Long-distance Through-beam Photomicrosensor

EE-SPW311/411

CSM_EE-SPW311_411_DS_E_6_1

Through-beam Photomicrosensor with a sensing distance as long as 1 m.

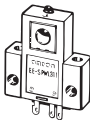
- Easy operation monitoring with bright light indicator.
- Wide operating voltage range: 5 to 24 VDC
- Light modulation effectively reduces external light interference.
- Easy-to-wire connector assures ease of maintenance.

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

Ordering Information

Sensors

Infrared light

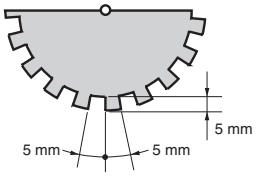
Appearance	Sensing method	Sensing distance	Output type	Output configuration	Model
	Through-beam type	1m	NPN output	Dark-ON	**EE-SPW311**
				Light-ON	**EE-SPW411**

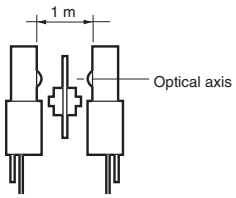
* Both an EE-1006L Connector with Cable for the Emitter and an EE-1006D Connector with Cable for the Receiver are included with the Photomicrosensor. Refer to *Accessories* when using non-standard connectors, including Robot Cables and PNP Adapters.

Ratings and Specifications

Item	Models	EE-SPW311, EE-SPW411
Sensing distance		1 m
Sensing object		Opaque: 5 mm dia. min.
Directional angle		5 to 20°
Light source		GaAs infrared LED (pulse lighting) with a peak wavelength of 940 nm
Indicator *1		Light indicator (red)
Supply voltage		5 (–5%) to 24 (+10%) VDC, ripple (p-p): 5% max.
Current consumption		Emitter: 20 mA max., Receiver: 20 mA max.
Control output		NPN open collector: Load power supply voltage: 5 to 24 VDC Load current: 100 mA max. OFF current: 0.5 mA max. 100 mA load current with a residual voltage of 0.8 V max. 10 mA load current with a residual voltage of 0.4 V max.
Response frequency *2		100 Hz min.
Ambient illumination		3,000 lx max. with incandescent light 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: 200 to 2,000 Hz (peak acceleration: 100 m/s^2) 1.5-mm double amplitude for 2 h (4-min periods) 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 IP60
Connecting method		Special connector (soldering not possible)
Weight (packaged)		Approx. 8.8 g
Material	Case	Polybutylene phthalate (PBT)
	Lens	Polycarbonate
Accessories		EE-1006L/D Connectors with Cables, Instruction Manual

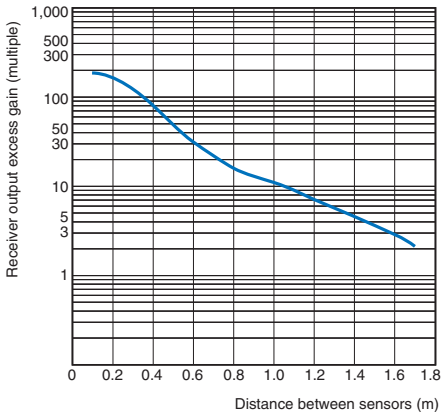
*1. The indicator is a GaP red LED (peak wavelength: 700 nm).
*2. The response frequency was measured by detecting the following rotating disk.





Engineering Data (Reference Value)

Receiver Output Excess Gain Vs. Sensing Distance Characteristics



Parallel Movement Characteristics