

## Photomicrosensor with Cable (Non-modulated) EE-SX77/87

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-34970699  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

### Slim, Compact Photomicrosensor that is still easy to use.

- Compact, thin profile enables dense mounting.
- Indicator is visible from both sides.
- Wide operating voltage range: 5 to 24 VDC



Refer to *Precautions* on page 33.

### Ordering Information


#### Pre-wired Models







Infrared light

Appearance	Sensing method	Sensing distance		Output configuration	Cable length	Model	
						NPN output *1	PNP output *2
 Standard	Through-beam type	 5 mm (slot width)		Dark-ON	2 m	EE-SX770 EE-SX770A	EE-SX770P EE-SX770R
				Light-ON		EE-SX870 EE-SX870A	EE-SX870P EE-SX870R
 L-shaped				Dark-ON		EE-SX771 EE-SX771A	EE-SX771P EE-SX771R
				Light-ON		EE-SX871 EE-SX871A	EE-SX871P EE-SX871R
 T-shaped				Dark-ON		EE-SX772 EE-SX772A	EE-SX772P EE-SX772R
				Light-ON		EE-SX872 EE-SX872A	EE-SX872P EE-SX872R

\* 1. Model numbers ending in suffix A (e.g., EE-SX770A) indicate models for which the operation indicator will turn ON when the light is interrupted.  
 \* 2. Model numbers ending in suffix R (e.g., EE-SX770R) indicate models for which the operation indicator will turn ON when the light is interrupted.

e-CON Junction Connector Models \*

 Infrared light

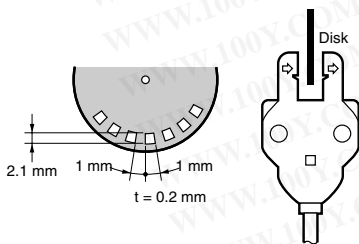
Appearance	Sensing method	Sensing distance		Output configuration	Cable length	Model				
						NPN output				
Standard 	Through-beam type		5 mm (slot width)	Dark-ON	0.3 m	EE-SX770-ECON EE-SX770A-ECON				
					2 m	EE-SX770-ECON EE-SX770A-ECON				
					Light-ON	0.3 m	EE-SX870-ECON EE-SX870A-ECON			
						2 m	EE-SX870-ECON EE-SX870A-ECON			
				L-shaped 	Through-beam type		5 mm (slot width)	Dark-ON	0.3 m	EE-SX771-ECON EE-SX771A-ECON
									2 m	EE-SX771-ECON EE-SX771A-ECON
Light-ON	0.3 m	EE-SX871-ECON EE-SX871A-ECON								
	2 m	EE-SX871-ECON EE-SX871A-ECON								
T-shaped 	Through-beam type		5 mm (slot width)					Dark-ON	0.3 m	EE-SX772-ECON EE-SX772A-ECON
									2 m	EE-SX772-ECON EE-SX772A-ECON
				Light-ON	0.3 m	EE-SX872-ECON EE-SX872A-ECON				
					2 m	EE-SX872-ECON EE-SX872A-ECON				

\* e-CON is a new industrial standard being promoted by manufacturers of FA devices and connectors.  
 The E39-ECON□M (cable length: 2 m or 5 m) with an e-CON connector on one end, and the E39-ECONW□M (cable length: 0.5 m to 2 m in units of 0.1 m) with e-CON connectors on both ends are available.  
 The □ symbol is used to indicate the cable length (e.g., E39-ECON2M).

