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)

⚠ Refer to *Safety Precautions* on page 13.

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

Ordering Information

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

Line beam type

▬ Red light

Connection method	Sensing distance (white paper)	Output	Model	
			NPN output	PNP output
		IO-Link baud rate	---	COM3 (230.4 kbps) [3]
Pre-wired (2 m) [1]	35 mm / 500 mm		E3AS-HL500LMN 2M	E3AS-HL500LMT 2M
M8 Connector			E3AS-HL500LMN M3	E3AS-HL500LMT M3
M12 Pre-wired Smartclick Connector (0.3m) [2]			E3AS-HL500LMN-M1TJ 0.3M	E3AS-HL500LMT-M1TJ 0.3M
Pre-wired (2 m) [1]	35 mm / 150 mm		E3AS-HL150LMN 2M	E3AS-HL150LMT 2M
M8 Connector			E3AS-HL150LMN M3	E3AS-HL150LMT M3
M12 Pre-wired Smartclick Connector (0.3m) [2]			E3AS-HL150LMN-M1TJ 0.3M	E3AS-HL150LMT-M1TJ 0.3M

Spot type

Connection method	Sensing distance (white paper)	Output	Model	
			NPN output	PNP output
		IO-Link baud rate	---	COM3 (230.4 kbps) [3]
Pre-wired (2 m) [1]	35 mm / 500 mm		E3AS-HL500MN 2M	E3AS-HL500MT 2M
M8 Connector			E3AS-HL500MN M3	E3AS-HL500MT M3
M12 Pre-wired Smartclick Connector (0.3m) [2]			E3AS-HL500MN-M1TJ 0.3M	E3AS-HL500MT-M1TJ 0.3M
Pre-wired (2 m) [1]	35 mm / 150 mm		E3AS-HL150MN 2M	E3AS-HL150MT 2M
M8 Connector			E3AS-HL150MN M3	E3AS-HL150MT M3
M12 Pre-wired Smartclick Connector (0.3m) [2]			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 availavble. 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.

OMRON

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
L-shaped Mounting Bracket		E39-L221 (SUS304)	Yes	Yes	---
Horizontal Protective Cover Bracket		E39-L222 (SUS304)	Yes	Yes	---
Rear Mounting Bracket		E39-L223 (SUS304)	Yes	Yes	Yes [2]
Robust Mounting Bracket		E39-L224 (SUS304)	Yes	Yes	---
L-shaped Mounting Bracket		E39-L231 (SUS304)	--- [1]	--- [1]	Yes [3]
Horizontal Protective Cover Bracket		E39-L232 (SUS304)	--- [1]	--- [1]	Yes [3]
Robust Mounting Bracket		E39-L234 (SUS304)	--- [1]	--- [1]	Yes [3]
Front Protection Cover		E39-E19 [4]	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
Flexible Mounting Bracket	E39-L261 [1] (SUS304)	Yes	Yes	Yes
Post 50 mm	E39-L262	Yes	Yes	Yes
Post 100 mm	E39-L263	Yes	Yes	Yes
Air Blow Unit	E39-E16 [2]	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

	Sensing method	Triangulation			
Model	**NPN Output**	E3AS-HL500MN	E3AS-HL500LMN	E3AS-HL150MN	E3AS-HL150LMN
Item	**PNP Output/COM3**	E3AS-HL500MT	E3AS-HL500LMT	E3AS-HL150MT	E3AS-HL150LMT
Sensing distance [1]		35 mm to the set distance		35 mm to the set distance	
Setting range [1]		35 to 500 mm		35 to 150 mm	
Standard detectable difference [1]		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	
Display minimum unit value		1 mm		0.1 mm	
Spot size (reference value) [2]		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
Light source (wavelength)		Red laser (660 nm), Class1 (IEC/EN60825-1:2014)			
Power supply voltage		10 to 30 VDC (including 10% ripple (p-p)), Class2			
Current consumption		100 mA max.			
Input/ output	**Control output**	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			
	NPN	OUTPUT 1: NO (Normally open), OUTPUT 2: NC (Normally closed)			
	PNP/COM3	OUTPUT 1: NO (Normally open)/COM□, OUTPUT 2: NC (Normally closed)			
	External input	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			
Response time		1.5 ms / 10 ms / 50 ms selectable			
Threshold setting method		Teaching method / Manual Operations / IO-Link communications			
Mutual interference prevention		4 units max. (when using the mutual interference prevention function)			
Ambient illumination		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 D4ó 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^2 for 3 times each in X, Y, and Z directions
Degree of protection		IP67 (IEC60529) and IP67G [1] (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.
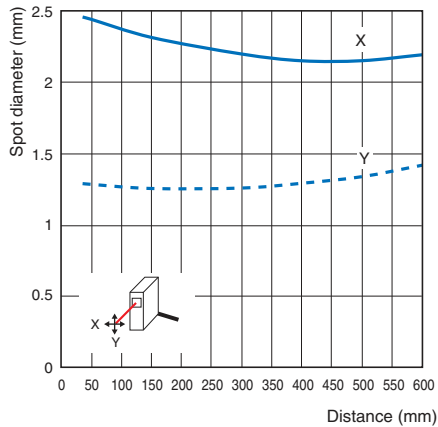
Engineering Data (Reference Value)

E3AS-HL models

Spot Diameter vs. Sensing Distance
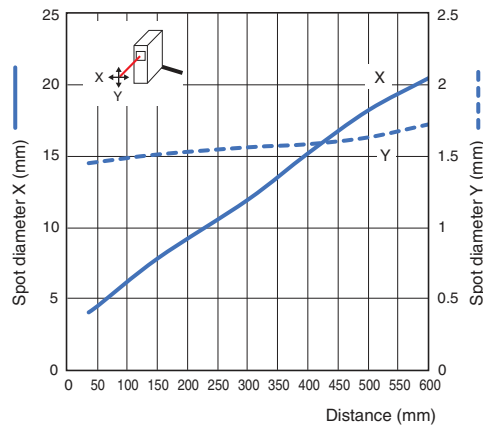
Spot type
E3AS-HL500□
E3AS-HL150□

