500LMN 5M)
  2. M8 Pre-wired Connector Models are also available. When ordering, add "-M3J 0.3M" to the end of the model number (e.g., E3AS-HL500MN-M3J 0.3M/E3AS-HL500LMN-M3J 0.3M).
  3. COM2 (38.4kbps) Models are also available.

# E3AS-HL 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. It must be ordered separately as required.

#### 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 Straight type  Right-angle type 	PVC cable	5 dia.	Straight	2	XS3F-M8PVC4S2M
				5	XS3F-M8PVC4S5M
			Right-angle	2	XS3F-M8PVC4A2M
				5	XS3F-M8PVC4A5M

**Note:** 1. The XS3W (Socket and Plug on Cable Ends) is also available. Refer to *XS3 Series Datasheet* (Cat. No. G147).

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 XS2 series

Appearance	Cable specification	Cable diameter (mm)	Cable connection direction	Cable length (m)	Sensor I/O Connector model number
M12 Connector Straight type  Right-angle type 	PVC robot cable	6 dia.	Straight	2	XS2F-M12PVC4S2M
				5	XS2F-M12PVC4S5M
			Right-angle	2	XS2F-M12PVC4A2M
				5	XS2F-M12PVC4A5M

**Note:** 1. The XS2W (Socket and Plug on Cable Ends) is also available. Refer to XS2 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

A Mounting Bracket is not enclosed with the Sensor. Order a Mounting Bracket separately if required.





For E3AS-HL series [Refer to *Dimensions* on page 16]

Appearance	Model (material)	Pre-wired	M12 Pre-wired Smartclick Connector	M8 Connector
<b>L-shaped Mounting Bracket</b> 	E39-L221 (SUS304)	Yes	Yes	---
<b>Horizontal Protective Cover Bracket</b> 	E39-L222 (SUS304)	Yes	Yes	---
<b>Rear Mounting Bracket</b> 	E39-L223 (SUS304)	Yes	Yes	Yes <sup>2</sup>
<b>Robust Mounting Bracket</b> 	E39-L224 (SUS304)	Yes	Yes	---
<b>L-shaped Mounting Bracket</b> 	E39-L231 (SUS304)	--- <sup>1</sup>	--- <sup>1</sup>	Yes <sup>3</sup>
<b>Horizontal Protective Cover Bracket</b> 	E39-L232 (SUS304)	--- <sup>1</sup>	--- <sup>1</sup>	Yes <sup>3</sup>
<b>Robust Mounting Bracket</b> 	E39-L234 (SUS304)	--- <sup>1</sup>	--- <sup>1</sup>	Yes <sup>3</sup>
<b>Front Protection Cover</b> 	E39-E19 <sup>4</sup>	Yes	Yes	Yes

**Note:** 1. Can be used for Pre-wired 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.  
 4. Front Protection Cover is Accessory for E3AS-HL, E3AS-F model and E3AS-L model cannot be installed.

E3AS-HL series [Refer to *Dimensions* on page 19]

A Mounting Bracket is not enclosed with the Sensor. Order a Mounting Bracket separately if required.

Appearance	Model (material)	Pre-wired	M12 Pre-wired Smartclick Connector	M8 Connector
<b>Flexible Mounting Bracket</b> 	E39-L261 <sup>1</sup> (SUS304)	Yes	Yes	Yes
<b>Post 50 mm</b> 	E39-L262	Yes	Yes	Yes
<b>Post 100 mm</b> 	E39-L263	Yes	Yes	Yes
<b>Air Blow Unit</b> 	E39-E16 <sup>2</sup>	Yes	Yes	Yes

**Note:** 1. The Flexible Mounting Bracket is not provided with a Post (E39-L262/E39-L263). It must be ordered separately.  
 2. The tube for air is not included.

## Ratings and Specifications

### E3AS-HL models

Item	Sensing method		Triangulation			
	Model	NPN Output	E3AS-HL500MN	E3AS-HL500LMN	E3AS-HL150MN	E3AS-HL150LMN
		PNP Output/COM3	E3AS-HL500MT	E3AS-HL500LMT	E3AS-HL150MT	E3AS-HL150LMT
<b>Sensing distance</b> <sup>1</sup>		35 mm to the set distance			35 mm to the set distance	
<b>Setting range</b> <sup>1</sup>		35 to 500 mm			35 to 150 mm	
<b>Standard detectable difference</b> <sup>1</sup>		35 to 180 mm: 9 mm 180 to 300 mm: 18 mm 300 to 400 mm: 30 mm 400 to 500 mm: 45 mm at 10 m sec			35 to 50 mm: 1 mm 50 to 100 mm: 2 mm 100 to 150 mm: 4 mm at 10 m sec	
<b>Display minimum unit value</b>		1 mm			0.1 mm	
<b>Spot size (reference value)</b> <sup>2</sup>		2.5 mm × 1.5 mm at distance of 500 mm	18 mm × 1.5 mm at distance of 500 mm	2.5 mm × 1.3 mm at distance of 150 mm	8 mm × 1.3 mm at distance of 150 mm	
<b>Light source (wavelength)</b>		Red laser (660 nm), Class1 (IEC/EN60825-1:2014)				
<b>Power supply voltage</b>		10 to 30 VDC (including 10% ripple (p-p)), Class2				
<b>Current consumption</b>		100 mA max.				
<b>Input/ output</b>	<b>Control output</b>	Load power supply voltage 30 VDC max. (Class2), the total load current of the two outputs is 100 mA max. Residual voltage (Load current 10 mA max.: 1 VDC max., Load current 10 to 100 mA: 2 VDC max.) Open-collector output (NPN/PNP output depending on model) N.O. (Normally Open) / N.C. (Normally Close) selectable				
		<b>NPN</b>	OUTPUT 1: NO (Normally open), OUTPUT 2: NC (Normally closed)			
		<b>PNP/COM3</b>	OUTPUT 1: NO (Normally open)/COM□, OUTPUT 2: NC (Normally closed)			
	<b>External input</b>	Laser OFF / Teaching / Zero reset selectable NPN ON time: 0 V short-circuit or 1.5 V or less, OFF time: Power supply voltage short-circuit or open PNP ON time: Power supply voltage short-circuit or within power supply voltage - 1.5 V, OFF time: 0 V short-circuit or open				
<b>Response time</b>		1.5 ms / 10 ms / 50 ms selectable				
<b>Threshold setting method</b>		Teaching method / Manual Operations / IO-Link communications				
<b>Mutual interference prevention</b>		4 units max. (when using the mutual interference prevention function)				
<b>Ambient illumination</b>		Receiver surface illuminance: Incandescent lamp: 20,000 lx max., Sunlight: 25,000 lx max. at distance of 250 mm Incandescent lamp: 5,000 lx max., Sunlight: 10,000 lx max. at distance of 500 mm			Receiver surface illuminance: Incandescent lamp: 8,000 lx max., Sunlight: 16,000 lx max.	

**Note:** 1. Measured with OMRON's standard workpiece (White ceramic).

2. Defined by D46 method at the maximum sensing distance. Detection may be influenced if there is light leakage outside the defined region and the surroundings of the target object have a high reflectance in comparison to the target object. Also, when detecting a workpiece that is smaller than the spot size, a correct value may not be obtained.

