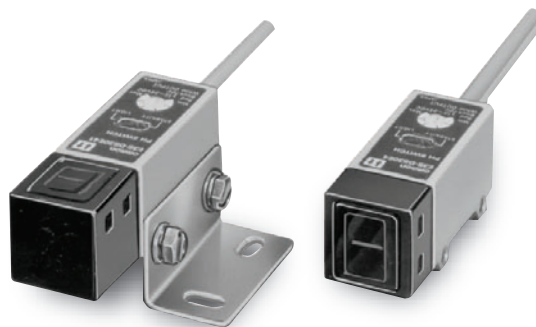



















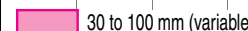
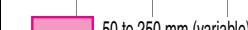
## General-purpose Photoelectric Sensor for High Quality and Reliable Detection



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

### Ordering Information

#### General-purpose Sensors

Sensing method	Appearance	Sensing distance	Operation mode	Model
Through-beam *1		 2 m	Light-ON/Dark-ON (selectable)	<b>E3S-2E4</b> Emitter E3S-2LE4 Receiver E3S-2DE4
		 5 m		<b>E3S-5E4</b> Emitter E3S-5LE4 Receiver E3S-5DE4
Retro-reflective	 0.1 to 2 m	<b>E3S-R2E4</b>		
Diffuse-reflective		 100 mm		<b>E3S-DS10E4</b>
		 300 mm		<b>E3S-DS30E4</b>
Through-beam *1		 2 m		<b>E3S-2E41</b> Emitter E3S-2LE41 Receiver E3S-2DE41
		 5 m		<b>E3S-5E41 (42) *2</b> Emitter E3S-5LE41 (42) Receiver E3S-5DE41 (42)
Retro-reflective		 0.1 to 2 m		<b>E3S-R2E41</b>
Diffuse-reflective		 100 mm		<b>E3S-DS10E41</b>
		 300 mm		<b>E3S-DS30E41 (42) *2</b>
Convergent-reflective (narrow vision field)		 30 to 100 mm (variable)	<b>E3S-LS10XE4</b>	
Convergent-reflective (wide vision field)		 50 to 250 mm (variable)	<b>E3S-LS20XE4</b>	

Note: Sensors with open collectors and different frequencies are available.

\*1. Through-beam Sensors are normally sold in sets that include both the Emitter and Receiver.

Orders for individual Emitters and Receivers are accepted.

\*2. The difference between the E3S-□□ (□□□) 41 and E3S-□□ (□□□) 42 is in the lens direction when the Sensor is mounted.

For details, refer to the dimensions that are provided on page 10 for the E3S-5E41, page 11 for the E3S-DS30E41, and page 12 for the E3S-5E42 and E3S-DS30E42.

## Ratings and Specifications

Sensing method  Model  Item	Through-beam		Retro-reflective	Diffuse-reflective			Convergent-reflective		
	E3S-2E4 E3S-2E41	E3S-5E4 E3S-5E41 (42)	E3S-R2E4 E3S-R2E41	E3S-DS10E4 E3S-DS10E41	E3S-DS30E41 (42)	E3S-DS30E4S	E3S-LS10XE4	E3S-LS20XE4	
<b>Sensing distance</b>	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)	
<b>Standard sensing object</b>	Opaque: 7- mm dia. min.	Opaque: 11- mm dia. min.	Opaque: 30- mm dia. min.	Transparent, opaque					
<b>Differential travel</b>	---			20% max. of setting distance			0.5 mm max. at 30 mm 3 mm max. at 100 mm	5% max. at 50 to 250 mm	
<b>Directional angle</b>	Both emitter and receiver: 3° to 10°		3° to 10°	---					
<b>Light source (wavelength)</b>	Infrared LED (950 nm)						RED LED (660 nm)	Infrared LED (950 nm)	
<b>Power supply voltage</b>	12 to 24 VDC ±10%, ripple (p-p): 10% max.								
<b>Current consumption</b>	50 mA max. (Emitter: 25 mA max., Receiver: 25 mA max.)		40 mA max.						
<b>Control output (solid-state output)</b>	Output current: 1.5 to 4 mA, Load current: 80 mA max. (residual voltage: 2 V max.) → Refer to page 4.								
<b>Response time</b>	Operate or reset: 3 ms max.		Operate or reset: 1 ms max.						
<b>Sensitivity adjustment</b>	With an indicator								
<b>Ambient illumination (Receiver side) *</b>	Incandescent lamp: 3,000 lx max. Sunlight: 10,000 lx max.								
<b>Ambient temperature</b>	Operating: -25 to 55°C, Storage: -40 to 70°C (with no icing or condensation)								
<b>Ambient humidity</b>	Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)								
<b>Insulation resistance</b>	20 MΩ min. at 500 VDC								
<b>Dielectric strength</b>	1,000 VAC, 50/60 Hz for 1 min								
<b>Vibration resistance (destruction)</b>	10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions								
<b>Shock resistance (destruction)</b>	500 m/s <sup>2</sup> 3 times each in X, Y, and Z directions								
<b>Degree of protection</b>	IEC IP65	IEC IP67		IEC IP65	IEC IP67				
<b>Connection method</b>	Pre-wired cable (standard length: 2 m)								
<b>Indicators</b>	Light indicator (red), Stability indicator (green)								
<b>Material</b>	<b>Case</b>	Polybutylene terephthalate	Zinc die-cast		Polybutylene terephthalate	Zinc die-cast			
	<b>Lens *</b>	Polycarbonate							
	<b>Mounting Bracket</b>	Iron							

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