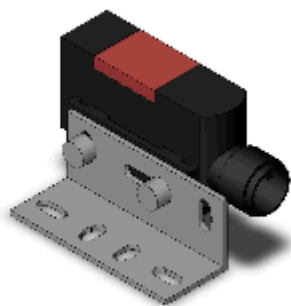


Transparent Object Detection Sensor

**E3S-R67**

Image

**Retro-reflective without M.S.R. function, Sensing distance When using the E39-R1: 100 to 300 mm, Light-ON/Dark-ON selectable, NPN, M12 connector models, Infrared LED (880 nm)**

<b>Sensing method</b>	Retro-reflective without M.S.R. function
<b>Sensing distance</b>	When using the E39-R1: 100 to 300 mm
<b>Light source</b>	Infrared LED (880 nm)
<b>Connection method</b>	M12 connector models

**Ratings/Performance**

As of February 28, 2022

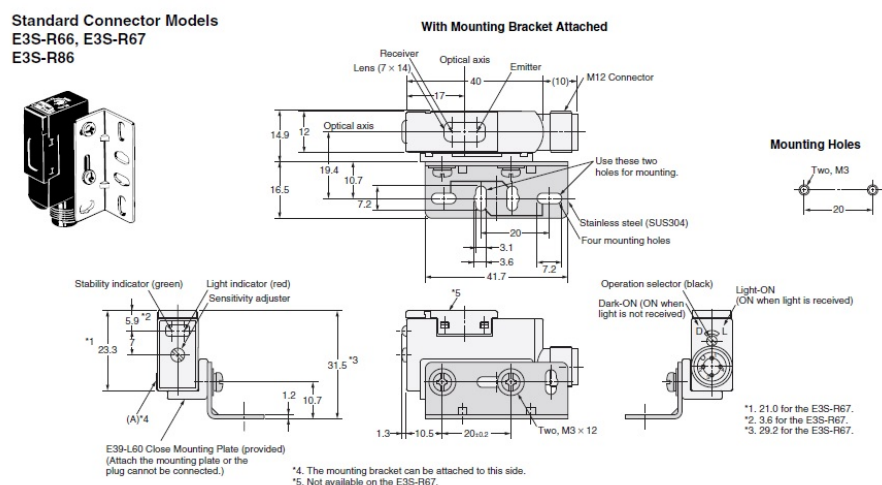
<b>Shape</b>	Square type
<b>Sensing method</b>	Retro-reflective without M.S.R. function
<b>Sensing distance</b>	When using the E39-R1: 100 to 300 mm
<b>Standard sensing object</b>	Opaque: 75 mm dia. min. thickness: 0.7 mm, LCD glass plate Glass tube (10 mm dia. thickness: 1 mm length: 30 mm)
<b>Directional angle</b>	3 to 10°
<b>Light source</b>	Infrared LED (880 nm)
<b>Power supply voltage</b>	10 to 30 VDC ripple (p-p) 10% included
<b>Current consumption</b>	30 mA max.
<b>Control output</b>	NPN open collector 30 VDC max. 100 mA max. Residual voltage: 1 V max.
<b>Operation mode</b>	Light-ON/Dark-ON selectable
<b>Protective circuit</b>	Output short-circuit protection, Power supply reverse polarity protection, Mutual interference prevention
<b>Response time</b>	Operate or reset: 1 ms max.
<b>Sensitivity setting</b>	2-turn endless adjustment
<b>Ambient illuminance</b>	Incandescent lamp: 5,000 lx max. Sunlight: 10,000 lx max.
<b>Ambient temperature range (Operating)</b>	0 to 40 °C (with no freezing or condensation)

<b>Ambient temperature range (Storage)</b>	-40 to 70 °C (with no freezing or condensation)
<b>Ambient humidity range (Operating)</b>	35 to 85% (with no condensation)
<b>Ambient humidity range (Strage)</b>	35 to 95% (with no condensation)
<b>Insulation resistance</b>	20 MΩ min. (500 VDC megger)
<b>Dielectric strength</b>	1000 VAC 50/60 Hz 1 min
<b>Vibration resistance</b>	Destruction: 10 to 55 Hz, 1.5 mm double amplitude each in X, Y, and Z directions for 2 h
<b>Shock resistance</b>	Destruction: 500 m/s <sup>2</sup> 3 times each in X, Y and Z directions
<b>Degree of protection</b>	IEC: IP67
<b>Connection method</b>	M12 connector models
<b>Indicator</b>	Light indicator (red), Stability indicator (green)
<b>Weight</b>	Package: Approx. 60 g
<b>Accessories</b>	Instruction manual, Mounting bracket (with screws), Close-mounting plate, Sensitivity adjustment driver, Reflector
<b>Material</b>	Case: Polybutylene terephthalate (PBT) Lens: Denatured Polyarylate Mounting Bracket: Stainless steel (SUS304)

As of February 28, 2022

## Dimensions

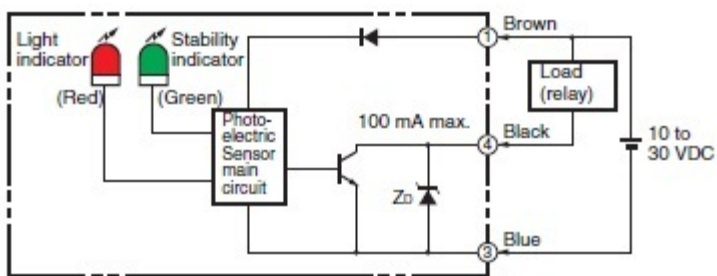
As of February 28, 2022



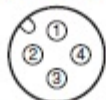
As of February 28, 2022

### Output circuit diagram

As of February 28, 2022



Connector Pin Arrangement



Note: Pin 2 is not used.

As of February 28, 2022

## Timing chart

As of February 28, 2022

Operation mode	Timing chart	Mode switch
<b>Light ON</b>	<p>Incident light</p> <p>No incident light</p> <p>Light indicator (red) ON</p> <p>Light indicator (red) OFF</p> <p>Output transistor ON</p> <p>Output transistor OFF</p> <p>Load (Relay) Operate</p> <p>Load (Relay) Reset</p> <p>{Between brown(1) and black(4)}</p>	<b>L side (LIGHT ON)</b>
<b>Dark ON</b>	<p>Incident light</p> <p>No incident light</p> <p>Light indicator (red) ON</p> <p>Light indicator (red) OFF</p> <p>Output transistor ON</p> <p>Output transistor OFF</p> <p>Load (Relay) Operate</p> <p>Load (Relay) Reset</p> <p>{Between brown(1) and black(4)}</p>	<b>D side (DARK ON)</b>

As of February 28, 2022