

Reliable Detection Unaffected by PCB Holes or Notches



- High-limit E3S-LS3□ is suitable for incorporation in devices.
- Wide-range E3S-LS3□W is ideal for detecting tall components mounted on boards.
- Timer function models available.



Be sure to read *Safety Precautions* on page 4.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Ordering Information

Sensors [Refer to *Dimensions* on page 4.]

Red light

Sensing method	Appearance	Connection method	Sensing distance	Timer function	Model	
					NPN output	PNP output
Convergent-reflective		Pre-wired (2 m)	20 to 35 mm *1*2	Without	E3S-LS3N 2M	E3S-LS3P 2M
				With	E3S-LS3NT 2M	E3S-LS3PT 2M
			10 to 60 mm *1*3	Without	E3S-LS3NW 2M	E3S-LS3PW 2M
				With	E3S-LS3NWT 2M	E3S-LS3PWT 2M

*1. For white paper: 80 × 80 mm.

*2. Install the Sensor at least 60 mm away from the background.

*3. Install the Sensor at least 120 mm away from the background.

Ratings and Specifications

Sensing method		Convergent-reflective	
Item	Model	E3S-LS3N(T)/-LS3P(T)	E3S-LS3NW(T)/-LS3PW(T)
Sensing distance	White paper *	20 to 35 mm (installation distance from background: 60 mm min.)	10 to 60 mm (installation distance from background: 120 mm min.)
	Black paper *	20 to 30 mm (installation distance from background: 60 mm min.)	15 to 50 mm (installation distance from background: 120 mm min.)
Light source (wavelength)		Red LED (660 nm)	
Power supply voltage		12 to 24 VDC±10%, ripple (p-p) 10% max.	
Current consumption		25 mA max.	
Control output		Load power supply voltage: 24 VDC max., Load current: 100 mA max., (Residual voltage: 1 V max. for NPN output or 2 V max. for PNP output) Open collector output configuration: NPN or PNP output depending on the model, Operating mode: Light-ON	
Protection circuits		Power supply reverse polarity protection, Output short-circuit protection, Mutual interference prevention	
Response time		Operate or reset: 1 ms max.	
Timer function (only models with timer function)		OFF-delay range: 0.1 to 1.0 s (adjustable)	
Ambient illumination (Receiver side)		Incandescent lamp: 5,000 lux max.	
Ambient temperature range		Operating: -10 to 55°C (with no icing or condensation) Storage: -25 to 70°C (with no icing or condensation)	
Ambient humidity range		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 hrs 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 60529 IP40	
Connection method		Pre-wired (standard length: 2 m)	
Weight (packed state)		Approx. 80 g	
Material	Case	ABS (Acrylonitril Butadiene Styrene)	
	Lens	Methacrylic resin	
Accessories		Instruction manual, M3 screws, Adjustment screwdriver (only models with timer function)	

* For 80 × 80 mm.

Engineering Data (Reference Value)

Sensing Distance vs. Materials