Line beam type
E3AS-HL500L□
E3AS-HL150L□

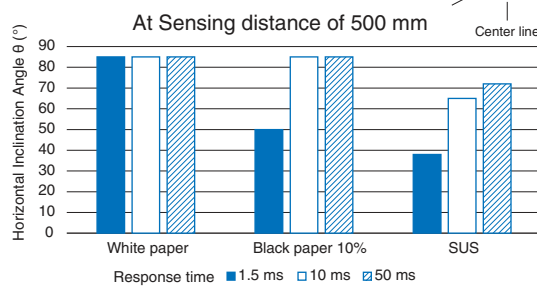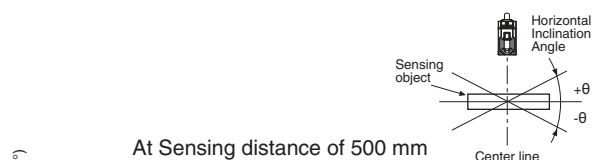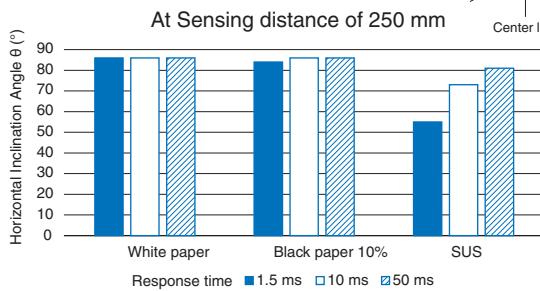### Sensing Object Angle Characteristics

Spot type/Line beam type
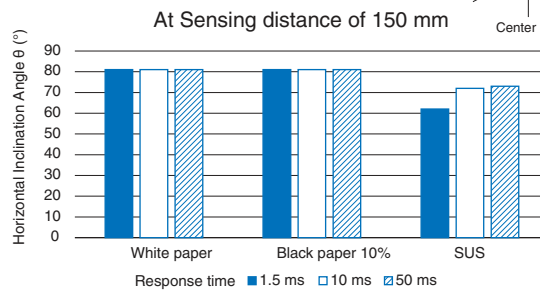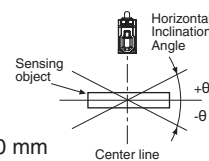**E3AS-HL500□**
Horizontal

At Sensing distance of 250 mm

Response time ■1.5 ms □10 ms ▨50 ms

At Sensing distance of 500 mm

Response time ■1.5 ms □10 ms ▨50 ms

E3AS-HL150□
Horizontal

At Sensing distance of 150 mm

Response time ■1.5 ms □10 ms ▨50 ms
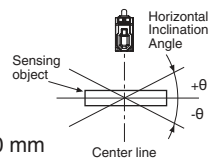
Minimum Measurement Gap Vs. Distance

Spot type/Line beam type

E3AS-HL500□

Sensing object:
White paper, Black paper

(Graph: X-axis "Sensing distance (mm)" from 0 to 500, Y-axis "Minimum Measurement Gap (mm)" from 0 to 30)

E3AS-HL150□

Sensing object:
White paper, Black paper

(Graph: X-axis "Sensing distance (mm)" from 0 to 150, Y-axis "Minimum Measurement Gap (mm)" from 0 to 1.4)
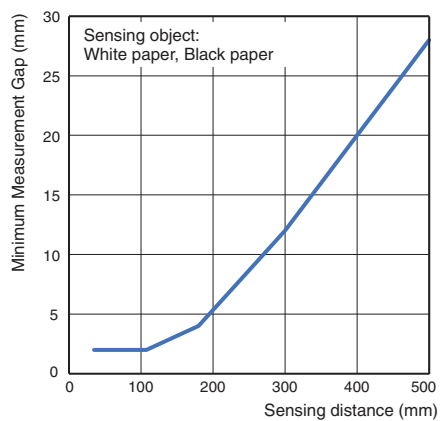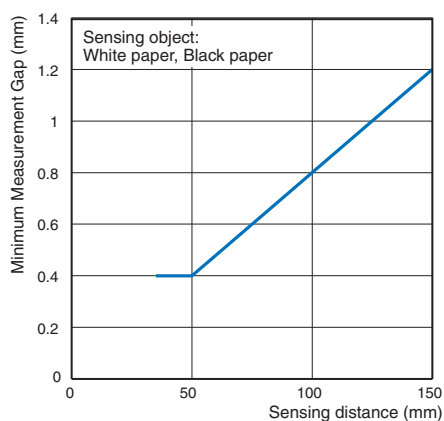
I/O Circuit Diagrams/ Timing Charts
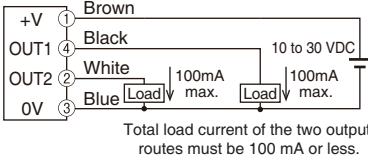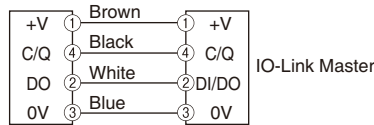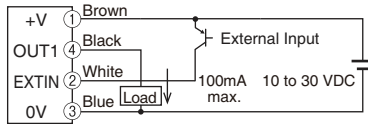
E3AS-HL models
NPN Output

Model	Timing chart	Output circuit
E3AS-HL500□N□ E3AS-HL150□N□	**Single Point Mode [Single]** Rated sensing distance range Threshold Power/Communication indicator (green) — ON/OFF Operation indicator (orange) — ON/OFF Control output 1 — ON/OFF Control output 2 * — ON/OFF **Window BGS mode [Window BGS]** Rated sensing distance range Near-side threshold / Far-side threshold Power/Communication indicator (green) — ON/OFF Operation indicator (orange) — ON/OFF Control output 1 — ON/OFF Control output 2 * — ON/OFF **Window FGS mode [Window FGS]** Rated sensing distance range Near-side threshold / Far-side threshold Power/Communication indicator (green) — ON/OFF Operation indicator (orange) — ON/OFF Control output 1 — ON/OFF Control output 2 * — ON/OFF	**Using Pin2 (white wire) as output** +V ① Brown OUT1 ④ Black [Load] [Load] OUT2 ② White 0V ③ Blue 10 to 30 VDC Total load current of the two output routes must be 100 mA or less. **Using Pin2 (white wire) as external input** +V ① Brown OUT1 ④ Black [Load] 100mA max. EXTIN ② White 0V ③ Blue External Input 10 to 30 VDC **Connector Pin Arrangement** M12 Pre-wired Smartclick Connector M8 Connector

External Input	NPN
ON time	0V short-circuit or 1.5V or less
OFF time	Power supply voltage short-circuit or open
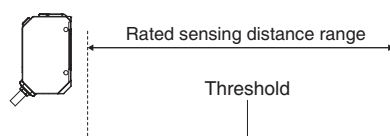
Note: The initial value of control output 2 is reverse of control output 1.