# E3AS-HL Series

## E3AS-HL models

Series		E3AS-HL
Protection circuits		Power supply reverse polarity protection, Output short-circuit protection, and Output reverse polarity protection
Ambient temperature range		Operating: -10 to 50°C, Storage: -25 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		OLED Display (White), Power/Communication indicator (Green*), Operation indicator (Orange) * IO-Link Communication mode: blinking
Connection method		Pre-wired (standard cable length: 2 m), M8 Connector, M12 Pre-wired Smartclick Connector (standard cable length: 0.3m)
Weight (packed state/Sensor only)	Pre-wired (2 m)	Approx. 180 g/approx. 110 g
	M8 Connector	Approx. 120 g/approx. 50 g
	M12 Pre-wired Smartclick Connector (0.3m)	Approx. 150 g/approx. 80 g
Materials	Case	Stainless steel (SUS316L)
	Lens cover and Display	Methacrylic resin (PMMA) (Lens cover: Antifouling coating)
	Indicator	Polyamide 11 (PA11)
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, Restore Factory Settings, Key Lock (Unlock, Lock, Lock (No Button)), monitor output* (Detection level, Incident light level) * Only for E3AS-HL and E3AS-F
IO-Link Communication specifications	IO-Link specification	Ver. 1.1
	Baud rate	COM3 (230.4 kbps)
	Data length	PD size: 4 bytes, OD size: 1 byte (M-sequence type: TYPE_2_V)
	Minimum cycle time	COM3: 1.2 ms
Accessories		Instruction manual, compliance sheet, index list (attached for IO-Link type only) E3AS-HL: FDA certification label and Warning label E3AS-F: FDA certification label Note: Mounting Brackets must be ordered separately.

**Note:** 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.

# Engineering Data (Reference Value)

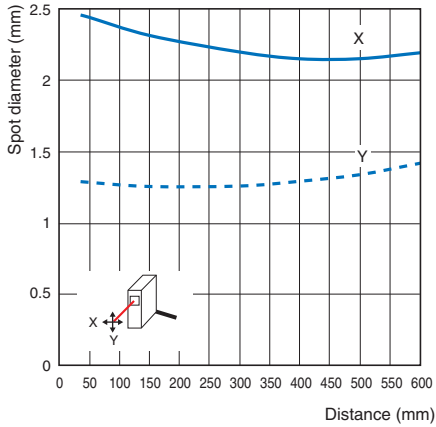
## E3AS-HL models

### Spot Diameter vs. Sensing Distance

#### Spot type

E3AS-HL500□

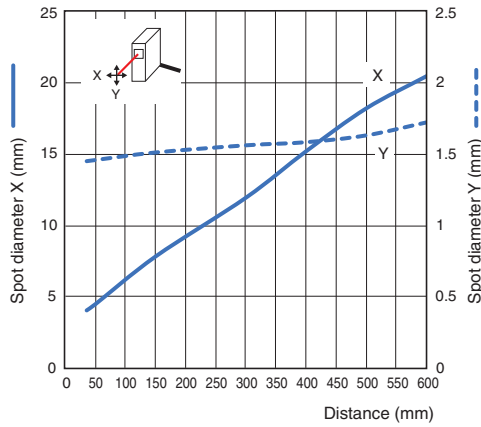
E3AS-HL150□



#### Line beam type

E3AS-HL500L□

E3AS-HL150L□

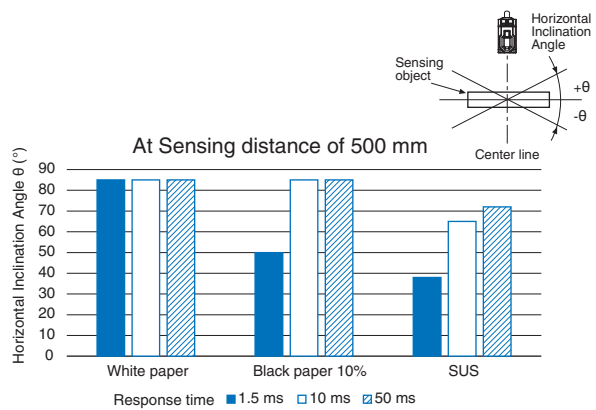
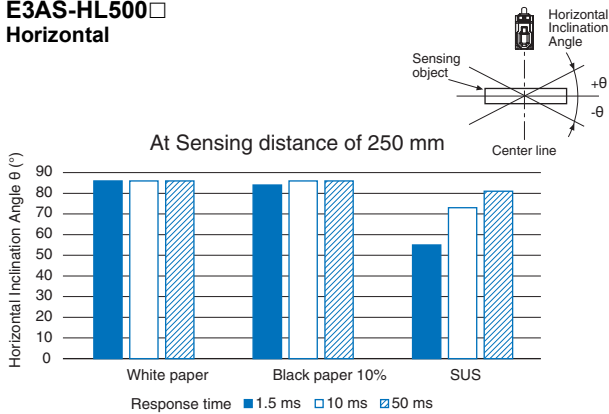


