

Probe Application Guide lines for Water treatment

1. Features of LW probes.

- UV measuring in water
- Custom products can be supplied.
- Output type : DC 0~5V or 4 – 20mA Current output
- NIST, KRISS traceable calibration possible

2. Applications

- Monitoring Water treatment system
- DVGW probes for ballast water system
- UV lamp monitoring



Water treatment systems operating examples

3. The features and advantages of the product

- High reliability (It can be use 10bar pressure)
- Highly visible barrier: pure ultraviolet light (UVA, UVB,UVC) sensors using. No need for a separate filter
- Custom Product supply available to meet customer orders
- Calibration Service offers tailored to customers' requests
- Voltage of Analog type (0 ~ 5V) or current (4-20mA) can provide
- Built-in temperature sensor available
- excellent corrosion resistance STS314-L Material
- Reliable implementation at an affordable price

4. Advantage of using a UV sensor probe

- Can accurately measure the illuminance values of the Chamber inside
- UV lamp intensity control based on measure intensity
- Can be monitored ON / OFF status of a UV lamp
- UV light can be seen for lamp replacement time.

5. Point that must be taken into account in product selection

- Consider the thread type of Socket that you try to install.
- Select maximum detection power range.
- Select the required output Type (0 ~ 5V, 4 ~ 20mA)
- Check the operating voltage (5V or 24V)
- In the case of current output (4-20mA), operating voltage 9~24V only possible selection.
- The chosen shape and length of the Connector
- Wire type selection: in case of the current output (4-20mA), and can be selected from among 2 Wire and 3wire
- Length 5m Connection default and possible adjustment according to customer's request
(Voltage output type is available up to 10m)

- Connector type
- install by adopting a form suitable for the installation Environment.



'L' Angled connectors

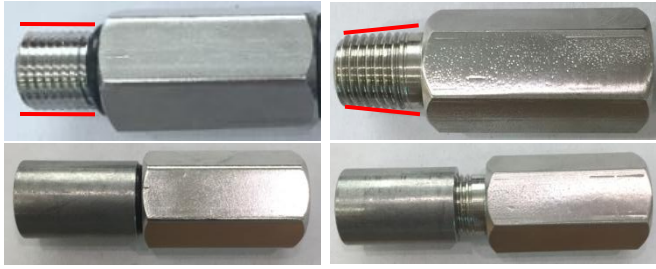


'T' shaped connector

- Fixing Hole Specifications

Product photos	Product Name	Fixing Hole Specifications	Recommendation
	LW10	PT3/4", 16 mm	Chamber type
	LW5	PT 1/4", 12 mm	Chamber type
	LW5.1	PF 1/4", 12 mm	Chamber type
	LW8	NPT1/2", 12 mm	Chamber type
	LW9	PT3/4", 11 mm	Chamber type
	LW11	PT 1 1/4", 21 mm	Chamber type
	LW13	PF 1/4 "/12 mm	Chamber type
	DVGW	G1" 34mm	A high-pressure mercury lamp Chamber type

6. difference between PF screw and PT screw



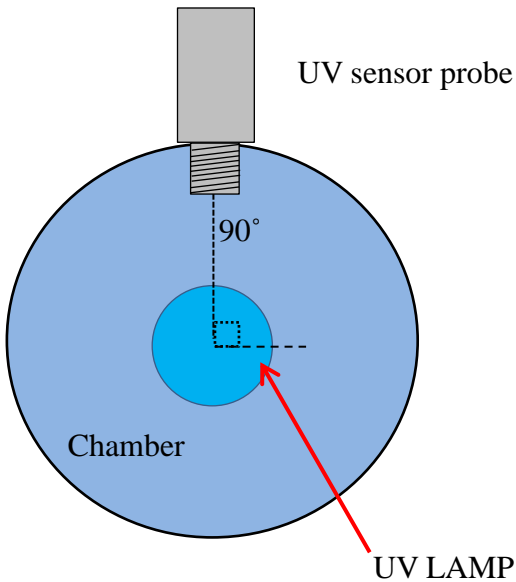
PF parallel screw + socket PT inclined screw + socket

- PF is the sockets are sealed with O-ring is pressed into the end Because PF is parallel screw thread.