E3AS-HL Series

PNP Output

Model	Output circuit	
	Standard I/O mode (SIO mode) [1]	**IO-Link Communication mode (COM mode) [2]**
E3AS-HL500□T□ E3AS-HL150□T□	**Using Pin2 (white wire) as output** +V (1) Brown OUT1 (4) Black — 10 to 30 VDC OUT2 (2) White — 100mA max. Load / 100mA max. Load 0V (3) Blue Total load current of the two output routes must be 100 mA or less. **Using Pin2 (white wire) as external input** +V (1) Brown OUT1 (4) Black — External Input EXTIN (2) White — 100mA max. 10 to 30 VDC 0V (3) Blue — Load | External Input	PNP
---	---
ON time	Power supply voltage short-circuit or within power supply voltage - 1.5V
OFF time	0V short-circuit or open		**Using Pin2 (white wire) as output** +V (1) Brown (1) +V C/Q (4) Black (4) C/Q — IO-Link Master DO (2) White (2) DI/DO 0V (3) Blue (3) 0V ---

Connector Pin Arrangement

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	Rated sensing distance range / Threshold
Standard I/O mode (SIO mode)	Power/Communication indicator (green) ON/OFF Operation indicator (orange) ON/OFF Control output 1 [2] ON/OFF Control output 2 [1], [2] ON/OFF
IO-Link Communication mode (COM mode)	Power/Communication indicator (green) Flashing (1 second cycle) Operation indicator (orange) ON/OFF Communication output 1/0 Control output 2 [1], [2] ON/OFF

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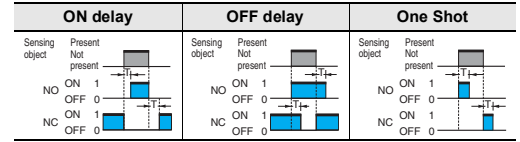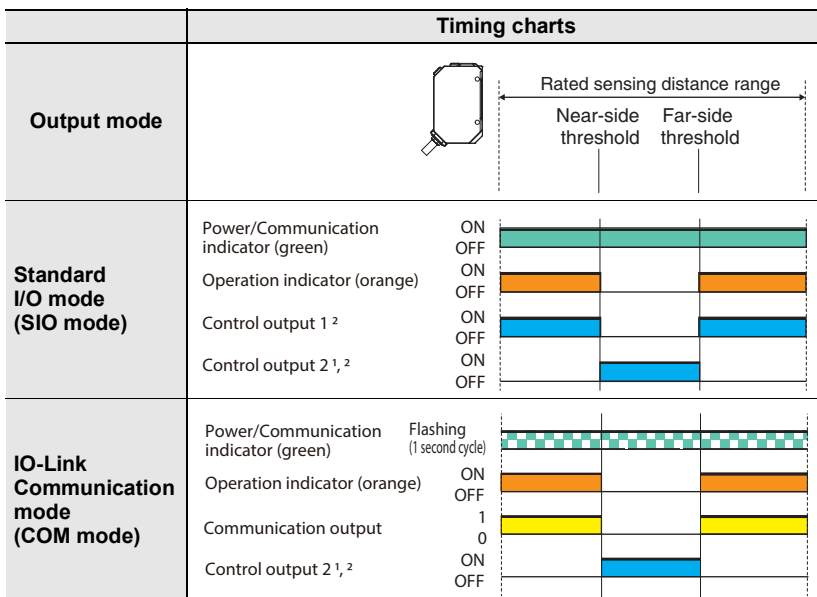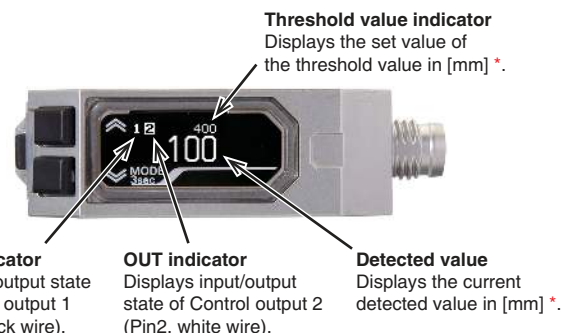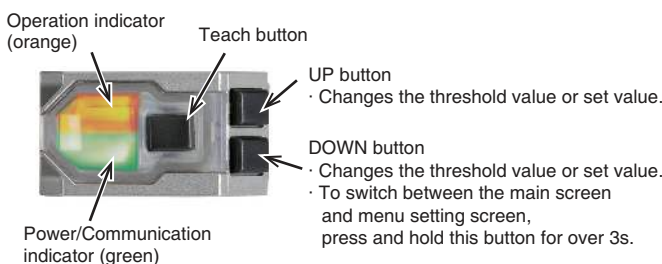
ON delay	OFF delay	One Shot
Sensing object Present/Not present NO ON 1/OFF 0 NC ON 1/OFF 0	Sensing object Present/Not present NO ON 1/OFF 0 NC ON 1/OFF 0	Sensing object Present/Not present NO ON 1/OFF 0 NC ON 1/OFF 0

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

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Window BGS mode [Window BGS]

	Timing charts
Output mode	Rated sensing distance range Near-side threshold / Far-side threshold
Standard I/O mode (SIO mode)	Power/Communication indicator (green) ON/OFF Operation indicator (orange) ON/OFF Control output 1 [2] ON/OFF Control output 2 [1],[2] ON/OFF
IO-Link Communication mode (COM mode)	Power/Communication indicator (green) Flashing (1 second cycle) Operation indicator (orange) ON/OFF Communication output 1/0 Control output 2 [1],[2] ON/OFF

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

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

Window FGS mode [Window FGS]

	Timing charts
Output mode	Rated sensing distance range Near-side threshold / Far-side threshold
Standard I/O mode (SIO mode)	Power/Communication indicator (green) ON/OFF Operation indicator (orange) ON/OFF Control output 1 [2] ON/OFF Control output 2 [1],[2] ON/OFF
IO-Link Communication mode (COM mode)	Power/Communication indicator (green) Flashing (1 second cycle) Operation indicator (orange) ON/OFF Communication output 1/0 Control output 2 [1],[2] ON/OFF

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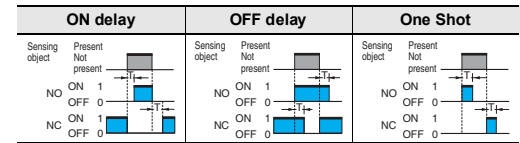
Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

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□

Operation indicator (orange)

Teach button

UP button
· Changes the threshold value or set value.

DOWN button
· Changes the threshold value or set value.
· To switch between the main screen and menu setting screen, press and hold this button for over 3s.

Power/Communication indicator (green)

Note: The indicators work differently depending on sensor status.

Threshold value indicator
Displays the set value of the threshold value in [mm] *.

OUT indicator
Displays output state of Control output 1 (Pin4, black wire).

OUT indicator
Displays input/output state of Control output 2 (Pin2, white wire).

