WINSOURCE ELECTRONICS

THE DATASHEET OF

EE-SPX305-W2A

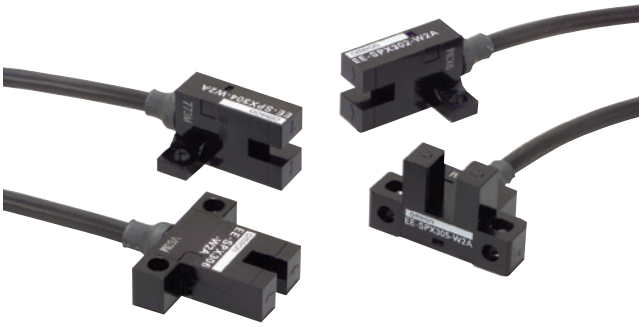
Slot-type Photomicrosensor with Cable

EE-SPX-W

CSM_EE-SPX-W_DS_E_4_2

Photomicrosensor with built-in amplifier and attached cable reduces external light interference.

- Light modulation effectively reduces external light interference.
- Wide operation voltage range: 5 to 24 VDC
- Easy operation monitoring with bright light indicator.

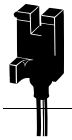
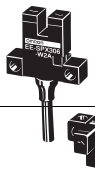
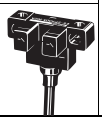


⚠ Be sure to read *Safety Precautions* on page 3.

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

Ordering Information

Infrared light

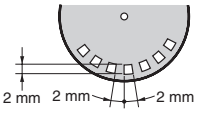
Appearance	Sensing method	Sensing distance (slot width)	Output type	Output configuration	Cable length	Model
	Through-beam type	3.6 mm	NPN output	Dark-ON	1 m	**EE-SPX302-W2A 1M**
				Light-ON		**EE-SPX402-W2A 1M**
		3.6 mm		Dark-ON		**EE-SPX304-W2A 1M**
				Light-ON		**EE-SPX404-W2A 1M**
		3.6 mm		Dark-ON		**EE-SPX306-W2A 1M**
				Light-ON		**EE-SPX406-W2A 1M**
		5 mm		Dark-ON		**EE-SPX305-W2A 1M***
				Light-ON		**EE-SPX405-W2A 1M***

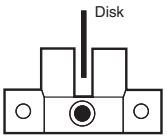
* These models (EE-SPX305/405-W2A only) are not conformed to CE standards.

Ratings and Specifications

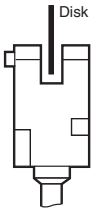
Item \ Models	EE-SPX302-W2A, EE-SPX402-W2A EE-SPX304-W2A, EE-SPX404-W2A EE-SPX306-W2A, EE-SPX406-W2A	EE-SPX305-W2A EE-SPX405-W2A
Sensing distance	3.6 mm (slot width)	5 mm (slot width)
Sensing object	Opaque: 1 × 0.5 mm min.	Opaque: 2 × 0.8 mm min.
Differential distance	0.05 mm max.	
Light source	GaAs infrared LED (pulse lighting) with a peak wavelength of 940 nm	
Indicator *1	Light indicator (red)	
Supply voltage	5 to 24 VDC ±10%, ripple (p-p): 5% max.	
Current consumption	Average: 15 mA max.; Peak: 50 mA max.	
Control output	NPN voltage output: Load power supply voltage: 5 to 24 VDC Load current: 80 mA max. OFF current: 0.5 mA max. 80 mA load current with a residual voltage of 1.0 V max. 10 mA load current with a residual voltage of 0.4 V max.	
Response frequency *2	500 Hz min.	
Ambient illumination	3,000 lx max. with incandescent light or sunlight on the surface of the receiver	
Ambient temperature range	Operating: −10 to +55°C Storage: −25 to +65°C	
Ambient humidity range	Operating: 5% to 85% Storage: 5% to 95%	
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 h 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 protection	IEC IP50	
Connecting method	Pre-wired (standard cable length: 1 m)	
Weight	18.5 g	
Material Case / Holder	Polycarbonate	

*1. The indicator is a GaP red LED (peak wavelength: 700 nm).
*2. The response frequency was measured by detecting the following rotating disk.