### Sensing Object Angle Characteristics

#### Spot type/Line beam type

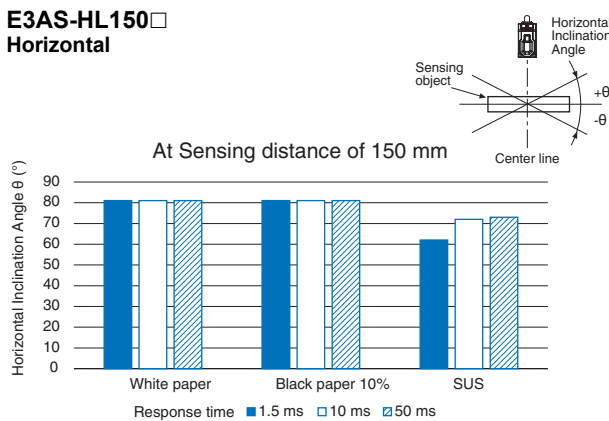
E3AS-HL500□

#### Horizontal



E3AS-HL150□

#### Horizontal

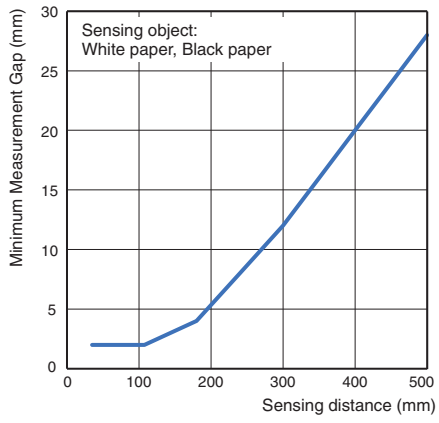




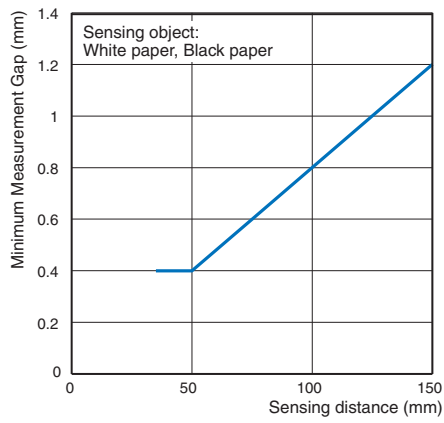
Minimum Measurement Gap Vs. Distance

Spot type/Line beam type

E3AS-HL500□



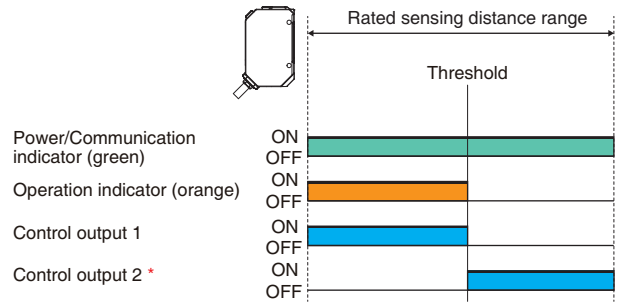
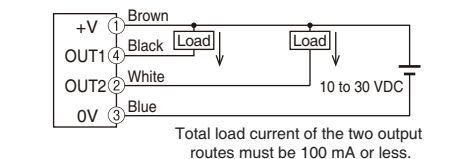
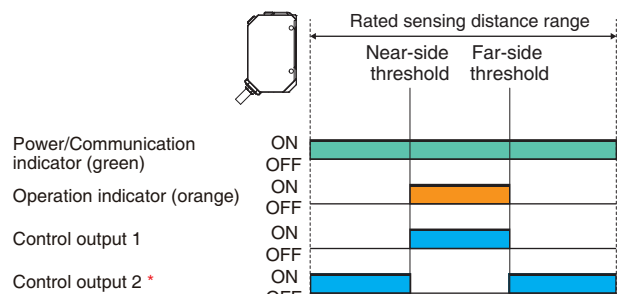
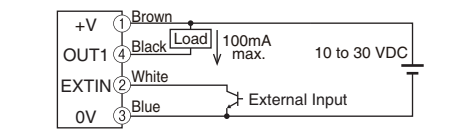
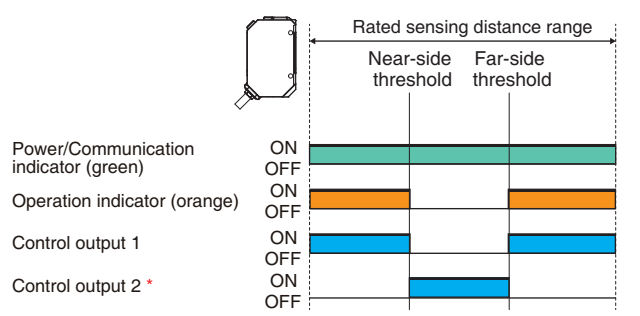
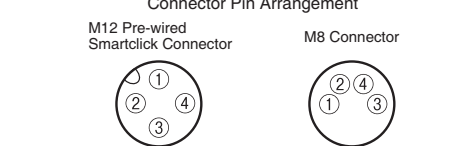
E3AS-HL150□



# I/O Circuit Diagrams/ Timing Charts

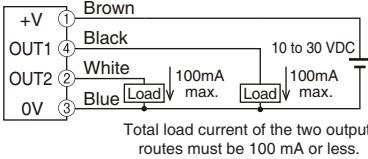
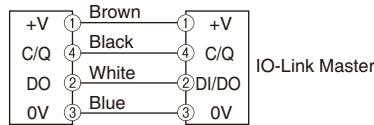
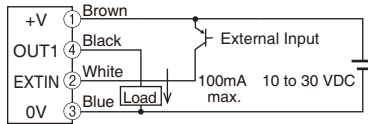


## E3AS-HL models

### NPN Output

Model	Timing chart	Output circuit						
E3AS-HL500□N□ E3AS-HL150□N□	<p><b>Single Point Mode [Single]</b></p> 	<p><b>Using Pin2 (white wire) as output</b></p>  <p>Total load current of the two output routes must be 100 mA or less.</p>						
	<p><b>Window BGS mode [Window BGS]</b></p> 	<p><b>Using Pin2 (white wire) as external input</b></p>  <table border="1" data-bbox="1053 739 1452 851"> <thead> <tr> <th>External Input</th> <th>NPN</th> </tr> </thead> <tbody> <tr> <td><b>ON time</b></td> <td>0V short-circuit or 1.5V or less</td> </tr> <tr> <td><b>OFF time</b></td> <td>Power supply voltage short-circuit or open</td> </tr> </tbody> </table>	External Input	NPN	<b>ON time</b>	0V short-circuit or 1.5V or less	<b>OFF time</b>	Power supply voltage short-circuit or open
	External Input	NPN						
<b>ON time</b>	0V short-circuit or 1.5V or less							
<b>OFF time</b>	Power supply voltage short-circuit or open							
<p><b>Window FGS mode [Window FGS]</b></p> 	<p><b>Connector Pin Arrangement</b></p> 							

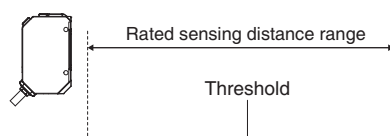
**Note:** The initial value of control output 2 is reverse of control output 1.

## PNP Output

Model	Output circuit							
	Standard I/O mode (SIO mode) <sup>1</sup>	IO-Link Communication mode (COM mode) <sup>2</sup>						
E3AS-HL500□□□ E3AS-HL150□□□	<b>Using Pin2 (white wire) as output</b> 	<b>Using Pin2 (white wire) as output</b> 						
	<b>Using Pin2 (white wire) as external input</b>  <table border="1" data-bbox="359 728 821 840"> <thead> <tr> <th>External Input</th> <th>PNP</th> </tr> </thead> <tbody> <tr> <td>ON time</td> <td>Power supply voltage short-circuit or within power supply voltage - 1.5V</td> </tr> <tr> <td>OFF time</td> <td>0V short-circuit or open</td> </tr> </tbody> </table>	External Input	PNP	ON time	Power supply voltage short-circuit or within power supply voltage - 1.5V	OFF time	0V short-circuit or open	---
	External Input	PNP						
ON time	Power supply voltage short-circuit or within power supply voltage - 1.5V							
OFF time	0V short-circuit or open							
<b>Connector Pin Arrangement</b> M12 Pre-wired Smartclick Connector  M8 Connector 								

**Note:** 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.

## Single Point Mode [Single]

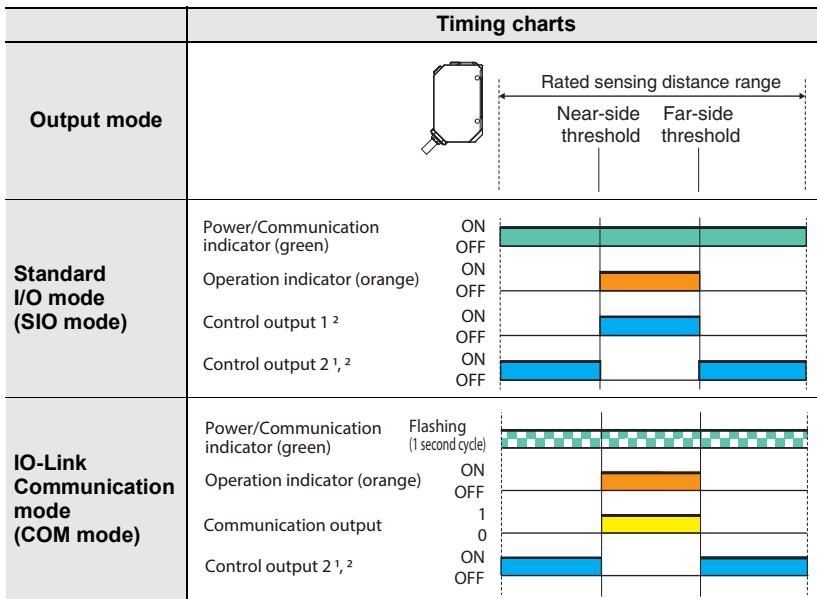
Timing charts	
Output mode	
Standard I/O mode (SIO mode)	Power/Communication indicator (green) ON: [Green bar] OFF: [White bar]
	Operation indicator (orange) ON: [Orange bar] OFF: [White bar]
	Control output 1 <sup>2</sup> ON: [Blue bar] OFF: [White bar]
	Control output 2 <sup>1, 2</sup> ON: [Blue bar] OFF: [White bar]
IO-Link Communication mode (COM mode)	Power/Communication indicator (green) Flashing (1 second cycle) [Green bar with checkered pattern]
	Operation indicator (orange) ON: [Orange bar] OFF: [White bar]
	Communication output 1: [Yellow bar] 0: [White bar]
	Control output 2 <sup>1, 2</sup> ON: [Blue bar] OFF: [White bar]

