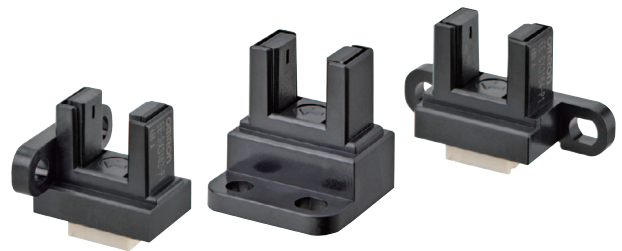


# Photomicrosensor (Transmissive)

## EE-SX3162/3163/3164-P EE-SX4162/4163/4164-P

### Slot / Connector Type

- Photo IC output (Dark-ON / Light ON)
- Connector with strong lock manufactured by JST. Mates with GHR-03.
- Mounted with M2 screws
- Models available for 5-V or 12-V power supply.
- Zener diode mounted for greater noise immunity (EE-SX3162-P1-Z and EE-SX4162-P1-Z only).

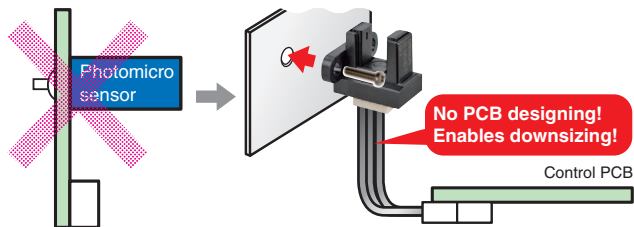


**⚠ Be sure to read *Safety Precautions* on page 3.**

### Features

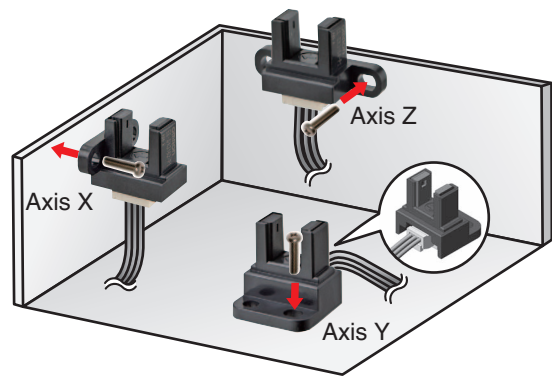
**Models with Connectors Eliminate the Need for a Separate PCB**

**All-in-One Structure Facilitates Downsizing**



**Models Available for Mounting on X, Y, and Z Axes**

Models with connectors are available with different mounting directions.



### Application



Office Automation Equipment (Copier, Printer)



Amusement Equipment



Home Appliances (Air Cleaner)



Vending Machine, ATM

### Ordering Information

#### Photomicrosensor

Appearance	Sensing method	Connecting method	Sensing distance	Aperture size (H x W) (mm)	Output type	Power supply voltage	Output configuration	Model
Side mounting 	Transmissive (slot type)	Connector	5 mm (Slot width)	Emitter 1.4 x 1.4 Detector 1.4 x 0.5	Photo IC	12 VDC	Dark-ON	EE-SX3162-P1 EE-SX3162-P1-Z
							Light-ON	EE-SX4162-P1 EE-SX4162-P1-Z
5 VDC							Dark-ON	EE-SX3162-P2
							Light-ON	EE-SX4162-P2
L-shaped mounting 						12 VDC	Dark-ON	EE-SX3163-P1
							Light-ON	EE-SX4163-P1
						5 VDC	Dark-ON	EE-SX3163-P2
							Light-ON	EE-SX4163-P2
Horizontal mounting 						12 VDC	Dark-ON	EE-SX3164-P1
							Light-ON	EE-SX4164-P1
	5 VDC	Dark-ON	EE-SX3164-P2					
		Light-ON	EE-SX4164-P2					

## Ratings, Characteristics and Exterior Specifications

### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rated value		Unit	Remarks
		EE-SX3162-P1 EE-SX3162-P1-Z EE-SX3163-P1 EE-SX3164-P1 EE-SX4162-P1 EE-SX4162-P1-Z EE-SX4163-P1 EE-SX4164-P1	EE-SX3162-P2 EE-SX3163-P2 EE-SX3164-P2 EE-SX4162-P2 EE-SX4163-P2 EE-SX4164-P2		
Power supply voltage	V <sub>CC</sub>	13.2 DC	5.5 DC	V	—
Output voltage	V <sub>OUT</sub>	13.2		V	—
Output current	I <sub>OUT</sub>	16		mA	—
Permissible output dissipation	P <sub>OUT</sub>	80		mW	—*
Operating temperature	T <sub>opr</sub>	-20 to +85		°C	—*
Storage temperature	T <sub>stg</sub>	-30 to +85		°C	—*

\* Even if the specified conditions are met, perform derating of the voltage and current as required by the temperature rating diagram. Also, do not expose the product to freezing or condensation.

