EE-SPW321/421

Compact, Thin-profile Photomicrosensor with special amplifier.

- Slim amplifier (50 × 7.5 × 12 mm) can be handled like a cable.
- Provided with two operation indicators, enabling monitoring from the housing and sensor head.
- Simple wiring with a 3-conductor cable.
- Wide operating voltage range: 12 to 24 VDC



⚠ Be sure to read *Safety Precautions* on page 86.

Ordering Information

Sensing method	Sensing distance	Output type	Output configuration	Cable length	Cable length from emitter to amplifier	Model
Through-beam type	300 mm	NPN output	Dark-ON	2 m	0.5 m	**EE-SPW321**
					1 m	**EE-SPW321-A**
			Light-ON		0.5 m	**EE-SPW421**
					1 m	**EE-SPW421-A**

EE-SPW321/421

Ratings and Specifications

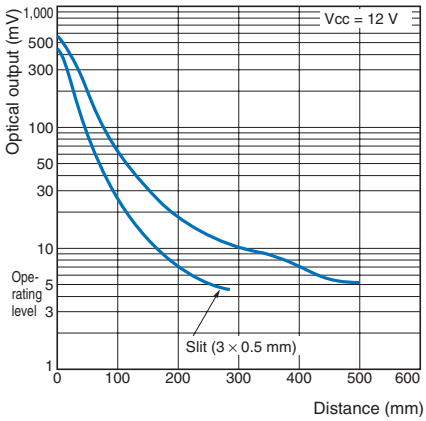
Item	Models	EE-SPW321, EE-SPW421	EE-SPW321-A, EE-SPW421-A
Sensing distance		300 mm *1	
Sensing object		Opaque: 2 mm dia. min. *2	
Directional angle		10° to 40°	
Light source		GaAs infrared LED (pulse lighting) with a peak wavelength of 940 nm	
Indicator		Light indicator (Red LEDs, one each on Sensor and Amplifier)	
Supply voltage		12 to 24 VDC ±10%, ripple (p-p): 5% max.	
Current consumption		Average: 30 mA max.	
Control output		NPN open collector, Load power supply voltage: 12 to 24 VDC, Load current: 100 mA max., OFF current: 0.5 mA max. Residual voltage: 1 V max (at a 100-mA load current)	
Response time		1 ms max. for both detection and reset	
Ambient illumination		3,000 lx max. (incandescent light); 10,000 lx max. (sunlight) on the receiver	
Ambient temperature range		–20 to +55°C	
Ambient humidity range		5% to 85%	
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 h each in X, Y, and Z directions	
Shock resistance		500 m/s^2	
Degree of protection		IEC IP64	
Connecting method		Pre-wired (standard cable length: 2 m)	
Cable length from emitter (receiver) to amplifier		0.5 m	1 m
Weight (Packaged)		76 g	
Material	Case	ABS resin	
	Lens	Acrylate resin	
Accessories		Slits: 0.5 × 3 mm, 1 × 3 mm, 3 × 0.5 mm, 3 × 1 mm (one each) Sems screws with spring washers and flat washers: Six M2.6 × 12 Instruction Manual	

*1. Refer to *Receiver Output Vs. Sensing Distance Characteristics* on the next page.
*2. Detection of objects up to 0.5 mm wide is possible by using slit installation.

Engineering Data (Typical)

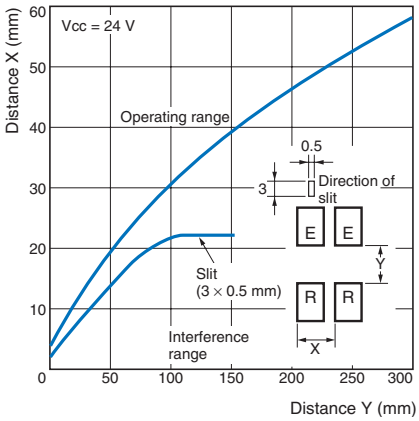
Receiver Output vs. Distance Characteristics

