






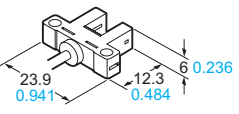
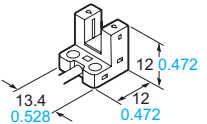
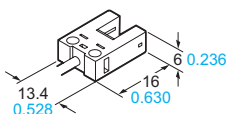
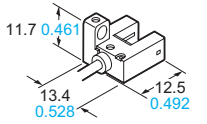
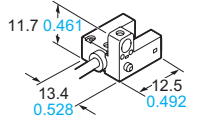
Ultra-small / Cable type **PM-25** SERIES

| | | | | |
|---------------------------|-------------------|--------------------|--------------------|--------------------------------------|
| Cable type | NPN output | 1 m 3.281 ft cable | 3 m 9.843 ft cable | 1 m 3.281 ft bending-resistant cable |
| Built-in connector | PNP output | 1 m 3.281 ft cable | 3 m 9.843 ft cable | 1 m 3.281 ft bending-resistant cable |

Easy mounting with M2 / M3 screws!

ORDER GUIDE

| Type | Appearance (mm in) | Sensing range | Model No. | Cable length | Output | Output operation |
|--------------------------|---|-----------------------|---------------------------------------|---------------------------------------|-------------------------------|---|
| Ultra-small / Cable type |  <p>23.9 0.941, 12.3 0.484, 6 0.236</p> | 6 mm 0.236 in (fixed) | PM-K25 | 1 m 3.281 ft | NPN open-collector transistor | Incorporated with 2 outputs: Light-ON / Dark-ON |
| | | | PM-K25-R | 1 m 3.281 ft, bending-resistant cable | | |
| | | | PM-K25-C3 | 3 m 9.843 ft | | |
| | | | PM-K25-P | 1 m 3.281 ft | PNP open-collector transistor | |
| |  <p>13.4 0.528, 12 0.472</p> | PM-L25 | 1 m 3.281 ft | NPN open-collector transistor | | |
| | | PM-L25-R | 1 m 3.281 ft, bending-resistant cable | | | |
| | | PM-L25-C3 | 3 m 9.843 ft | | | |
| |  <p>13.4 0.528, 16 0.630, 6 0.236</p> | PM-U25 | 1 m 3.281 ft | NPN open-collector transistor | | |
| | | PM-U25-R | 1 m 3.281 ft, bending-resistant cable | | | |
| | | PM-U25-C3 | 3 m 9.843 ft | | | |
| |  <p>11.7 0.461, 13.4 0.528, 12.5 0.492</p> | PM-F25 | 1 m 3.281 ft | NPN open-collector transistor | | |
| | | PM-F25-R | 1 m 3.281 ft, bending-resistant cable | | | |
| | | PM-F25-C3 | 3 m 9.843 ft | | | |
| |  <p>11.7 0.461, 13.4 0.528, 12.5 0.492</p> | PM-R25 | 1 m 3.281 ft | NPN open-collector transistor | | |
| | | PM-R25-R | 1 m 3.281 ft, bending-resistant cable | | | |
| | | PM-R25-C3 | 3 m 9.843 ft | | | |
| PM-R25-P | | 1 m 3.281 ft | PNP open-collector transistor | | | |

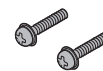
Note: The suffix "-R" in the model No. indicates a bending-resistant cable type. The suffix "-C3" indicates a 3 m 9.843 ft cable length type.

OPTIONS

| Designation | Model No. | Description |
|----------------|--------------|---|
| Mounting screw | MS-M2 | Mounting screw with washers for the ultra-small type sensor (50 pcs. lot). It can mount securely as it is spring washer attached. |

Mounting screw

- MS-M2



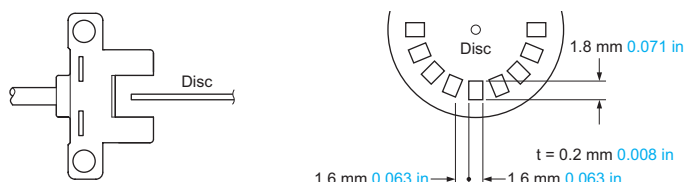
M2 (length 10 mm 0.394 in) screw with a spring washer

SPECIFICATIONS

| Item | Model No. | Type | Ultra-small / Cable type | | |
|--------------------------|-----------|---|--|---|--------------------|
| | | | | Bending-resistant cable | 3 m 9.843 ft cable |
| | | NPN output | PM-□25 | PM-□25-R | PM-□25-C3 |
| | | PNP output | PM-□25-P | _____ | _____ |
| Sensing range | | 6 mm 0.236 in (fixed) | | | |
| Minimum sensing object | | 0.8 × 1.2 mm 0.031 × 0.047 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 | | <PNP output type> PNP open-collector transistor | |
| | | <ul style="list-style-type: none"> • 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) | | <ul style="list-style-type: none"> • 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 | | Protection IP64 (IEC) | | | |
| | | 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/s ²) in X, Y and Z directions for two hours each | | | |
| | | Shock resistance 15,000 m/s ² acceleration (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-mm ² 4-core cabtyre cable, PVC, 1 m 3.281 ft long | 0.1-mm ² 4-core bending-resistant cabtyre cable, PVC, 1 m 3.281 ft long (Note 5, 6) | 0.09-mm ² 4-core cabtyre cable, PVC, 3 m 9.843 ft long | |
| Cable extension | | Extension up to total 100 m 328.084 ft is possible with 0.3 mm ² , 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.