**Note:** 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).)

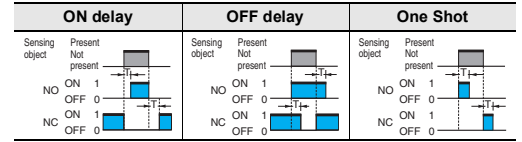
ON delay		OFF delay		One Shot	
Sensing object	Present	Sensing object	Present	Sensing object	Present
	Not present		Not present		Not present
NO	ON 1	NO	ON 1	NO	ON 1
	OFF 0		OFF 0		OFF 0
NC	ON 1	NC	ON 1	NC	ON 1
	OFF 0		OFF 0		OFF 0

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

Window BGS mode [Window BGS]

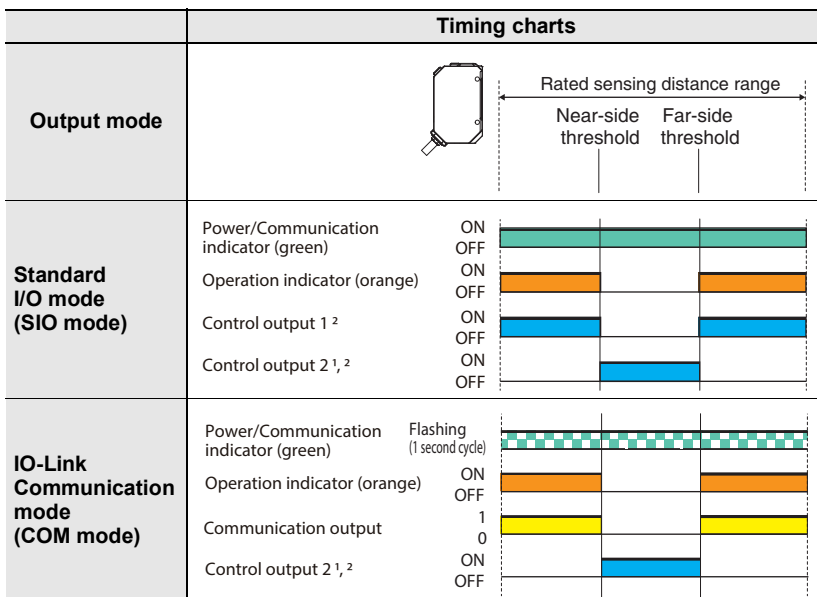


- Note:**
1. The initial value of control output 2 is reverse of control output 1.
  2. The timer function of the control output can be set up by the IO-Link communications. (It is able to select ON delay, OFF delay, or one-shot function and select a timer time of 1 to 9,999 ms (T).)

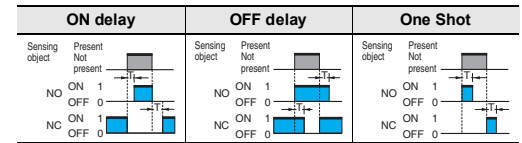


Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

Window FGS mode [Window FGS]



- Note:**
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).)

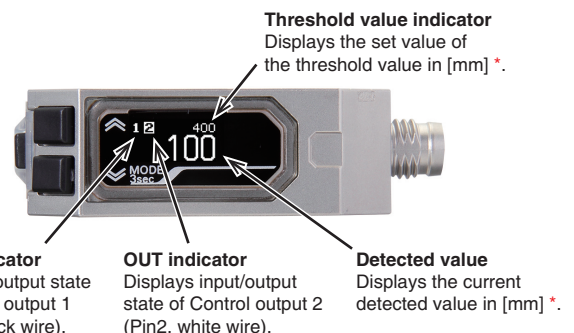
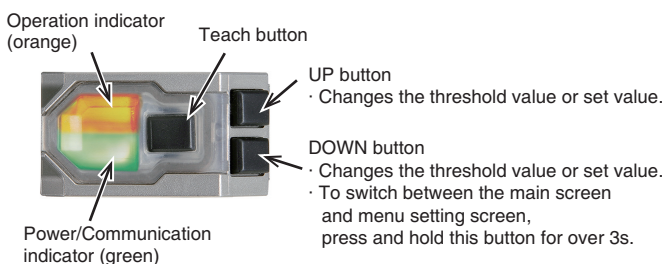


Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

**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-HL500□  
E3AS-HL150□



**Note:** The indicators work differently depending on sensor status.



\* Reference value

# E3AS-HL Series

## 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> 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> 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> Indicates the instructions of unspecified prohibited action
	<b>Caution, fire</b> Indicates the possibility of fires under specific conditions.
	<b>General caution</b> Indicates unspecified general alert.
	<b>Caution, explosion</b> Indicates the possibility of explosion under specific conditions
	<b>Laser Caution</b> Indicates information related to laser safety
	<b>Disassembly prohibited</b> Prohibit the disassembly of a device because of the possibility of injuries due to electric shock.

### **WARNING**

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



Do not use it exceeding the rated voltage. There is a possibility of failure and fire.



### **CAUTION**

Its component may be damaged and/or degree of protection may be degraded. Please do not apply high pressure water intensively at one place during cleaning.



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



### E3AS-HL and E3AS-F models

#### 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.



Do not disassemble this product. Doing so may cause exposure to the built-in light source which can damage eyes and skin. Never disassemble it.



Laser safety measures for laser equipment are stipulated by the country of use. Follow the instructions described below categorized in four cases.

#### 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.

This product is subjected to the U.S. FDA (Food and Drug Administration) laser regulations. This product is classified into Class 1 by the IEC 60825-1:2014 standard according to the regulations of Laser Notice No.56 of the FDA standard. This product is already reported to CDRH (Center for Devices and Radiological Health).

Accession Number: 1920014-001

When using a device equipped with the product in the U.S., attach an FDA certification label near the sensor mounted on customer equipment.

FDA certification label

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, Shimogyo-ku,  
Kyoto 600-8530 JAPAN  
Place of manufacture:  
Shanghai Factory, OMRON Corp.  
Manufactured In

#### 3. Usage in China

This product is classified into Class 2 by the GB7247.1:2012 (IEC60825-1:2007) standard.

When using a device equipped with the product in China, attach a Warning label near the sensor mounted on customer equipment.

Warning label



#### 4. Usage in countries other than U.S. and China


This product is classified into Class 1 by the IEC/EN 60825-1:2014 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.
7. Do not touch the metal surface with your bare hands when the temperature is low. Touching the surface may result in a cold burn.
8. Burn injury may occur. The product surface temperature rises depending on application conditions, such as the ambient temperature and the power supply voltage. Attention must be paid during operation or cleaning.

