

**High-speed Response Fiber Mark Sensor
LX-23 Series**

MJE-LX23 No.0033-54V

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.

⚠ WARNING

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

1 MOUNTING

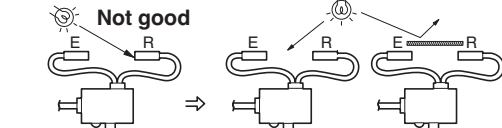
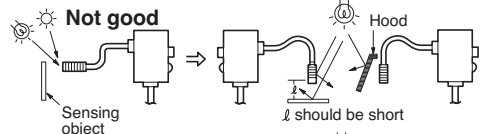
- Mount the sensor and the fibers according to the sensing method.

Reflective type

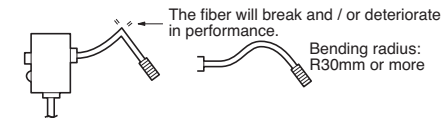
- Set the fiber in such a manner that the tip of the fiber away from an object by 1.5mm (center of sensing range.)

Thru-beam type

- If emitters and receivers are placed close to each other, maintain at least 1/2 of the sensing distance between them.
- This series of sensors are not modulated type. In the case extraneous light falls on the receiving part of the sensor, use a hood or cover to protect the receiving part and the sensing surface from it. Take sufficient care when a minute detection is carried out.

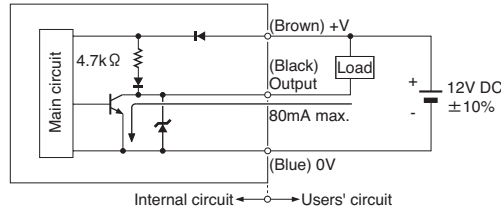


- When the fiber is mounted, take care not to apply an excessive force to the flexible part (bendable fiber part.)



- In replacing the fibers, engage the projected sensor tip with recessed fiber tip.
- Fix the sensor securely such that it does not move by vibration.
- Since the amplifier may generate heat, it should be mounted on a material having good heat conductivity.

2 OUTPUT DIAGRAM

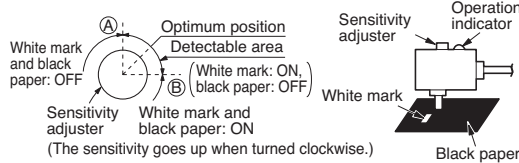


3 SETTING PROCEDURE

Be sure sensitivity adjuster may break in case turning it more than the stopper.

Reflective type

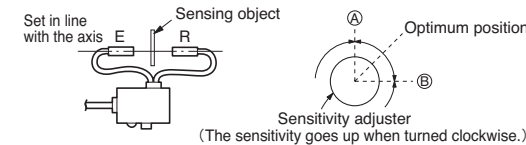
- Here is an example for detecting a white mark on a black paper.



- ① Turn on the power supply after checking the wiring. When a minute detection is carried out, allow 30 to 60 minutes for warming up before starting to operate the sensor. This is to eliminate drift of sensitivity.
- ② Place an object at required sensing range.
- ③ Place the sensing head such that the beam spot hits the center of the white mark on the object, and turn the adjuster gradually to find the point (A) where the operation indicator lights up. In this case, the sensitivity goes up when turned clockwise. Furthermore, the adjuster has the adjusting range of 7-turn.
- ④ Move the sensing object such that the beam spot hits the black paper on the object. Turn the adjuster further clockwise and find out the point (B) where the operation indicator lights up.
- ⑤ The detectable area is between the point (A) and the point (B), and the optimum position to stably detect objects is the center point between (A) and (B).
- ⑥ Move the sensing object and check the operation indicator while putting the beam spot on the white mark and the black paper.

Thru-beam type

- In case of the thru-beam type, except for particular usage, set the emitter and the receiver coaxially so that the sensing object is positioned in the center of them.



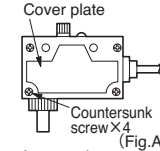
- ① Turn on the power supply after checking the wiring. When a minute detection is carried out, allow 30 to 60 minutes for warming up before starting to operate the sensor. This is to eliminate drift of sensitivity.
- ② Turn the adjuster counter-clockwise in the sensing object absent condition (light received condition - the indicator lights up) and find out the point (A) where the indicator is turned off.
- ③ Turn the adjuster clockwise in the sensing object present condition (light not received condition - the indicator is off) and find out the point (B) where the indicator lights up. (If the indicator does not light up even when the adjuster is turned fully clockwise, the point (B) is this extreme point (maximum sensitivity position.)

