Broad Slot-type Photomicrosensor

EE-SPX303N/403N

CSM_EE-SPX303N_403N_DS_E_3_4

A Wide Slot Width of 13 mm and Superior Resistance to Light Interference and Noise.

- Noise resistance equivalent to photomicrosensors with built-in amplifiers.
- Resistance to common noise at least 30 times that of previous models.
- Resistance to inverter noise at least 10 times that of previous models.
- Reverse polarity protection built in.

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 3.

Ordering Information

Sensors

Infrared light

Appearance	Sensing method	Sensing distance (slot width)	Output type	Output configuration	Model
	Through-beam type (with slot)	13 mm (slot width)	NPN output	Dark-ON	**EE-SPX303N**
				Light-ON	**EE-SPX403N**

Accessories (Order Separately)

Type		Cable length	Model
Connector			**EE-1001**
			EE-1009 *
	Connector with Cable	1 m	**EE-1006 1M**
			EE-1010 1M *
		2 m	**EE-1006 2M**
			EE-1010 2M *
	Connector with Robot Cable	1 m	**EE-1010-R 1M** *
		2 m	**EE-1010-R 2M** *
NPN/PNP Conversion Connector		0.46 m (total length)	**EE-2002**

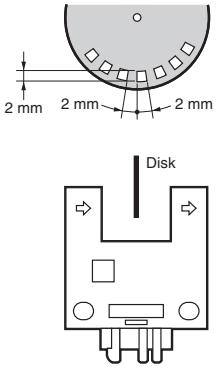
Note: Refer to *Accessories* for details.

* EE-1009- or EE-1010-series Connectors have a builtin locking mechanism to prevent cable disconnection when only the cable is pulled. To remove the Connector from the Sensor, grip the top and bottom of the Connector firmly and push into the Sensor once before pulling out. The locking mechanism prevents the Connector from being removed by pulling on the cable only and enables removal only when the Connector (housing) is pulled.

Ratings and Specifications

Item / Models	EE-SPX303N, EE-SPX403N
Sensing distance	13 mm (slot width)
Sensing object	Opaque: 2.2 × 0.5 mm min.
Differential distance	0.05 mm max.
Light source	Infrared LED (pulse lighting) with a peak wavelength of 940 nm
Indicator	Light indicator (red)
Supply voltage	12 to 24 VDC ±10%, ripple (p-p): 5% max.
Current consumption	15 mA max.
Control output	NPN voltage output: Load power supply voltage: 12 to 24 VDC Load current: 80 mA max. OFF current: 0.5 mA max. 80 mA load current with a residual voltage of 2.0 V max. 10 mA load current with a residual voltage of 1.0 V max.
Protection circuits	Power supply reverse polarity protection, Output reverse polarity protection
Response frequency *	100 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/s^2 for 3 times each in X, Y, and Z directions
Degree of protection	IEC IP50
Connecting method	Special connector (soldering not possible)
Weight	Approx. 4 g
Material	Polycarbonate

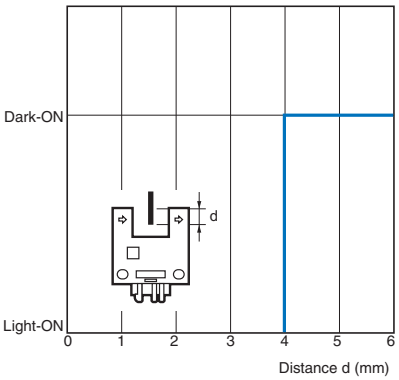
* The response frequency was measured by detecting the following rotating disk.

