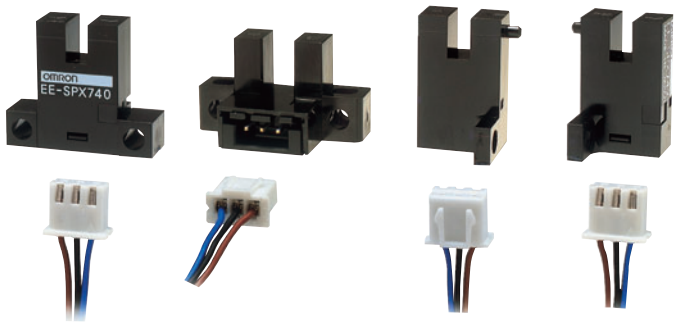
Slot-type Photomicrosensor with Connector (Modulated)

EE-SPX74/84

CSM_EE-SPX74_84_DS_E_4_1

Photomicrosensor with light modulation for reduced external light interference and a connector for easy maintenance.



- Built-in connectors
- Select from four easy-to-use shapes for efficient space utilization.
- Connectors with locks for safety against vibration.
- Convenient mounting method using M3 screws.
- Wide operating voltage range: 5 to 24 VDC

CE

⚠ Be sure to read *Safety Precautions* on page 4.

Ordering Information

Sensors

Infrared light

Appearance	Sensing method	Sensing distance	Output type	Output configuration	Model
	Through-beam type (with slot)	3.6 mm (slot width)	NPN output	Dark-ON	**EE-SPX740**
				Light-ON	**EE-SPX840**
				Dark-ON	**EE-SPX742**
				Light-ON	**EE-SPX842**
				Dark-ON	**EE-SPX743**
				Light-ON	**EE-SPX843**
		5 mm (slot width)		Dark-ON	**EE-SPX741**
				Light-ON	**EE-SPX841**

Accessories (Order Separately)

Connector with Cable

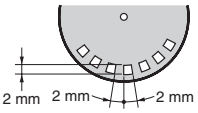
Type	Cable length	Model
Connector	1 m	**EE-1013**

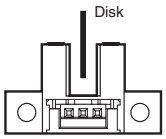
* Refer to *Accessories* for details.

Ratings and Specifications

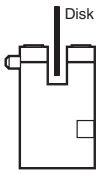
Item \ Models		EE-SPX740, EE-SPX840 EE-SPX742, EE-SPX842 EE-SPX743, EE-SPX843	EE-SPX741 EE-SPX841
Sensing distance		3.6 mm (slot width)	5 mm (slot width)
Sensing object		Opaque: 1 × 0.5mm min.	Opaque: 2 × 0.8 mm min.
Differential distance		0.05 mm max.	
Light source		GaAs infrared LED (pulse lighting) 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: 50 mA max. OFF current: 0.5 mA max. 50 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/s^2 for 3 times each in X, Y, and Z directions	
Degree of protection		IEC IP50	
Connecting method		Special connector	
Weight		Approx. 2.4 g	
Material	**Case**	Polycarbonate	
	Holder		

*1. The indicator is a GaAlAs red LED (peak wavelength: 660 nm).
*2. The response frequency was measured by detecting the following rotating disk.

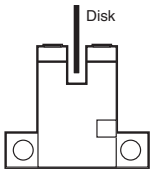




EE-SPX741/841



EE-SPX742/842
EE-SPX743/843

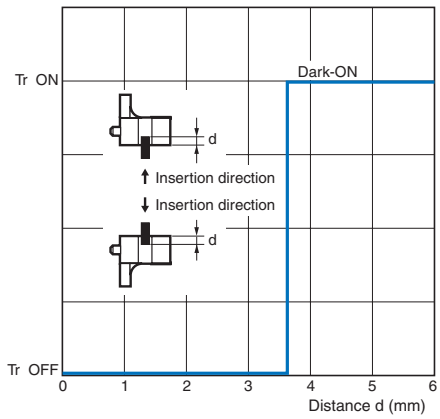


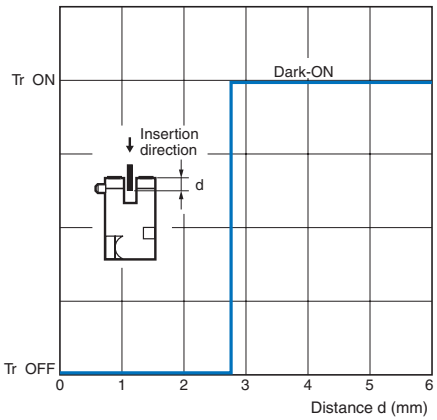
EE-SPX740/840

Engineering Data (Typical)