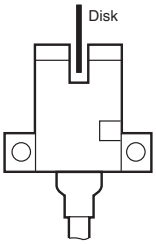




EE-SPX305-W2A



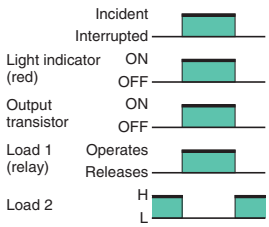
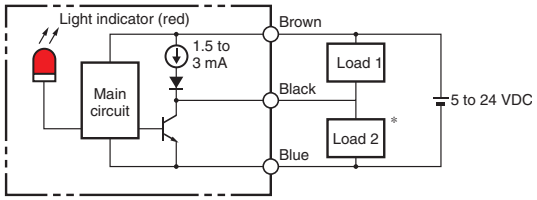
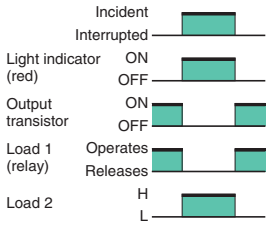
EE-SPX302-W2A



EE-SPX306-W2A

I/O Circuit Diagrams

NPN Output

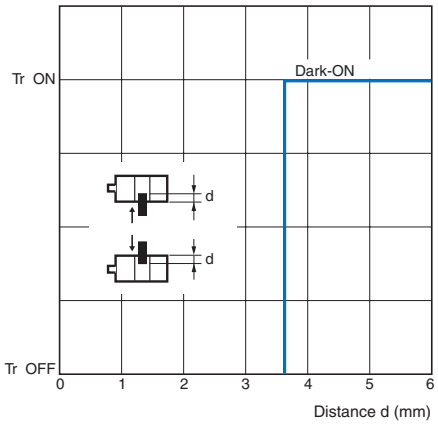
Model	Output configuration	Timing charts	Output circuit
EE-SPX402-W2A EE-SPX404-W2A EE-SPX405-W2A EE-SPX406-W2A	Light-ON		
EE-SPX302-W2A EE-SPX304-W2A EE-SPX305-W2A EE-SPX306-W2A	Dark-ON		

* Voltage output (when the sensor is connected to a transistor circuit)

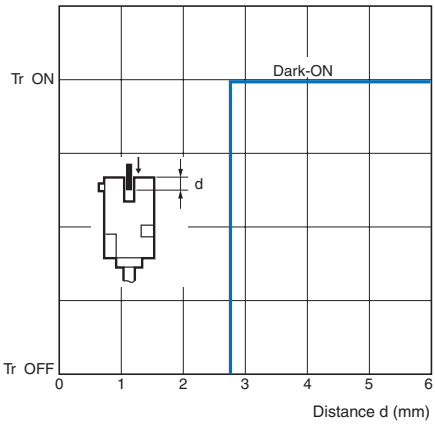
Engineering Data (Reference Value)

Sensing Position Characteristics

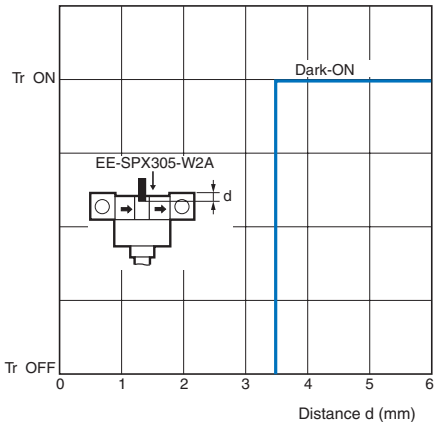
EE-SPX302-W2A
EE-SPX304-W2A
EE-SPX306-W2A



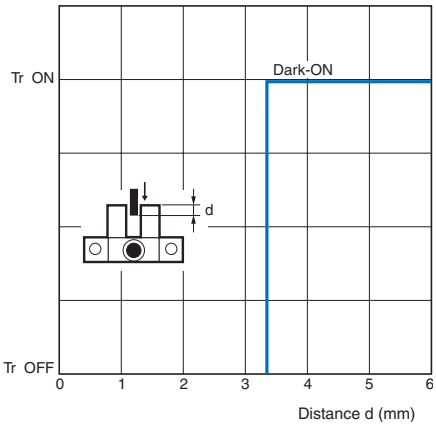
EE-SPX302-W2A
EE-SPX304-W2A
EE-SPX306-W2A



EE-SPX305-W2A



EE-SPX305-W2A



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.

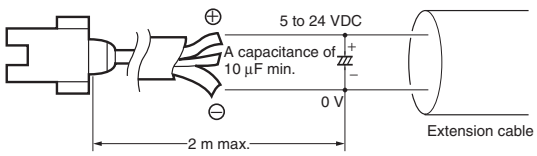


Precautions for Correct Use

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

● Wiring

- When extending the cable, use an extension cable with conductors having a total cross-section area of 0.3 mm^2. The total cable length must be 2 m maximum.
- To use a cable length longer than 2 m, attach a capacitor with a capacitance of approximately 10 μF to the wires as shown below. The distance between the terminal and the capacitor must be within 2 m. (Use a capacitor with a dielectric strength that is at least twice the Sensor's power supply voltage.)



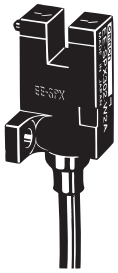
- Make sure the total length of the power cable connected to the product is less than 10 m even if a capacitor is inserted.

