

Instruction Manual

MG-05.1

(UV Radiometer)



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1. Product Features and Application

1) Features

Display is 5 types : Relative Power (RP), Accumulative Time (AT) and Absolute Power (AP)

Max power, Dose display (mJ/cm^2)

Output is 3 types : DC Voltage, DC Current and Relay

2) Applications

UV Lamp Monitoring / Water Sterilizer / Air Cleaner/ UV Hardener / UV Irradiator

2. Product Specification and Configuration

1) Display Panel

- Panel Size: $97 \times 50 \times 112 \text{ mm}^3$, Panel cutting size : $92 \times 45 \text{ mm}^2$ (Tolerance : $-0, +0.5 \text{ mm}$)

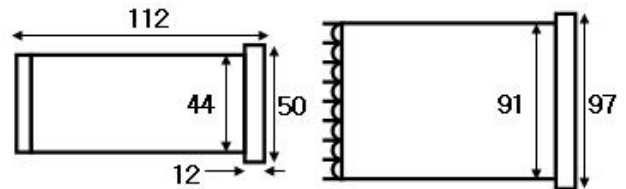
- Power Supply: $85 \sim 265 \text{ VAC}$ (50/60 Hz), Consumption : $\leq 5 \text{ W}$

- Operating Temperature: $0 \sim 50 \text{ }^\circ\text{C}$, Operating Humidity: $35 \sim 85 \text{ \% RH}$

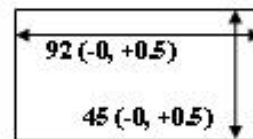
- Relay : $250\text{AC } 3\text{A}$, Current Output : $4\text{-}20 \text{ mA}$ 300Ω Max.



(1) Display Panel



(2) Size of Display Panel



Panel Cut Out (mm)

(3) Panel Cutting Size

Fig. 1 UV Radiometer 5.0

2) Sensor Probe

Green Line : #18, Red Line : #19, Black Line : #20

Information of Sensor Probe is in the enclosed Certificate of Quality (CQ)

3) Power cable and output cable ($4\text{-}20 \text{ mA}$ current output, $1\text{-}5\text{V}$ voltage output, relay) are not supplied.

4) RS485 Communication : #B(-) # A(+)

3. Production Installation

1) Mounting the Sensor Probe

- a. Operation temperature of Sensor Probe is $-30 \sim 85 \text{ }^{\circ}\text{C}$ ($-22 \sim 185^{\circ}\text{F}$)
- b. UV sensor of Sensor Probe and UV light source should be fixed in set distance to do vertically.

Distance is your choice. But optical power should not exceed the $100.00 \text{ mW}/\text{cm}^2$ because it is the maximum of Display.

Once a mounting distance has been determined, make sure to use the same distance for any additional sensors used for other lamps; doing so will provide a more accurate comparison of irradiance among different lamps.

- c. In LW series, Sensor Probe connects after close teflon tape 3~4 times in screw page.
- d. After mounting and positioning the sensor probe, make sure the window of Sensor Probe is clean and dry.

If it is not clean, then gently wipe it off with a lint free swab.

2) Mounting the Display Panel

- a. Mount the Display Panel in a temperature & humidity of less than $50 \text{ }^{\circ}\text{C}$ (122°F) & $35 \sim 85 \text{ \%RH}$.
- b. 3 wires of Sensor Probe connect to #18, #19, and #20 of Display.
[18 : Vin (Green), 19 : +5V (Red), 20 : GND (Black)].
- c. Power cable connect to #1 and #2 of Display. (Power is AC voltage. Be careful!)
- d. Voltage Output is 1~5 V DC along relative power, and it is the # 7 (-) and # 8(+) of Display.
- e. Current Output is 4-20 mA DC (300 Ω max load) along relative power, and it is the # 9(-) and # 10(+) of Display.
- f. Relay can use the 5A / 230VAC, and its criterion is the setting value of C-01.

5 is N/O (Normal Open), # 4 is N/C (Normal Close), and # 6 is Comm (Common).

If you want to get the short signal under 70 %, you should set 70 in C-01 and connect the each wires in #5 and #6 of Display.

