

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.



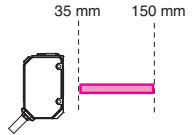
Refer to *Safety Precautions* on page 13.

Ordering Information

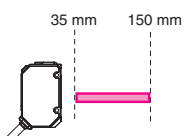
E3AS-HL models [Refer to Dimensions on page 15]

Line beam type

 Red light

Connection method	Sensing distance (white paper)	Output	Model	
		IO-Link baud rate	NPN output ---	PNP output COM3 (230.4 kbps) ³
Pre-wired (2 m) ¹			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			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	
		IO-Link baud rate	NPN output ---	PNP output COM3 (230.4 kbps) ³
Pre-wired (2 m) ¹			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			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 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
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 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 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.