Ratings/Characteristics

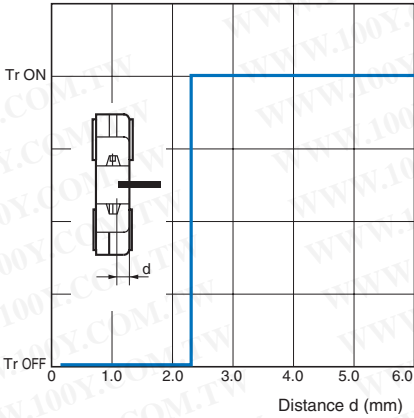
Item	Type	Standard		L-shaped		T-shaped	
	NPN models	EE-SX770	EE-SX870	EE-SX771	EE-SX871	EE-SX772	EE-SX872
	PNP models	EE-SX770P	EE-SX870P	EE-SX771P	EE-SX871P	EE-SX772P	EE-SX872P
		EE-SX770A	EE-SX870A	EE-SX771A	EE-SX871A	EE-SX772A	EE-SX872A
		EE-SX770R	EE-SX870R	EE-SX771R	EE-SX871R	EE-SX772R	EE-SX872R
<b>Sensing distance</b>	5 mm (slot width)						
<b>Sensing object</b>	Opaque: 2 × 0.8 mm min.						
<b>Differential distance</b>	0.025 mm						
<b>Light source</b>	GaAs infrared LED with a peak wavelength of 940 nm						
<b>Indicator</b>	Light indicator (red) (turns ON when light is interrupted for models with A or R suffix)						
<b>Supply voltage</b>	5 to 24 VDC ±10%, ripple (p-p): 10% max.						
<b>Current consumption</b>	35 mA max. (NPN models), 30 mA max. (PNP models)						
<b>Control output</b>	NPN open collector: 5 to 24 VDC, 100 mA max. 100 mA load current with a residual voltage of 0.8 V max. 40 mA load current with a residual voltage of 0.4 V max. PNP open collector: 5 to 24 VDC, 50 mA max. 50 mA load current with a residual voltage of 1.3 V max.						
<b>Response frequency</b> *	1 kHz min. (3 kHz average)						
<b>Ambient illumination</b>	1,000 lx max. with fluorescent light on the surface of the receiver						
<b>Ambient temperature</b>	Operating: -25 to +55°C Storage: -30 to +80°C (with no icing)						
<b>Ambient humidity</b>	Operating: 5% to 85% Storage: 5% to 95% (with no condensation)						
<b>Vibration resistance</b>	Destruction: 20 to 2,000 Hz (peak acceleration: 100 m/s <sup>2</sup> ) 1.5-mm double amplitude for 2 h (4-min periods) each in X, Y, and Z directions						
<b>Shock resistance</b>	Destruction: 500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions						
<b>Enclosure rating</b>	IEC IP60						
<b>Connecting method</b>	Pre-wired (standard cable length: 2 m)						
<b>Weight (packaged)</b>	Approx. 20 g						
<b>Material</b>	Case: Polybutylene phthalate (PBT)						

\* The response frequency was measured by detecting the following rotating disk.

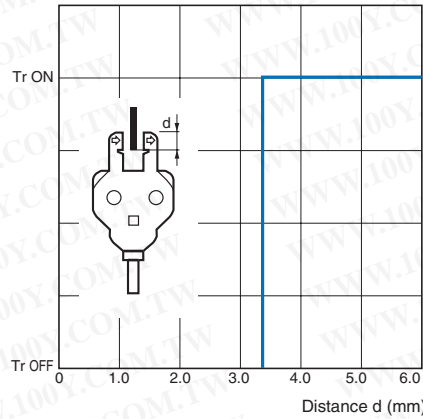


Engineering Data

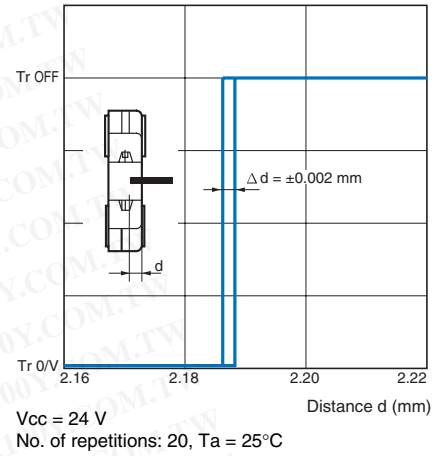
Sensing Position Characteristics (Typical)  
EESX770



Sensing Position Characteristics (Typical)