7. precautions Sensor probe design in the Chamber

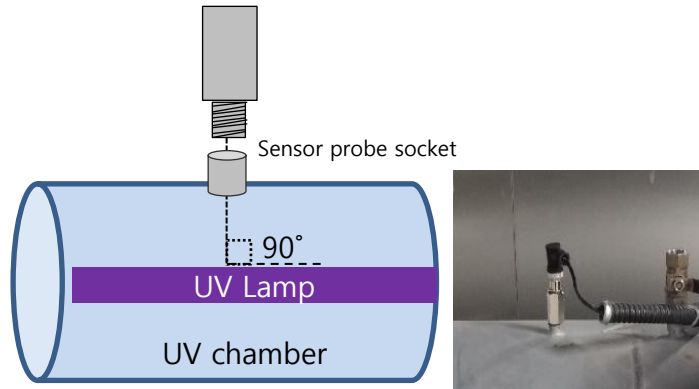
- Incident angle of LW series are not exceed 30 degrees. So We recommend to install the probe vertically
- With more than 85 ° C the temperature of the product's installation conditions or pressure does not exceed 10 bar in an environment should be used.
- Check the thread sizes and Sensor Probe Socket type of installation you want.

8. Product Installation examples



- 1) Selects a suitable Probe to install Socket.
- 2) And selecting a position to incident perpendicular to the UV lamp.
- 3) 3-4 times a hoist and install the Teflon tape to the threads when installing the UV chamber.
- 4) Connect Check the wiring connection terminals
If you connect wrong polarity it will cause the module damaged or broken.

5) Install position

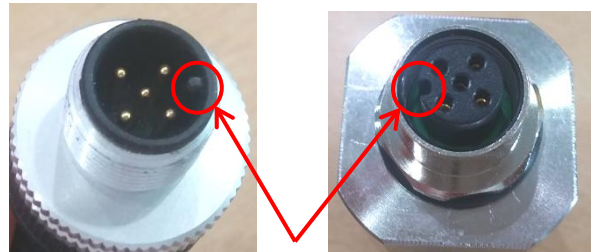


Installation example

-Please install the Sensor probe to the middle of the UV lamp. Because incident angle of UV sensor is narrow.

9. Wiring connections

- 1) Verify that there are no longer such a chamber leaks after installing the Sensor probe
- 2) Insert Sensor probe to determine the direction of the Connector.

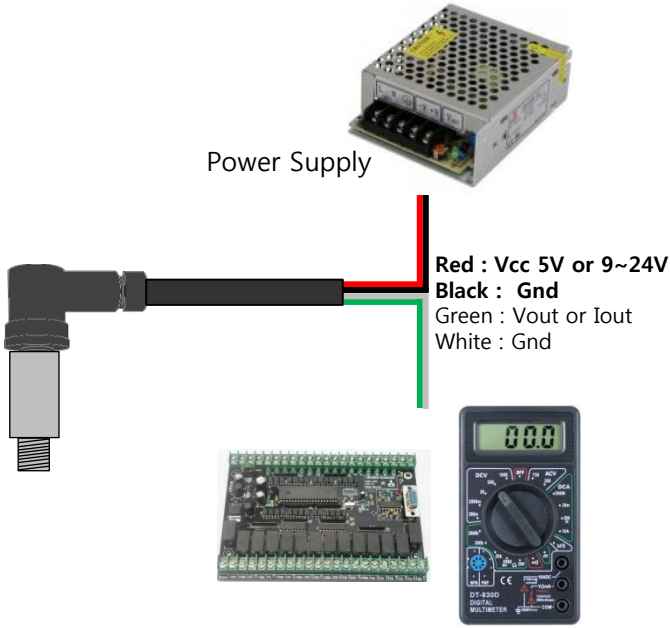


insert direction

- 3) To connect the wiring, check the connection terminals. The color-coded terminals are available as follows.

color	terminals	Remark
Red	VCC	(5V or 24V)
Black	GND	
Green	Vout or Iout	Reference Certificate of Quality
White	GND	

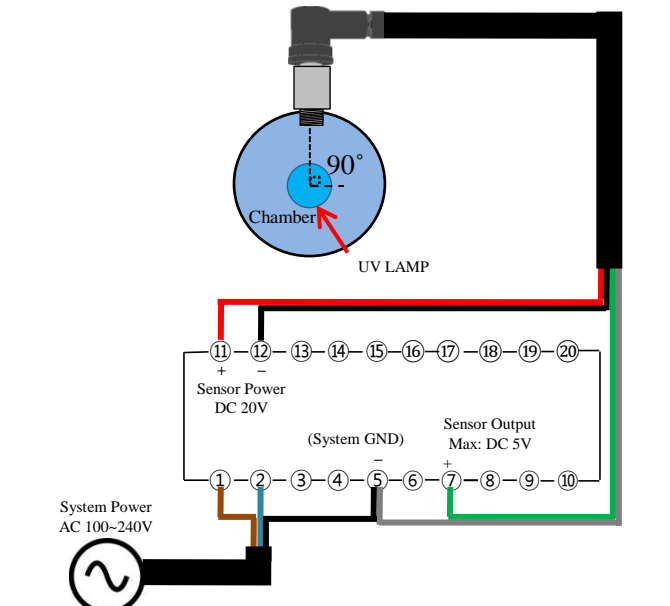
- 4) black lines and white lines (GND) is connected to the Sensor probe interior.
- 5) example how to connect



- If you connect wrong polarity it will cause the module damaged or broken.
- Black lines and white lines are connected (Short) internally.

