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

CSM_EE-SX77_87_DS_E_7_10

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

CE c UL

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 page 4.
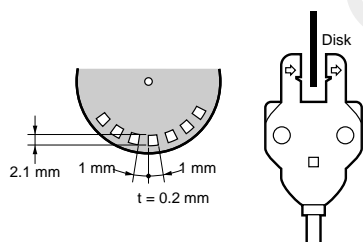
Ordering Information

Pre-wired Models ▭ Infrared light

Appearance	Sensing method	Cable length	Sensing distance	Output configuration	Indicator mode	Model	
						NPN output	**PNP output**
Standard	Through-beam type (with slot)	2 m	5 mm (slot width)	Dark-ON	Incident light	EE-SX770 2M	EE-SX770P 2M
					No incident light	EE-SX770A 2M	EE-SX770R 2M
				Light-ON	Incident light	EE-SX870 2M	EE-SX870P 2M
					No incident light	EE-SX870A 2M	EE-SX870R 2M
L-shaped				Dark-ON	Incident light	EE-SX771 2M	EE-SX771P 2M
					No incident light	EE-SX771A 2M	EE-SX771R 2M
				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
					No incident light	EE-SX772A 2M	EE-SX772R 2M
				Light-ON	Incident light	EE-SX872 2M	EE-SX872P 2M
					No incident light	EE-SX872A 2M	EE-SX872R 2M

Ratings and Specifications

Type		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 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		12 mA max.		

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.
		                   OFF current (leakage current): 0.5 mA max.
		PNP open collector: 5 to 24 VDC, 50 mA max.
		                   50 mA load current with a residual voltage of 1.3 V max.
		                   OFF current (leakage current): 0.5 mA max.		

Protection circuits		Load short-circuit protection		
Response time		Light-ON: 20 µs max, Dark-ON: 100 µs max.		
Maximum response frequency *1		3 kHz max.		
Ambient illumination		1,000 lx max. with fluorescent light on the surface of the receiver		
Ambient temperature range		Operating: −25 to +55°C Storage: −30 to +80°C (with no icing)		
Ambient humidity range		Operating: 5% to 85% Storage: 5% to 95% (with no condensation)		
Vibration resistance		Destruction: 10 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		
Degree of protection *2		IEC60529 IP64		
Connecting method		Pre-wired (standard cable length: 2 m)		
Weight (packaged)		Approx. 20 g		
Material		Case: Polybutylene phthalate (PBT)		
Conformity standards		UL Certification, CE Marking, ISO13849-1 (PLc, cat1) *2		
MTTFd (Year)		NPN models: 837 PNP models: 832		

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

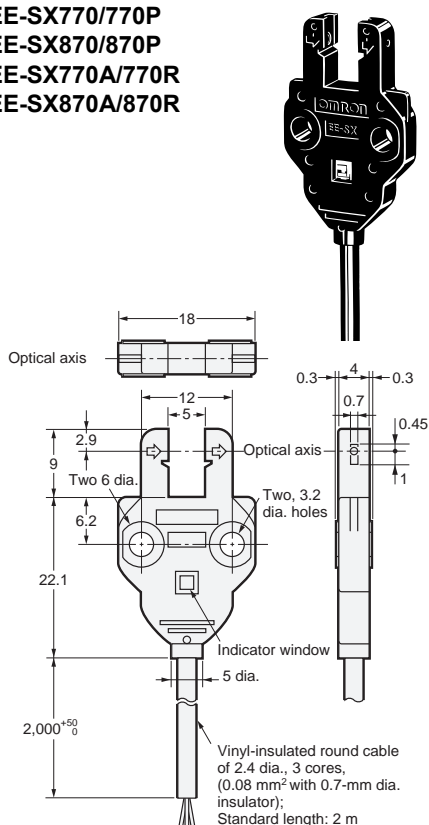*2. Degree of protection IP64 when conforming to ISO13849-1 (PLc, cat1). Conforms to September 2023.
Refer to the Instruction Sheet and Information for ISO13849-1 Compliance on our website (www.fa.omron.co.jp/products/family/435/download/manual.html) for conformance to ISO 13849-1.

(Unit: mm)

Dimensions

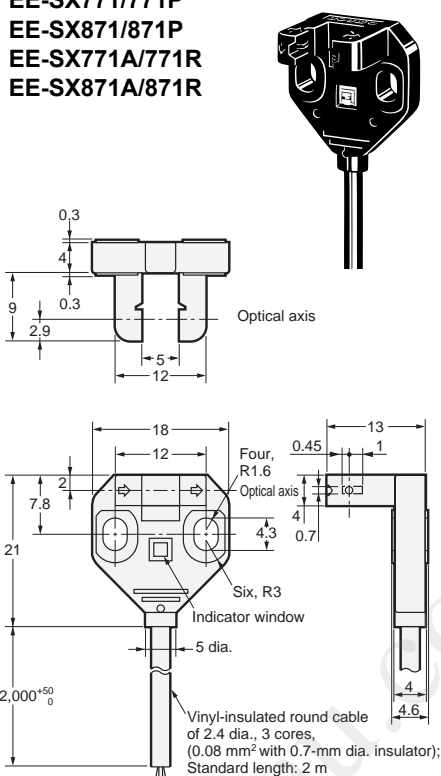Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

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

Optical axis

18

12
5
2.9
9
6.2
22.1

Two 6 dia.

Optical axis

Two, 3.2 dia. holes

0.3 4 0.3
0.7
0.45
1

Indicator window

5 dia.

$2,000^{+50}_{0}$

Vinyl-insulated round cable of 2.4 dia., 3 cores, (0.08 mm² with 0.7-mm dia. insulator); Standard length: 2 m

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

0.3
4
0.3
9
2.9

Optical axis

5
12

18
12
2
7.8
21

Four, R1.6

Optical axis

4.3

Six, R3

Indicator window

5 dia.

$2,000^{+50}_{0}$

13
0.45
1
4
0.7

4
4.6

Vinyl-insulated round cable of 2.4 dia., 3 cores, (0.08 mm² with 0.7-mm dia. insulator); Standard length: 2 m

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

12.3 3.3

Optical axis

4
19.1

12
5
2.9
9
22.1

Optical axis

12.3

Indicator window

5 dia.

$2,000^{+50}_{0}$

12
0.7
0.45
1

4.3

Four, R1.6

Two, R3

Vinyl-insulated round cable of 2.4 dia., 3 cores, (0.08 mm² with 0.7-mm dia. insulator); Standard length: 2 m