Repeated Sensing Position Characteristics (Typical)



I/O Circuits

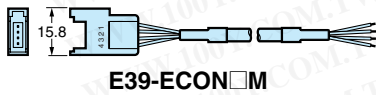
NPN Output

Model	Output configuration	Timing charts	Output circuit
EE-SX770 EE-SX771 EE-SX772	Dark-ON	<p>Incident</p> <p>Interrupted</p> <p>Light indicator (red) ON</p> <p>OFF</p> <p>Output transistor ON</p> <p>OFF</p> <p>Load (e.g., relay) Operates</p> <p>Releases</p>	<p>Connector pin arrangement for e-CON junction connector</p> <p>Note: Pin 2 is not used.</p>
EE-SX870 EE-SX871 EE-SX872	Light-ON	<p>Incident</p> <p>Interrupted</p> <p>Light indicator (red) ON</p> <p>OFF</p> <p>Output transistor ON</p> <p>OFF</p> <p>Load (e.g., relay) Operates</p> <p>Releases</p>	<p>Connector pin arrangement for e-CON junction connector</p> <p>Note: Pin 2 is not used.</p>
EE-SX770A EE-SX771A EE-SX772A	Dark-ON	<p>Incident</p> <p>Interrupted</p> <p>Light indicator (red) ON</p> <p>OFF</p> <p>Output transistor ON</p> <p>OFF</p> <p>Load (e.g., relay) Operates</p> <p>Releases</p>	<p>Connector pin arrangement for e-CON junction connector</p> <p>Note: Pin 2 is not used.</p>
EE-SX870A EE-SX871A EE-SX872A	Light-ON	<p>Incident</p> <p>Interrupted</p> <p>Light indicator (red) ON</p> <p>OFF</p> <p>Output transistor ON</p> <p>OFF</p> <p>Load (e.g., relay) Operates</p> <p>Releases</p>	<p>Connector pin arrangement for e-CON junction connector</p> <p>Note: Pin 2 is not used.</p>

PNP Output

Model	Output configuration	Timing chart	Output circuit
EE-SX770P EE-SX771P EE-SX772P	Dark-ON		
EE-SX870P EE-SX871P EE-SX872P	Light-ON		
EE-SX770R EE-SX771R EE-SX772R	Dark-ON		
EE-SX870R EE-SX871R EE-SX872R	Light-ON		

Applicable Connectors



E39-ECON□M



E39-ECONW□M

- \*1. The E39-ECON□M (cable length: 2 m or 5 m) with an e-CON connector on one end, and the E39-ECONW□M with e-CON connectors on both ends (cable length: 0.5 m to 2 m in units of 0.1 m) are available.
- \*2. The □ symbol is used to indicate the cable length (e.g., E39-ECON2M).

Shield color	Pin No.	Use
Brown	(1)	Power supply (+V)
White	(2)	---
Blue	(3)	Power supply (0 V)
Black	(4)	Output

Note: Pin 2 is not used.

Precautions

Refer to *General Precautions* on page 23 to 28 for general precautions.

**Warning**

**Do not use this product in sensing devices designed to provide human safety.**

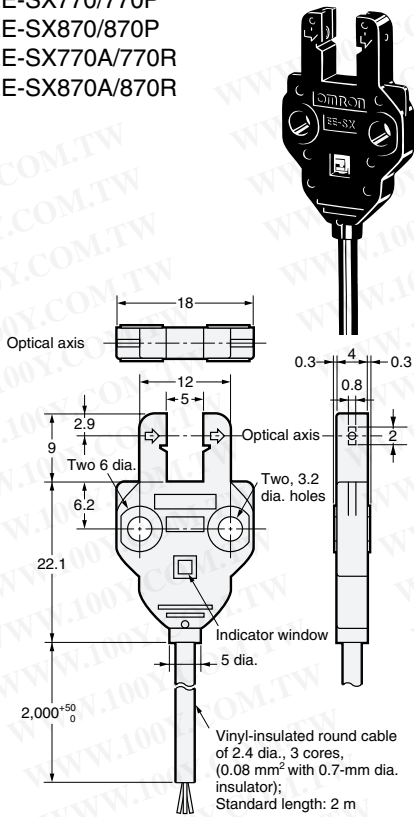
**Precautions for Correct Use**

Make sure that this product is used within the rated ambient environment conditions.