- g. RS 485 communication Terminal is #11 B(-), #12 A(+).

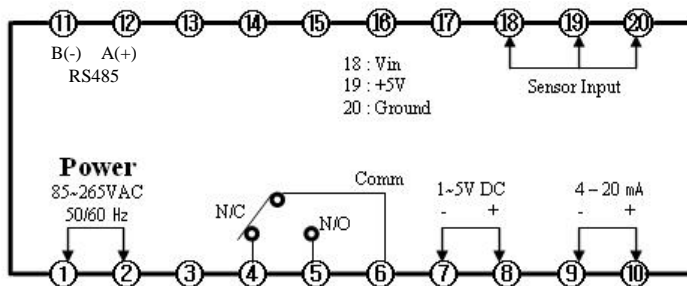


Fig. 2 Connection Diagram of UV Radiometer 5

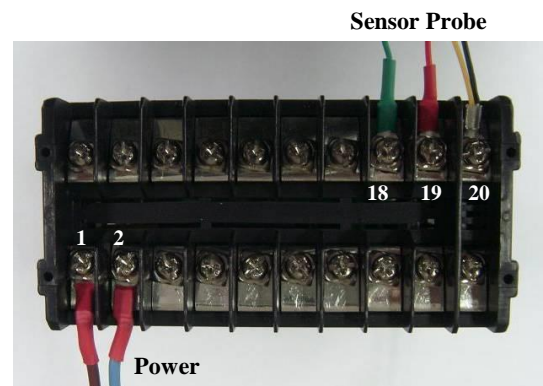
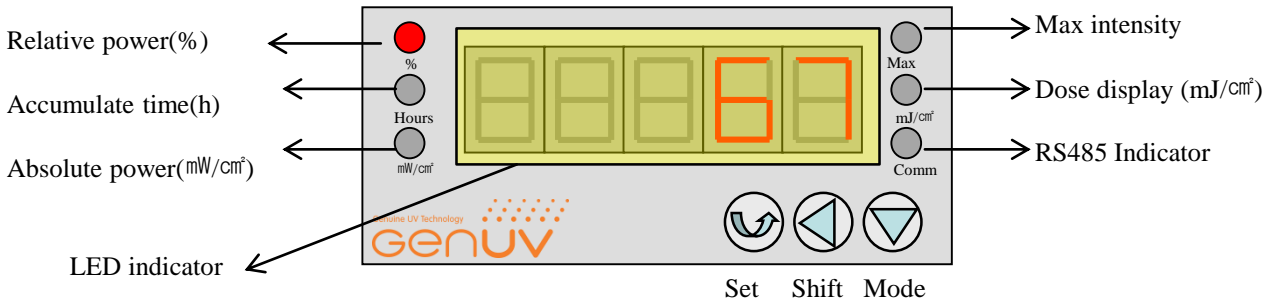


