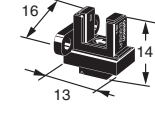

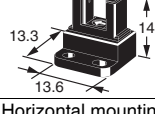
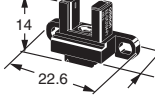


Ordering Information

Photomicrosensor

Appearance	Sensing method	Connecting method	Sensing distance	Aperture size (H × 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	
L-shaped mounting 							Light-ON	EE-SX4162-P1 EE-SX4162-P1-Z	
							5 VDC	Dark-ON	EE-SX3162-P2
								Light-ON	EE-SX4162-P2
						Horizontal 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	
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 _{CC}	13.2 DC	5.5 DC	V	—
Output voltage	V _{OUT}	13.2		V	—
Output current	I _{OUT}	16		mA	—
Permissible output dissipation	P _{OUT}	80		mW	—*
Operating temperature	T _{opr}	-20 to +85		°C	—*
Storage temperature	T _{stg}	-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.

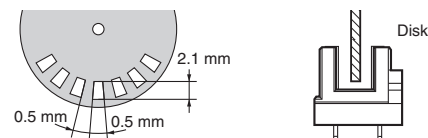
Exterior Specifications

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	EE-SX3164-P1 EE-SX4164-P1 EE-SX3164-P2 EE-SX4164-P2
	Connecting method		
	Connector		
	Weight		
	Approx. 1.2 g Approx. 1.4 g Approx. 1.1 g		
	Case		
	Polybutylene terephthalate (PBT)		
	Material		
	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	EE-SX3162-P2 EE-SX3163-P2 EE-SX3164-P2
	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 _{CC}	10.8 to 13.2VDC	4.5 to 5.5 VDC
Current consumption	I _{CC}	25 mA max. (With and without incident)	
Low-level output voltage	V _{OL}	0.3 V max. (I _{OUT} =16 mA) (Dark-ON: without incident, Light-ON: with incident)	
High-level output voltage	V _{OH}	(V _{CC} ×0.9 V min. (V _{OUT} =V _{CC} , R _L =47 kΩ)) (Dark-ON: with incident, Light-ON: without incident)	
Response frequency	f	3 kHz min. (V _{OUT} =V _{CC} , I _{OUT} =16 mA *1)	
		1 kHz min. (V _{OUT} =V _{CC} , I _{OUT} =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.

EE-SX3162/3163/3164-P Series EE-SX4162/4163/4164-P Series EE-5002 1M

Engineering Data (Reference value)

Fig 1. Output Allowable Dissipation vs. Ambient Temperature Characteristics

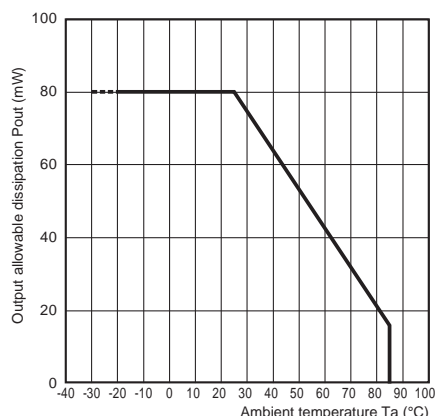


Fig 2. Sensing Position Characteristics (Typical)

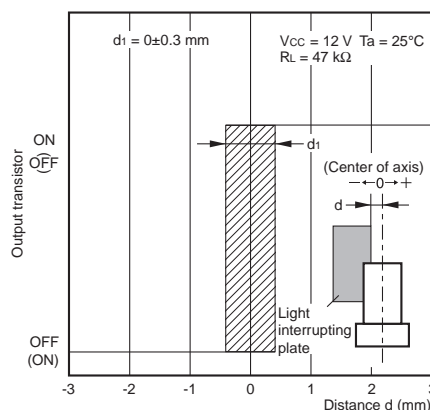
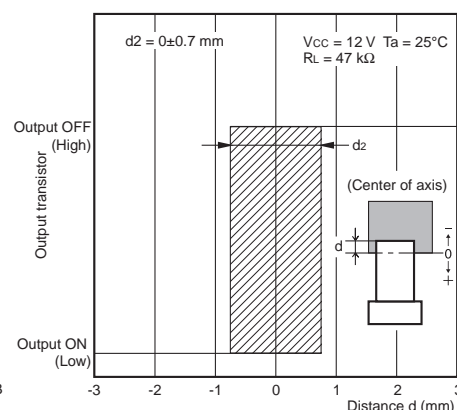


Fig 3. Sensing Position Characteristics (Typical)



Safety Precautions

To ensure safe operation, be sure to read and follow the Instruction Manual provided with the Sensor.

CAUTION

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

Do not use the product in atmospheres or environments that exceed product ratings. Dispose of this product as industrial waste.

Precautions for Safe Use

Do not use the product with a voltage or current that exceeds the rated range.

Applying a voltage or current that is higher than the rated range may result in explosion or fire.