### Exterior Specifications

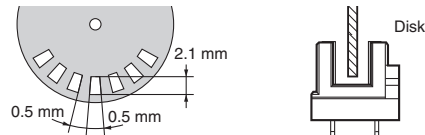
Item	Appearance	Side mounting	L-shaped mounting	Horizontal mounting
			EE-SX3162-P1 EE-SX3162-P1-Z EE-SX4162-P1 EE-SX4162-P1-Z EE-SX3162-P2 EE-SX4162-P2	EE-SX3163-P1 EE-SX4163-P1 EE-SX3163-P2 EE-SX4163-P2
Connecting method		Connector		
Weight		Approx. 1.2 g	Approx. 1.4 g	Approx. 1.1 g
Material	Case	Polybutylene terephthalate (PBT)		
	Emitter and receiver sections	Polyphenylene sulfide (PPS)		

### Electrical and Optical Characteristics

(Ta = 25°C)

Item	Symbol	Rated value	
		12 VDC model	5 VDC model
		Dark-ON	EE-SX3162-P1 EE-SX3162-P1-Z EE-SX3163-P1 EE-SX3164-P1
Light-ON	EE-SX4162-P1 EE-SX4162-P1-Z EE-SX4163-P1 EE-SX4164-P1	EE-SX4162-P2 EE-SX4163-P2 EE-SX4164-P2	
Power supply voltage	V <sub>CC</sub>	10.8 to 13.2VDC	4.5 to 5.5 VDC
Current consumption	I <sub>CC</sub>	25 mA max. (With and without incident)	
Low-level output voltage	V <sub>OL</sub>	0.3 V max. (I <sub>OUT</sub> =16 mA) (Dark-ON: without incident, Light-ON: with incident)	
High-level output voltage	V <sub>OH</sub>	(V <sub>CC</sub> ×0.9 V max. (V <sub>OUT</sub> =V <sub>CC</sub> , R <sub>L</sub> =47 kΩ)) (Dark-ON: with incident, Light-ON: without incident)	
Response frequency	f	3 kHz min. (V <sub>OUT</sub> =V <sub>CC</sub> , I <sub>OUT</sub> =16 mA *1)	
		1 kHz min. (V <sub>OUT</sub> =V <sub>CC</sub> , I <sub>OUT</sub> =16 mA *1,*2)	

\*1. The value of the response frequency is measured by rotating the disk as shown below.



\*2. Only with models ending in -Z.

### Engineering Data (Reference value)

Fig 1. Output Allowable Dissipation vs. Ambient Temperature Characteristics

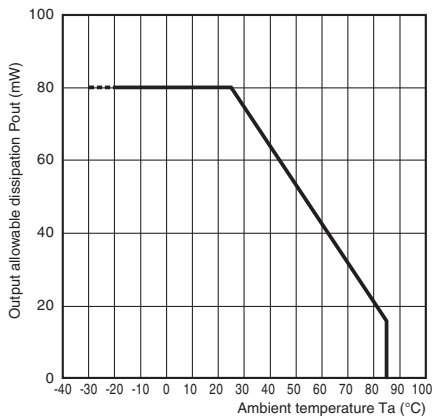


Fig 2. Sensing Position Characteristics (Typical)

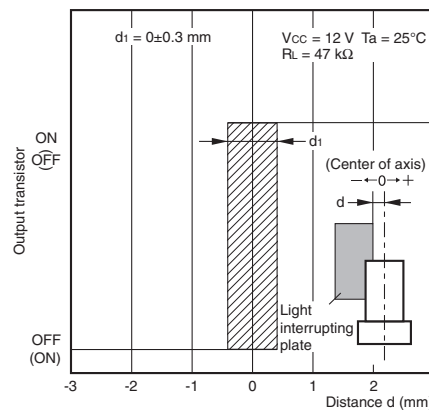


Fig 3. Sensing Position Characteristics (Typical)