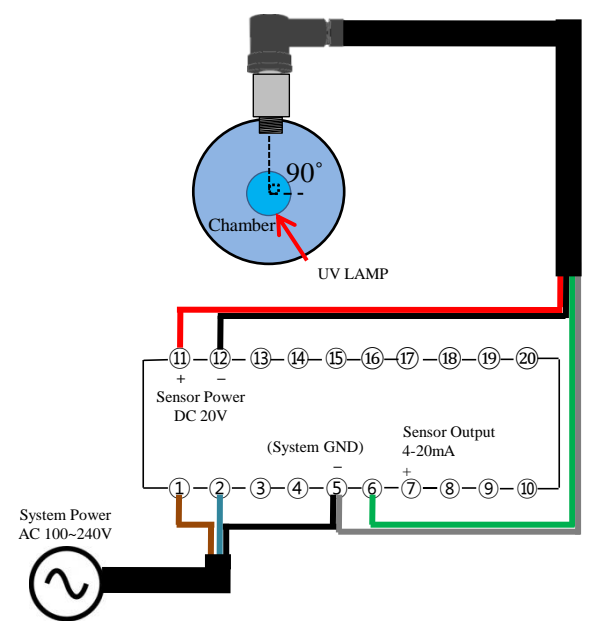
• GUVD-MG02S connections

- GUVD-MG02S Diagrams (Vout)



- 1) Connect AC power to #1 and # 2 , and connect GND wire #5.
- 2) Connect red wire to #11(VCC) , Black wire to #12(GND) , White wire to #5(GND) , Green wire to #7(Vout)

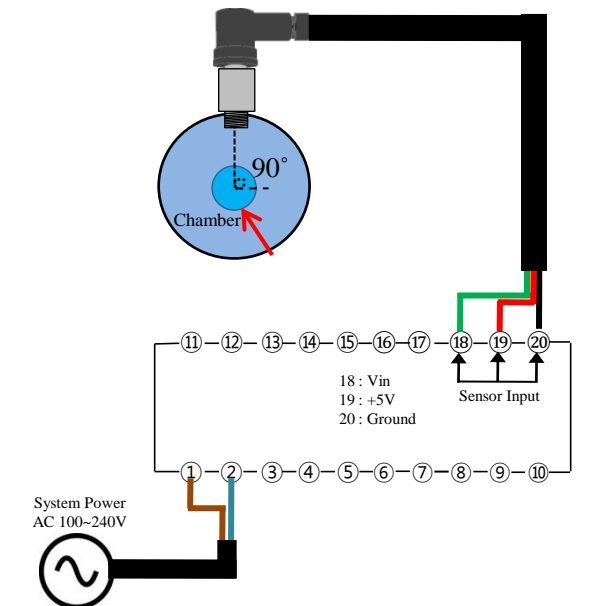
- GUVD-MG02S Diagrams(Iout)



- 1) Connect AC power to #1 and # 2 , and connect GND wire #5
- 2) Connect red wire to #11(VCC) , Black wire to #12(GND) , White wire to #5(GND) , Green wire to #6(Iout)

• Connection diagram of MG-05

-GUVD-MG05S Diagrams



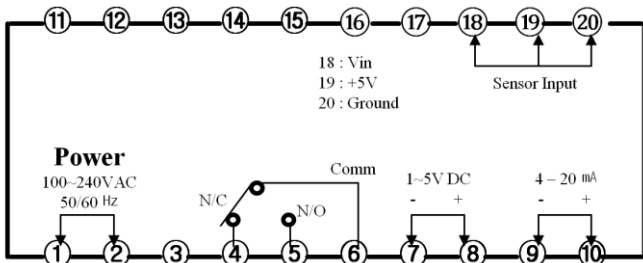
- 1) Connect AC power to #1 and # 2
- 2) Connect Green wire to #18(Vout) Red wire to #19(+5V) , Black wire to #20 (GND)

10. Relay operation method

1) If the abnormality is detected in the water treatment system, it is necessary to generate an alarm.

In this case our indicator has a relay alarm function.

Our indicator has a relay alarm function (Dry contact type).



- Connect AC power terminal #1 and #2 and connect sensor cable #18 (Green wire), #19 (Red wire), #20 (Black wire).
- Relay output terminal is (#4~#6), Voltage output terminal is #7 and #8, Current output is #9 and #10.

