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OMRON

EE-SPX302/402/304/404/305/405/306/406-W2A

Prewired Compact Sensing Head for Easy Mounting in Space-Confined Areas

- Light modulation effectively reduces external light interference
- Easy-to-use photomicrosensor with cable attached
- Wide operating voltage range: 5 to 24 VDC
- Optical axis monitoring with a Light-ON indicator
- Amplifier output can be directly connected to a TTL and programmable controller (PLC)
- Incorporating dust-proof slit
- Detecting an object with 0.5 mm dia.

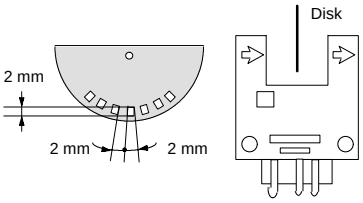
Ordering Information

Appearance	Sensing Method	Slot width	Slot depth	Output configuration	Weight	**Part number**
	Transmissive	3.6 mm	6.6 mm	Dark-ON	Approx. 18.5 g (including lead wires)	**EE-SPX302-W2A**
				Light-ON		**EE-SPX402-W2A**
		3.6 mm	6.6 mm	Dark-ON		**EE-SPX304-W2A**
				Light-ON		**EE-SPX404-W2A**
		5 mm	9 mm	Dark-ON		**EE-SPX305-W2A**
				Light-ON		**EE-SPX405-W2A**
		3.6 mm	6.6 mm	Dark-ON		**EE-SPX306-W2A**
				Light-ON		**EE-SPX406-W2A**

Specifications Table – continued from previous page

Item		EE-SPX303	EE-SPX303-1	EE-SPX403
Indicator*	Without detecting object	ON		
	With detecting object	OFF		
Response frequency**		500 Hz		
Light source		GaAs infrared LED (pulse-modulated) with a peak wavelength of 940 nm		
Receiver		Si photo-diode with a sensing wavelength of 850 nm max.		
Connecting method		Connector EE-1001/1006		

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

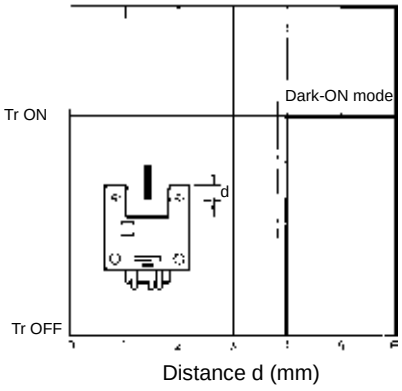


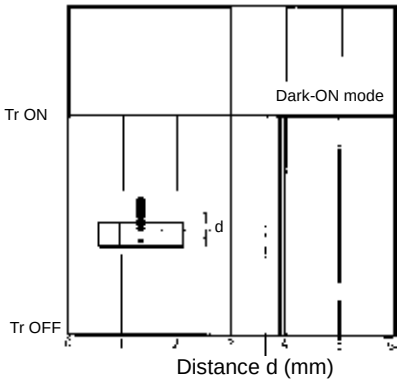
■ CHARACTERISTICS

Ambient illumination		Sensing face: fluorescent light/incandescent light: 3,000 ℓ x max.
Enclosure ratings		IP50
Ambient temperature	Operating	-10° to 55°C (14°F to 131°F)
	Storage	-25° to 65°C (-13°F to 149°F)
Ambient humidity	Operating	35% to 85%
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hrs each in X, Y, and Z directions
Shock resistance		Destruction: 500 m/s^2 (approx. 50G) for 3 times each in X, Y, and Z directions
Cable length		5 m max. (AWG24 min.)

Engineering Data

■ SENSING POSITION CHARACTERISTICS (EE-SPX303)



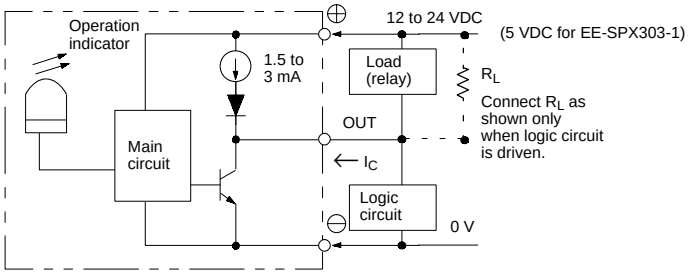


Note: The sensing position characteristics of the EE-SPX403 are opposite those of the EE-SPX303.

Operation

■ INTERNAL/EXTERNAL CIRCUIT DIAGRAM

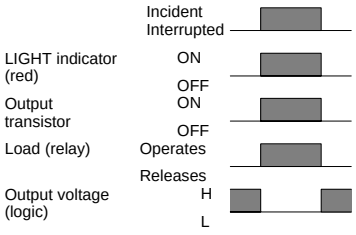
Light-ON/Dark-ON



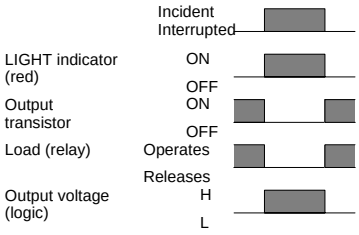
Connect a diode in parallel to the load when an inductive load is connected between + and OUT.

