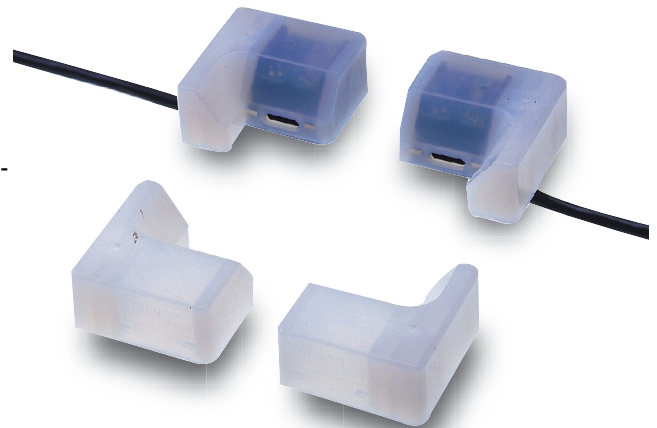



# EE-SPY801/802

## 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 fluororesin.
- The unique optical system enables stable detection of almost all wafer-carriers.
- Light modulation effectively reduces external light interference.
- Utilizes talc-free clean cables.



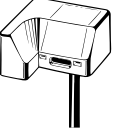


 Be sure to read *Safety Precautions* on page 3.

## Ordering Information

### Sensors

 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 2M
						EE-SPY802 2M

### Accessories (Order Separately)







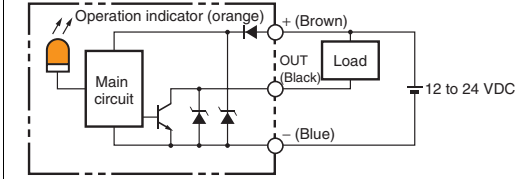

Item	Model
Pedestal	EE9-C01
	EE9-C02

Note: There are no sensor functions provided.

## Ratings and Specifications

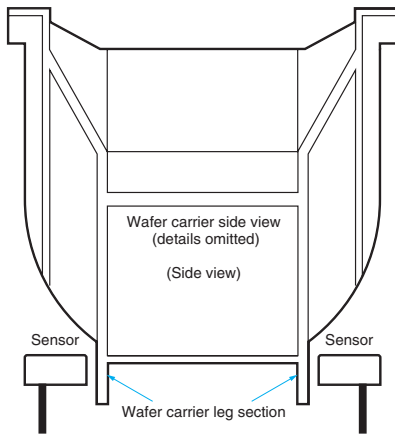
Item	Models	EE- SPY801/802
Sensing distance (Standard sensing object)		0 to 5 mm (White paper: 15 × 15 mm <sup>2</sup> , reflection factor: 90%) 0 to 3 mm (Black paper: 15 × 15 mm <sup>2</sup> , reflection factor: 10%)
Sensing object		Transparent or opaque wafer carriers
Operation indicator		Lit orange when object is detected.
Light source		GaAs infrared LED with a peak wavelength of 940 nm
Supply voltage		12 to 24 VDC ±10%, ripple (p-p): 5% max.
Current consumption		30 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. 40 mA load current with a residual voltage of 0.4 V max.
Response time		5 ms max.
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 (with no icing)
Ambient humidity range		Operating: 5% to 85% Storage: 5% to 95% (with no condensation)
Vibration resistance		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
Shock resistance		Destruction: 500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP30
Connecting method		Pre-wired (Standard length: 2 m)
Weight (packaged)		Sensor: Approx. 43 g; Accessory (Pedestal): Approx. 9 g
Material	Case	Ethylene tetrafluoro ethylene (ETFE)
	Base plate	Polybutylene phthalate (PBT)
Accessories		Instruction Manual

## I/O Circuit Diagrams

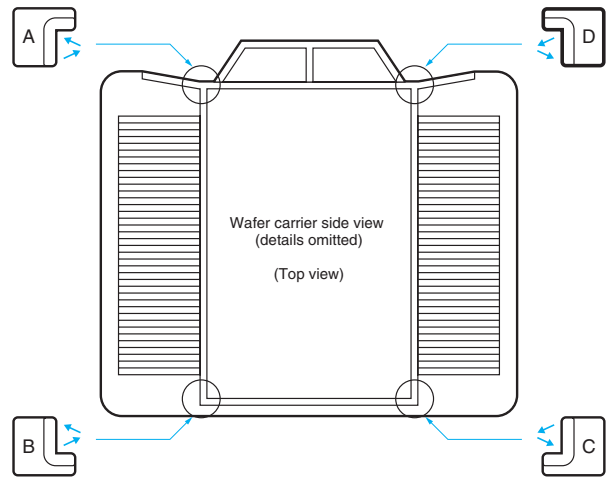
Model	Output configuration	Timing charts	Output circuit
EE-SPY801 EE-SPY802	Turns ON when wafer carrier is present.	<p>With wafer carrier</p>  <p>Without wafer carrier</p>  <p>Operation indicator (orange) ON</p>  <p>Operation indicator (orange) OFF</p>  <p>Output transistor ON</p>  <p>Output transistor 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 Pedestal) at each of the four corners indicated by a circle in the following diagram.



