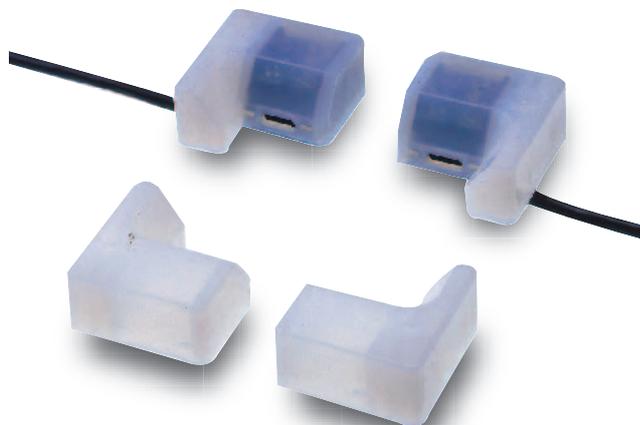


Wafer-carrier Mounting Photomicrosensors EE-SPY801/802

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.



CE

 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)

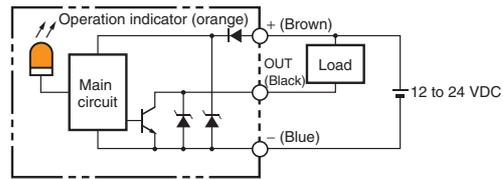
| Item | Model |
|----------|---------|
| Pedestal | EE9-C01 |
| | EE9-C02 |

Note: There are no sensor functions provided.

Ratings/Characteristics

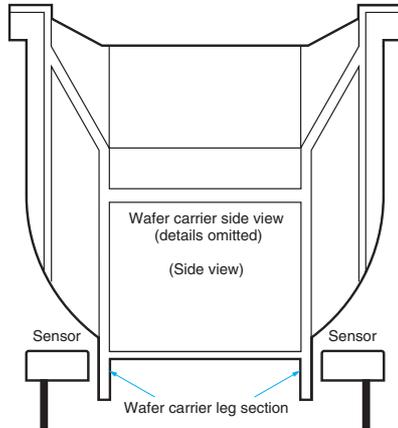
| Item | Models | EE- SPY801/802 |
|---|-------------------|---|
| Sensing distance (Standard sensing object) | | 0 to 5 mm (White paper: 15 × 15mm ² , reflection factor: 90%) 0 to 3 mm (Black paper: 15 × 15mm ² , reflection factor: 10%) |
| Sensing object | | Transparent or opaque wafer carriers |
| 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. 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 | | Operating: -10 to +55°C Storage: -25 to +65°C (with no icing) |
| Ambient humidity | | 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 ² each in X, Y, and Z directions 3 times and for 11 min. each |
| Shock resistance | | Destruction: 500 m/s ² for 3 times each in X, Y, and Z directions |
| Enclosure rating | | IEC IP30 |
| Connecting method | | Pre-wired (Standard length: 2 m) |
| Weight (packaged) | | Sensor: Approx. 43 g; Accessory (Guide): Approx. 9 g |
| Material | Case | Ethylene tetrafluoro ethylene (ETFE) |
| | Base plate | Polybutylene phthalate (PBT) |
| Accessories | | Instruction Manual |

I/O Circuit

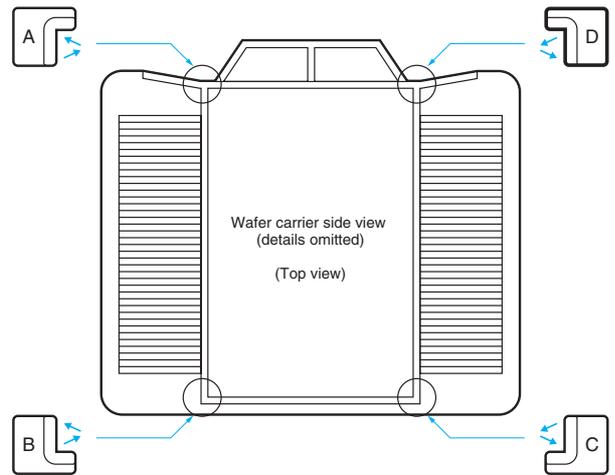
| Model | Output configuration | Timing charts | Output circuit |
|------------------------|---|--|--|
| EE-SPY801 EE-SPY802 | Turns ON when wafer carrier is present. | <p>With wafer carrier</p>  <p>Without wafer carrier</p>  <p>Operation indicator (orange) ON</p>  <p>Operation indicator (orange) OFF</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 mm². 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.