Detected value
Displays the current detected value in [mm] *.

* 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

⚠ **WARNING**	**Warning level** 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.
⚠ **CAUTION**	**Caution level** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.
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, fire** Indicates the possibility of fires under specific conditions.
⚠	**General caution** Indicates unspecified general alert.
⚠	**Caution, explosion** Indicates the possibility of explosion under specific conditions
⚠	**Laser Caution** Indicates information related to laser safety
🚫	**Disassembly prohibited** 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
Shiokoji 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

⚠ 警 告

激光辐射
勿直视光束
最大输出　5.8　mW
脉冲时间　5.0　μs
光束波长　660　nm
2类激光产品
GB7247.1：2012

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

Sensors

Pre-wired Models/Pre-wired Connector Models

E3AS-HL500☐ (-M1TJ)
E3AS-HL150☐ (-M1TJ)

Operation indicator (orange)
Teach button
UP button
16
9.2
7.5
15.5
6
DOWN button
Power/Communication indicator (green)
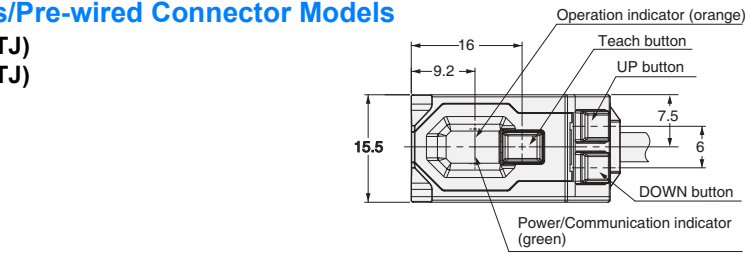
Pre-wired Connector Models
E3AS-HL500☐-M1TJ
E3AS-HL150☐-M1TJ

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

M12×P1

Reception canter (Lens: 8 dia.)
6.35
(15.4)
11.5
Emission center (Lens: 3 dia.)

Two, M3
30.4
28.7
5
1.6
3
7.7
47
25.4
12.4

Minimum bending radius/unbendable length of cord

Unbendable length 5 mm

Minimum bending radius R13 mm
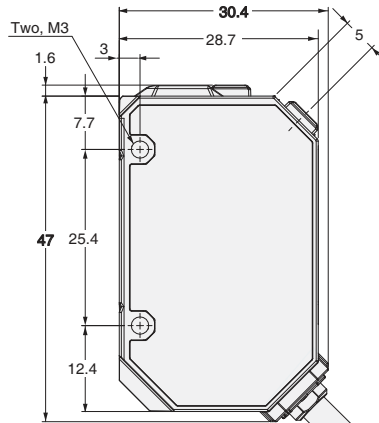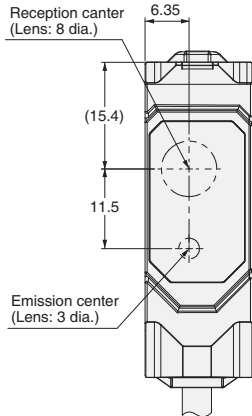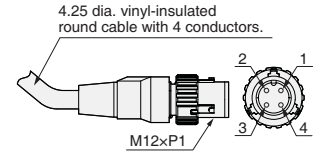
4.25 dia. vinyl-insulated round cable with 4conductors (Conductor cross section:0.3 mm², Insulator diameter: 1.05 mm), Standard length: 2 m
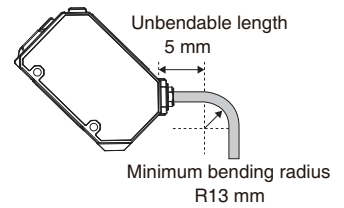
Connector Models

E3AS-HL500☐ M3
E3AS-HL150☐ M3

Operation indicator (orange)
Teach button
UP button
16
9.2
7.5
15.5
6
DOWN button
Power/Communication indicator (green)

Reception canter (Lens: 8 dia.)
6.35
(15.4)
11.5
Emission center (Lens: 3 dia.)

M8x1
7.5

Two, M3
28.9
5
1.6
3
7.7
45.5
25.4
52.5
15.75
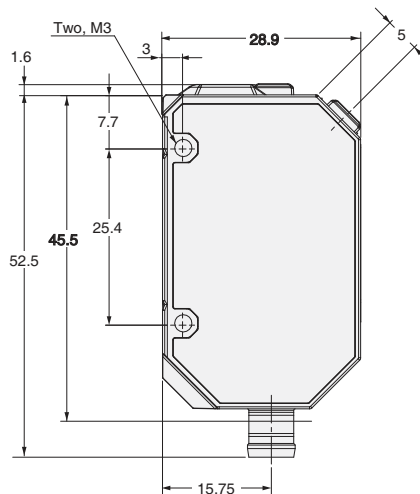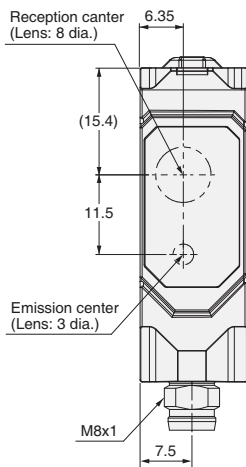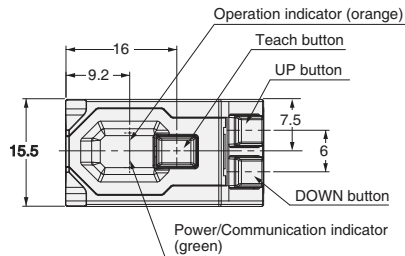
Accessories (Sold Separately)
Mounting Brackets
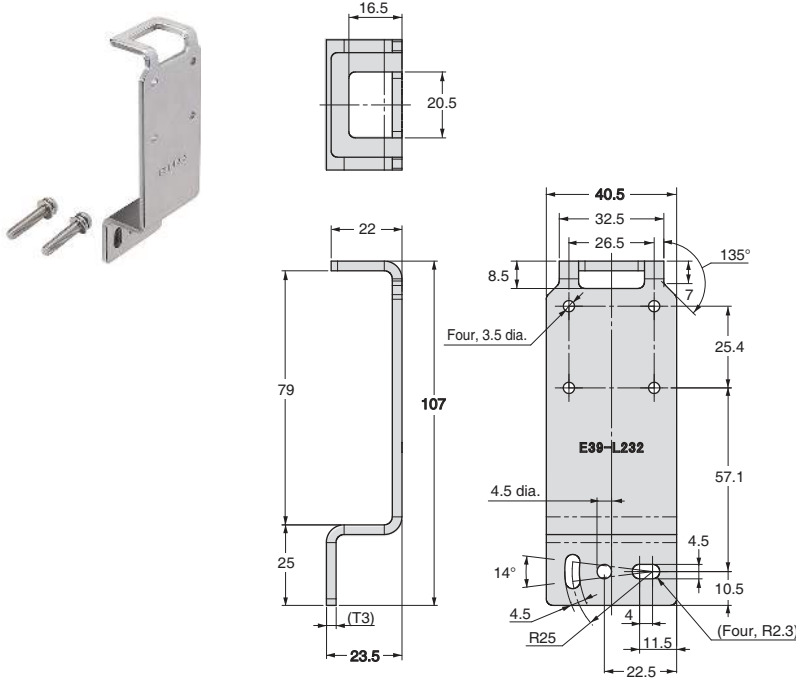**For E3AS-HL models**