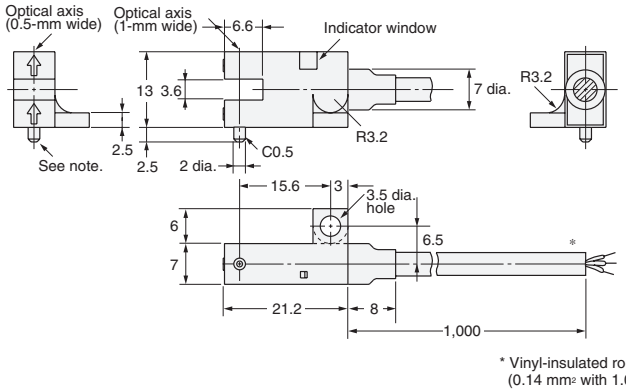
(Unit: mm)

Dimensions

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

EE-SPX302-W2A
EE-SPX402-W2A



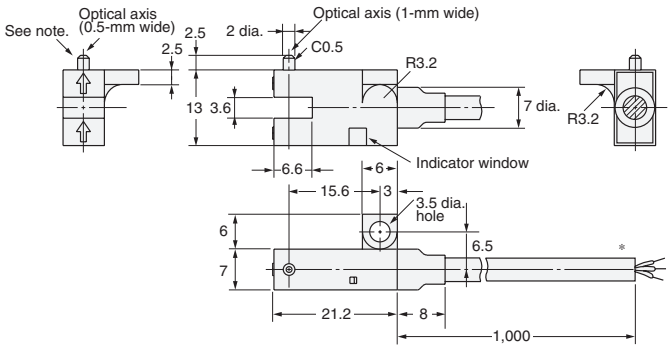


* Vinyl-insulated round cable of 3.5 dia., 3 cores, (0.14 mm² with 1.0-dia. insulator); Standard length: 1 m

Note: The lug is used to prevent turning and to indicate the optical axis.
When installing, make a fixed hole of 2.1 to 2.3 mm dia.

EE-SPX304-W2A
EE-SPX404-W2A

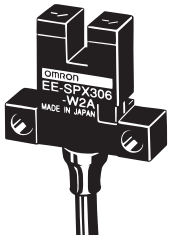


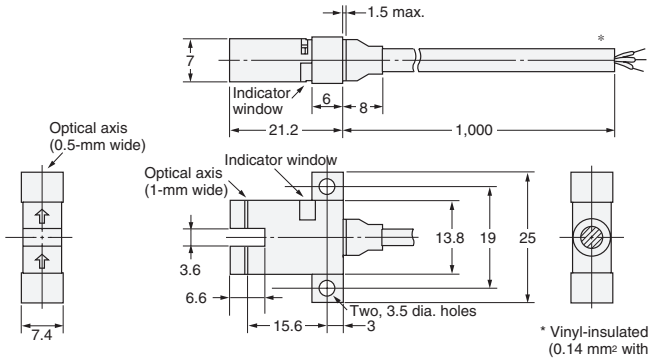


* Vinyl-insulated round cable of 3.5 dia., 3 cores, (0.14 mm² with 1.0-dia. insulator); Standard length: 1 m

Note: The lug is used to prevent turning and to indicate the optical axis.
When installing, make a fixed hole of 2.1 to 2.3 mm dia.

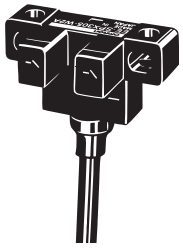
EE-SPX306-W2A
EE-SPX406-W2A

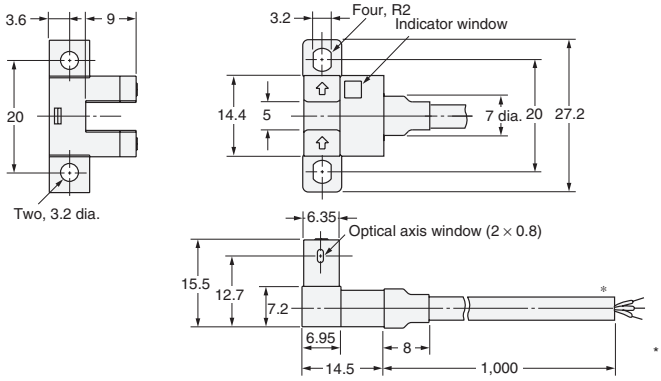




* Vinyl-insulated round cable of 3.5 dia., 3 cores, (0.14 mm² with 1.0-dia. insulator); Standard length: 1 m

EE-SPX305-W2A
EE-SPX405-W2A





* Vinyl-insulated round cable of 3.5 dia., 3 cores, (0.14 mm² with 1.0-dia. insulator); Standard length: 1 m

Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

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In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

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At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

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Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

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Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

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2012.8

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Industrial Automation Company

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