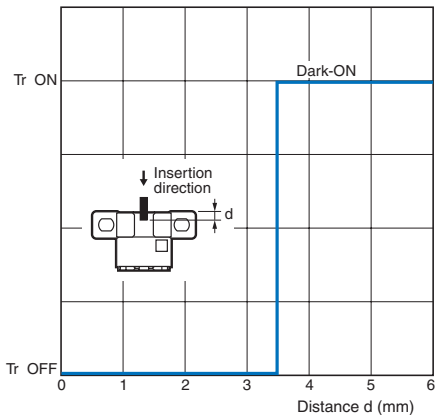
Sensing Position Characteristics

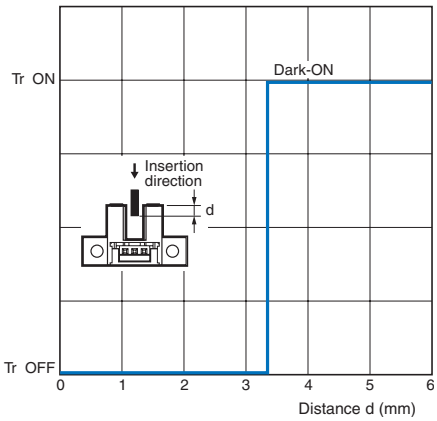
EE-SPX740/742/743





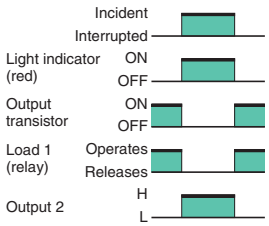
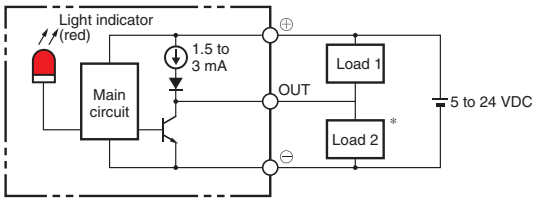
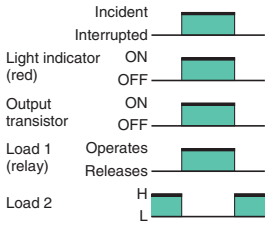
EE-SPX741





I/O Circuit Diagrams

NPN Output

Model	Output configuration	Timing charts	Output circuit
EE-SPX740 EE-SPX741 EE-SPX742 EE-SPX743	Dark-ON		
EE-SPX840 EE-SPX841 EE-SPX842 EE-SPX843	Light-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.

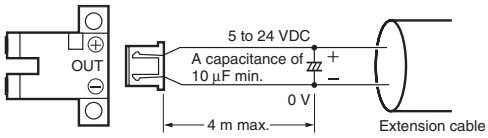
Precautions for Correct Use

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

● Design

Cable Extension

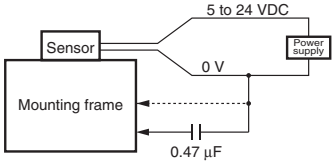
- When extending the cable, use an extension cable with conductors having a total cross-section area of 0.15 mm^2. The total cable length must be 4 m maximum.
- To use a cable length longer than 4 m, attach a capacitor with a capacitance of approximately 10 µF to the wires as shown below. The distance between the terminal and the capacitor must be within 4 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.

Effects of Inductive Noise

When there is inductive noise in the Sensor mounting frame (metal), the output of the Sensor may be affected. In this case, ensure that there is no electrical potential difference between the Sensor 0-V terminal and the Sensor mounting frame, or attach a 0.47 µF capacitor between the 0-V terminal and the frame.



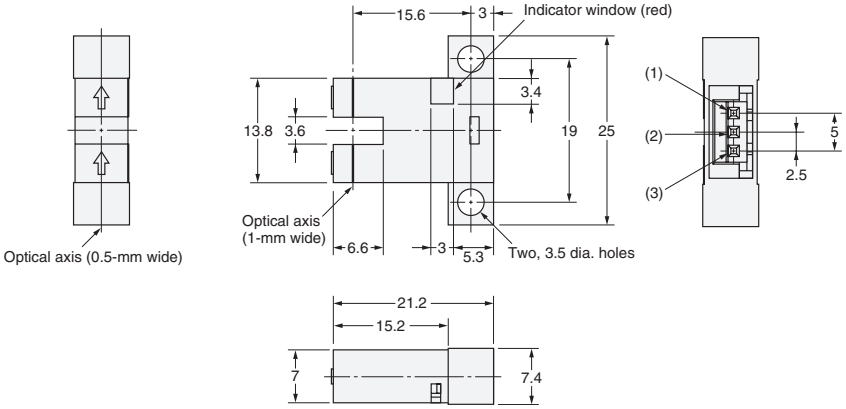
(Unit: mm)