E39-L221
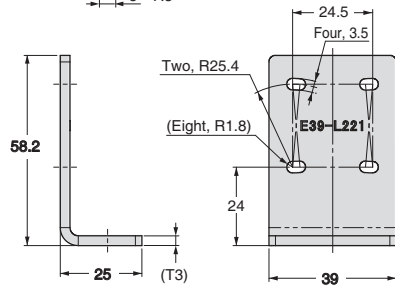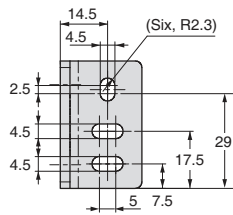
Photoelectric Sensor Accessory are installed (Example of E3AS-HL500□)
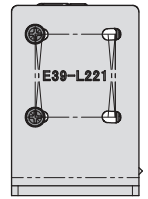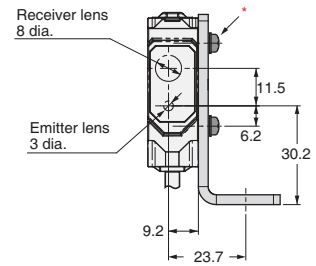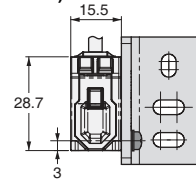
Material: Stainless steel (SUS304)
* Accessories
  2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L222
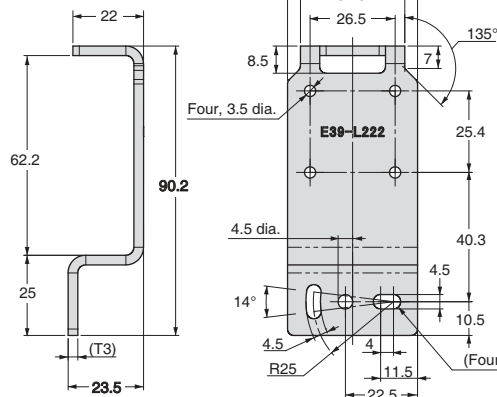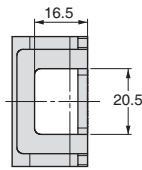
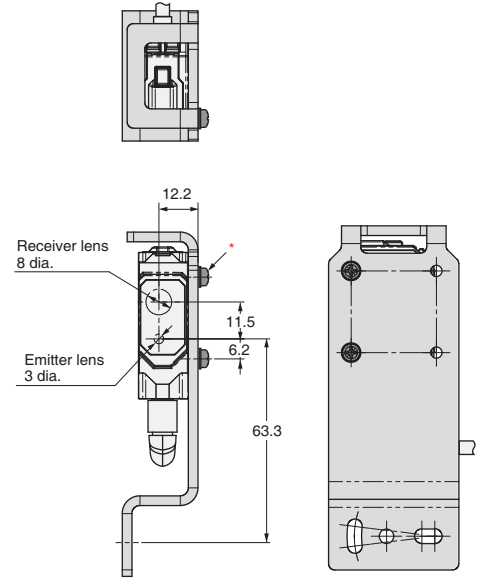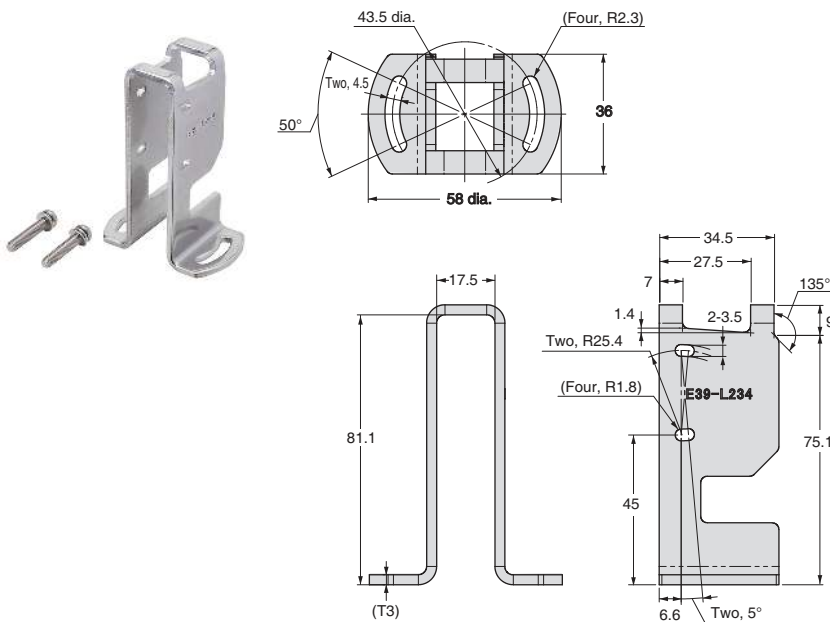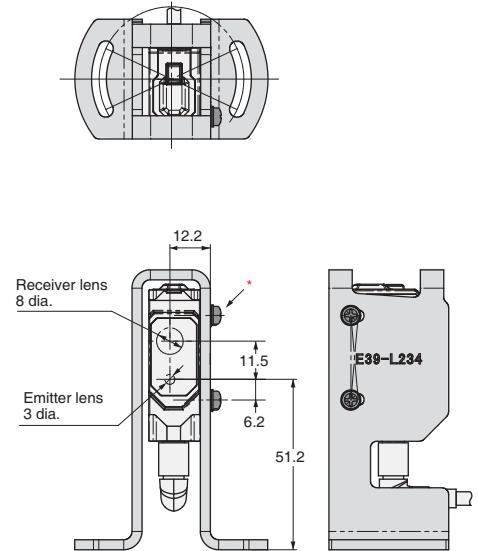**Photoelectric Sensor Accessory are installed (Example of E3AS-HL500□)**
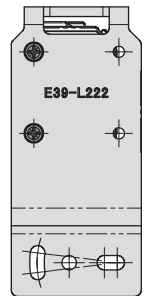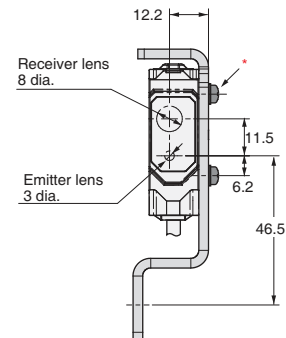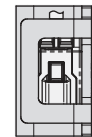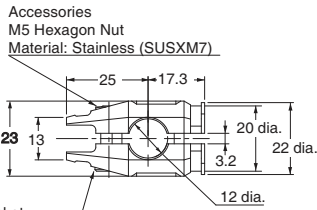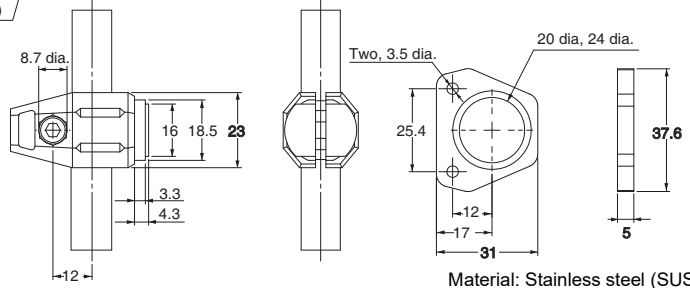
Material: Stainless steel (SUS304)
* Accessories
  2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L223
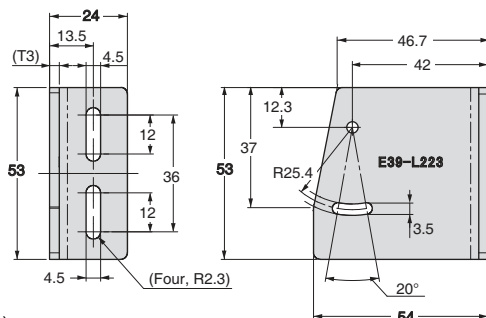
Photoelectric Sensor Accessory are installed (Example of E3AS-HL500□)
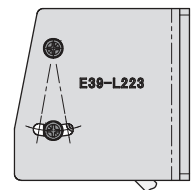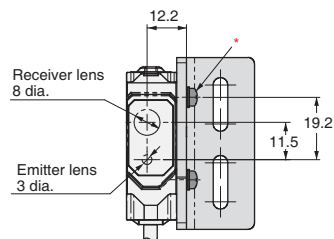
Material: Stainless steel (SUS304)
* Accessories
  2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E3AS-HL Series