### 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. In case of M12 smartclick connector, manually tighten the connector.
3. Tightening torque for the mounting hole is 0.6 N·m or less (M3 screw).
4. Do not use the product in any atmosphere or environment that exceeds the ratings.
5. 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.
6. Use an extension cable less than 100 m long for Standard I/O mode and less than 20 m for IO-Link Communication mode.
7. Do not pull on the cable with excessive strength.
8. Be sure to turn off the power supply when connecting or disconnecting the cable.
9. Please wait for at least 600 ms (E3AS-HL), 500 ms (E3AS-F), 100 ms (E3AS-L) after turning on the product's power until it is available for use.
10. Though this is type IP67, do not use in the water, rain or outdoors.
11. 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.
12. Do not use the product in locations subject to direct sunlight.
13. Do not use the product where humidity is high and dew condensation may occur.
14. Do not use the product where corrosive gases may exist.
15. If high-pressure washing water and so on hits the button, it might lead to malfunctioning. So, consider use of the key lock function.
16. 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.
17. Do not use the product at a location subject to shock or vibration.
18. To use a commercially available switching regulator, FG (frame ground) must be grounded.
19. Do not use organic solvents (e.g. paint thinner and alcohol) for cleaning. Otherwise optical properties and protective structure may deteriorate.
20. Be sure to check the influence caused by surrounding environments such as background objects and LED lighting before using the product.
21. Do not exceed 100,000 writing operations of the EEPROM (non-volatile memory). Setting information is written to the EEPROM when a threshold value change, teaching, or zero reset is executed.
22.  Please dispose in accordance with applicable regulations.



# E3AS-HL Series

## Dimensions

(Unit: mm)

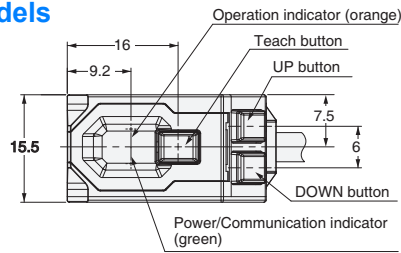
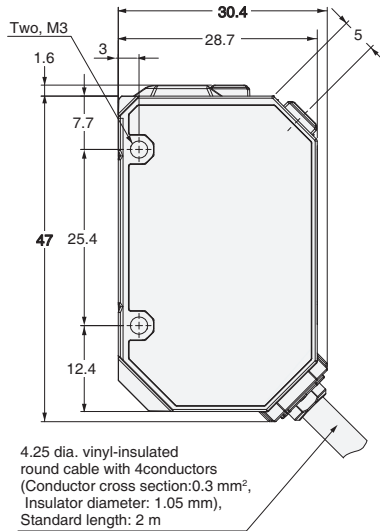
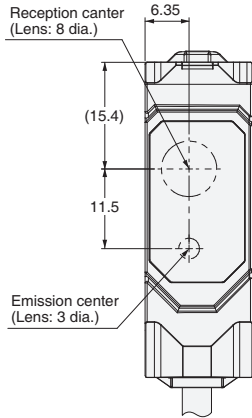
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

### Sensors

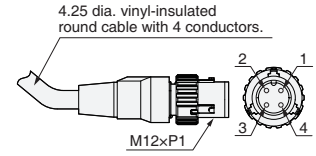
#### Pre-wired Models/Pre-wired Connector Models

E3AS-HL500□ (-M1TJ)

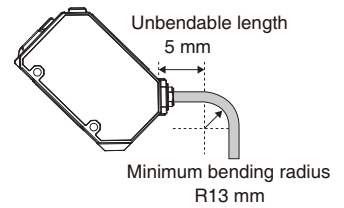
E3AS-HL150□ (-M1TJ)



**Pre-wired Connector Models**  
E3AS-HL500□-M1TJ  
E3AS-HL150□-M1TJ



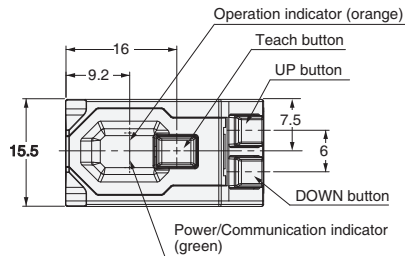
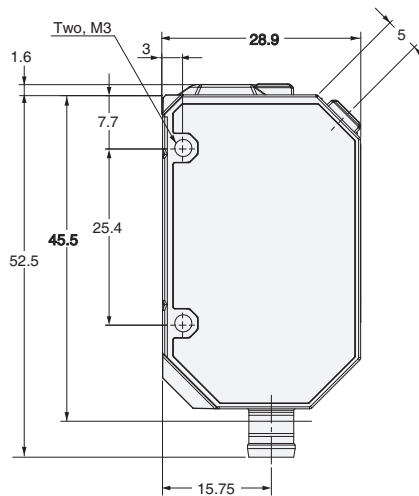
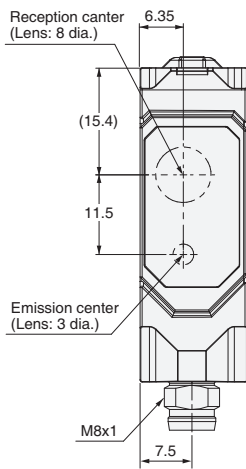
**Minimum bending radius/unbendable length of cord**



#### Connector Models

E3AS-HL500□ M3

E3AS-HL150□ M3

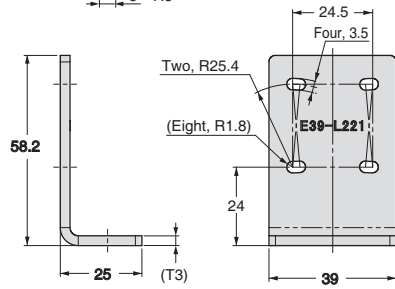
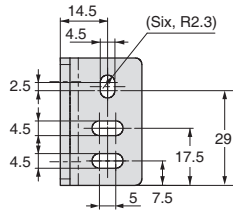


Accessories (Sold Separately)

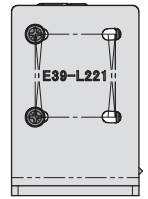
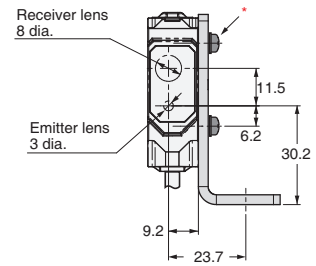
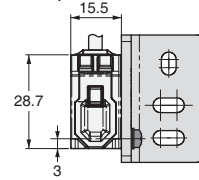
Mounting Brackets

For E3AS-HL models

E39-L221



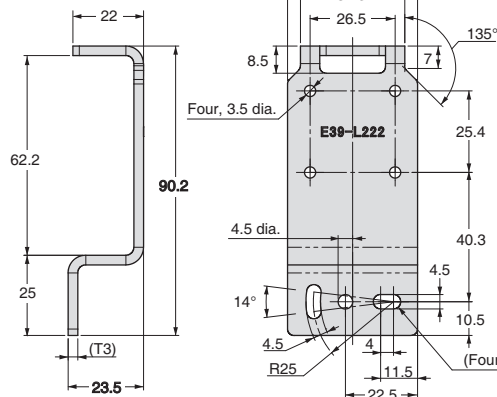
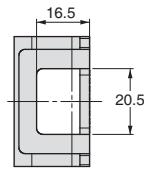
Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)



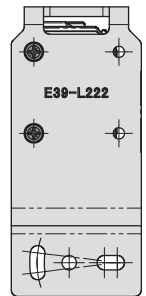
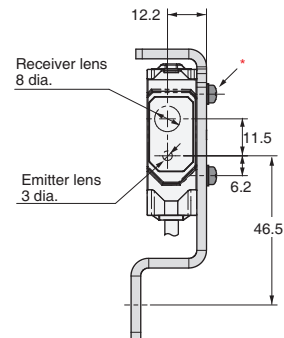
Material: Stainless steel (SUS304)

