

# INSTRUCTION MANUAL

Photoelectric Sensor Micro-photosensor  
**PM2 Series**

BMJE-PM2 No.0057-41V

Thank you very much for purchasing Panasonic products. Please read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product. Kindly keep this manual in a convenient place for quick reference.



- Never use this product as a sensing device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

## 1 SPECIFICATIONS

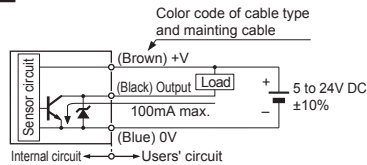
Model No.	Type	Top sensing		Front sensing		L type (Top sensing)	
	Connector type	PM2-LH10	PM2-LH10B	PM2-LF10	PM2-LF10B	PM2-LL10	PM2-LL10B
Item	Cable type	PM2-LH10-C1	PM2-LH10B-C1	PM2-LF10-C1	PM2-LF10B-C1	PM2-LL10-C1	PM2-LL10B-C1
Sensing range	2.5 to 8mm (Convergent point 5mm) with white non-glossy paper (15×15mm) (Note 1)						
Supply voltage	5 to 24V DC±10% Ripple P-P 5% or less						
Current consumption	Average: 25mA or less, Peak: 80mA or less						
Output	NPN open-collector transistor						
	<ul style="list-style-type: none"> <li>• Maximum sink current: 100mA</li> <li>• Applied voltage: 30V DC or less (between output and 0V)</li> <li>• Residual voltage: 1V or less (at 100mA sink current), 0.4V or less (at 16mA sink current)</li> </ul>						
Output operation	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Dark-ON
Over current protection	Incorporated						
Response time	0.8ms or less						
Ambient temperature	-10 to +55°C (No dew condensation or icing allowed), Storage: -25 to +80°C						
Ambient humidity	45 to 85% RH, Storage: 45 to 85% RH						
Cable	0.2mm <sup>2</sup> 3-core cable, 1m long (Cable type only) (Note 2)						
Material	Enclosure: Polycarbonate, Terminal part (Connector type only): HSM (Ag plated) Cable fixing part (Cable type only): PBT						

Notes: 1) Take care that, depending on the product, the sensing range may extend to 12.5mm maximum with white non-glossy paper.  
 2) The cable cannot be extended.

## 2 CAUTIONS

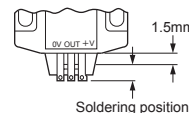
- This product has been developed / produced for industrial use only.
- A reverse supply protection circuit and output short-circuit protection circuit are not incorporated. Since wrong wiring may cause malfunction, make sure to check the terminal arrangement, cable wiring and power supply area before wiring.
- Make sure that the power supply is off while wiring.
- Verify that the supply voltage variation is within the rating.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.
- Do not use during the initial transient time (50ms) after the power supply is switched on.
- Do not run the wires together with high-voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction.
- For the connector type, the cable length must be 2m, or less, with 0.3mm<sup>2</sup>, or more, cable. If the cable is extended for more than 2m, connect a capacitor of 10µF approx. between +V and 0V terminals. Further, the cable type cannot be extended.
- Avoid dust, dirt, and steam.
- Take care that the sensor does not come in direct contact with water, oil, grease, or organic solvents, such as, thinner etc.
- Take care that the sensor is not directly exposed to fluorescent lamp from a rapid-starter lamp or a high frequency lighting device, as it may affect the sensing performance.
- If there is a reflective object (conveyor, etc.) in the background, since it may affect the sensing, use by keeping enough distance from the reflective object.

## 3 I/O CIRCUIT DIAGRAMS



## 4 SOLDERING (Connector type only)

- If soldering is done directly on the terminals, strictly adhere to the conditions given below.  
 Soldering temperature: 260°C or less  
 Soldering time: 10 sec. or less  
 Soldering position: 1.5mm, or more, away from the sensor body.



## 5 MOUNTING

- When fixing the sensor with screws, use M3 screws and the tightening torque should be 0.49N·m or less. Furthermore, use small, round type plain washers (ø6mm).

## 6 INTENDED PRODUCTS FOR CE MARKING

- The models listed under "1 SPECIFICATIONS" come with CE Marking. As for all other models, please contact our office.



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This bag is a product made from polyethylene. Even if it burns, harmful gas is not generated.