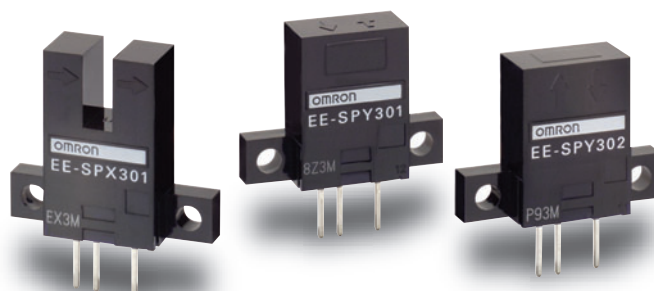


## Photomicrosensor with light modulation is not influenced by external light.

- Voltage-output models with wide operating voltage range (5 to 24 VDC).
- Fitted with an easy-to-adjust optical axis mark.
- Easy adjustment and optical axis monitoring with a light indicator.



Be sure to read *Safety Precautions* on page 5.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

## Ordering Information

### Sensors

 Infrared light

| Appearance      | Sensing method                | Sensing distance |                     | Output type | Output configuration | Model     |
|-----------------|-------------------------------|------------------|---------------------|-------------|----------------------|-----------|
|                 | Through-beam type (with slot) |                  | 3.6 mm (slot width) | NPN output  | Dark-ON              | EE-SPX301 |
|                 |                               |                  |                     |             | Light-ON             | EE-SPX401 |
| Horizontal type | Reflective type               |                  | 5 mm                |             | Dark-ON              | EE-SPY301 |
|                 |                               |                  |                     |             | Light-ON             | EE-SPY401 |
| Vertical type   | Reflective type               |                  | 5 mm                |             | Dark-ON              | EE-SPY302 |
|                 |                               |                  |                     |             | Light-ON             | EE-SPY402 |

### Accessories (Order Separately)

| Type                         | Cable length          | Model           | Remarks           |
|------------------------------|-----------------------|-----------------|-------------------|
| Connector                    |                       | <b>EE-1002</b>  |                   |
|                              | Connector with Cable  | <b>EE-1003</b>  |                   |
| NPN/PNP Conversion Connector | 0.46 m (total length) | <b>EE-2001</b>  |                   |
| Connector Hold-down Clip     |                       | <b>EE-1003A</b> | For EE-1003 only. |

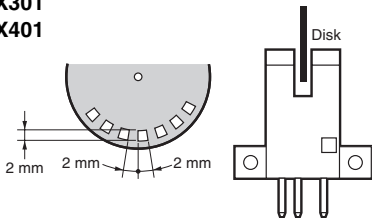
\* Refer to *Accessories* for details.

Ratings and Specifications

| Sensing method            |        | Through-beam type (with slot)                                                                                                                                                                                                                 | Reflective type                                                |
|---------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Item                      | Models | EE-SPX301, EE-SPX401                                                                                                                                                                                                                          | EE-SPY301, EE-SPY401<br>EE-SPY302, EE-SPY402                   |
| Sensing distance          |        | 3.6 mm (slot width)                                                                                                                                                                                                                           | 5 mm (Reflection factor: 90%; white paper 15 × 15 mm) *1       |
| Sensing object            |        | Opaque: 1 × 0.5 mm min.                                                                                                                                                                                                                       | ---                                                            |
| Differential distance     |        | 0.05 mm max.                                                                                                                                                                                                                                  | 0.2 mm max.<br>(with a sensing distance of 3 mm, horizontally) |
| Light source              |        | GaAs infrared LED with a peak wavelength of 940 nm                                                                                                                                                                                            |                                                                |
| Indicator *2              |        | Light indicator (red)                                                                                                                                                                                                                         |                                                                |
| Supply voltage            |        | 5 to 24 VDC ±10%, ripple (p-p): 5% max.                                                                                                                                                                                                       |                                                                |
| Current consumption       |        | Average: 15 mA max., Peak: 50 mA max.                                                                                                                                                                                                         |                                                                |
| Control output            |        | NPN voltage output:<br>Load power supply voltage: 5 to 24 VDC<br>Load current: 80 mA max.<br>OFF current: 0.5 mA max.<br>80 mA load current with a residual voltage of 1.0 V max.<br>10 mA load current with a residual voltage of 0.4 V max. |                                                                |
| Response frequency *3     |        | 500 Hz min.                                                                                                                                                                                                                                   | 100 Hz min.                                                    |
| 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<br>Storage: -25 to +65°C (with no icing)                                                                                                                                                                              |                                                                |
| Ambient humidity range    |        | Operating: 5% to 85%<br>Storage: 5% to 95% (with no condensation)                                                                                                                                                                             |                                                                |
| Vibration resistance      |        | Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 h each in X, Y, and Z directions                                                                                                                                                      |                                                                |
| Shock resistance          |        | Destruction: 500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions                                                                                                                                                                  |                                                                |
| Degree of protection      |        | IEC IP50                                                                                                                                                                                                                                      |                                                                |
| Connecting method         |        | Special connector (soldering not possible)                                                                                                                                                                                                    |                                                                |
| Weight                    |        | Approx. 2.6 g                                                                                                                                                                                                                                 |                                                                |
| Material                  | Case   | Polycarbonate                                                                                                                                                                                                                                 |                                                                |

\*1. Operation may not be possible near the Sensor.  
\*2. The indicator is a GaP red LED (peak wavelength: 700 nm).  
\*3. The response frequency was measured by detecting the following rotating disk.

EE-SPX301  
EE-SPX401



EE-SPY301  
EE-SPY401