■ TIMING CHART

Light-ON



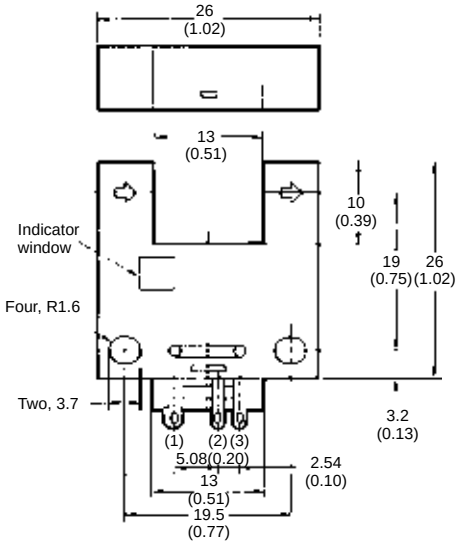
Dark-ON



Dimensions

Unit: mm (inch)

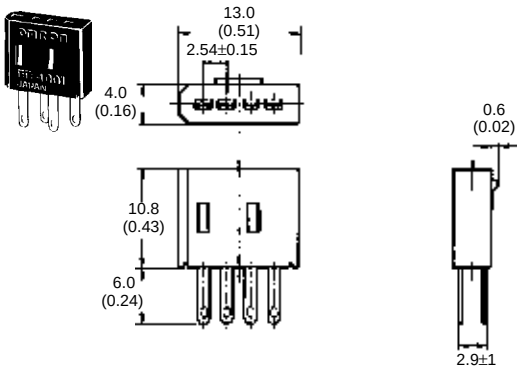
■ EE-SPX303, EE-SPX303-1, EE-SPX403



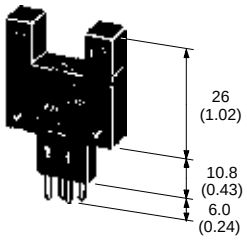
Terminal Arrangement

(1)	⊕	V_{CC}
(2)	OUT	OUTPUT
(3)	⊖	GND (0 V)

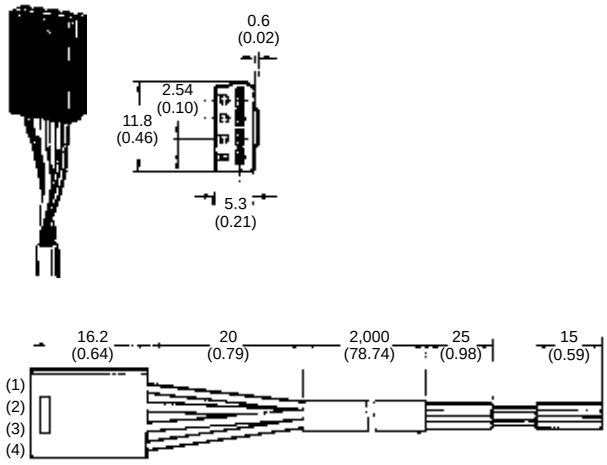
■ EE-1001 CONNECTOR



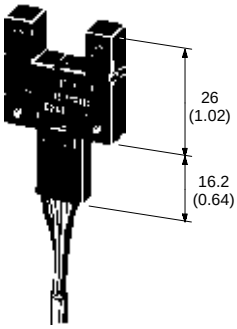
■ EE-SPX303 (403) + EE-1001



■ EE-1006 CONNECTOR



■ EE-SPX303 (403) + EE-1006



Terminal Arrangement

(1)	Red (Brown)	⊕	V_{CC}
(2)	Yellow (Pink)	L	L
(3)	White (Black)	OUT	OUTPUT
(4)	Black (Blue)	⊖	GND (O V)

IEC colors are shown in parentheses.

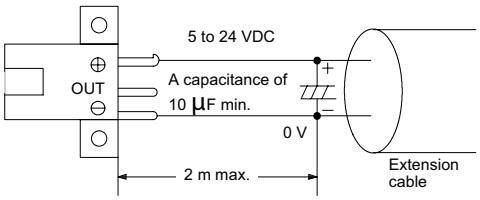
Precautions

Refer to the Technical Information Section for general precautions.

■ WIRING

A cable with a thickness of 0.3 mm^2 min. or AWG22 and a length of 2 m max. must be connected to the output terminals.

To use a cable 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 2 m or less:

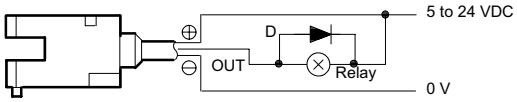


Avoid disconnecting from the photomicrosensor when power is supplied to the photomicrosensor or the photomicrosensor could be damaged.

If the metal mounting base is subjected to inductive electrical noise, the photomicrosensor can be activated accidentally. If noise is a problem, take the following precautions:

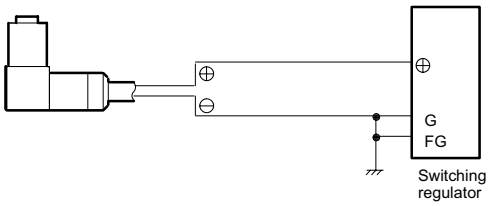
1. Connect the GND terminal to the mounting base, so there will be no difference in electric potential between the photomicrosensor and mounting base.
2. Connect the GND terminal to the mounting base via a 0.47-µF capacitor.
3. Insert a plastic insulating plate with a thickness of approximately 10 mm between the photomicrosensor and mounting base.

Wire, as shown by the following illustration, to connect a small inductive load (a relay for example) to the photomicrosensor. A diode must be connected parallel to the relay to absorb the reverse voltage.



■ POWER SUPPLY

When using a standard switching regulator, ground the FG and G terminal so that the photomicrosensor will be in a stable operating condition.



NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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