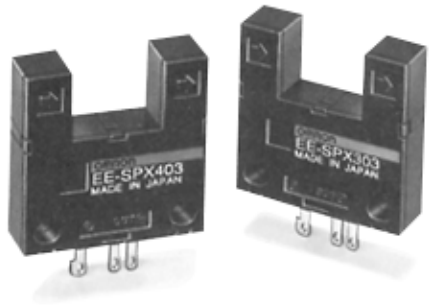
OMRON

EE-SPX303/403

Large Slot Width (13 mm) Not Influenced by External Light

- Easy adjustment and optical axis monitoring with a Light-ON indicator
- Wide operating voltage range (12 to 24 VDC) makes smooth connection possible with TTLs, relays, and programmable controllers (PLC)
- Easy-to-wire connector assures ease of maintenance
- Convert to PNP output with EE-2002 conversion connector



Ordering Information

Appearance	Sensing Method	Slot width	Output configuration	Weight	Part Number
	Transmissive	13 mm	Dark-ON	Approx. 3.0 g	**EE-SPX303**
			Light-ON		**EE-SPX403**

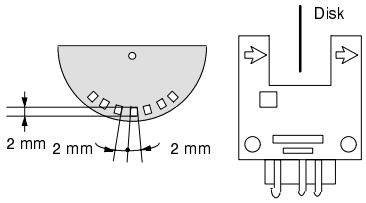
Specifications

■ RATINGS

Item		EE-SPX303	EE-SPX403
Supply voltage		12 to 24 VDC ±10%, ripple (p-p): 5% max.	
Current consumption		Average: 15 mA max.; Peak: 50 mA max.	
Slot width		13 mm	
Standard reference object		Opaque: 0.5 x 1 mm^2 min.	
Differential distance		0.05 mm max.	
Control output		At 12 to 24 VDC: 80-mA load current (I_C) with a residual voltage of 1.0 V max. When driving TTL: 10-mA load current (I_C) with a residual voltage of 0.4 V max.	
Output configuration	Transistor on output stage without detecting object	OFF	ON
	Transistor on output stage with detecting object	ON	OFF

Item		EE-SPX303	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.

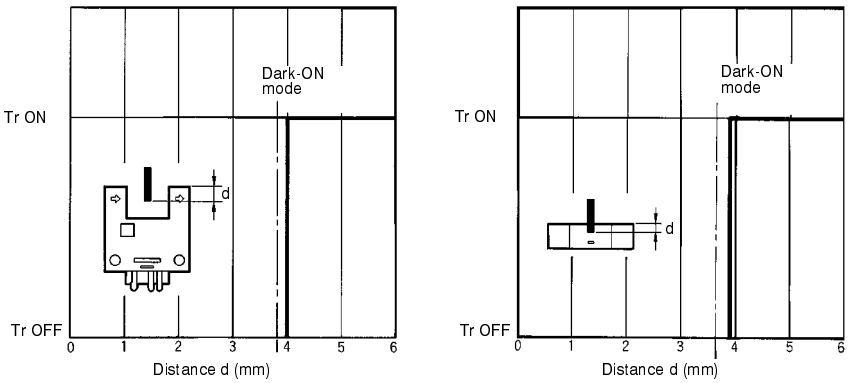


■ CHARACTERISTICS

Ambient illumination		Sensing face: fluorescent light/incandescent light: 3,000 ℓ x max.
Enclosure ratings		IP50
Ambient temperature	Operating	−10° to 55°C
	Storage	−25° to 65°C
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)

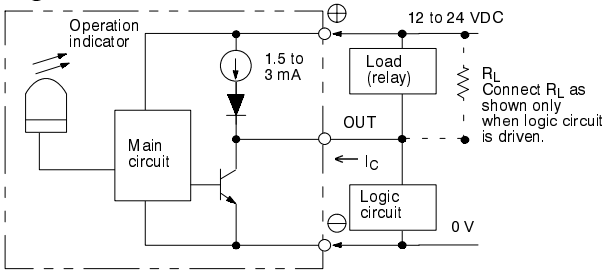


Note: The sensing position characteristics of the EE-SPX403 are opposite those of the EE-SPX303.

Operation

■ INTERNAL/EXTERNAL CIRCUIT DIAGRAM

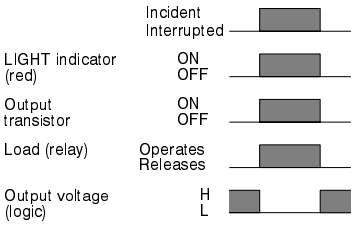
Light-ON/Dark-ON



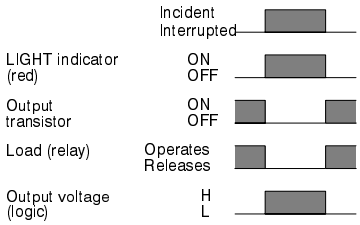
Connect a diode in parallel to the load when an inductive load is connected between + and OUT.

