


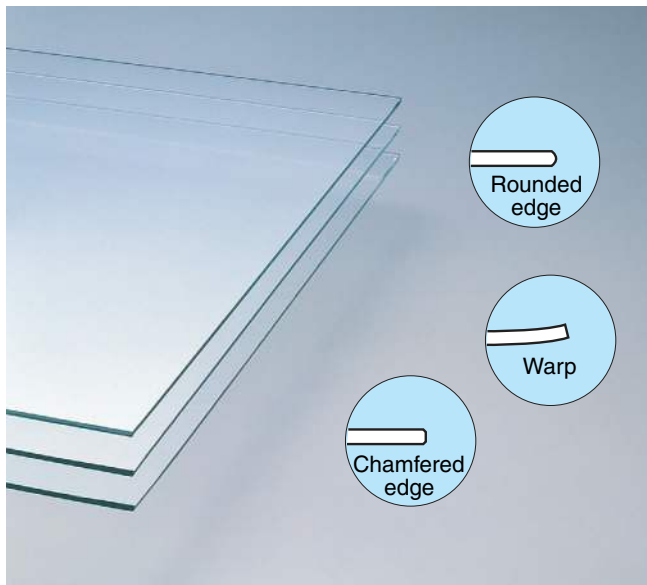
## Ideal for Mapping Liquid Crystal Glass Plates on Cassette Trays



 Be sure to read *Safety Precautions* on page 3.

### Features

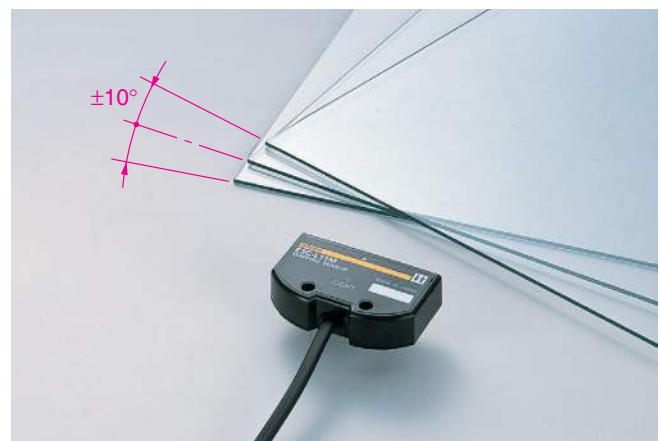
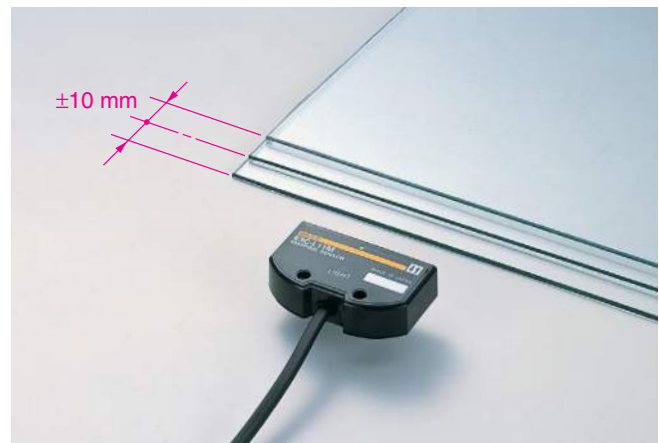
**Detects glass plates without being influenced by the processing condition of its edges.**



The stable detection of glass plates is possible without being influenced by the processing condition of its glass edges (e.g., rounded or chamfered edges) or warps due to the weight of the glass plates.

**Note: Be sure to confirm operation before use.**

**Stably detects on-tray glass plates even if the glass plates are offset.**

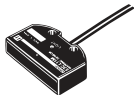



The E3C-L11M ensures stable detection in a sensing range of  $\pm 10$  mm or  $\pm 10^\circ$  from the center distance of glass substrates set in cassettes or trays.

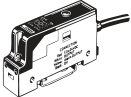

## Ordering Information

### Sensor

 Infrared light

Sensing method	Appearance	Sensing distance	Model
Reflective		 20±10 mm	E3C-L11M

### Amplifier

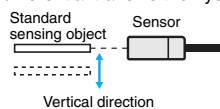
Appearance	Power supply	Functions	Model
	12 to 24 VDC	 Self-diagnosis	E3C-JC4P

