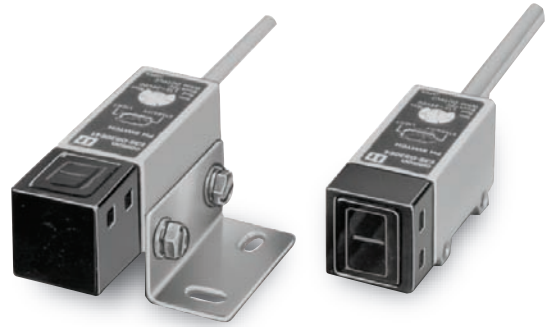



General-purpose Photoelectric Sensor for High Quality and Reliable Detection






















 Be sure to read *Safety Precautions* on page 8.

Note: E3S-2/-5/-DS10/-DS30/-R2 in this catalog have been discontinued at the end of March 2014.

Ordering Information

General-purpose Sensors

Sensing method	Appearance	Sensing distance	Operation mode	Model
Convergent-reflective (narrow vision field)		 30 to 100 mm (variable)	Light-ON/Dark-ON (selectable)	E3S-LS10XE4 2M
Convergent-reflective (wide vision field)		 50 to 250 mm (variable)		E3S-LS20XE4 2M
Through-beam		 2 m		E3S-2E4 * Emitter E3S-2LE4 * Receiver E3S-2DE4 *
		 5 m		E3S-5E4 * Emitter E3S-5LE4 * Receiver E3S-5DE4 *
Retro-reflective		 0.1 to 2 m		E3S-R2E4 *
Diffuse-reflective		 100 mm		E3S-DS10E4 *
		 300 mm		E3S-DS30E4 *
Through-beam		 2 m		E3S-2E41 * Emitter E3S-2LE41 * Receiver E3S-2DE41 *
		 5 m		E3S-5E41 * Emitter E3S-5LE41 * Receiver E3S-5DE41 *
Retro-reflective		 0.1 to 2 m		E3S-R2E41 *
Diffuse-reflective		 100 mm		E3S-DS10E41 *
		 300 mm		E3S-DS30E41 *

* Production was discontinued.

Ratings and Specifications

Sensing method Model Item	Through-beam		Retro-reflective	Diffuse-reflective			Convergent-reflective		
	E3S-2E4 E3S-2E41	E3S-5E4 E3S-5E41	E3S-R2E4 E3S-R2E41	E3S-DS10E4 E3S-DS10E41	E3S-DS30E41	E3S-DS30E4S	E3S-LS10XE4	E3S-LS20XE4	
Sensing distance	2 m	5 m	0.1 to 2 m	100 mm (white paper 50 x 50 mm)	300 mm (white paper 100 x 100)		30 to 100 mm Continuously variable (10 x 10 mm)	50 to 250 mm Continuously variable (50 x 75 mm)	
Standard sensing object	Opaque: 7- mm dia. min.	Opaque: 11- mm dia. min.	Opaque: 30- mm dia. min.	Transparent, opaque					
Differential travel	---			20% max. of setting distance			1.5 mm max. at 30 mm	5% max. at 50 to 250 mm	
							10 mm max. at 100 mm		
Directional angle	Both emitter and receiver: 3° to 10°		3° to 10°	---					
Light source (wavelength)	Infrared LED (950 nm)						RED LED (660 nm)	Infrared LED (950 nm)	
Power supply voltage	12 to 24 VDC ±10%, ripple (p-p): 10% max.								
Current consumption	50 mA max. (Emitter: 25 mA max., Receiver: 25 mA max.)		40 mA max.						
Control output (solid-state output)	Output current: 1.5 to 4 mA, Load current: 80 mA max. (residual voltage: 2 V max.) → Refer to page 4.								
Response time	Operate or reset: 3 ms max.		Operate or reset: 1 ms max.						
Sensitivity adjustment	With an indicator								
Ambient illumination (Receiver side) *	Incandescent lamp: 3,000 lx max. Sunlight: 10,000 lx max.								
Ambient temperature	Operating: -25 to 55°C, Storage: -40 to 70°C (with no icing or condensation)								
Ambient humidity	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 (destruction)	10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions								
Shock resistance (destruction)	500 m/s ² 3 times each in X, Y, and Z directions								
Degree of protection	IEC IP65	IEC IP67		IEC IP65	IEC IP67				
Connection method	Pre-wired cable (standard length: 2 m)								
Indicators	Light indicator (red), Stability indicator (green)								
Material	Case	Polybutylene terephthalate	Zinc die-cast		Polybutylene terephthalate	Zinc die-cast			
	Lens *	Polycarbonate							
	Mounting Bracket	Iron							

* The ambient operating illumination is the illumination that changes the output ±20% at 200 lx. It is not the operational limit.