# ORDER GUIDE

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<tr>
<th>Type</th>
<th>Appearance (mm in)</th>
<th>Sensing range</th>
<th>Model No.</th>
<th>Cable length</th>
<th>Output</th>
<th>Output operation</th>
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<tr>
<td>K type</td>
<td></td>
<td></td>
<td>PM-K25</td>
<td>1 m 3.281 ft</td>
<td>NPN open-collector transistor</td>
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<td>PM-K25-R</td>
<td>1 m 3.281 ft, bending-resistant cable</td>
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<td>PM-K25-C3</td>
<td>3 m 9.843 ft</td>
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Note: The suffix "-R" in the model No. indicates a bending-resistant cable type. The suffix "-C3" indicates a 3 m 9.843 ft cable length type.

### OPTIONS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Model No.</th>
<th>Description</th>
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<tr>
<td>Mounting screw</td>
<td>MS-M2</td>
<td>Mounting screw with washers for the ultra-small type sensor (50 pcs. lot). It can mount securely as it is spring washer attached.</td>
</tr>
</tbody>
</table>

**Mounting screw**
- **MS-M2**

M2 (length 10 mm 0.394 in) screw with a spring washer
# SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Model No.</th>
<th>Type</th>
<th>Ultra-small / Cable type</th>
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<tr>
<td></td>
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<td></td>
<td>Bending-resistant cable</td>
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<td>3 m 9.843 ft cable</td>
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<td></td>
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<td>NPN output</td>
<td>PM-□25</td>
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<tr>
<td></td>
<td></td>
<td>PNP output</td>
<td>PM-□25-P</td>
</tr>
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</table>

- **Sensing range**: 6 mm (0.236 in) (fixed)
- **Minimum sensing object**: 0.8 × 1.2 mm (0.031 × 0.047 in) in opaque object
- **Hysteresis**: 0.05 mm (0.002 in) or less
- **Repeatability**: 0.01 mm (0.0004 in) or less
- **Supply voltage**: 5 to 24 V DC ±10% Ripple P-P 10% or less
- **Current consumption**: 15 mA or less

### Output

- **<NPN output type>**
  - NPN open-collector transistor
  - Maximum sink current: 50 mA
  - Applied voltage: 30 V DC or less (between output and 0 V)
  - Residual voltage: 2 V or less (at 50 mA sink current)
  - 1 V or less (at 16 mA sink current)

- **<PNP output type>**
  - PNP open-collector transistor
  - Maximum source current: 50 mA
  - Applied voltage: 30 V DC or less (between output and + V)
  - Residual voltage: 2 V or less (at 50 mA source current)
  - 1 V or less (at 16 mA source current)

### Output operation
- Incorporated with 2 outputs: Light-ON / Dark-ON

### Short-circuit protection
- Incorporated

### Response time
- Under light received condition: 20 μs or less
- Under light interrupted condition: 80 μs or less (Maximum response frequency: 3 kHz) (Note 2)

### Operation indicator
- Orange LED (lights up under light received condition)

### Pollution degree
- 3

### Environmental resistance

- **Ambient temperature** (Note 3, 4)
  - –25 to +55 °C (–13 to +131 °F) (No dew condensation or icing allowed), Storage: –30 to +80 °C (–22 to +176 °F)
- **Ambient humidity**: 5 to 85% RH, Storage: 5 to 95% RH
- **Ambient illuminance**: Fluorescent light: 1,000 lx at the light-receiving face
- **Voltage withstandability**: 1,000 V AC for one min. between all supply terminals connected together and enclosure
- **Insulation resistance**: 20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure
- **Vibration resistance**: 10 to 2,000 Hz frequency, 1.5 mm (0.059 in) double amplitude (maximum acceleration 196 m/s²) in X, Y and Z directions for two hours each
- **Shock resistance**: 15,000 m/s² (1,500 G approx.) in X, Y and Z directions three times each

### Emitting element
- Infrared LED (Peak emission wavelength: 855 nm (0.034 mil, non-modulated)

### Material
- **Enclosure**: PBT, Display section: Polycarbonate
- **Cable**: 0.09-mm² 4-core cabletyre cable, PVC, 1 m (3.281 ft) long
  - 0.1-mm² 4-core bending-resistant cabletyre cable, PVC, 1 m (3.281 ft) long (Note 5, 6)
  - 0.09-mm² 4-core cabletyre cable, PVC, 3 m (9.843 ft) long
- **Cable extension**: Extension up to total 100 m (328.084 ft) is possible with 0.3 mm², or more, cable. (Note 7)
- **Weight**: Net weight: 10 g approx., Gross weight: 15 g approx.
  - Net weight: 30 g approx., Gross weight: 35 g approx.

Notes:
1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.
2) The response frequency is the value when the disc, given in the figure below, is rotated.
3) In case the PM-25 series is used at an ambient temperature of +50 °C +122 °F, or more, make sure to mount it on a metal body.
4) Note that the cable of PM-□25-R loses its flexibility when the ambient temperature decreases to about -10 °C +14 °F.
5) The cable of PM−25-R is a bending-resistant cable usable on a moving base. When the sensor is mounted on a moving base, secure the sensor cable joint at the unit in place so that stress is not applied to it.
6) When storing PM−25-R, make sure that the cable does not come into contact with the sensing section or operation indicator.
7) If the cable is extended to 20 m (65.617 ft) or longer, confirm that the supply voltage at the end of the cable attached to the sensor is 4.5 V or higher.