Fig. 3 Connection picture of UV Radiometer 5

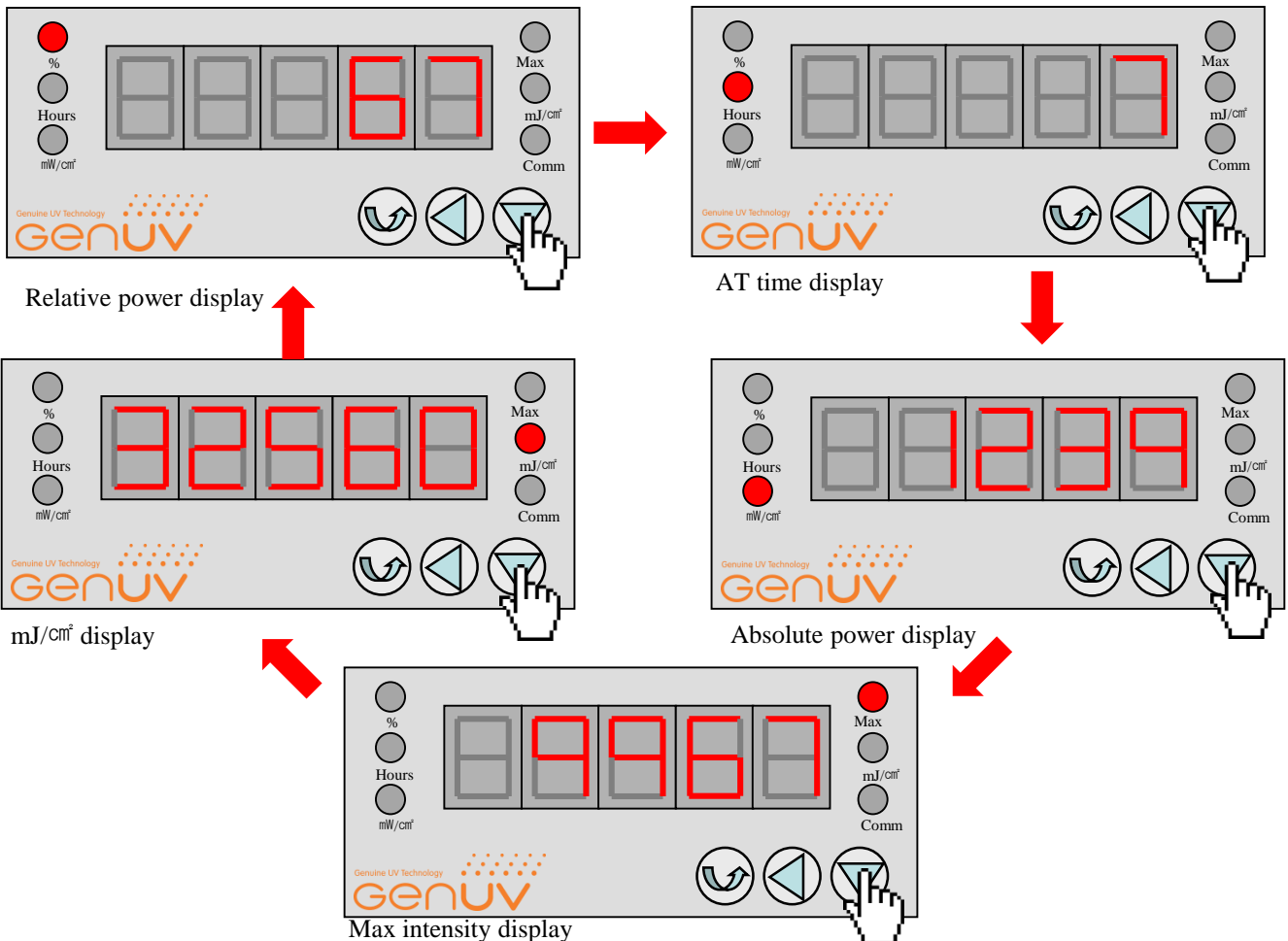
4. Front panel explanation



5. Function explanation

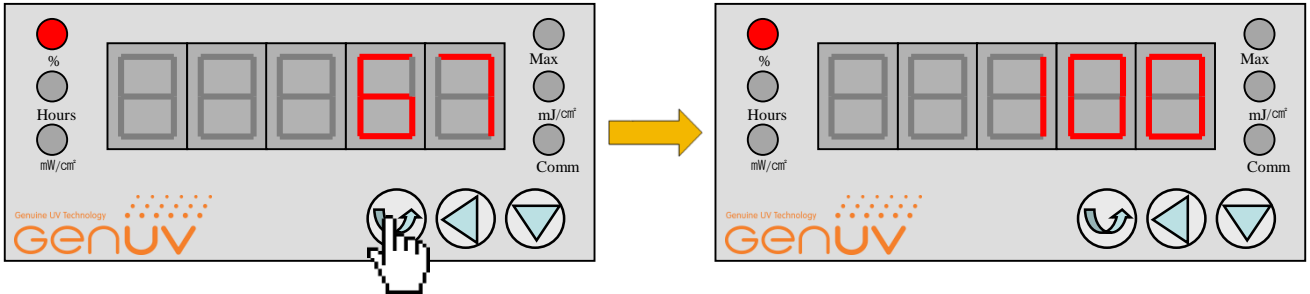
1) Basic function description

- Set button : Resetting RP(%) Power , Reset Max power
- Shift button : Reset dose display
- Mode button : Switchover the display mode
- you can change display mode to press mode button