Dimensions

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

Sensors

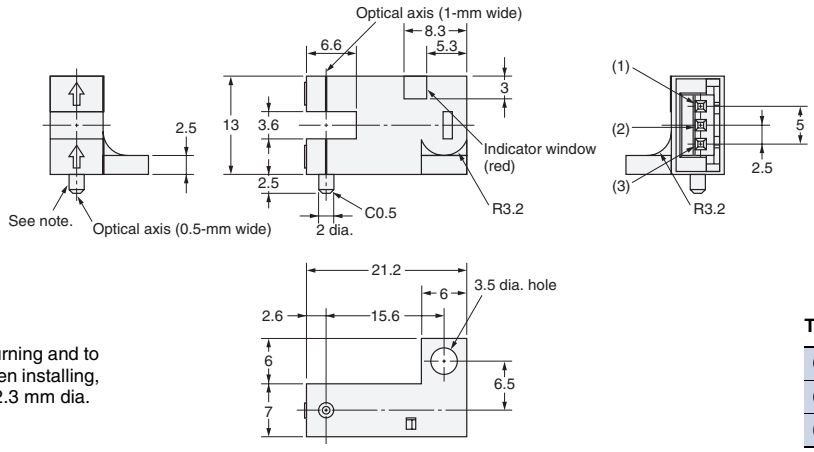
EE-SPX740
EE-SPX840



Terminal Arrangement

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

EE-SPX742
EE-SPX842

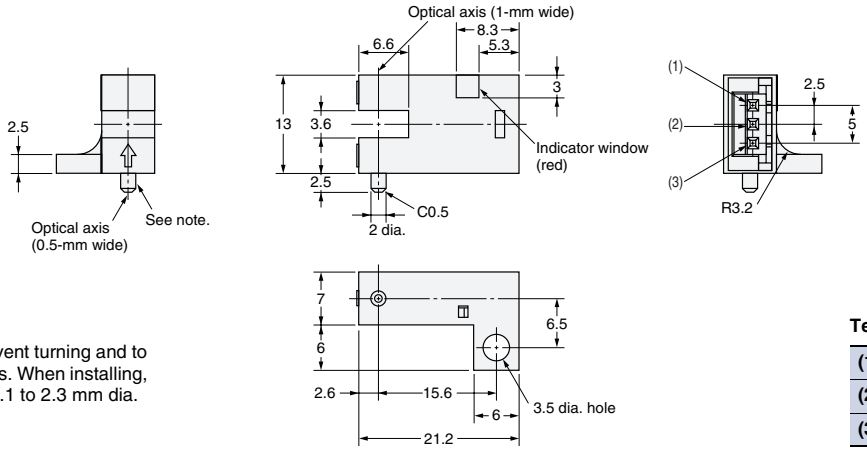


Note: The lug is used to prevent turning and to indicate the optical axis. When installing, make a fixed hole of 2.1 to 2.3 mm dia.

Terminal Arrangement

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

EE-SPX743
EE-SPX843

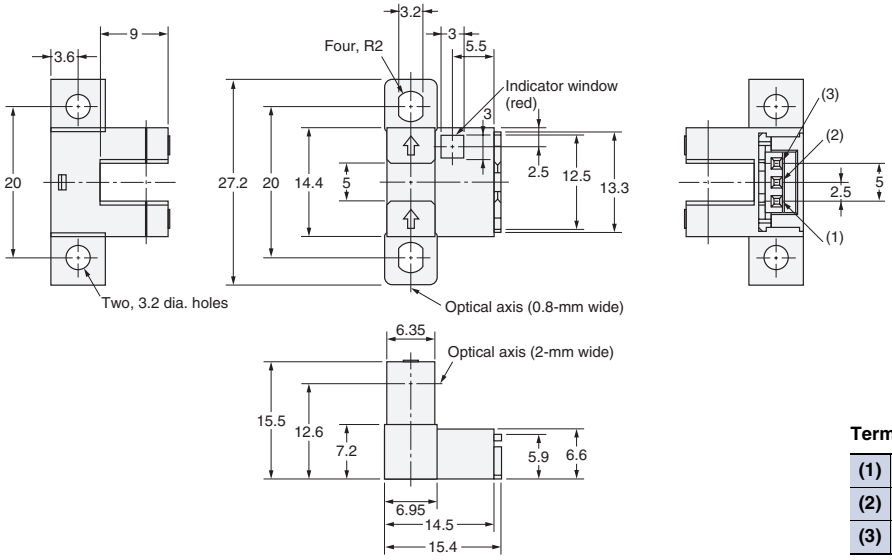


Note: The lug is used to prevent turning and to indicate the optical axis. When installing, make a fixed hole of 2.1 to 2.3 mm dia.

Terminal Arrangement

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

EE-SPX741
EE-SPX841

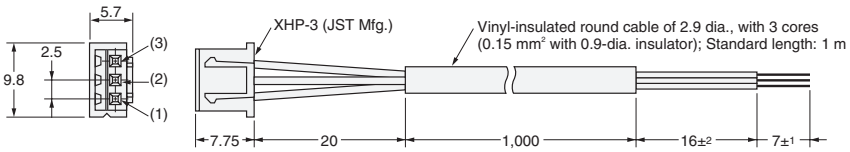


Terminal Arrangement

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

Accessories (Connector with Cable)

EE-1013



Terminal Arrangement

(1)	**Blue**	GND (0 V)
(2)	**Black**	OUTPUT
(3)	**Brown**	Vcc

In the interest of product improvement, specifications are subject to change without notice.

Read and Understand This Catalog

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2010.8

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Industrial Automation Company

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