

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

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

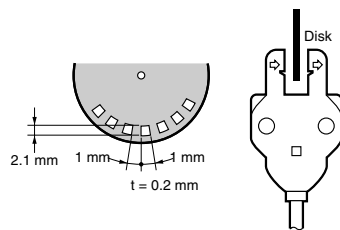
Appearance	Sensing method	Sensing distance		Output configuration	Cable length	Model				
						NPN output				
Standard 	Through-beam type		5 mm (slot width)	Dark-ON	0.3 m	EE-SX770-ECON EE-SX770A-ECON				
					2 m	EE-SX770-ECON EE-SX770A-ECON				
				Light-ON	0.3 m	EE-SX870-ECON EE-SX870A-ECON				
					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

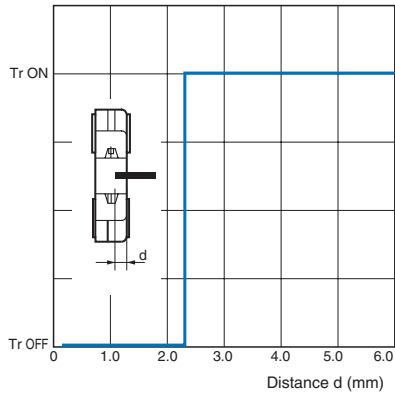
Item	Type	Standard		L-shaped		T-shaped	
	NPN models	EE-SX770 EE-SX770A	EE-SX870 EE-SX870A	EE-SX771 EE-SX771A	EE-SX871 EE-SX871A	EE-SX772 EE-SX772A	EE-SX872 EE-SX872A
	PNP models	EE-SX770P EE-SX770R	EE-SX870P EE-SX870R	EE-SX771P EE-SX771R	EE-SX871P EE-SX871R	EE-SX772P EE-SX772R	EE-SX872P EE-SX872R
Sensing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

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

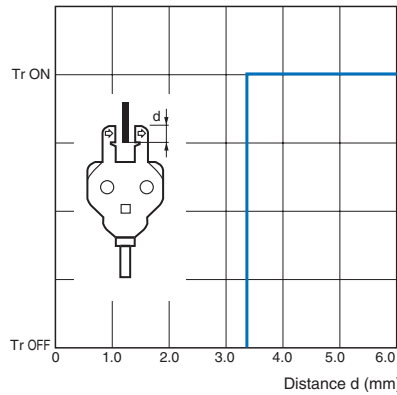


Engineering Data

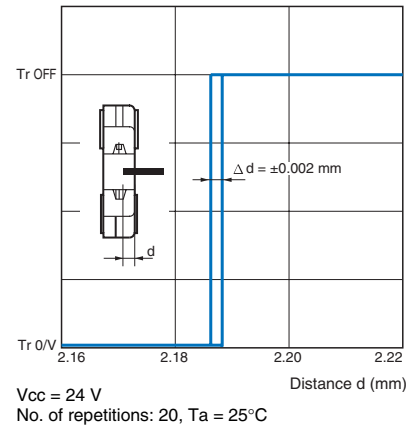
Sensing Position Characteristics (Typical)
EESX770



Sensing Position Characteristics (Typical)



Repeated Sensing Position Characteristics (Typical)



I/O Circuits

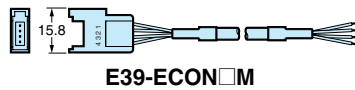
NPN Output

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>1 Brown (Vcc) 2 Black (OUT) (control output) 100 mA max. 3 Blue (GND)</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>1 Brown (Vcc) 2 Black (OUT) (control output) 100 mA max. 3 Blue (GND)</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>1 Brown (Vcc) 2 Black (OUT) (control output) 100 mA max. 3 Blue (GND)</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>1 Brown (Vcc) 2 Black (OUT) (control output) 100 mA max. 3 Blue (GND)</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.