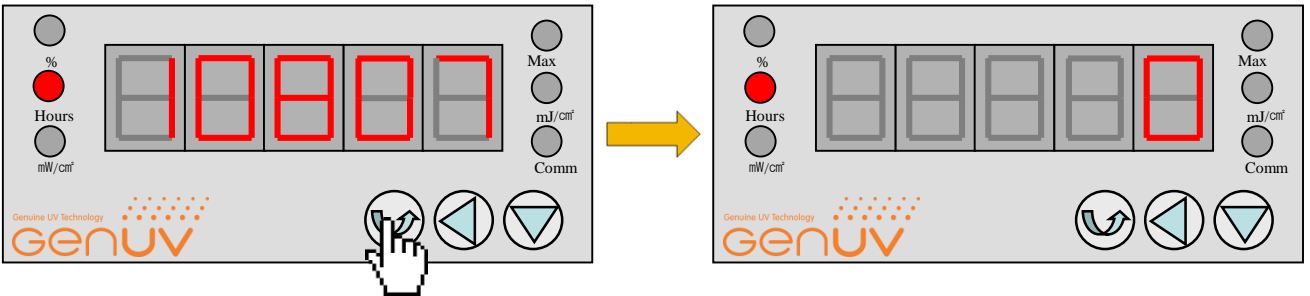
① Setting Relative power

- In the Relative power display mode , Press the set button for 3 seconds.
- Press the Set button over 3 second, current optical power will be 100%.



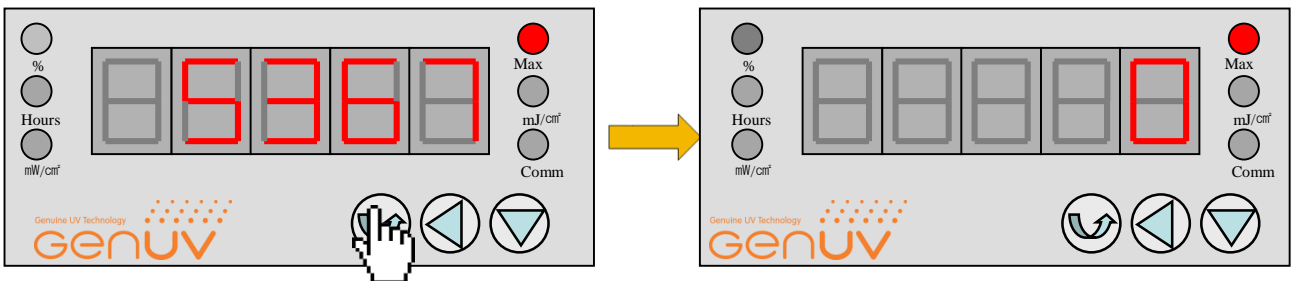
② Reset Accumulate time

- In the Accumulate time , Press set button for 3 seconds.
- Press the Set button over 3 second, Accumulate time value will set to zero.



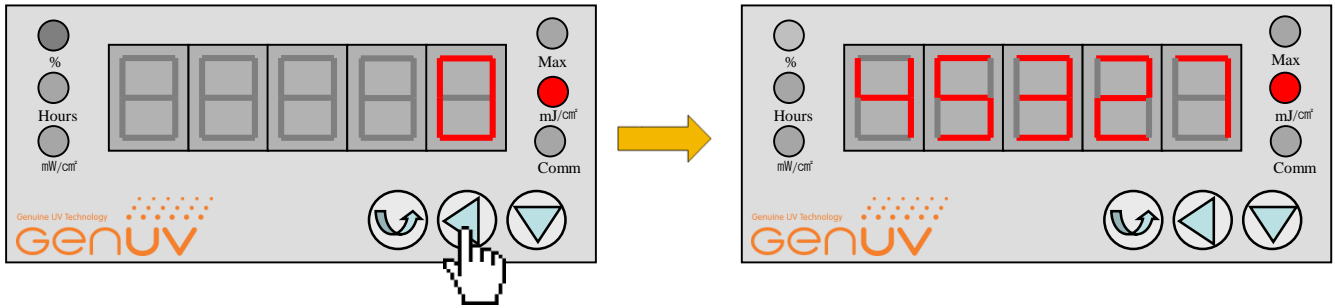
③ Reset Max Power

- In the Max power display mode , Press set button for 3 seconds.
- Press the Set button over 3 second, Max power display value will set to 0.