\* Accessories  
2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L222



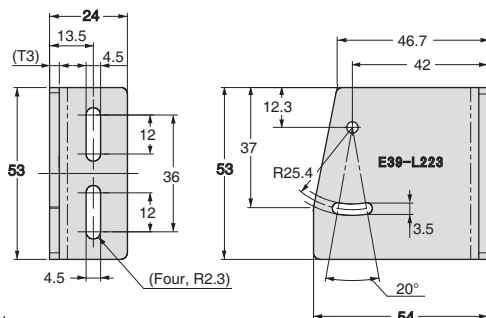
Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)



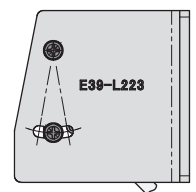
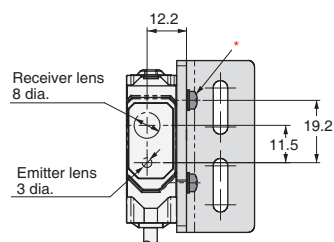
Material: Stainless steel (SUS304)

\* Accessories  
2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L223



Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)



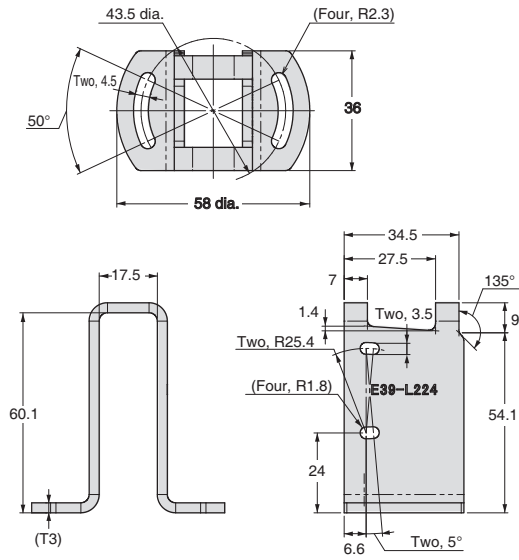
Material: Stainless steel (SUS304)

\* Accessories  
2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

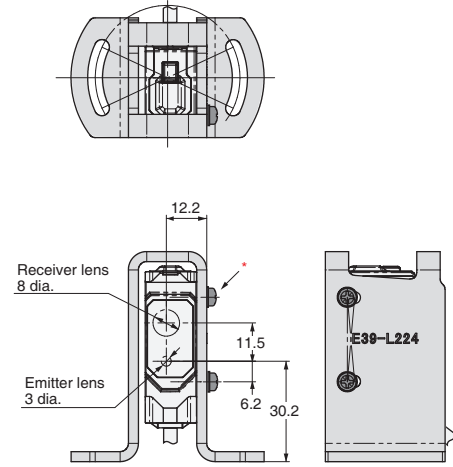


# E3AS-HL Series

## E39-L224



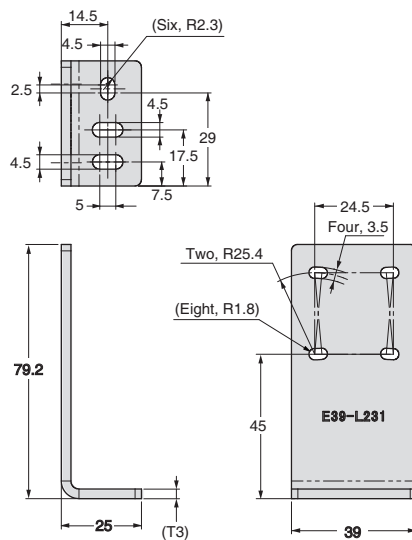
Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)



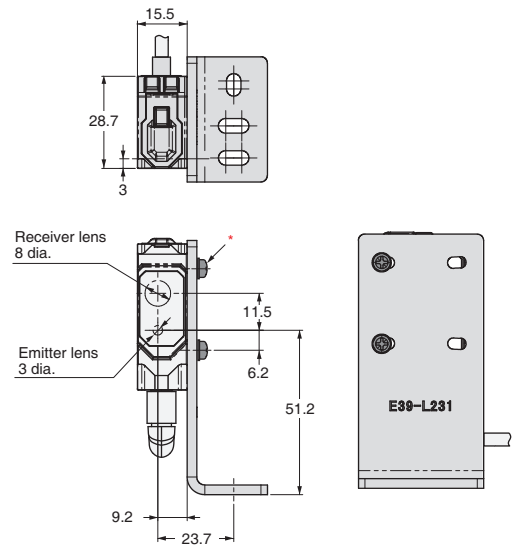
Material: Stainless steel (SUS304)

\* Accessories  
2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

## E39-L231



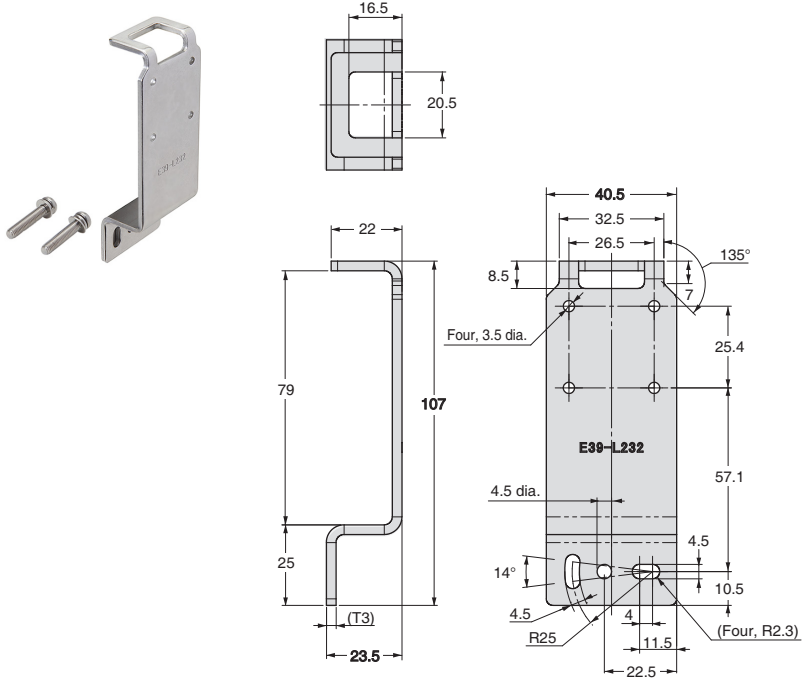
Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)



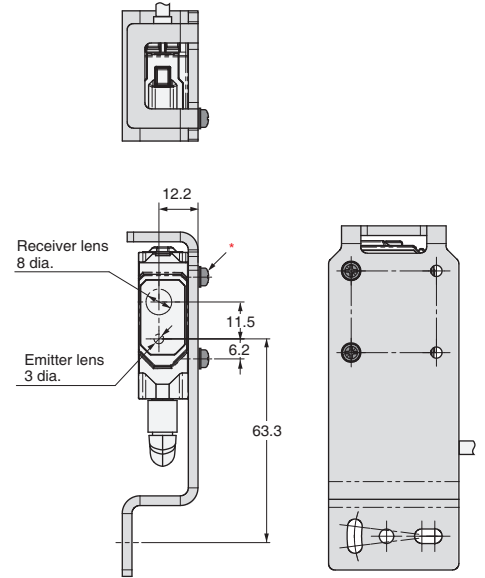
Material: Stainless steel (SUS304)

\* Accessories  
2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

**E39-L232**



Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)