- ④ The optimum position is the center point between (A) and (B). Take care to confirm the position (A) and (B) as this adjuster is 7-turn type.
- ※ When detecting marks, regard a thru-beam surface as the point (A), dark surface (mark) as the point (B) to adjust in the same way as above.

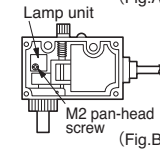
4 HOW TO REPLACE LAMP (LAMP UNIT)

- When the lamp blew or light intensity fades out considerably, replace the lamp with the following procedure. Note that deterioration of the light intensity is corrected, however, if the deterioration is considerable, the sensitivity is affected.
- The average lifetime of lamps is approx. 20,000 hours. (Vibration or fluctuated supply voltage may shorten its life.)

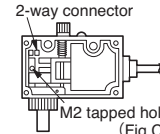
- ① Turn off the power.
- ② Remove 4 countersunk screws and uncover the cover plate. A rubber sheet comes off together. (Figure A)



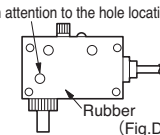
- ③ Remove a M2 pan-head screw and take the printed-circuit board (lamp unit) while lifting up the edge of it. (Figure B)



- ④ Plug a new lamp unit into the 2-way connector completely, and tighten with the M2 screw. (Figure C)



- ⑤ Fit the cover plate with the 4 countersunk screws with attention to the direction of the rubber. (Figure D)



※ Purchase the lamp unit separately. Lamp unit model No.: LA-23

5 SPECIFICATIONS

- Be sure to use the fiber and the amplifier in combination.
- **Fiber**

Type	Thru-beam	Coaxial reflective	Fixed coaxial reflective
Item Model No.	FT-3	FR-3	FF
Sensing range	30mm	1 to 3mm (Center 1.5mm)	
Fiber length	300mm	300mm	
Ambient temperature	-20 to +70°C		-10 to +40°C

● **Amplifier**

Item	Model No.	LX-23
Supply voltage		12V DC ±10%
Current consumption		150mA or less
Ambient temperature		-10 to +40°C
Operation		Light - ON
Output Rating	Max. sink current	80mA
	Voltage	When the power is ON: 1V or less When the power is OFF: supply voltage - (1.5V or less)

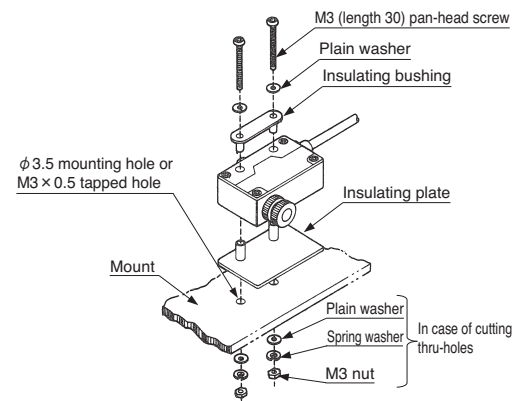
6 CAUTIONS

- This product has been developed / produced for industrial use.
- Make sure that the power supply is off while wiring.
- Take care that wrong wiring will damage the sensor.
- 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.
- Short-circuit protection circuit is not incorporated with the output. Do not connect it to a power supply or a capacitive load directly.
- Do not use during the initial transient time (50ms) after the power supply is switched on.
- Do not use this sensor in places having excessive vapor, dust, etc., or where it may come in contact with water, or corrosive gas.

Insulation mounting brackets

- In order to enhance noise standability, a direct earth method (0V and the enclosure are directly connected) is employed in LX-23. In case DC 0V should not be electrically connected to a mount, use insulation mounting brackets. (Contact our office.) Furthermore, do not use an auto-transformer (single-wound transformer) as a power source.

How to mount the insulation mounting brackets (Unit: mm)



Panasonic Industrial Devices SUNX Co., Ltd.

<http://panasonic.net/idx/pidsx/global>

Overseas Sales Division (Head Office)
2431-1 Ushiyama-cho, Kasugai-shi, Aichi, 486-0901, Japan
Phone: +81-568-33-7861 FAX: +81-568-33-8591

About our sale network, please visit our website.