EE-SPW321/421



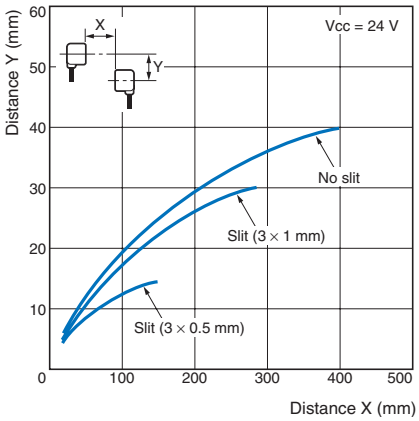
Mutual Interference

EE-SPW321/421



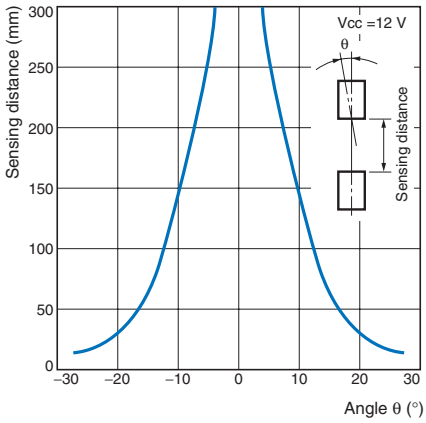
Parallel Movement Characteristics

EE-SPW321/421



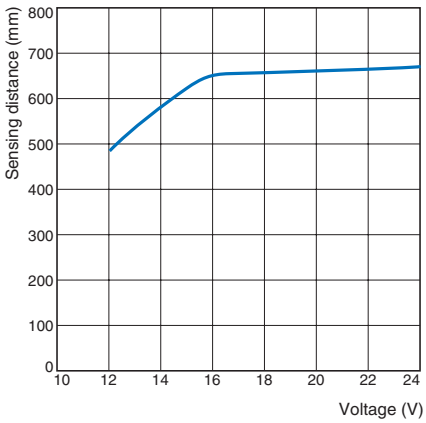
Sensing Angle Characteristics

EE-SPW321/421



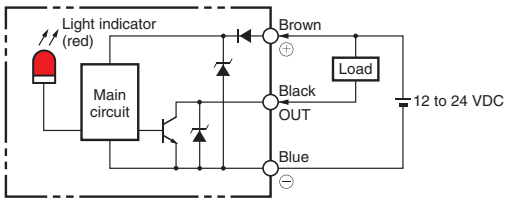
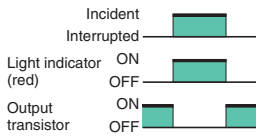
Sensing Distance vs. Input Voltage

EE-SPW321/421



I/O Circuit Diagrams

NPN Output

Model	Output configuration	Timing charts	Output circuit
EE-SPW421(-A)	Light-ON		
EE-SPW321(-A)	Dark-ON		

Sensing Distance with slit installed

Infrared light

Slit type	Sensing distance	Sensing object
None	300 mm	Opaque: 2 mm dia. min.
1 × 3 mm or 3 × 1 mm	200 mm	Opaque: Greater than the slit
0.5 × 3 mm or 3 × 0.5 mm	100 mm	Opaque: Greater than the slit

EE-SPW321/421

Safety Precautions

Refer to *Warranty and Limitations of Liability*.

⚠ WARNING

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.

● Wiring

Connections

The length of the standard cable is 10 m max. (including the cable attachment, AWG24 min.). When extending the Sensor wires, use a wire greater than AWG 22 in diameter and a cable shorter than 100 m. If the cable length exceeds 10 m, the supply voltage applied at the Sensor terminal will decrease as the impedance of the extended cable increases and the low level output voltage at the cable end will increase. Therefore, take voltage fluctuation into account when extending the Sensor cable.

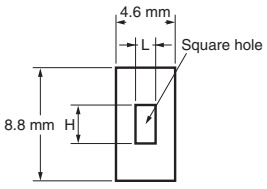
● Mounting

Tighten the mounting screws to a torque of 0.54 N·m max.

● Adjustment

Aperture Stickers

Two kinds of reticles are attached, the 0.5-mm and the 1.0-mm width types (total of 4 stickers with slit widths A to D as shown in the following diagram).
Use these when the sensing object is 2 mm or smaller or when mutual interference must be reduced.
For each slit of the same type, attach a sticker to the sensing surface of the emitter and receiver.



	Size L (mm)	Size H (mm)
Slit A	0.5	3
Slit B	1	3
Slit C	3	0.5
Slit D	3	1

Note: These are pressure sensitive adhesive-type stickers. Peel off the seal and stick it on the lens.

Optical Axis Adjustment

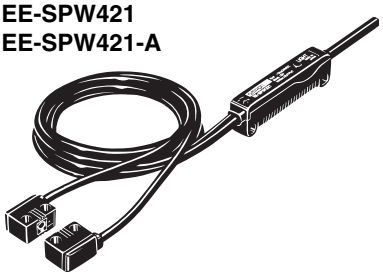
(1)Set the Sensor so that the center of the lens in the emitter and receiver form one line.
(2)Having checked that the Sensor is correctly wired, turn ON the power. The operation indicator on the amplifier of the emitter will light. Check to make sure the light goes ON and OFF when an opaque object is moved in and out between the emitter and receiver.
(3)Move the emitter (or receiver) up and down, left and right and secure the emitter (or receiver) in the center of the range of the operation indicator. Secure the receiver (or emitter) in the same way after adjustment is complete.

(Unit: mm)

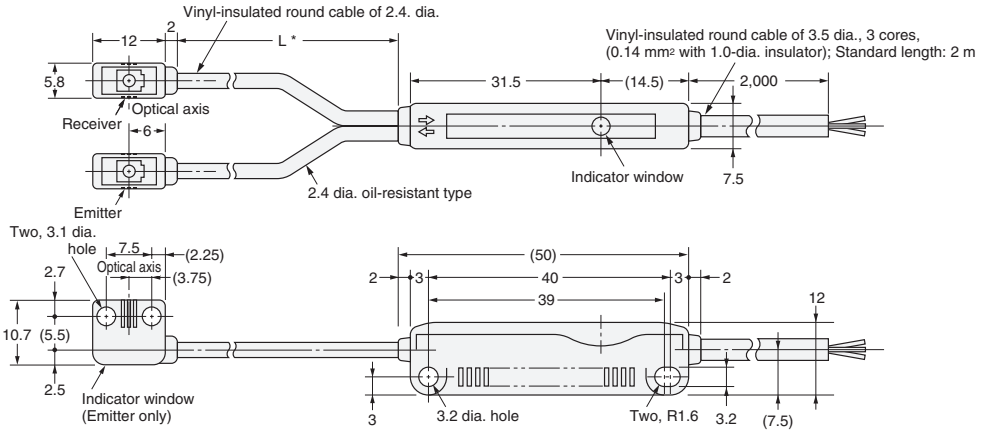
Dimensions

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

EE-SPW321
EE-SPW321-A
EE-SPW421
EE-SPW421-A



* L = 500 mm
(EE-SPW321, EE-SPW421)
L = 1,000 mm
(EE-SPW321-A, EE-SPW421-A)



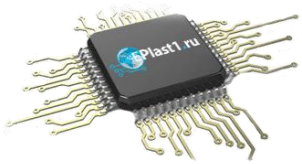
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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
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- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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