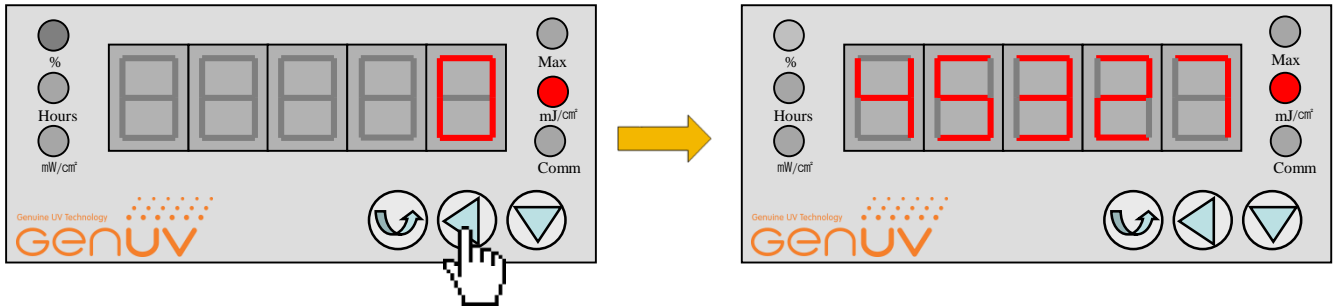


④ Measuring mJ/cm^2 value

- In the Dose mJ/cm^2 display mode , press shift button.
- Then the mJ/cm^2 value will set to zero and calculate the mJ/cm^2