■ TIMING CHART

Light-ON



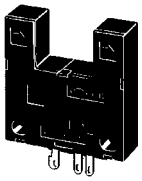
Dark-ON

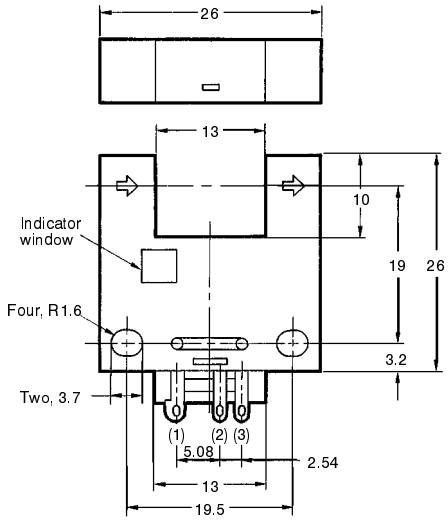


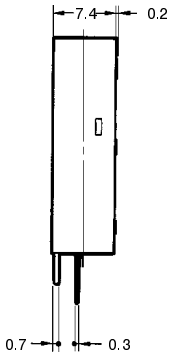
Dimensions

Unit: mm

■ EE-SPX303, EE-SPX403



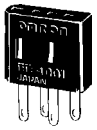


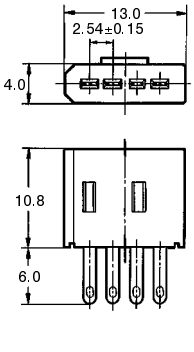


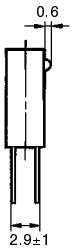
Terminal Arrangement

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

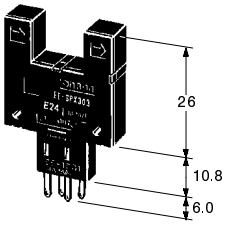
■ EE-1001 CONNECTOR



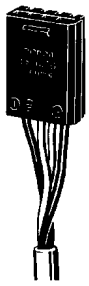


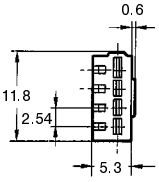


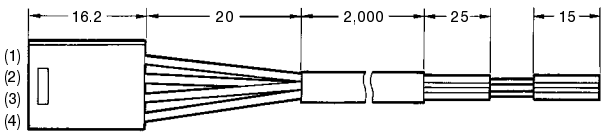
■ EE-SPX303 (403) + EE-1001



■ EE-1006 CONNECTOR





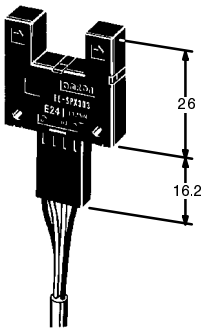


Terminal Arrangement

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

Note: IEC colors are shown in parentheses.

■ EE-SPX303 (403) + EE-1001



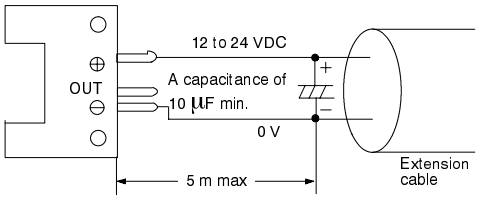
Precautions

Refer the Technical Information Section for general precautions.

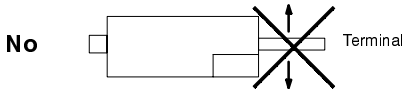
■ WIRING

A cable with a thickness of AWG24 min. and a length of 5 m max. must be connected to the output terminals.

To use a cable longer than 5 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 5 m):



Do not impose excessive force on the terminals (refer to the diagram below). Excess force will damage the terminals.

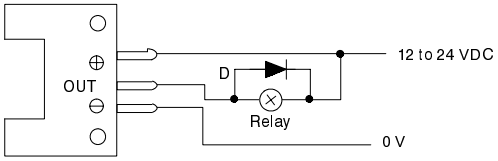


Do not disconnect the EE-1001 or EE-1006 Connector from the photomicrosensor when power is supplied to the photomicrosensor or sensor damage could result.

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 countermeasures:

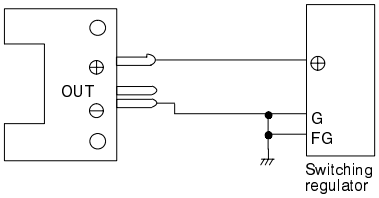
1. Connect the GND terminal to the mounting base so that there will be no difference in electric potential between the photomicrosensor and mounting base.
2. Connect the negative terminal to the mounting base via a 0.47-μF capacitor.
3. Insert a plastic insulating plate with a thickness of approximately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