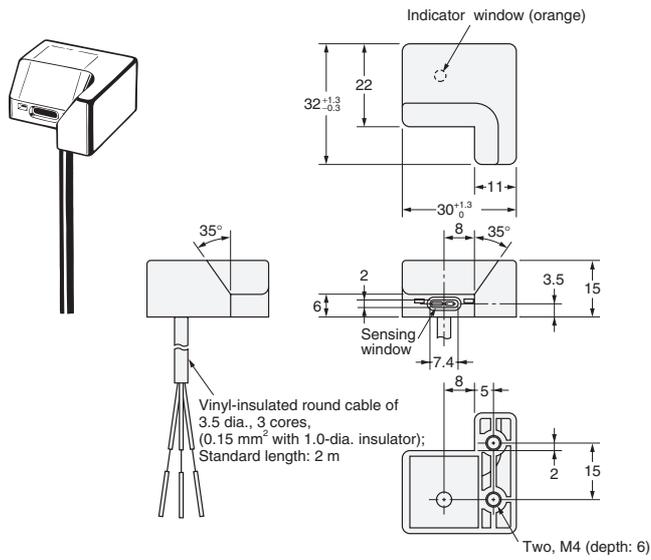
If separate power supplies are used for the EE-SPY801/802 and load, be sure to supply power to the EE-SPY801/802 before supplying power to the load.

● Operating Environment

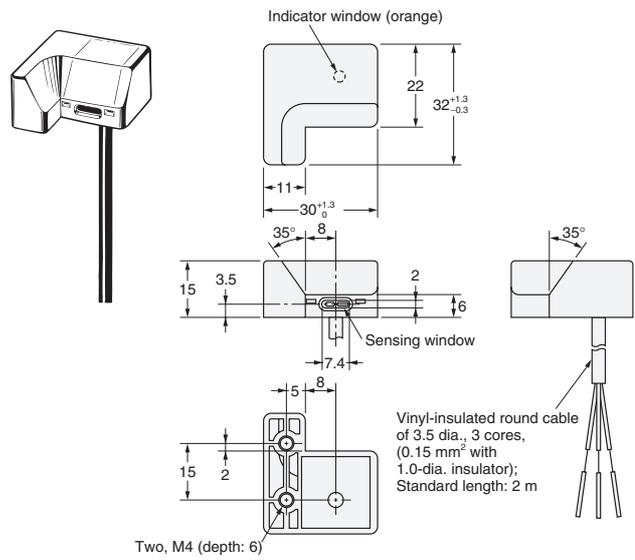
Do not use the EE-SPY801/802 in locations subject to salty air or corrosive gases, such as hydrogen chloride gas.

Dimensions (Unit: mm)

EE-SPY801

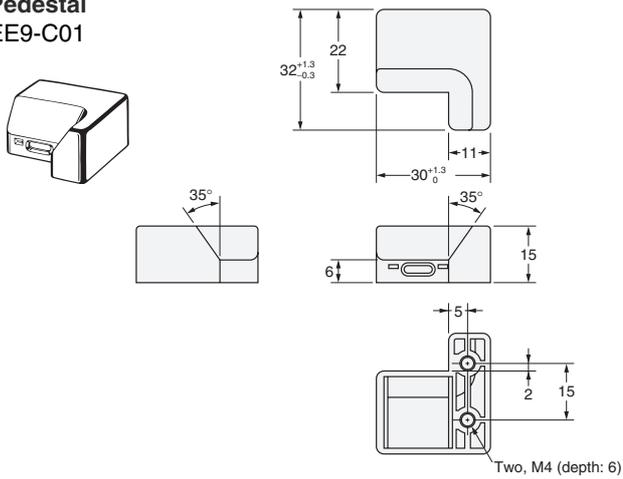


EE-SPY802

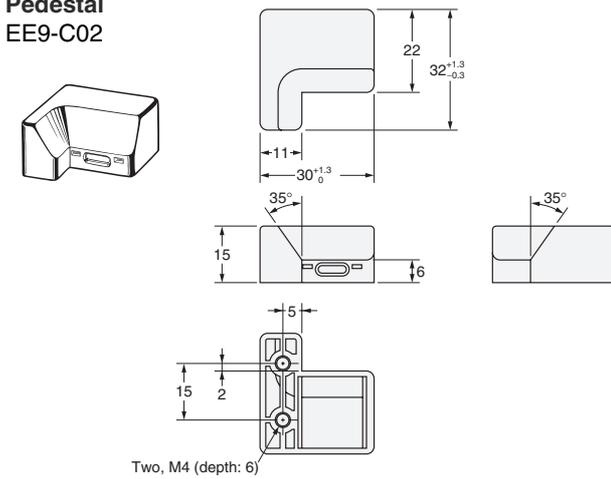


Accessories (Order Separately)

Pedestal EE9-C01



Pedestal EE9-C02



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**OMRON ELECTRONIC
COMPONENTS LLC**

55 E. Commerce Drive, Suite B
Schaumburg, IL 60173

847-882-2288

OMRON CANADA, INC.

885 Milner Avenue
Toronto, Ontario M1B 5V8

416-286-6465

OMRON ON-LINE

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