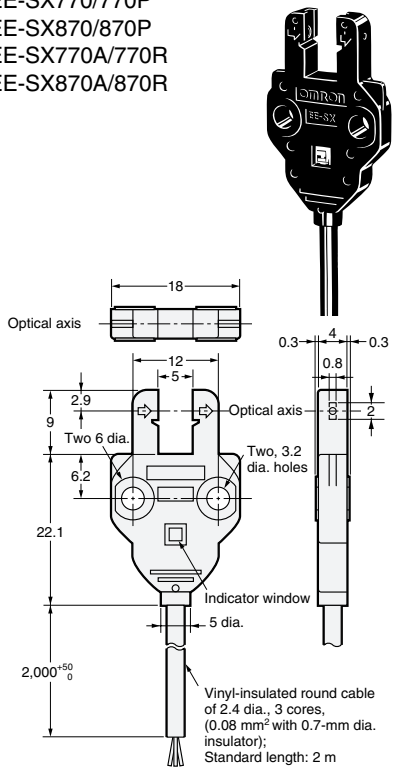
Precautions for Correct Use

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

Dimensions (Unit: mm)

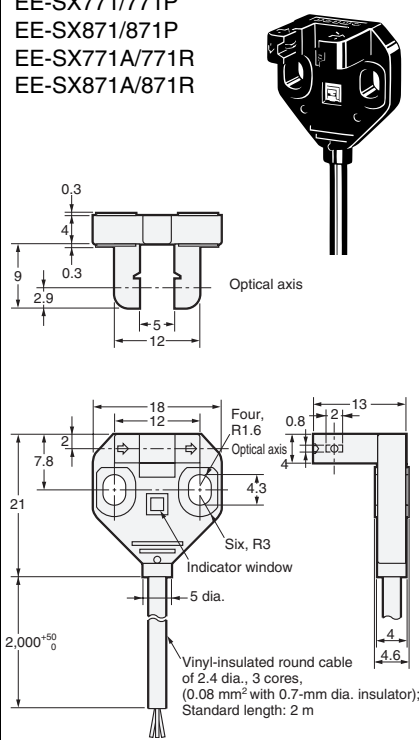
Standard

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



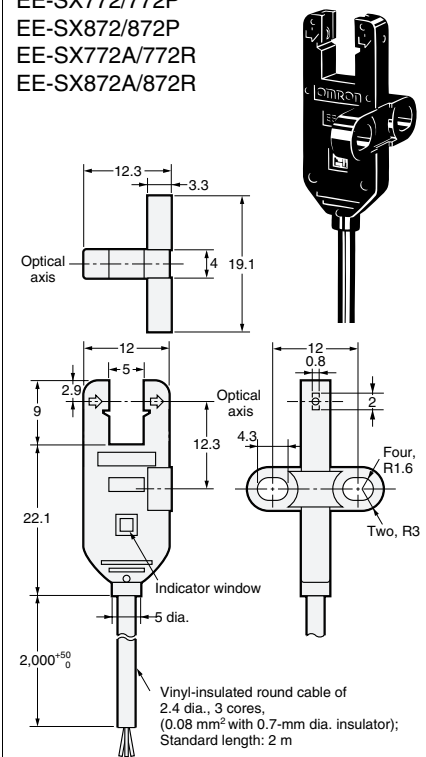
L-shaped

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



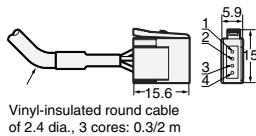
T-shaped

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



e-CON Junction Connector

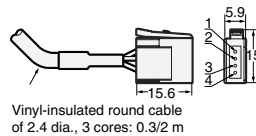
EE-SX□□□-ECON



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

e-CON Junction Connector

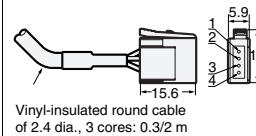
EE-SX□□□-ECON



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