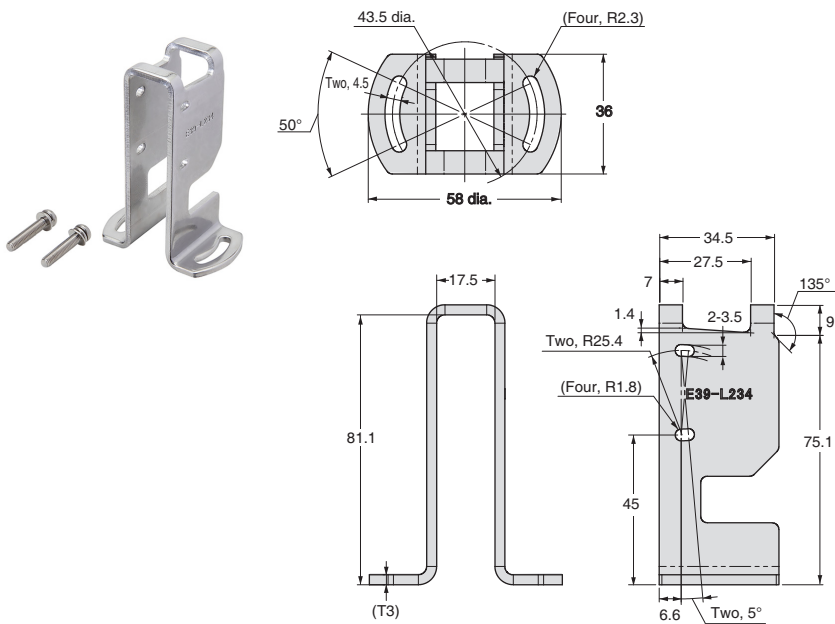


Material: Stainless steel (SUS304)

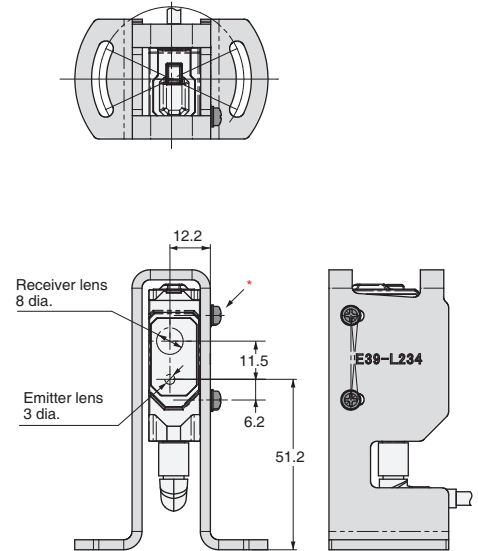
\* Accessories

2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

**E39-L234**



Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)



Material: Stainless steel (SUS304)

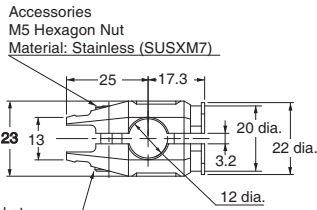
\* Accessories

2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

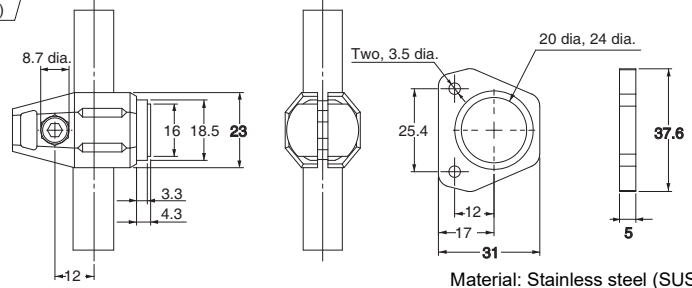
# E3AS-HL Series

## Common to E3AS series

### Flexible Mounting Bracket E39-L261



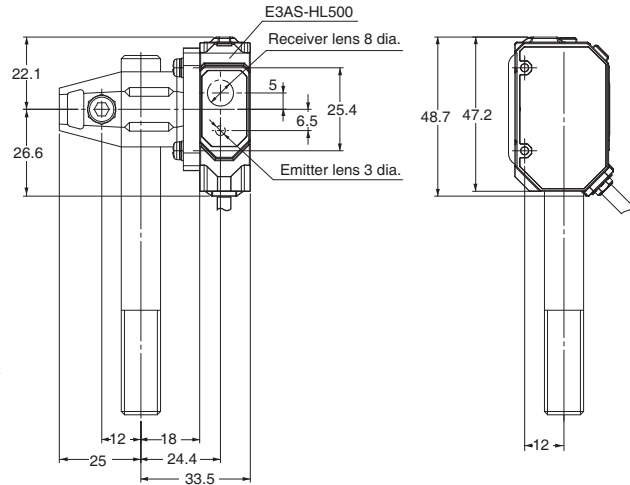
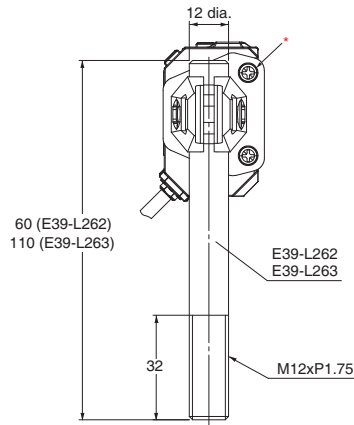
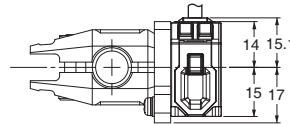
Accessories  
M5-L15 Hexagon Socket  
Head Cap Screws  
Material: Stainless (SUSXM7)



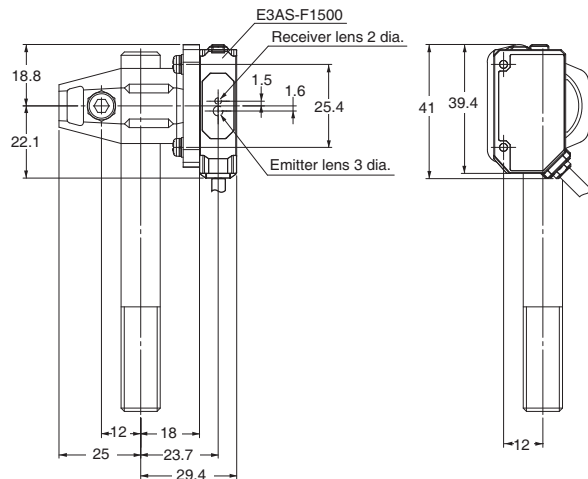
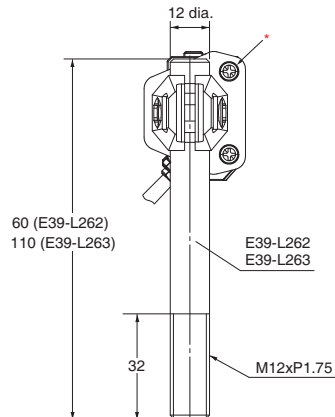
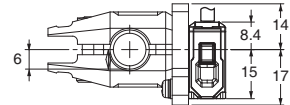
Material: ZDC2  
Finished: Ni Plating

Material: Stainless steel (SUS304)

### Photoelectric Sensor Accessory are installed (Example of E3AS-HL500□)

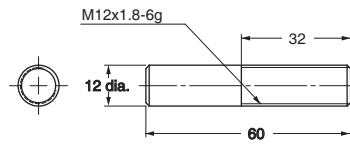


### Photoelectric Sensor Accessory are installed (Example of E3AS-F1500□)

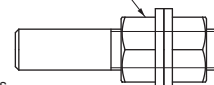


\* Accessories 2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS)