E39-L224
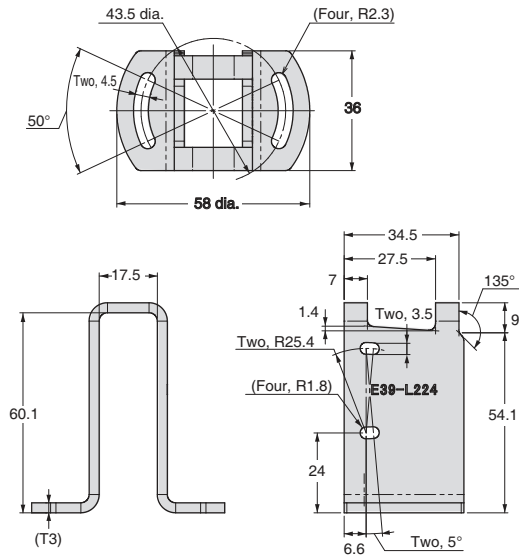
**Photoelectric Sensor
Accessory are installed
(Example of E3AS-HL500□)**
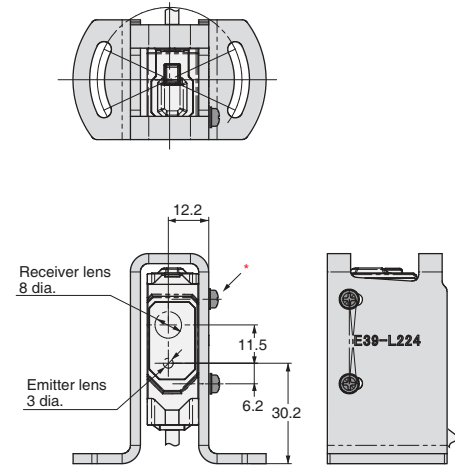
Material: Stainless steel (SUS304)
* Accessories
  2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L231
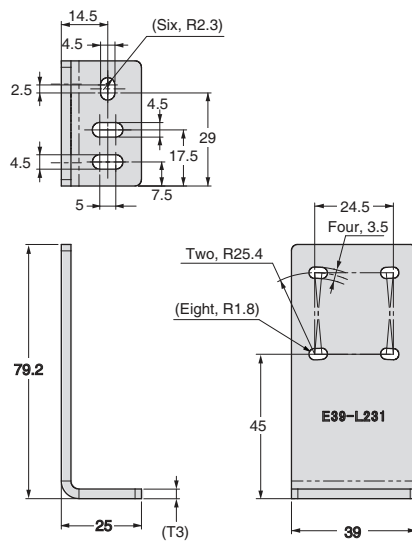
**Photoelectric Sensor
Accessory are installed
(Example of E3AS-HL500□)**
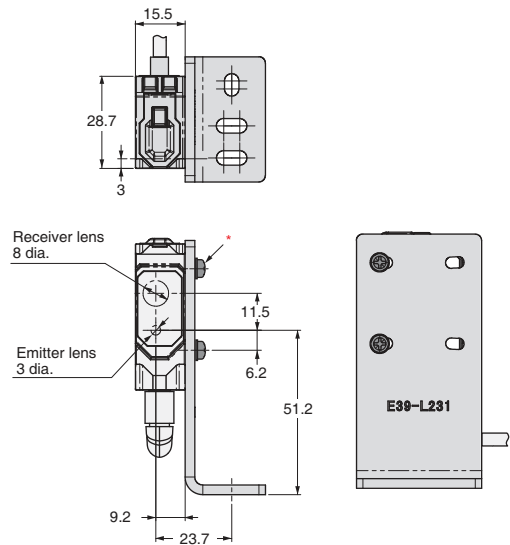
Material: Stainless steel (SUS304)
* Accessories
  2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS W)

E39-L232

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

16.5
20.5

22
107
79
25
(T3)
23.5

40.5
32.5
26.5
8.5
7
135°
Four, 3.5 dia.
25.4
E39–L232
57.1
4.5 dia.
4.5
14°
4.5
10.5
R25
4
11.5
(Four, R2.3)
22.5

12.2
Receiver lens 8 dia.
*
11.5
6.2
Emitter lens 3 dia.
63.3

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□)

43.5 dia.
(Four, R2.3)
Two, 4.5
50°
36
58 dia.