## Ratings and Specifications

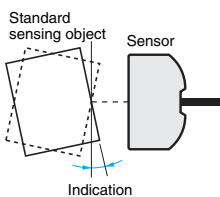
### Sensor

Item	Sensing method Model	Reflective
		E3C-L11M
Sensing distance		20±10 mm
Standard sensing object		Cut edge of transparent glass (t = 0.7 mm)
Differential travel *1		0.5 mm max. (at a sensing distance of 20 mm)
Light source (wavelength)		Infrared LED (860 nm)
Distance between sensing objects		10 mm max. (at a sensing distance of 20 mm)
Angle of sensing object *2		±10° max. (at a sensing distance of 20 mm)
Ambient illumination (receiver side)		Incandescent lamp: 1,500 lx
Ambient temperature		Operating: 0 to 40°C, Storage: -40 to 70°C (with no icing or condensation)
Ambient humidity		Operating/Storage: 35% to 85% (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 150 Hz, 0.75-mm double amplitude or 100 m/s <sup>2</sup> for 2 hrs each in X, Y, and Z directions
Shock resistance (destruction)		300 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP50
Connection method		Pre-wired cable (standard length: 2 m)
Weight (packed state)		Approx. 50 g
Material	Case	ABS
	Lens	PVC
Accessories		Phillips screw M4 × 18, Spring washers, Flat washers, Instruction sheet

\*1. The differential travel is the hysteresis of the Sensor with the standard sensing object moving perpendicular to the Sensor.



\*2.

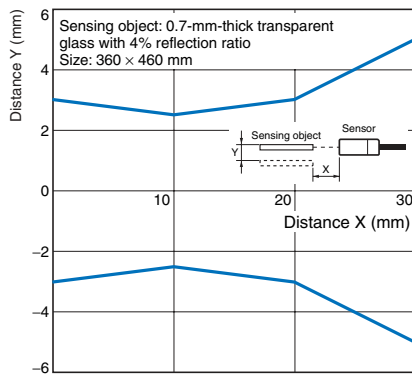


### Amplifier Unit

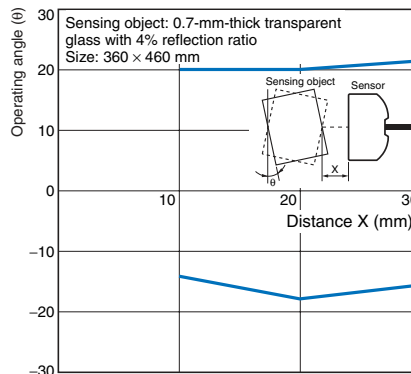
For details, refer to E3C Series.

## Engineering Data (Typical)

### Operating Range



### Sensing Angle

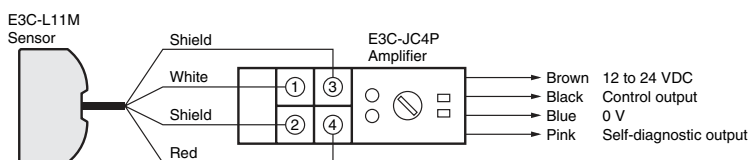


## I/O Circuit Diagrams

### NPN Output

Model	Operation mode	Timing charts	Output circuit
E3C-L11M + E3C-JC4P	Light-ON	<p>Incident light: ON (green bar)</p> <p>No incident light: OFF (white bar)</p> <p>Light indicator (orange): ON (green bar)</p> <p>Output transistor: ON (green bar)</p> <p>Load (e.g., relay): ON (green bar)</p> <p>Timing: 40 ms</p>	
	Dark-ON	<p>Incident light: ON (green bar)</p> <p>No incident light: OFF (white bar)</p> <p>Light indicator (orange): ON (green bar)</p> <p>Output transistor: OFF (white bar)</p> <p>Load (e.g., relay): OFF (white bar)</p> <p>Timing: 40 ms</p>	

## Connection



## 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.

#### ● Mounting

The torque required to tighten each screw must be 0.71 N·m maximum. Excessive tightening torque may damage the Sensor and Amplifier.

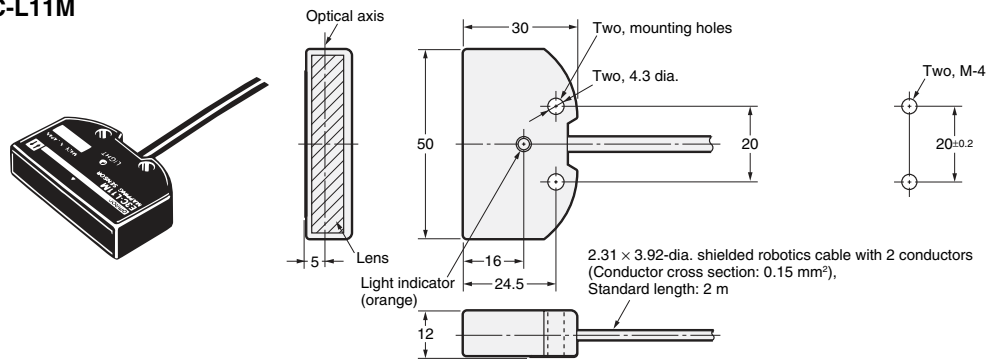
#### ● Wiring

A maximum of 24 VDC±10% can be imposed on the E3C-L11M. Check that the voltage of the power supply is within the permissible range before turning on the E3C-L11M.

## Dimensions

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

### E3C-L11M



For information on the E3C-JC4P, refer to the *E3C Series Datasheet*.

In the interest of product improvement, specifications are subject to change without notice.

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