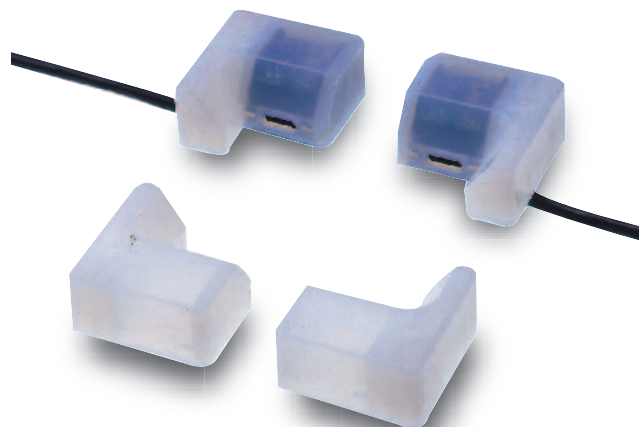



## Wafer-carrier Mounting Photomicrosensors EE-SPY801/802

### Photomicrosensors for detecting wafer-carrier mounting.

- The mounting position is set with a pedestal.
- The contact surface with the wafer carrier uses a special chemical-resistant fluoro-resin.
- The unique optical system enables stable detection of almost all wafer-carriers.
- Light modulation effectively reduces external light interference.
- Utilizes talc-free clean cables.



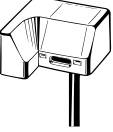


 Refer to *Precautions* on page 95.

### Ordering Information

#### List of Models

 Infrared light

Appearance	Sensing method	Sensing distance		Output configuration	Cable length	Model
	Reflective type	 0 to 3 mm		Turns ON when wafer carrier is present.	2 m	EE-SPY801
						EE-SPY802

#### Accessories (Order Separately)







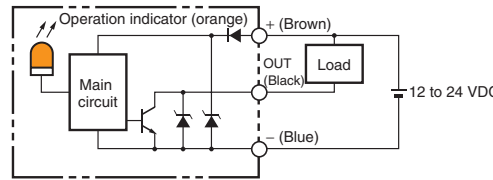
Item	Model
Pedestal	EE9-C01
	EE9-C02

**Note:** There are no sensor functions provided.

## Ratings/Characteristics

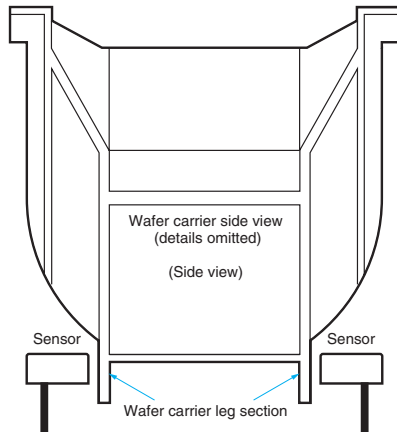
Item	Models	EE- SPY801/802
<b>Sensing distance (Standard sensing object)</b>		0 to 5 mm (White paper: 15 × 15mm <sup>2</sup> , reflection factor: 90%) 0 to 3 mm (Black paper: 15 × 15mm <sup>2</sup> , reflection factor: 10%)
<b>Sensing object</b>		Transparent or opaque wafer carriers
<b>Operation indicator</b>		Lit orange when object is detected.
<b>Light source</b>		GaAs infrared LED with a peak wavelength of 940 nm
<b>Supply voltage</b>		12 to 24 VDC ±10%, ripple (p-p): 5% max.
<b>Current consumption</b>		30 mA max.
<b>Control output</b>		NPN open collector: Load power supply voltage: 5 to 24 VDC Load current: 100 mA max. 100 mA load current with a residual voltage of 0.8 V max. 40 mA load current with a residual voltage of 0.4 V max.
<b>Response time</b>		5 ms max.
<b>Ambient illumination</b>		3,000 lx max. with incandescent light or sunlight on the surface of the receiver
<b>Ambient temperature</b>		Operating: -10 to +55°C Storage: -25 to +65°C (with no icing)
<b>Ambient humidity</b>		Operating: 5% to 85% Storage: 5% to 95% (with no condensation)
<b>Vibration resistance</b>		Destruction: 1 to 500 Hz, 1.0-mm single amplitude or 150 m/s <sup>2</sup> each in X, Y, and Z directions 3 times and for 11 min. each
<b>Shock resistance</b>		Destruction: 500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
<b>Enclosure rating</b>		IEC IP30
<b>Connecting method</b>		Pre-wired (Standard length: 2 m)
<b>Weight (packaged)</b>		Sensor: Approx. 43 g; Accessory (Guide): Approx. 9 g
<b>Material</b>	<b>Case</b>	Ethylene tetrafluoro ethylene (ETFE)
	<b>Base plate</b>	Polybutylene phthalate (PBT)
<b>Accessories</b>		Instruction Manual