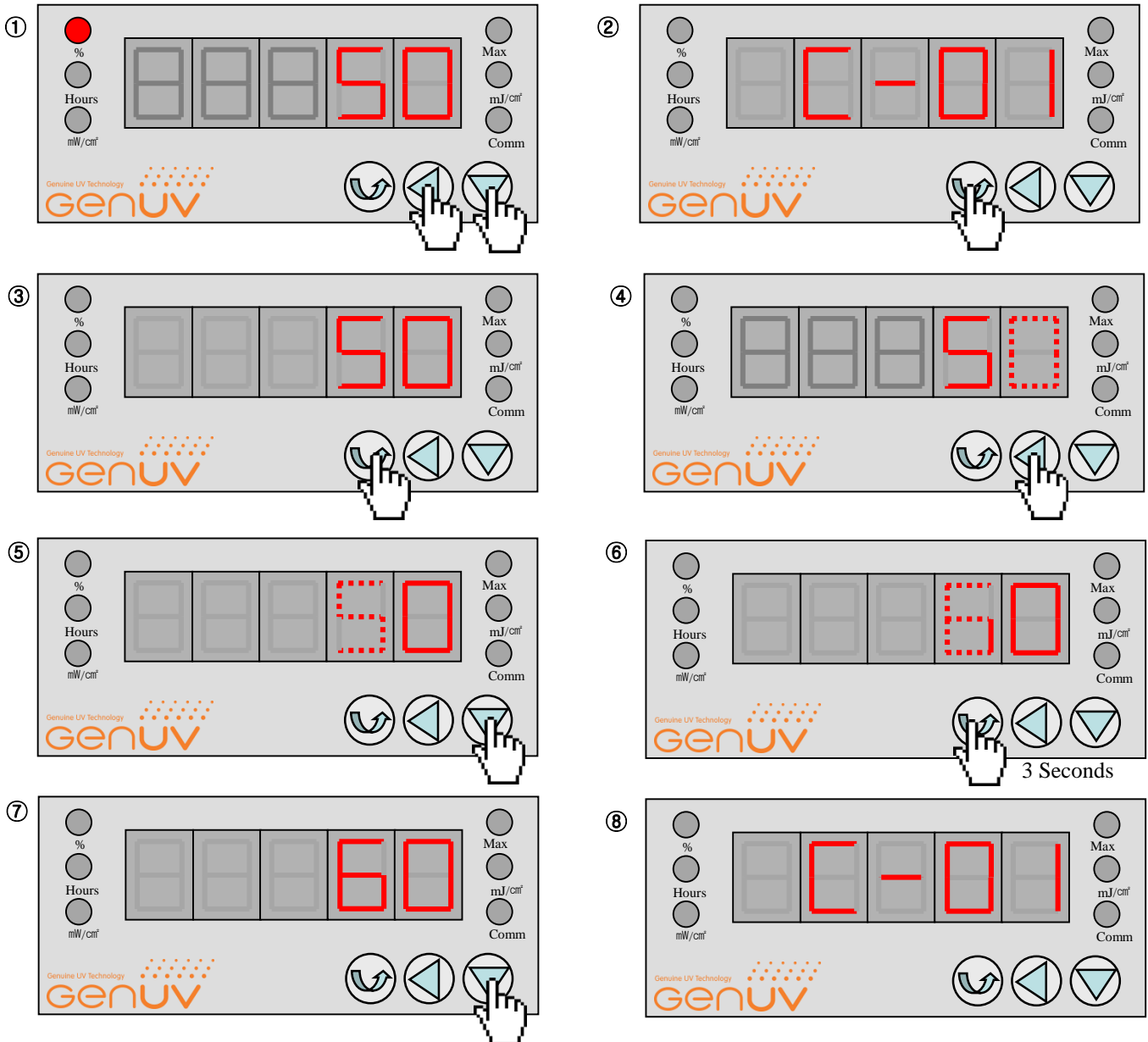


- When the monitor power is turned off and on.
- In the Dose mJ/cm^2 display mode , press shift button.
- The Dose mJ/cm^2 measurement starts.



2) Entering setting mode

- a. Push Shift + Mode button , When switch on the parameters setting plate , C-01 ~ C- 09 would shown.
- c. Then press the "set" button ,then will show now time parameters values
- d. Re-press the "set" button ,enter in the parameters setting mode .
- e. The value you setting will flashing ,press the " Mode button" to adjust value.
- f. Shift button to change the setting unit
- g. After all setting ,press the "SET" button 3s to quit setting mode and return to value-shown mode.
- h. Press the "mode "button return to code-shown mode .
- i. at the code-shown mode press "Shift + Mode" button , then exit the setting mode



3) Function setting table

Function Settings			
Symbol	Item	Adjust range	Note
C - 01	RP Power(%) Alarm	0 ~ 70	
C - 02	AT Time Alarm	0 ~ 19999	Hours
C - 03	Setting of maximum value for displayed intensity.	0 ~ 19999	Please Do not change this setting to the factory setting
C - 04	Decimal Point setting	0000.0 ~ 0.0000	Please Do not change this setting to the factory setting
C - 05	Max. intensity display Toggle	ON / OFF	
C - 06	mJ/cm ² display Toggle	ON / OFF	
C - 07	RS485 Device No. Setting	0 ~ 99	
C - 08	RS485 Baud rate	2400, 4800, 9600	
C - 09	MJ / cm ² Measurement time	0 ~ 3600	

