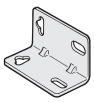
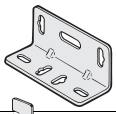
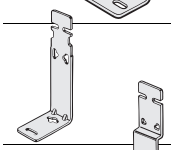
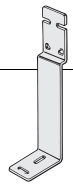
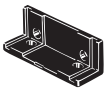
Mounting Brackets/Other

Some Mounting Brackets are provided with the Sensor. Order other Mounting Brackets separately if required.

Appearance	Model	Quantity	Remarks
	**E39-L69**	1	Provided with E3S-A Horizontal Sensors. Two Brackets are provided with a Through-beam Sensor.
	**E39-L70**	1	Provided with E3S-A Vertical Sensors. Two Brackets are provided with a Through-beam Sensor.
	**E39-L59**	1	Provided with E3S-A Vertical Pre-wired Sensors.
	**E39-L81**	1	Provided with E3S-A Vertical ConnectSor Sensors.
	E39-L97 *1	1	Protective Cover for Horizontal Sensors
	E39-L98 *2	1	Protective Cover for Vertical Sensors
	**E39-L60**	1	Close Mounting Plate: Provided with E3S-A Connector Sensors. Two Plates are provided with a Through-beam Sensor.

Note: If a Through-beam Model is used, order two Mounting Brackets, one for the Emitter and one for the Receiver.
*1. Mount a Sensor with a Connector carefully because the Sensor I/O Connector will come into contact with the Mounting Bracket or Mounting Plate.
*2. Usage is not possible with Sensors with Connectors.

Sensors I/O Connectors

Model	Quantity	Remarks
E39-G2	1	Provided with product.

Sensors I/O Connectors

Cable	Appearance	Cable type		Model
Standard	Straight	2 m	3-wire	**XS2F-D421-DC0-F**
		5 m		**XS2F-D421-GC0-F**
	L-shaped	2 m		**XS2F-D422-DC0-F**
		5 m		**XS2F-D422-GC0-F**

Note: When using Through-beam models, order one connector for the Receiver and one for the Emitter.

Ratings and Specifications

Item / Sensing method		Through-beam Sensors	Retro-reflective Sensors (with MSR function)	Diffuse-reflective Sensors		
Model		E3S-AT11, 16, 21, 31, 36, 41, 61, 66, 71, 81, 86, 91	E3S-AR11, 16, 21, 31, 36, 41, 61, 66, 71, 81, 86, 91	E3S-AD13, 18, 23, 33, 38, 43, 63, 68, 73, 83, 88, 93	E3S-AD11, 16, 21, 31, 36, 41, 61, 66, 71, 81, 86, 91	E3S-AD12, 17, 22, 32, 37, 42, 62, 67, 72, 82, 87, 92
Sensing distance		7 m	2 m (100 mm) *1 (When using E39-R1)	100 mm (wide view) (white paper 100 × 100 mm)	10 to 200 mm (white paper 100 × 100 mm)	700 mm (white paper 200 × 200 mm)
Standard sensing object		Opaque: 10-mm dia. min.	Opaque: 75-mm dia. min.	---		
Differential travel		---		20% max. of sensing distance	10% max. of sensing distance	20% max. of sensing distance
Directional angle		Both Emitter and Receiver: 3° to 15°	3 to 10°	---		
Light source (wavelength)		Red LED (700 nm)		Infrared LED (880 nm)	Red LED (700 nm)	Infrared LED (880 nm)
Power supply voltage		10 to 30 VDC, including ripple (p-p) 10%				
Current consumption		Both Emitter and Receiver: 20 mA max. (plus approx. 15 mA with turbo function)	30 mA max. (plus approx. 15 mA with turbo function)	35 mA max.	30 mA max. (plus approx. 15 mA with turbo function)	35 mA max.
Control output		Load power supply voltage: 30 VDC max., Load current: 100 mA max. (residual voltage: 1 V max.) Open-collector output (NPN or PNP depending on model), Light-ON/Dark-ON selectable				
Self-diagnostic output (Only on Sensors with self-diagnostic outputs)		(Only Sensors with self-diagnostic function) Load power supply voltage: 30 VDC max., Load current: 50 mA max. (residual voltage: 1 V max.), Open-collector output (NPN or PNP depending on model)				
External diagnostic input (Only on Sensors with external diagnostic outputs)	Input voltage	NPN with Emitter OFF: 0 V short-circuit or 1.5 V max. (source current: 1 mA max.) with Emitter ON: Open (leakage current: 0.1 mA max.) PNP with Emitter OFF: +DC short-circuit or –1.5 VDC max. (sink current: 3 mA max.) with Emitter ON: Open (leakage current: 0.1 mA max.)		---		
	Response time	0.5 ms max.				
Protection circuits		Power supply reverse polarity protection, Output short-circuit protection	Power supply reverse polarity protection, Output short-circuit protection, Mutual interference prevention			
Response time		Operation or reset: 0.5 ms max.				
Sensitivity adjustment		Two-turn endless adjuster with an indicator				
Timer function (Only on Sensors with the timer function)		0 to 100 ms OFF-delay variable adjuster				
Turbo function (Only on Sensors with the turbo function)		Yes (with turbo switch)				---
Ambient illumination (Receiver side)		Incandescent lamp: 5,000 lx max. Sunlight: 10,000 lx max.				
Ambient temperature		Operating: –25°C to 55°C (with no icing or condensation) Storage: –40°C to 70°C (with no icing or condensation)				
Ambient humidity		Operating: 35% to 85% (with no condensation) Storage: 35% to 95% (with no condensation)				
Insulation resistance		20 MΩ min. at 500 VDC between current-carrying parts and case				
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min. between current-carrying parts and case				
Vibration resistance (destruction)		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions				
Shock resistance (destruction)		Destruction: 500m/s^2, 3 times each in X, Y, and Z directions				
Degree of protection		IEC IP67; NEMA: 4X (indoors only) *2				
Connection method		Pre-wired (standard length: 2 m) or M12 connector				
Weight (packed state)		Pre-wired cable: Approx. 150 g Connector: Approx. 70 g	Pre-wired cable: Approx. 110 g Connector: Approx. 60 g	Pre-wired cable: Approx. 90 g Connector: Approx. 50 g		
Material	Case	PBT				
	Lens	Denatured polyallylate				
	Mounting Bracket	Stainless steel (SUS304)				
Accessories		Mounting bracket (with screws), Sensitivity adjustment driver, Sensitivity adjusting knob, Instruction sheet, Close mounting plate (only for Sensors with connectors), and Reflector (only for Retro-reflective Sensors)				

*1. Values in brackets are the minimum required distance between the Sensor and Reflector.
*2. National Electrical Manufacturers Association