Dimensions (Unit: mm)

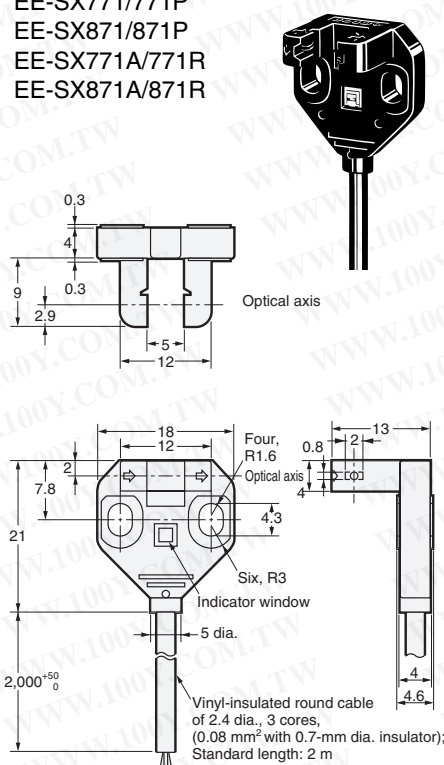
Standard

- EE-SX770/770P
- EE-SX870/870P
- EE-SX770A/770R
- EE-SX870A/870R



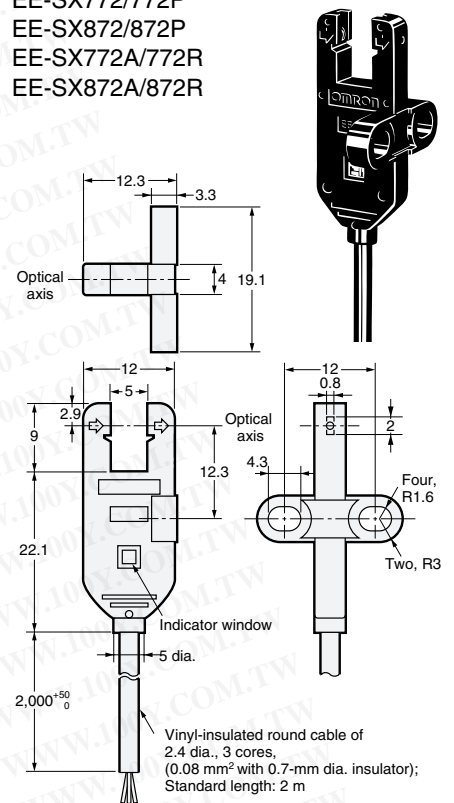
L-shaped

- EE-SX771/771P
- EE-SX871/871P
- EE-SX771A/771R
- EE-SX871A/871R



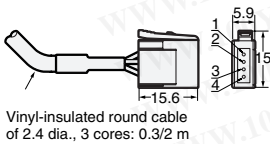
T-shaped

- EE-SX772/772P
- EE-SX872/872P
- EE-SX772A/772R
- EE-SX872A/872R



e-CON Junction Connector

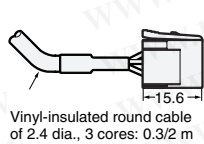
EE-SX□□□-ECON



Terminal	Specifications
1	+ V
2	---
3	0 V
4	Output

e-CON Junction Connector

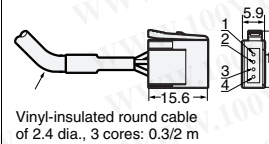
EE-SX□□□-ECON



Terminal	Specifications
1	+ V
2	---
3	0 V
4	Output

e-CON Junction Connector

EE-SX□□□-ECON



Terminal	Specifications
1	+ V
2	---
3	0 V
4	Output

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-34970699  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)