Do not miswire such as the polarity of the power supply voltage.

Otherwise the product may be damaged or it may burn.

Do not short-circuit the load.

Otherwise explosion or burning may occur.

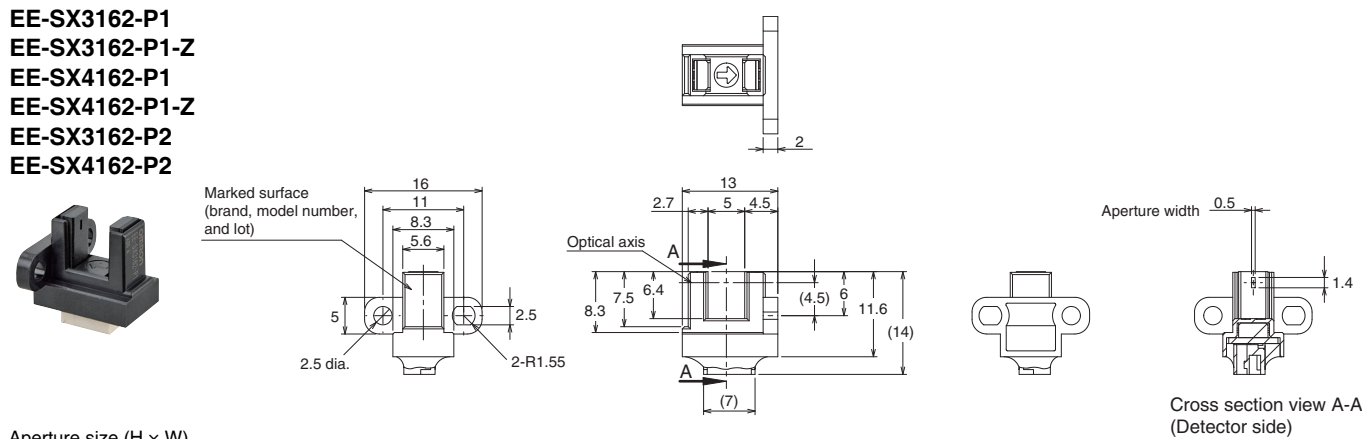
This product does not resist water. Do not use the product in places where water or oil may be sprayed onto the product.

Dimensions and Internal Circuit

(Unit: mm)

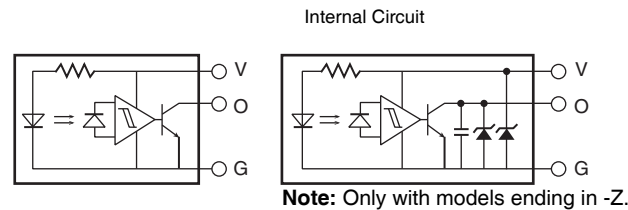
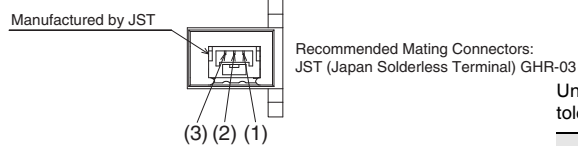
Photomicrosensor

EE-SX3162-P1
EE-SX3162-P1-Z
EE-SX4162-P1
EE-SX4162-P1-Z
EE-SX3162-P2
EE-SX4162-P2



Aperture size (H × W)

Emitter	Detector
1.4 × 1.4	1.4 × 0.5



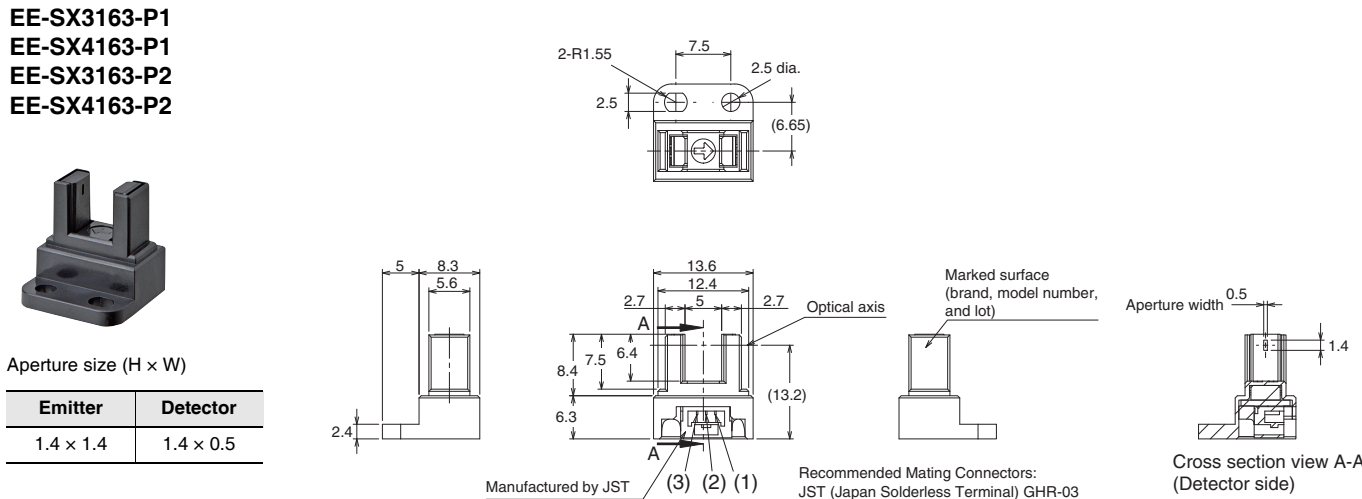
Terminal No.	Name
(1)	Ground (GND)
(2)	Output (OUT)
(3)	Power supply (Vcc)

Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	±0.2
3 < mm ≤ 6	±0.24
6 < mm ≤ 10	±0.29
10 < mm ≤ 18	±0.35
18 < mm ≤ 30	±0.42

Note: Dimensions in parentheses are for reference only.

EE-SX3163-P1
EE-SX4163-P1
EE-SX3163-P2
EE-SX4163-P2



Aperture size (H × W)

Emitter	Detector
1.4 × 1.4	1.4 × 0.5



Terminal No.	Name
(1)	Ground (GND)
(2)	Output (OUT)
(3)	Power supply (Vcc)

Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	±0.2
3 < mm ≤ 6	±0.24
6 < mm ≤ 10	±0.29
10 < mm ≤ 18	±0.35
18 < mm ≤ 30	±0.42

Note: Dimensions in parentheses are for reference only.

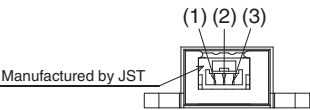
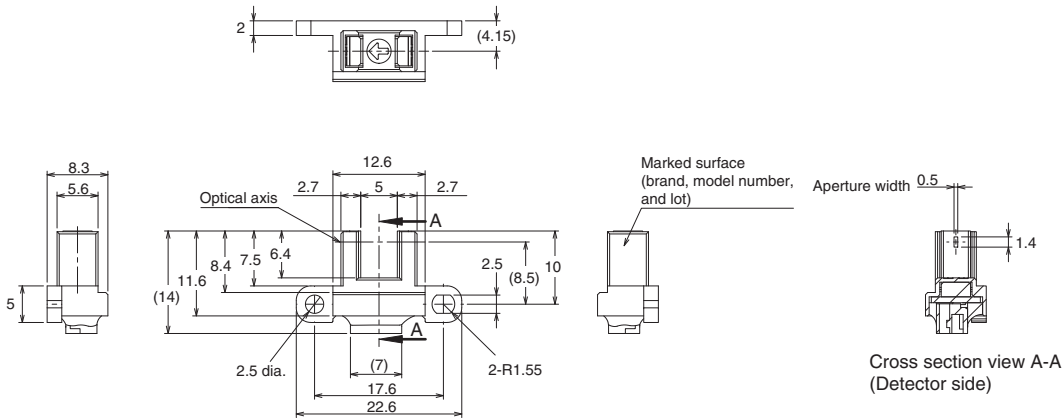
EE-SX3162/3163/3164-P Series EE-SX4162/4163/4164-P Series EE-5002 1M

EE-SX3164-P1
EE-SX4164-P1
EE-SX3164-P2
EE-SX4164-P2



Aperture size (H × W)

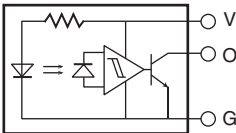
Emitter	Detector
1.4 × 1.4	1.4 × 0.5



Manufactured by JST

Recommended Mating Connectors:
JST (Japan Solderless Terminal) GHR-03

Internal Circuit



Terminal No.	Name
(1)	Ground (GND)
(2)	Output (OUT)
(3)	Power supply (Vcc)

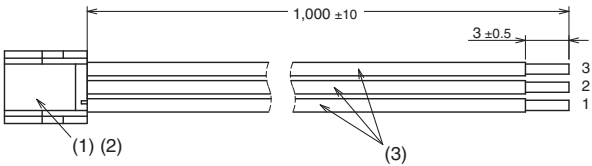
Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	±0.2
3 < mm ≤ 6	±0.24
6 < mm ≤ 10	±0.29
10 < mm ≤ 18	±0.35
18 < mm ≤ 30	±0.42

Note: Dimensions in parentheses are for reference only.

Connector with cable (Order Separately)

EE-5002 1M



No.	Name	Model/ Specifications	Quantity	Manufacturer
(1)	Connector, HS for 101-150 harness	GHR-03V-S	1	JST
(2)	Connector, CT for 101-150 harness	SSHL-002TP0.2	3	JST
(3)	Lead wires	UL1061 AWG26	3	—

Wiring

Connector circuit number	Lead-wire color
1	Blue
2	Black
3	Brown

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