

USB PHOTOMULTIPLIER
INSTRUCTION MANUAL
M009

First Edition

OPTOMECHATRONIX, Inc.

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1 GENERAL:

1.1 Product Description:

This product is able to measure the photo-current of the photomultiplier tube, and it allows telecommunication to set the measurement condition and readout result through USB connection.

1.2 Product Specification:

Function	Specification
Wavelength Range	230nm~700nm
Detector Type/Size	Photomultiplier Tube Sensitive Area ϕ 8.0
Control Voltage	0.5~1.0V
Output Current	10 μ A maximum (without offset of electric circuit)
Signal Amplifier	I-V conversion
Sampling Time	100ms
Gain	From 4,000 to 5,000,000 times
AD resolution AD	24bit
Optical Coupling	SMA Optical Fiber (detachable) SMA
Other Circumferential Function	Functional Indicator LED lighting
Input/output Interface	USB2.0(Full Speed)
Output Indication	Detected Incident Light Strength (Current Value)
Data Transfer	Storage into PC through USB connection USB
Power Supply	Through USB bus power
Dimension	30W×30H×89D[mm]
Weight	135g
Operating Temperature	+15°C~+30°C

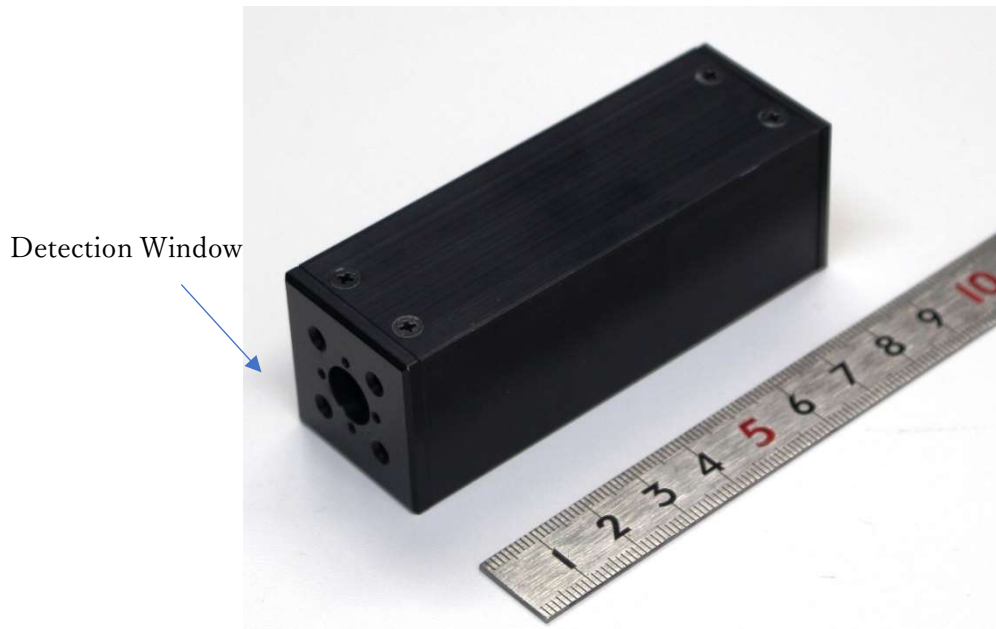
1.3 Composition

Main Body 1 set

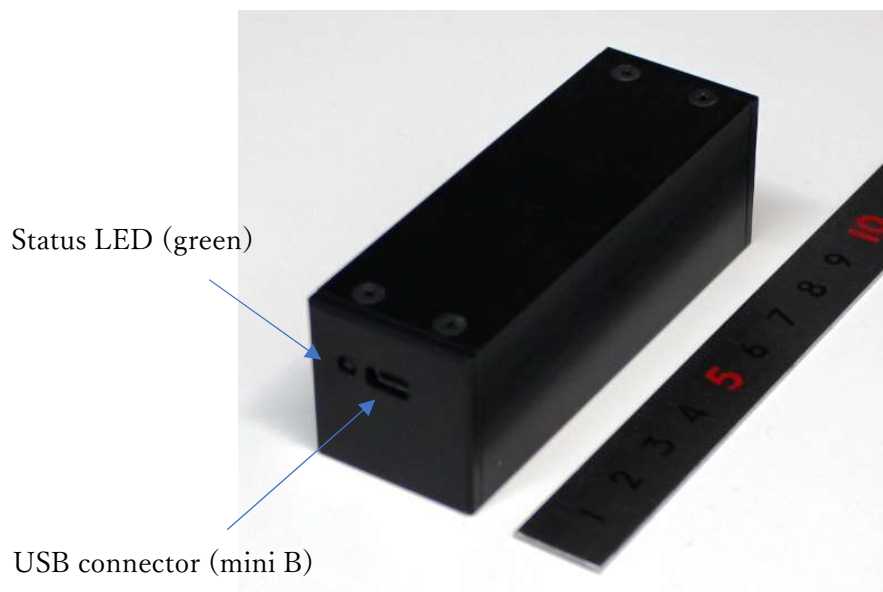
USB cable for PC (Windows) connection (1m, type A-mini B) 1 piece