17.5
34.5
27.5
7
1.4
2-3.5
135°
9
Two, R25.4
(Four, R1.8)
E39–L234
81.1
75.1
45
(T3)
6.6
Two, 5°

12.2
Receiver lens 8 dia.
*
11.5
6.2
Emitter lens 3 dia.
51.2
E39–L234

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 Hexagon Nut
Material: Stainless (SUSXM7)

25 — 17.3
23 13
20 dia.
22 dia.
3.2
12 dia.

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

8.7 dia.
16 18.5 23
3.3
4.3
12

Two, 3.5 dia.
20 dia, 24 dia.
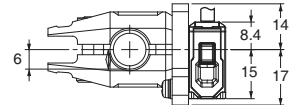25.4
12
17
31
37.6
5

Material: ZDC2
Finished: NI Plaiting

Material: Stainless steel (SUS304)

Photoelectric Sensor
Accessory are installed
(Example of E3AS-HL500□)
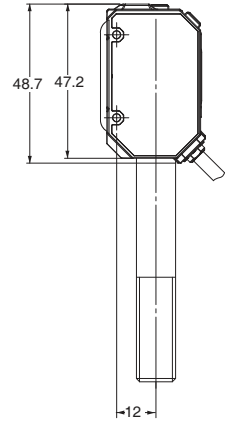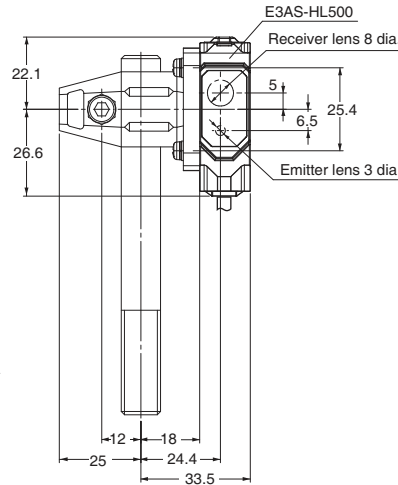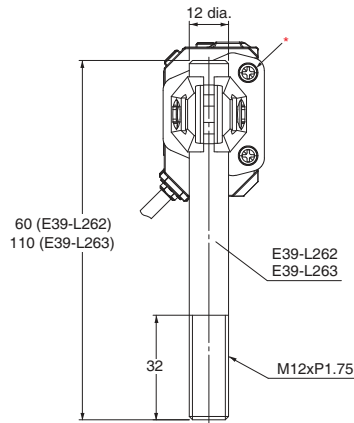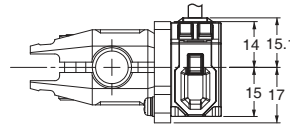
14 15.1
15 17

12 dia.

E3AS-HL500
Receiver lens 8 dia.
22.1
5
25.4
6.5
26.6
Emitter lens 3 dia.

48.7 47.2

60 (E39-L262)
110 (E39-L263)

E39-L262
E39-L263

32

M12xP1.75

12 18
25
24.4
33.5

12

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

14
8.4
6
15 17

12 dia.

E3AS-F1500
Receiver lens 2 dia.
18.8
1.5 1.6
25.4
22.1
Emitter lens 3 dia.

41 39.4

60 (E39-L262)
110 (E39-L263)

E39-L262
E39-L263

32

M12xP1.75

12 18
25
23.7
29.4

12
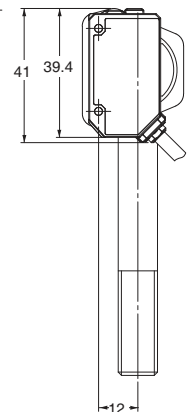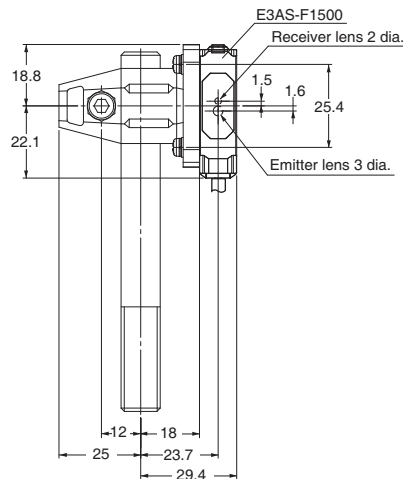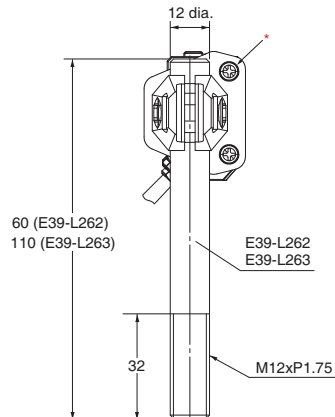
* Accessories 2-M3-L10 Cross Recessed Pan Head Screws (Attached to SW+JIS)

Post 50 mm
E39-L262
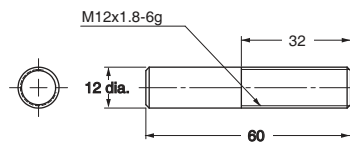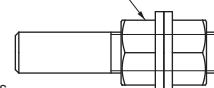
M12x1.8-6g

32

12 dia.

60

Accessories
2-M12 Hexagon Nut
Material: Stainless (SUSXM7)
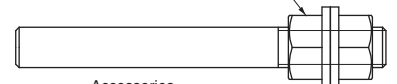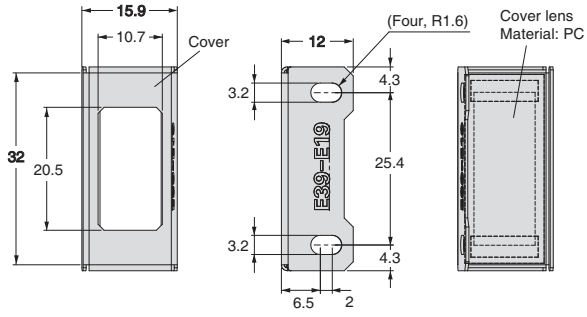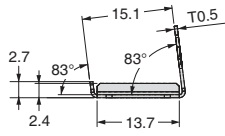
Accessories
2-M12 Plain Washer
Material: Stainless (SUS304)