6. Relative Reaction Curves of UV Sensors

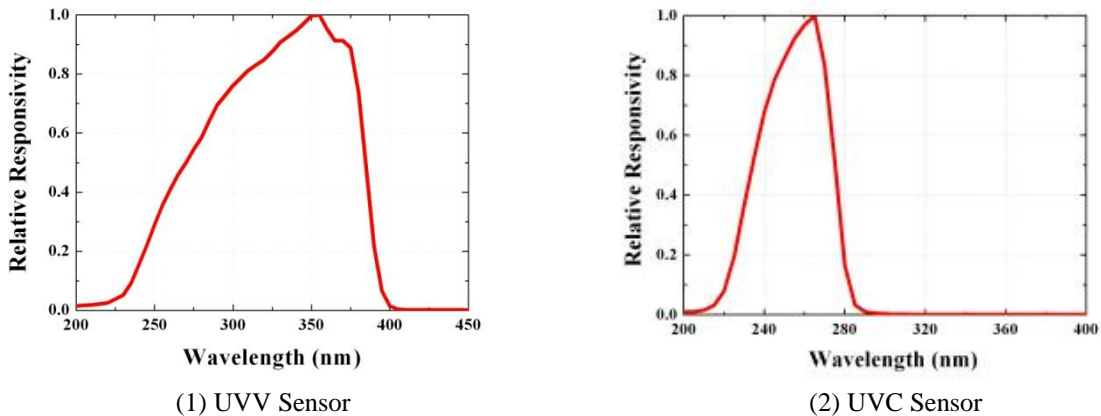


Fig. 4 Relative Responsivity Curve of UV Sensor

7. A/S Request in Case of Product Failure

- 1) Should any failure is found in product, please call the sales company or customer center for A/S.
- 2) Product warranty period is 1 year from the date of procurement with no charge.

However, failure which is caused by user's misuse or carelessness within warrant period or any failure after the warrant period shall be chargeable for it's A/S.

- 3) Product inquiry and on-line customer service

Tel : +82-42-862-3982, Fax : +82-42-862-2982

E-mail : uvsensor@geni-uv.com

Web site : <http://www.geni-uv.com>

8. Notes

1) CAUTION

TURN ALL POWER OFF. NEVER EXPOSE EYES OR SKIN TO UV LIGHT FROM ANY SOURCE
WEAR GLOVES, FACE SHIELD/GLASSES(PER ANSI Z87.1)
AND COVER ALL EXPOSED SKIN. DO NOT TOUCH LAMP GLASS WITHOUT GLOVES.

2) NOTE

Read this entire instruction sheet before starting the installation.

9. Relay Operation method

1) Wiring diagram

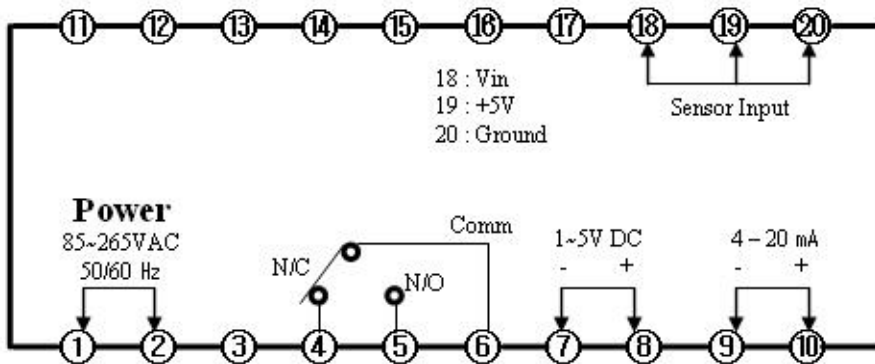


Fig5 Wiring diagram of UV Radiometer 5

- a. Connect AC power Terminal #1 and #2 and connect Sensor cable to terminal #18 (Green wire) #19 (Red wire) #20 (Black wire). Please refer to Fig 6.
- b. Relay output terminal is (#4 ~#5), Voltage output terminal is #7 and #8, current output terminal is #9 and #10. Please turn off the indicator before connect output signal cable.
If you want to use relay output please use with #6 and #5 (N/O, Normal open, in normal case the terminal status is open, but if the signal is ON, the terminal will be closed. OR #6 and #4 (N/C, Normal Close, in normal case the terminal status is close, but if the signal is ON, the terminal will be Open).
In normal status the relay will contact #6 and #4 and In abnormal status the relay will close #6 and #5
If you use large capacity ballast, please use capacitor (220pF/2kV) as Fig7.
- c. Voltage output(1~5Vdc) terminal is #8(+) and #7(-) and Current output(4~20mA) terminal is #10(+) and #9(-).