2. BEFORE THE USE:

2.1 Name and Function of each part



Detection Window	Irradiated light amount onto this window shall be measured
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Status LED (green)	Light (blue) when instructed so by software program
USB connector	Connect with control unit (i.e., PC, etc.) to supply power and transfer the data

2.2 Cautions for Safety:

Please carefully read this “Cautions for Safety” before the appropriate usage. Also, keep this manual for necessary review later. These cautions are intended to protect user and their property as well as other people from possible damage which may occur during the use, therefore it must be respected.

Do not leave the unit under high temperature environment such as under direct sunlight or inside of vehicle parked under such, which may cause the damage to the unit like overheat, transformation and failure.

Further, it may cause the burn when touched while the portion of the package might be overheated.

Do not place the unit where is not stable such as waved or tilted stage or similar. It may cause the damage or failure to the unit or harm to people when dropped.

2.3 Cautions for Use:

Do not expose the photocathode to the extreme incident light such as direct sunlight. It may cause the increase of the noise or degradation of the sensitivity.

Do not touch the input window with bare hand, dirt or finger mark which may deteriorate the transmittance. Such dirt or finger mark shall be wiped with alcohol.

Do not give strong shock or vibration to the unit. Further do not bind with strong pressure partially.

When the unit may be used under high temperature, high humidity and/or high magnetic field environment, appropriate countermeasure shall be necessary therefore please consult with us before the operation.

Do not disassemble or modify the unit, it may cause the potential damage to the unit or fire/electric shock/harm/accident.

Do not make the unit wet, any liquid, such as water, may enter the unit will result the damage of the unit or accident.

3. HOW TO USE:

The unit is controlled by Windows PC. Connect the unit and PC using USB mini B connector attached to the unit main body.

The driver of the unit shall be installed then confirm its proper operation.

When the above procedure is done and confirmed, use the unit in accordance with the software instruction manual.

4. MAINTENANCE:

4.1 Unit Main Body:

- Do not touch the input window with bare hand, dirt or finger mark which may affect the measurement result.

5. TROUBLESHOOTING:

Symptoms	Check Point/Cause	Countermeasure
Can't identify the unit	Is driver installed properly?	If not, install the driver
	Has communication USB cable employed?	Replace with appropriate USB cable
Measurement is suspended intermediately	Is USB power source stable?	Employ stable power source
Lamp won't light (when multiple connection is made)	Make the single connection to confirm lighting	When the multiple connection is made, define order may be changed

6. OTHER:

7.1 Warranty and After service

Following to the purchase, the product will be repaired at free of charge for a period of one (1) year under the condition stated in the free repair rule below. Consult with our contact window for any repair or periodic maintenance.

7.2 Contact Window

Optomechatronix, Inc.

Hamamatsu Act tower 7F, 111-2, Itaya-machi, Naka-ku, Hamamatsu city, Shizuoka

Pref. 430-7707, Japan

TEL.+81-53-401-2070 FAX.+81-53-401-2071 Email.info@opt-mt.com

Free Repair Rule:

- 1 . Any failure occurred under normal operation usage (use under conditions stated in the instruction manual) shall be repaired at free of charge at Optomechatronix Inc. or sales office where the product has been purchased.
- 2 . Free of charge repair, within warranty period, shall be requested to Optomechatronix Inc..
- 3 . Even within warranty period, following cases will be charged for required cost,
 - (1) Misuse, damages due to improper modification/repair or received from other instruments
 - (2) Damage or failure due to the transportation after the purchase is made
 - (3) Damage or failure due to fire, earthquake, flood, thunder strike or other natural disaster, pollution, damage from salt water, abnormal voltage, etc.
 - (4) Damage or failure occurred other than normal home usage.
 - (5) Cost associated for the recipient/delivery to solitary island or equivalent area.
 - (6) Personal trip for repair by customer request.
- 4 . Warranty is applicable only within Japan.