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

CSM\_EE-SX77\_87\_DS\_E\_7\_2

# 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



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



Be sure to read Safety Precautions on

## **Ordering Information**

<b>Pre-wired Models</b>	Infrared light
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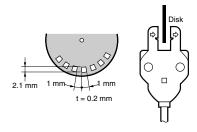
Appearance	Sensing	Cable	Sensing distance		Output configuration	Indicator mode	Model	
	method	length					NPN output	PNP output
Standard		e 2 m		_	Dark-ON	Incident light	EE-SX770 2M	EE-SX770P 2M
41						No incident light	EE-SX770A 2M	EE-SX770R 2M
Sign Sign Sign Sign Sign Sign Sign Sign					Light-ON	Incident light	EE-SX870 2M	EE-SX870P 2M
	L-shaped					No incident light	EE-SX870A 2M	EE-SX870R 2M
L-shaped				Dark-ON	Incident light	EE-SX771 2M	EE-SX771P 2M	
type	Through-beam			5 mm (slot width)	Dark-ON	No incident light	EE-SX771A 2M	EE-SX771R 2M
	(with slot)				Light-ON	Incident light	EE-SX871 2M	EE-SX871P 2M
						No incident light	EE-SX871A 2M	EE-SX871R 2M
T-shaped				Dark-ON	Incident light	EE-SX772 2M	EE-SX772P 2M	
					Dark-ON	No incident light	EE-SX772A 2M	EE-SX772R 2M
					Light ON	Incident light	EE-SX872 2M	EE-SX872P 2M
				Light-ON	No incident light	EE-SX872A 2M	EE-SX872R 2M	

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# **Ratings and Specifications**

	Туре	Standard	L-shaped	T-shaped			
	NPN models	EE-SX770/EE-SX870 EE-SX770A/EE-SX870A	EE-SX771/EE-SX871 EE-SX771A/EE-SX871A	EE-SX772/EE-SX872 EE-SX772A/EE-SX872A			
Item	PNP models	EE-SX770P/EE-SX870P EE-SX770R/EE-SX870R	EE-SX771P/EE-SX871P EE-SX771R/EE-SX871R	EE-SX772P/EE-SX872P EE-SX772R/EE-SX872R			
Sensing distance	•	5 mm (slot width)					
Sensing object		Opaque: 2 × 0.8 mm min.					
Differential distar	псе	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 consump	otion	35 mA max. (NPN models), 30 mA m	ax. (PNP models)				
Control output  40 mA load current with a residual OFF current (leakage current): 0.5 PNP open collector: 5 to 24 VDC, 50 mA max.			rent with a residual voltage of 0.8 V ment with a residual voltage of 0.4 V ma lkage current): 0.5 mA max. mA max. ent with a residual voltage of 1.3 V ma	IX.			
Response freque	ncy *	1 kHz min. (3 kHz average)					
Ambient illumina	tion	1,000 lx max. with fluorescent light on the surface of the receiver					
Ambient tempera	ture range	Operating: -25 to +55°C Storage: -30 to +80°C (with no icing)					
Ambient humidity	y range	Operating: 5% to 85% Storage: 5% to 95% (with no condensation)					
Vibration resistar	псе	Destruction: 20 to 2,000 Hz (peak acceleration: 100 m/s²) 1.5-mm double amplitude for 2 h (4-min periods) each in X, Y, and Z directions					
Shock resistance	•	Destruction: 500 m/s² for 3 times each in X, Y, and Z directions					
Degree of protect	tion	IEC60529 IP60					
Connecting meth	od	Pre-wired (standard cable length: 2 m)					
Weight (package	d)	Approx. 20 g					
Material	Case: Polybutylene phthalate (PBT)						

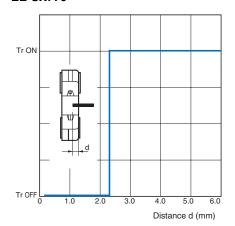
<sup>\*</sup> The response frequency was measured by detecting the following rotating disk.



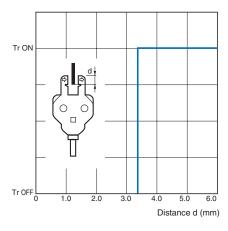
# **Engineering Data (Reference Value)**

#### **Sensing Position Characteristics**

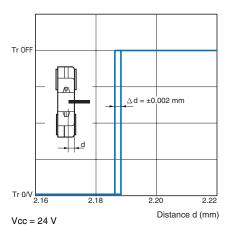
#### **EE-SX770**



#### **Sensing Position Characteristics**



#### **Repeated Sensing Position Characteristics**



No. of repetitions: 20, Ta = 25°C

Note: The data applies to dark status. Operation may be affected by external light interference or light coming through the sensing object.

# I/O Circuit Diagrams

#### **NPN Output**

Model	Output configuration	Timing charts	Output circuit		
EE-SX770 EE-SX771 EE-SX772	Dark-ON	Incident Interrupted Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	Light indicator  (red)  Main  Brown (Vcc)  Load  Black (OUT)  5 to 24 VDC		
EE-SX870 EE-SX871 EE-SX872	Light-ON	Incident Interrupted Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	Mann circuit (control output) 100 mA max.  Blue (GND)		
EE-SX770A EE-SX771A EE-SX772A	Dark-ON	Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	Light indicator  Brown (Vcc)  (red)  Main  Black (OUT)  Fig. 24 VDC		
EE-SX870A EE-SX871A EE-SX872A	Light-ON	Incident Interrupted Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	Main circuit (Control output) 100 mA max.  Blue (GND)		

#### **PNP Output**

Model	Output configuration	Timing chart	Output circuit		
EE-SX770P EE-SX771P EE-SX772P	Dark-ON	Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	Light indicator (red)  Brown (Vcc)  Black (OUT)  5 to 24 VDC		
EE-SX870P EE-SX871P EE-SX872P	Light-ON	Incident Interrupted Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	Blue (GND)		
EE-SX770R EE-SX771R EE-SX772R	Dark-ON	Incident Interrupted Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	Light indicator (red)  Brown (Vcc)  Black (OUT)  5 to 24 VDC		
EE-SX870R EE-SX871R EE-SX872R	Light-ON	Incident Interrupted Light indicator (red) ON OFF Output transistor ON OFF Load (e.g., relay) Operates Releases	circuit Load Blue (GND)		

# **Safety Precautions**

### Refer to Warranty and Limitations of Liability.



This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



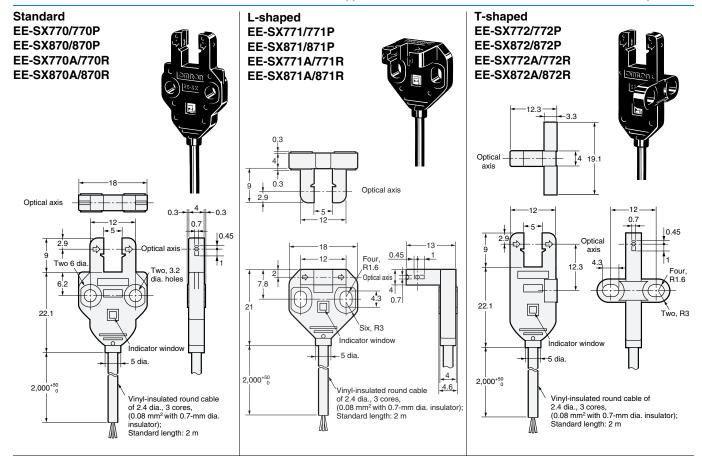
#### **Precautions for Correct Use**

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

(Unit: mm)

#### **Dimensions**

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.



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