## I/O Circuit

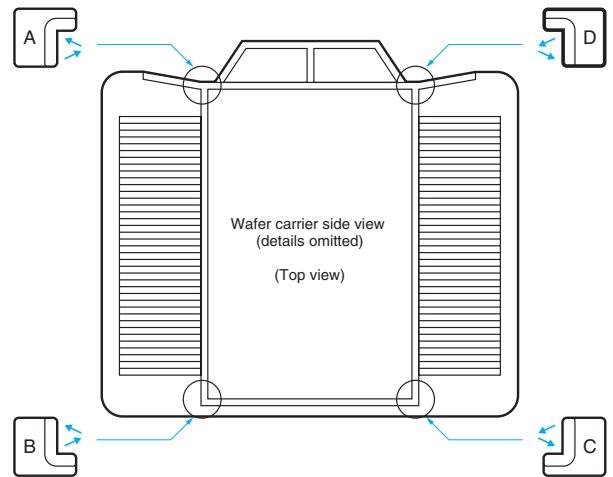
Model	Output configuration	Timing charts	Output circuit
EE-SPY801 EE-SPY802	Turns ON when wafer carrier is present.	<p>With wafer carrier</p>  <p>Without wafer carrier</p>  <p>Operation indicator (orange) ON</p>  <p>Operation indicator (orange) OFF</p>  <p>Output transistor ON</p>  <p>Output transistor OFF</p>  <p>Load Operates (etc., relay)</p> <p>Load Releases</p>	

## Standard Usage

This sensor is designed to detect wafer-carrier mountings. The bottom of the wafer carrier has a ribbed construction for the leg section, as shown in the following diagram. The EE-SPY801/802 detects the wafer-carrier mounting using a reflective optical sensor that detects the leg section of the wafer-carrier.



Install a Sensor (or Guide) at each of the four corners indicated by a circle in the following diagram.



A and C	EE-SPY801 or EE9-C01
B and D	EE-SPY802 or EE9-C02

## Precautions

Refer to *General Precautions* on page 23 to 28 for general precautions.

### Warning

**Do not use this product in sensing devices designed to provide human safety.**



### Precautions for Correct Use

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

#### ● Wiring

When extending the cable, use an extension cable with conductors having a total cross-section area of 0.15 mm<sup>2</sup>. The total cable length must be 5 m maximum.

To use a cable length longer than 5 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 5 m.

#### ● Mounting

Mount the Photomicrosensors securely on a flat surface, and tighten the mounting screws using a tightening force of 0.30 N·m max. (Using a spring washer is recommended to prevent the screws from becoming loose.)

#### ● Adjustment

The EE-SPY801/802 requires 10 ms to be in stable operation after power is supplied.

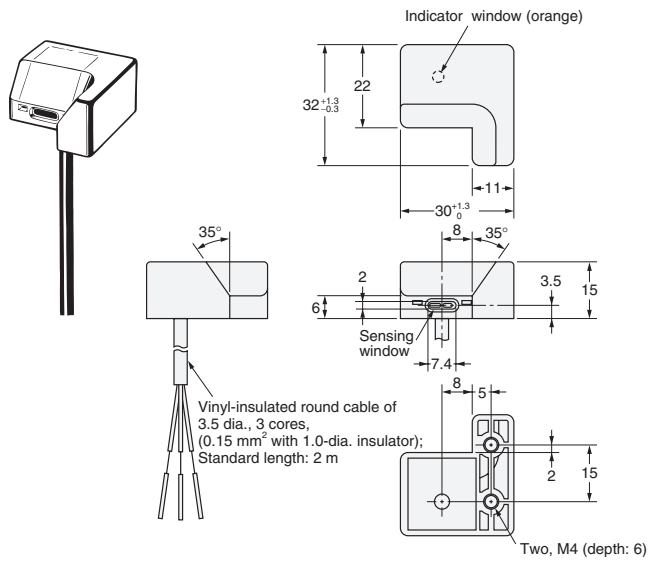
If separate power supplies are used for the EE-SPY801/802 and load, be sure to supply power to the EE-SPY801/802 before supplying power to the load.