* Please turn off the indicator before connecting output cables.

c. If you want to use relay output, please use with #6 and #5.
 - (N/O: Normal open in normal case 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 (22pF/220kV) as below.
- Voltage output (DC 1~5V #7 and #8), and Current output (4 ~ 20mA, #9 and #10) will operate based on RP(%) power.

- ex) If RP power(%) is 0%,
 Voltage output will be DC 1V
 Current output will be 4mA.
- ex) If RP power(%) is 100%
 Voltage output will be DC 5V
 Current output will be 20mA.

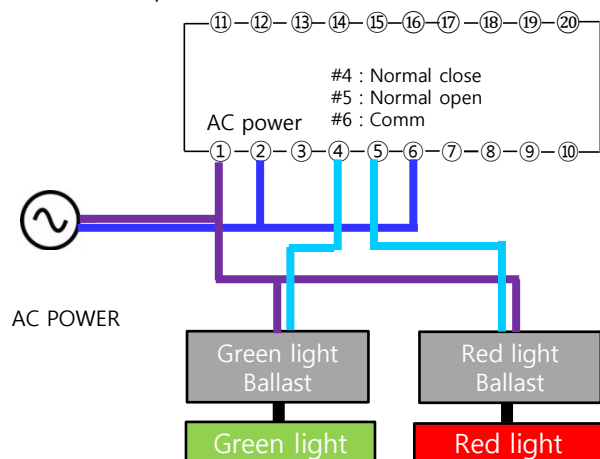
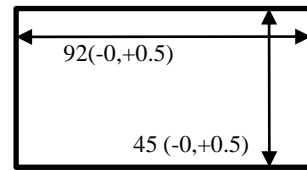


Fig. Wiring diagram of Green light and Red light

11. Panel cutting size

-GUVD-MG02S, GUVD-MG05S have same panel cutting size

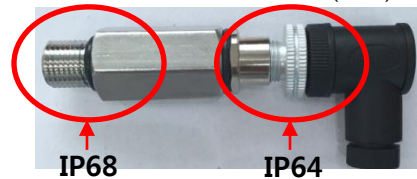


Panel Cut Out(mm)

12. IP Grade

- LW Probe window is a waterproof rating of all products are IP68.
- Maximum operating pressure: 10bar below
- Because of the waterproof rating is IP64 rated Sensor probe Connector
 Do not use underwater.

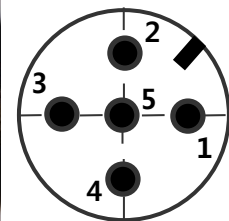
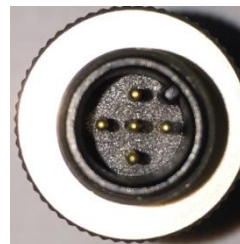
* LW9 Probe is available in the water. (IP68)



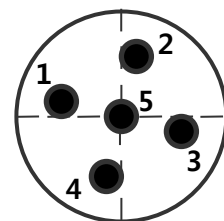
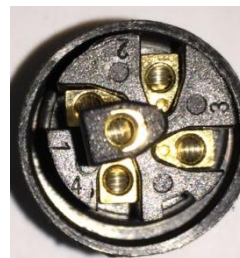
13. Calibration Period

- Calibration recommended period is two years.

14. Connector Pin number



- 1: GND
- 3: VCC
- 5: Vout or Iout



- 1: GND(Black)
- 3: VCC(Red)
- 5: Vout or Iout(Green)

15. Checks in when the amount of light output is not out

- 1) Make sure that wiring is properly wired
- 2) Supply voltage (5V or 24V) Check if supply is being properly
- 3) Check lighting of the light source (UV lamp)
- 4) Ensure that the connectors are not separated
- 5) Ensure that the UV Sensor probe is installed correctly
 - It has been installed correctly towards the direction of the UV lamp?
 - No dirt or contamination on the Window of the UV Sensor window
 - If the irradiation amount of the UV lamp is not enough
 - Detection Power range is set too high compared to the amount of irradiation
 - ex) The maximum measurement range is $1,000\text{mW} / \text{cm}^2$, and when the amount of irradiation $5\text{mW} / \text{cm}^2$ less
- 6) The light source (UV lamp) if it is not UVC lamp (UVA, UVB lamp yen no reaction)
- 7) LW series does not respond to the sunlight or visible light
If you want the Sensor probe test will use the UVC lamp

17. 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 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 : uvsensor@geni-uv.com (<http://www.geni-uv.com>)

16. Product Handling Precautions



- Do not expose your eyes and skin, UV light is very dangerous
- When handling the UV lamp you should wear safety gear such as goggles
- If the UVC lamp is installed in an enclosed space it will be admitted after that has adequate ventilation.



When you install the product ,
Turn off the Power source