**Post 50 mm  
E39-L262**



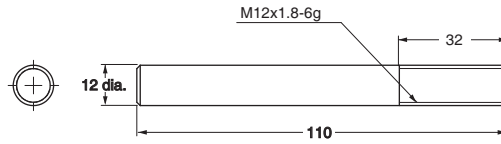
Accessories  
2-M12 Hexagon Nut  
Material: Stainless (SUSXM7)



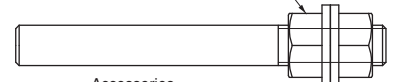
Accessories  
2-M12 Plain Washer  
Material: Stainless (SUS304)

Material: Stainless steel (SUS304)

**Post 100 mm  
E39-L263**



Accessories  
2-M12 Hexagon Nut  
Material: Stainless (SUSXM7)

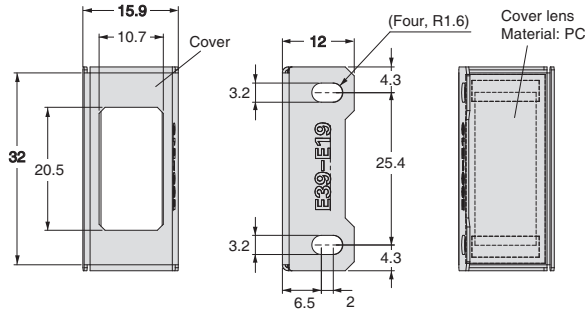
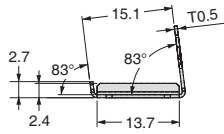


Accessories  
2-M12 Plain Washer  
Material: Stainless (SUS304)

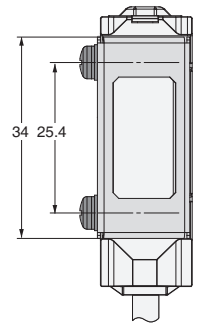
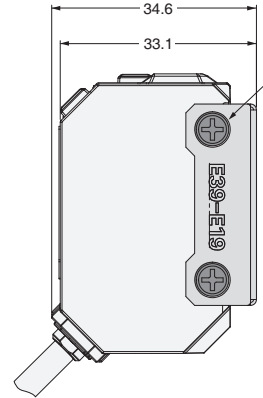
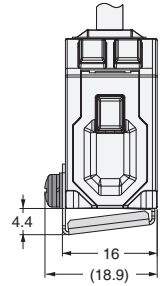
Material: Stainless steel (SUS304)

# E3AS-HL Series

## E39-E19



Photoelectric Sensor  
Accessory are installed  
(Example of E3AS-HL500□)

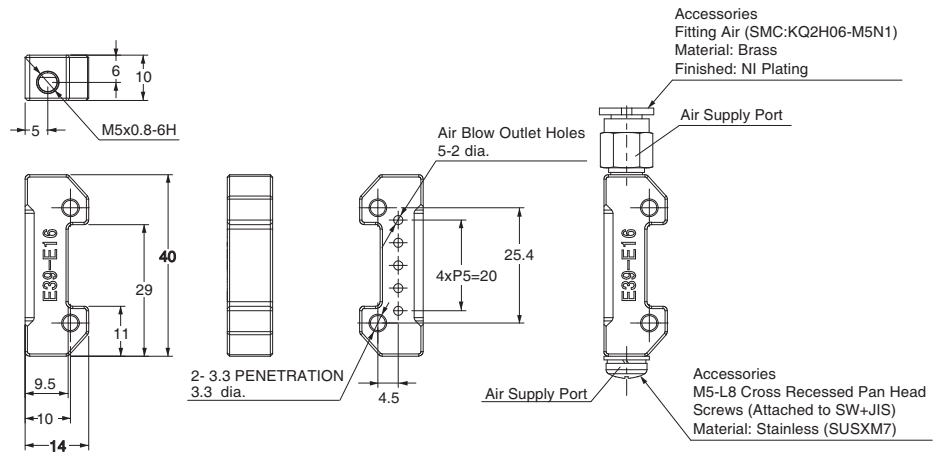


Material: Stainless steel (SUS304)

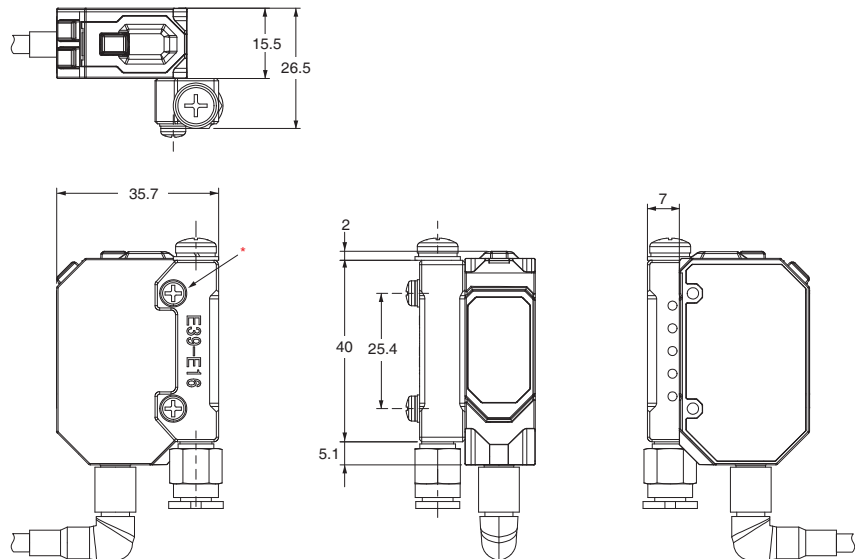
\* Accessories

2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

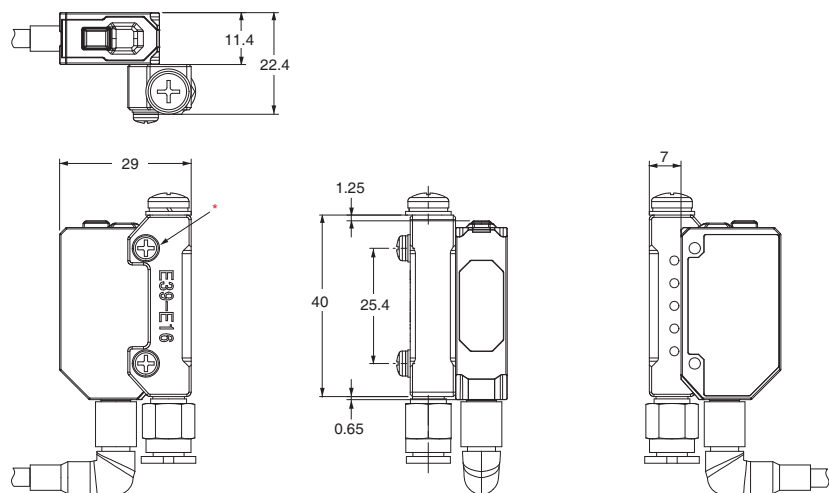
## Air Blow Unit E39-E16



## Photoelectric Sensor Accessory are installed (Example of E3AS-HL500□)



## Photoelectric Sensor Accessory are installed (Example of E3AS-HL500□)



Material: ZDC2  
 Finished: NI Plating  
 \* Accessories 2-M3-L16 Cross Recessed Pan Head Screws (Attached to SW+JIS)

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- Digital Panel Meters • Monitoring Products

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- Solid State Relays

**Software**

- Programming & Configuration • Runtime