#### ● Operating Environment

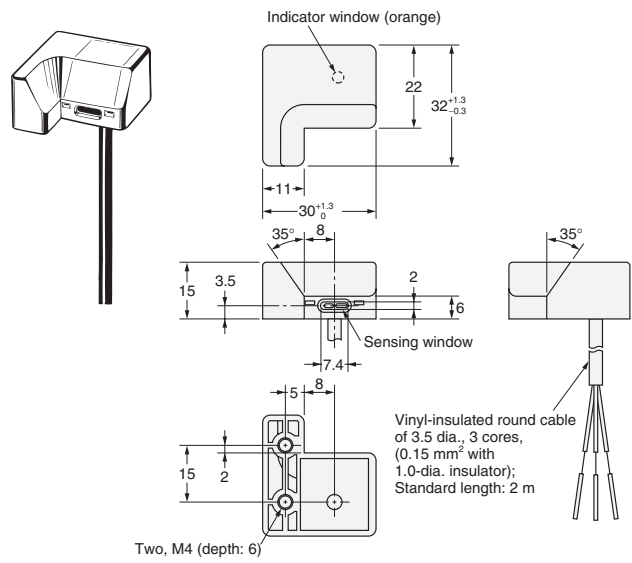
Do not use the EE-SPY801/802 in locations subject to salty air or corrosive gases, such as hydrogen chloride gas.

Dimensions (Unit: mm)

EE-SPY801

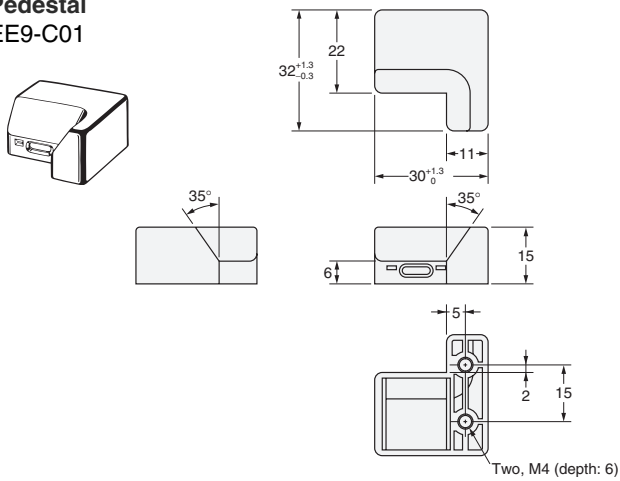


EE-SPY802

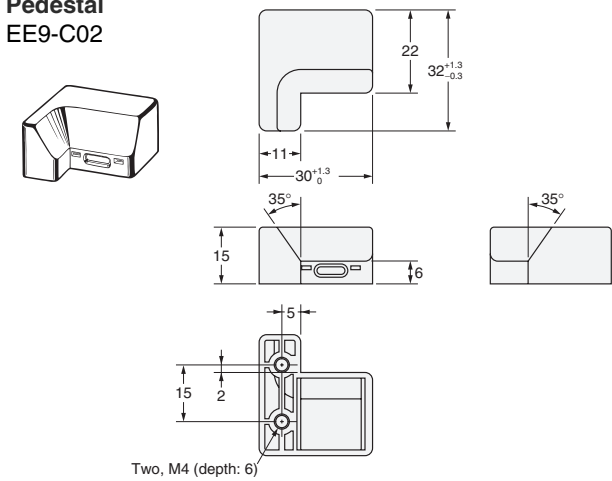


Accessories (Order Separately)

Pedestal  
EE9-C01



Pedestal  
EE9-C02



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