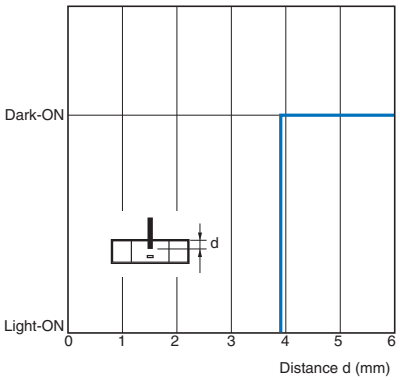


Engineering Data (Reference Value)

Sensing Position Characteristics

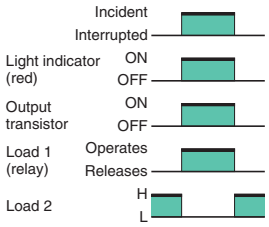
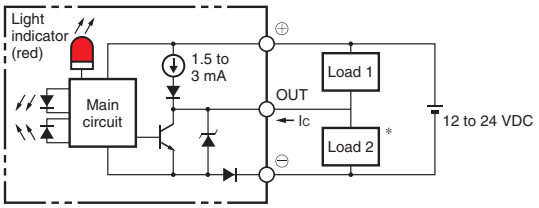
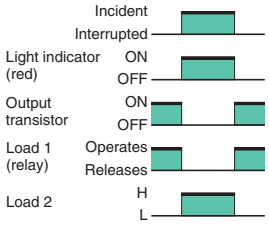
EE-SPX303N





I/O Circuit Diagrams

NPN Output

Model	Output configuration	Timing charts	Output circuit
EE-SPX403N	Light-ON		
EE-SPX303N	Dark-ON		

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

Safety Precautions

Refer to *Warranty and Limitations of Liability*.

⚠ WARNING

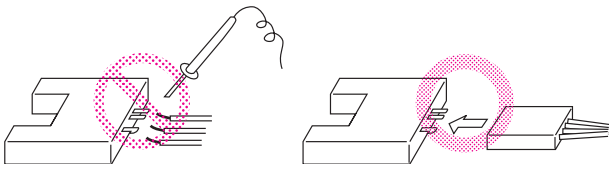
This product is not designed or rated for ensuring safety of persons either directly or indirectly.
Do not use it for such purposes.

Precautions for Correct Use

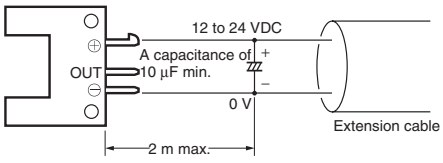
Make sure that this product is used within the rated ambient environment conditions.

● Wiring

- Connection is made using a connector. Do not solder to the pins (leads). The pins (leads) are soldered to the internal board of the Sensor. Therefore, direct soldering of the pins (leads) may result in an internal disconnection causing malfunction.



- 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.

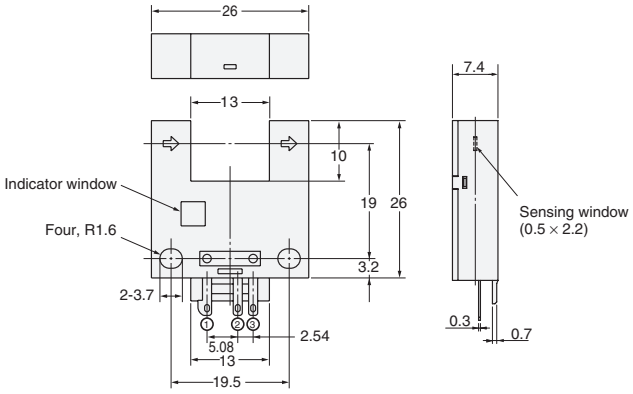
(Unit: mm)

Dimensions

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

Sensors

EE-SPX303N, EE-SPX403N



Terminal Arrangement

(1)	+	Vcc
(2)	**OUT**	OUTPUT
(3)	–	GND (0 V)

Accessories (Order Separately)

* Refer to *Accessories* for details.

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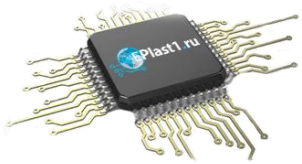

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