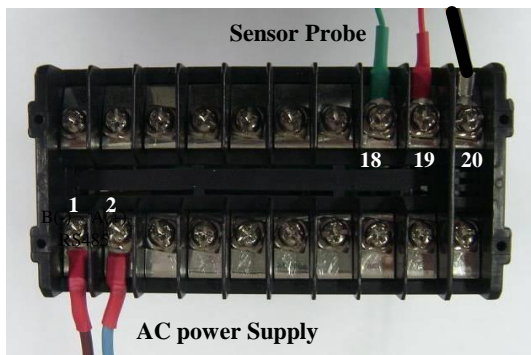


Fig 6. Connect diagram of MG-05

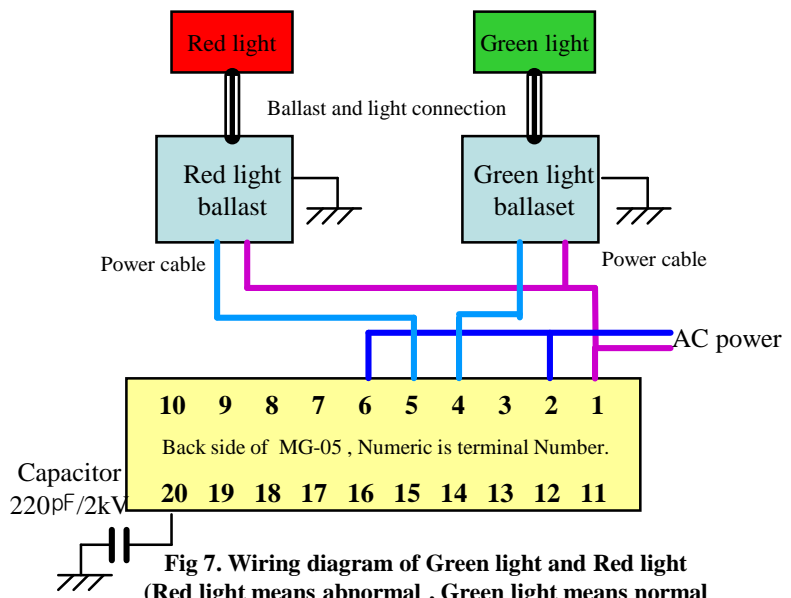


Fig 7. Wiring diagram of Green light and Red light (Red light means abnormal, Green light means normal)

In normal status, the relay will connect #6 and #4, the Green light will be ON and Red light will be off
In abnormal status, the relay will connect #6 and #5, the Green light will be off and Red light will be ON.

10. RS 485 Communication protocol

1) ModBus 485 communication protocols:

Instruction data are hexadecimal format, write data into the query instructions and directives.

Each instruction includes: address code, function code, numerical data length, CRC16 checksum

(Check code by the preceding instruction data obtained calculate, specific calculation methods to locate relevant information!

Can test the software Automatic calculation of checksum)

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2) Query commands

01 03 00 00 00 06 CRC low CRC high

(address code, function code, numerical 2-byte data length 2 bytes, CRC checksum)

Ex)

TX send instructions: 01 03 00 00 00 06 C5 C8

RX received instructions: 01 03 00 0E 0F 00 00 0C 36 01 14 0C 36 29 4D

Note: addresses (01), the function code (03), the data length of 2 bytes (14), relative intensity (15), time 2 bytes (0), Absolute intensity 2 bytes (3126), the temperature of the symbol (n), temperature (20) at a dose of 2 bytes (3126), CRCL, CRCH

If the program symbol for the temperature and the temperature of the return of two-byte version of the V2 represents the absolute historical maximum strength

value! ! =====

3) Write Data command

01 c1 00 28 00 06 CRCL CRCH (address code, function code, a value of 2 bytes, the data length of 2 bytes, CRC checksum)

Function code contains six kinds: C1 / C2 / C3 / C5 / C6 / C7 function code corresponding to set parameters key operation.

E.g:

TX send instructions: 01 C1 00 32 00 06 1D D6

RX receives instructions: 01 C1 00 06 00 32 5D CF

NOTE: The address (01), function code (C1 ie modify% lower limit alarm value), data length 2 bytes (6),

2-byte value (50; that is, the lower limit alarm value to 50), CRCL, CRCH

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