Material: Stainless steel (SUS304)
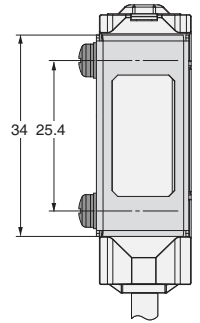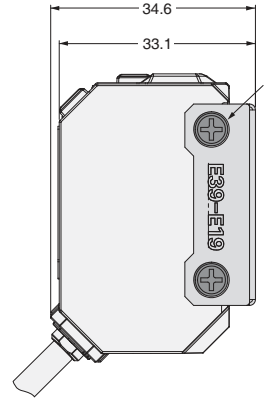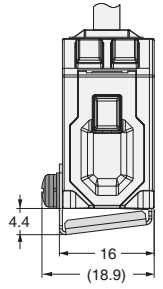
Post 100 mm
E39-L263
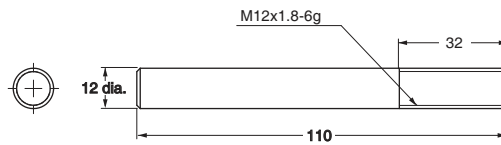
M12x1.8-6g

32

12 dia.

110

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

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

Material: Stainless steel (SUS304)

E39-E19

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

15.1 T0.5

2.7

83° 83°

2.4 13.7

15.9

10.7 Cover

(Four, R1.6)

Cover lens Material: PC

12

3.2 4.3

32

20.5

E39-E19

25.4
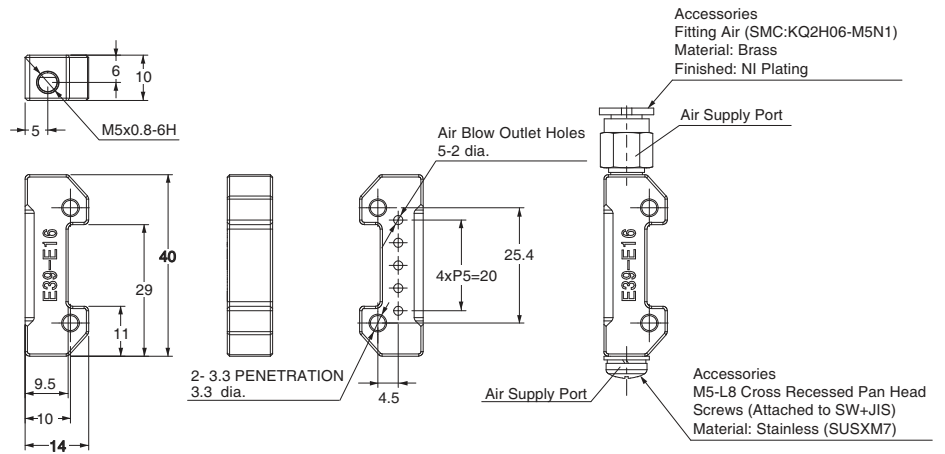
3.2 4.3

6.5 2

34.6

33.1

E39-E19

4.4

16

(18.9)

34 25.4

Material: Stainless steel (SUS304)

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

Air Blow Unit
E39-E16
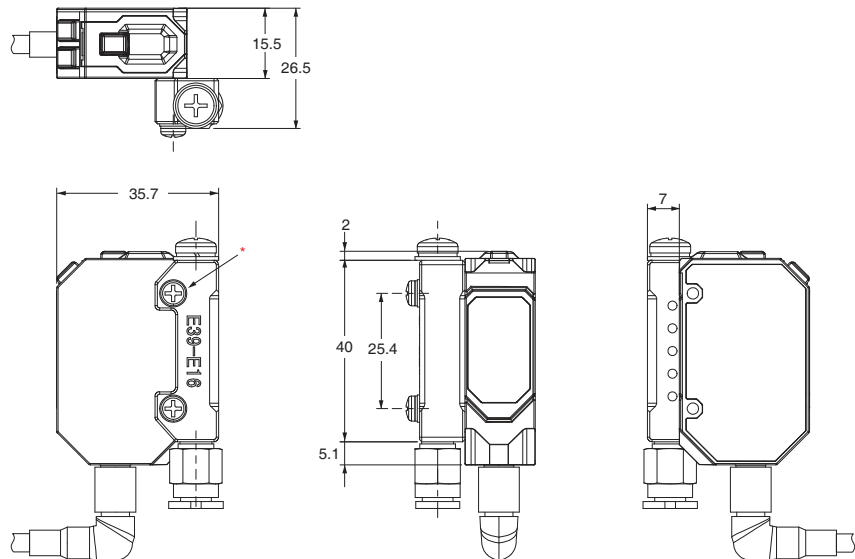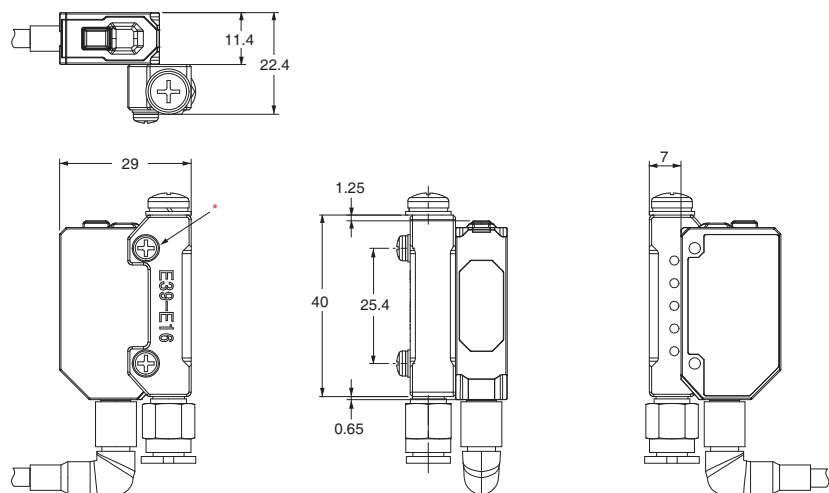
Accessories
Fitting Air (SMC:KQ2H06-M5N1)
Material: Brass
Finished: NI Plating

Air Supply Port

Air Blow Outlet Holes
5-2 dia.

6
10
5
M5x0.8-6H

40
29
11
9.5
10
14

E39-E16

2- 3.3 PENETRATION
3.3 dia.

25.4
4xP5=20
4.5

Air Supply Port

Accessories
M5-L8 Cross Recessed Pan Head
Screws (Attached to SW+JIS)
Material: Stainless (SUSXM7)

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

15.5
26.5

35.7

E39-E16

*

2
40
25.4
5.1

7

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

11.4
22.4

29

E39-E16

*

1.25
40
25.4
0.65

7

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

E3AS-HL Series

OMRON

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