

## PCB Sensors with Stable Detection



## Ordering Information

█ Red light   
 █ Infrared light

Sensing method	Appearance	Connection method	Sensing distance	Output configuration	Model
Convergent-reflective		Pre-wired	<span style="color: red;">█</span> 30±5 mm	Light-ON	<b>E3S-LS3C1D</b>
			<span style="color: magenta;">█</span> 30±5 mm	Light-ON/Dark-ON (selectable)	<b>E3S-LS3RC4</b>

## Ratings and Specifications

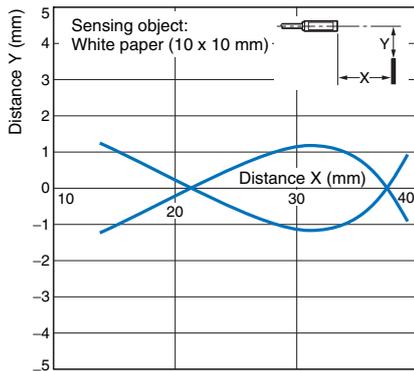
Sensing method		Convergent-reflective	
Item	Model	E3S-LS3C1D	E3S-LS3RC4
Sensing distance		30±5 mm (white paper 10 × 10 mm)	
Light source (wavelength)		Infrared LED (890 nm)	Red LED (660 nm)
Power supply voltage		5 to 24 VDC±10%, ripple (p-p) 10% max.	12 to 24 VDC±10%, ripple (p-p) 10% max.
Current consumption		40 mA max.	
Control output		Load power supply voltage: 24 VDC max., Load current: 30 mA max., (Residual voltage: 1 V max.) NPN open collector output	Load power supply voltage: 24 VDC max., Load current: 50 mA max., (Residual voltage: 1 V max.) NPN open collector output
Response time		Operate: 3 ms max. Reset: 100 ms max.	Operate or reset: 1 ms max.
Sensitivity adjustment		---	One-turn adjuster
Timer function		OFF-delay range: 0.1 to 1.0 s (adjustable)	---
Ambient illumination (receiver side)		Incandescent lamp: 1,000 lx max. Sunlight: 3,000 lx max	Incandescent lamp: 3,000 lx max. Sunlight: 10,000 lx max
Ambient temperature		Operating: -10 to 55°C (with no icing or condensation) Storage: -25 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)	
Dielectric strength		1,000 VAC at 50/60 Hz for 1 minute	
Vibration resistance (destruction)		10 to 55 Hz with a 1.5-mm double amplitude for 2 h each in X, Y and Z directions	
Shock resistance (destruction)		500 m/s <sup>2</sup> , 10 times each in X, Y and Z directions	500 m/s <sup>2</sup> , 3 times each in X, Y and Z directions
Degree of protection		IEC IP40	
Connection method		Pre-wired (standard length: 2 m)	
Weight (packed state)		Approx. 60 g	
Materials	Case	Heat-resistant ABS	
	Lens	Polycarbonate	
Accessories		Instruction sheet	Instruction sheet, Screws M3 × 6

I/O Circuit Diagrams

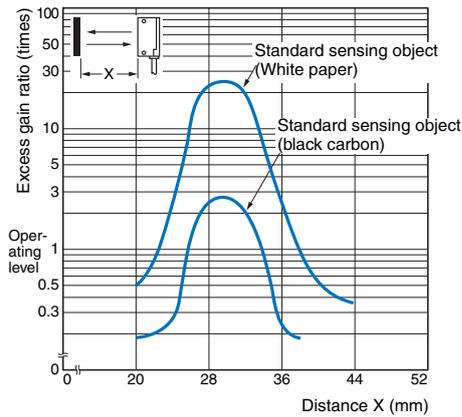
Output configuration	Model	Operating status of output transistor	Timing charts	Operating status	Output circuit
NPN output	E3S-LS3C1D	Light-ON		---	
	E3S-LS3RC4			Short pink wire to brown wire.	
	E3S-LS3RC4			Short pink wire to blue wire or leave pink wire open.	

## Engineering Data (Reference Value)

### Operating Range E3S-LS3RC4



### Excess Gain vs. Set Distance E3S-LS3RC4



## Safety Precautions

### ⚠ WARNING

This product is not designed or rated for ensuring safety of persons. Do not use it for such purpose.



### Precautions for Correct Use

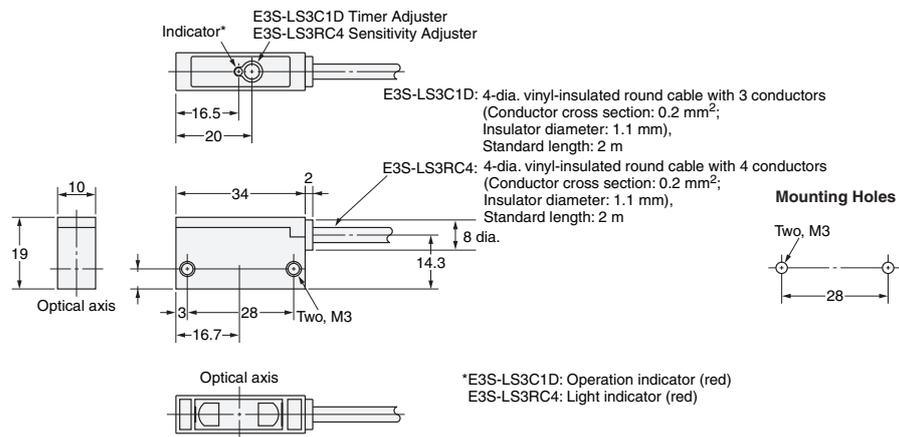
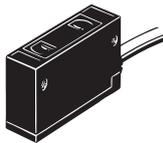
Do not use the product in atmospheres or environments that exceed product ratings.

(Unit: mm)

## Dimensions

Unless otherwise specified, the tolerance class IT16 is used for dimensions in this data sheet.

### E3S-LS3C1D E3S-LS3RC4



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