<b>A and C</b>	EE-SPY801 or EE9-C01
<b>B and D</b>	EE-SPY802 or EE9-C02

## 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.

● **Wiring**

When extending the cable, use an extension cable with conductors having a total cross-section area of 0.15 mm<sup>2</sup> (AWG26 equivalent). 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**

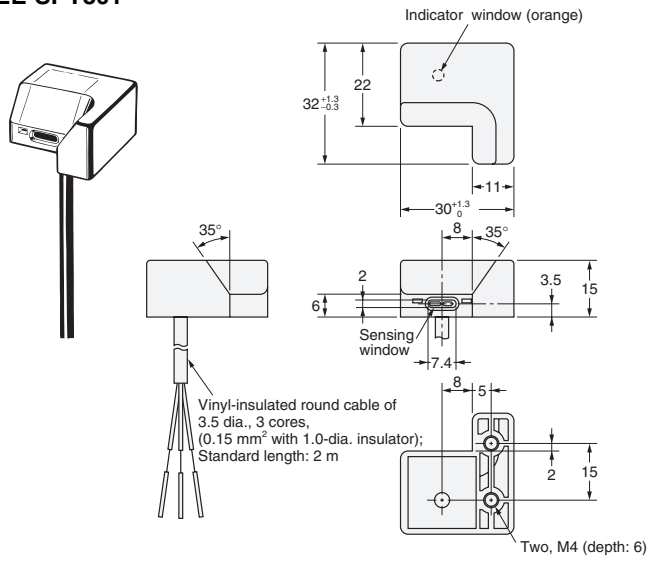
Do not use the EE-SPY801/802 in locations subject to salty air or corrosive gases, such as hydrogen chloride gas.

## Dimensions

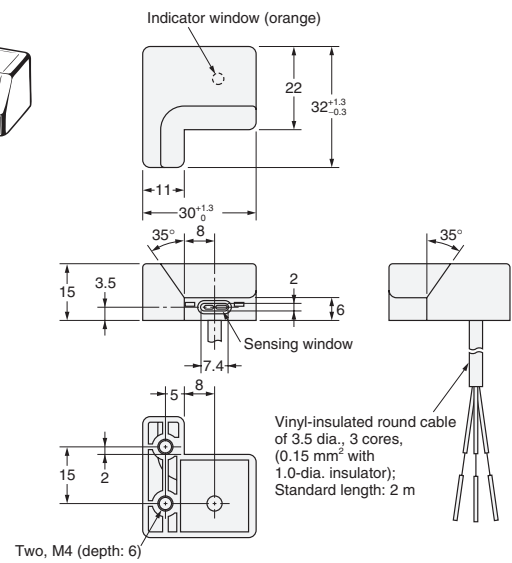
Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

### Sensors

#### EE-SPY801



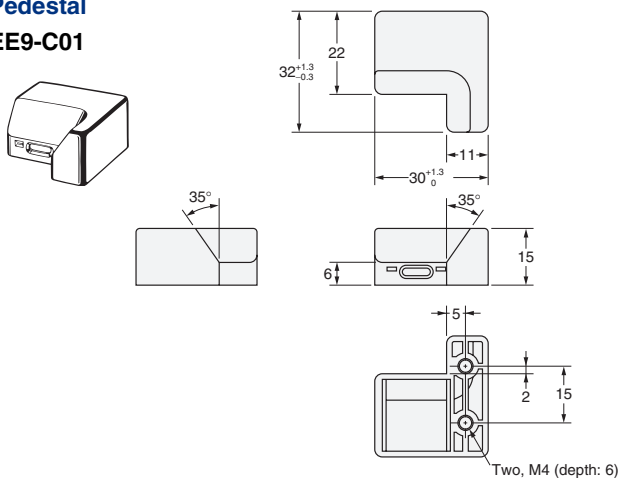
#### EE-SPY802



### Accessories (Order Separately)

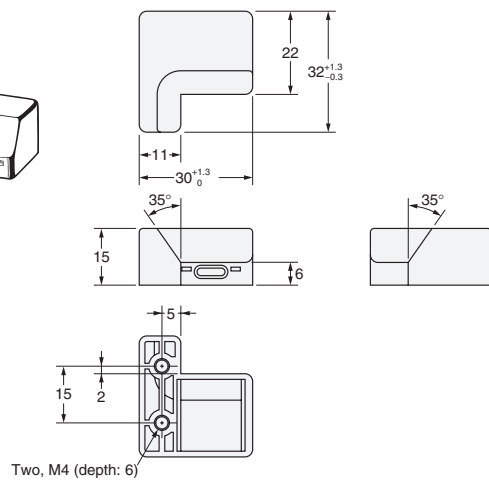
#### Pedestal

##### EE9-C01



#### Pedestal

##### EE9-C02



## Read and Understand This Catalog

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- Systems, machines, and equipment that could present a risk to life or property.

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2008.11

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