

USER GUIDE FOR CDG-13B UV RADIATION SENSOR

CDG-13B-01-MN-10

SEP-2024

This document is applied for the following products

SKU	CDG	HW Ver.	1.0	FW Ver.	1.0
Item Code	CDG-13B	UV Radiation Sensor, 4-20mA RS485 0-5V 0-10V Output, Aluminum alloy, 0-100W/m2			

1. Introductions

CDG-13B UV Radiation Sensor is a precision instrument used to measure the atmosphere of the sun's ultraviolet radiation (UVA & UVB), supporting the product related information acquisition instrument use can provide public concern: the UV index, UV erythema measurement, on the health effects of the UV and UV special biology and chemistry, highly meteorology, industry, construction, medical attention, are widely used in the exposure caused erythema dose, integrated environment ecological effect, the study of climate change and ultraviolet radiation monitoring and forecast.



2. Specification

Item	Specifications
Spectral range	280~400nm
Supply	5V,12-24VDC
Range	0-100W/m ² (UVAB-280~400nm),0-90W/m ² (UVA-315~400nm),0-6W/m ² (UVB-280~315nm)
Output	0-10V,0-5V,4-20mA,RS485
Accuracy	±5% rdg
Response time	≤1s
Cosine correction	≤±4%(Solar elevation angle=30°)
Non-linear	≤±3%
Temperature effect	±0.08%/°C
Stability	≤±2%/year
Operating temperature	-40°C~+85°C
Ingress protection	IP67
Weight(unpacked)	150g
Shell material	Aluminum alloy
Storage condition	10°C-60°C@20%-90%RH

3. Working Process

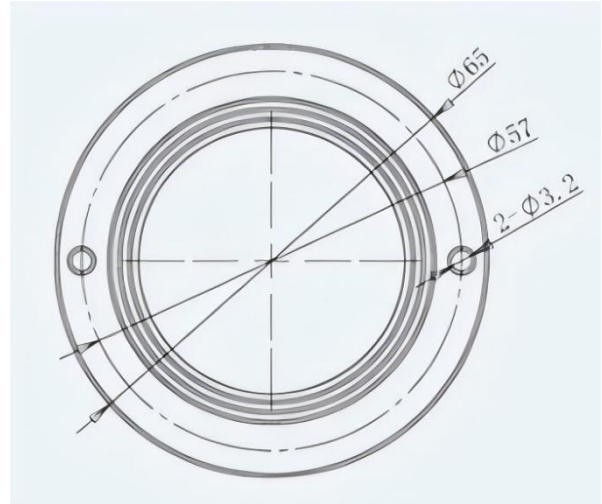
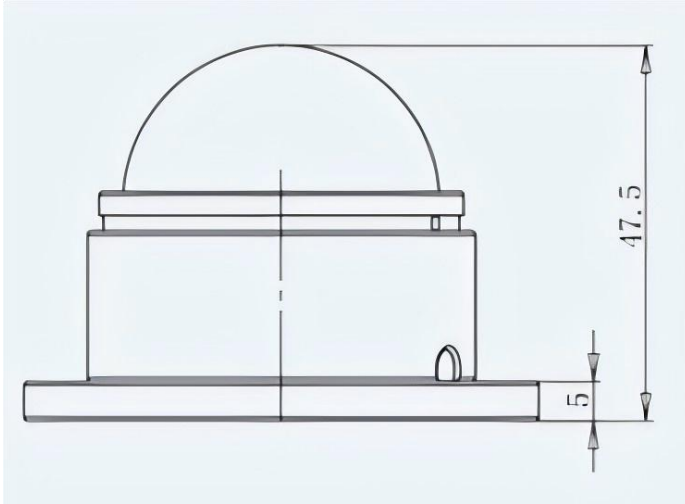
It responds to ultraviolet radiation in a specific wavelength range (usually below 300nm), such as UVC band 185nm ~ 270nm, UVB band 270nm ~ 315nm, UVA band 315nm ~ 400nm, etc. Among them, the solar blind UV sensor also shields UVA and UVB, and only responds to UVC band UV. Visible blind UV sensors block visible light and respond only to ultraviolet lights.



4. Electrical Connections

Cable	Voltage/Current	Current(2 wires)	RS485
Red	V+		V+
Black	Signal	V+	RS485A
Green	V-		V-
Yellow		lout	RS485B

5. Dimensions



6. Installation



2 -M4*20 outer hex screws

2 -M4 nuts,2-M4 flat mat,2-M4 Spring washers

The sensor should be installed in the open air without any cover above the sensing surface.

The sensor connector should be faced to the north, fix it after the horizontal position is well adjusted.

Please check the filter cover regularly & make sure it is clean.

Please do not remove or loose the filter cover,otherwise the accuracy will be affected.

7. Communication Protocol (MODBUS)

Transmission mode: MODBUS-RTU, **Baud rate:** 9600bps, **Data bits:** 8, **Stop bit:** 1, **Check bit:** no

Slave address: the factory default is 01H (set according to the need, 00H to FFH)

7.1 The 03H Function Code Example: Read UV Radiation Value

Host Scan Order(slave address:0x01)

01 03 00 00 00 01 840A

Slave Response

01 03 02 00 06 CRC CRC

UV Radiation:(0006)H=(6)D, $UV = 6/10 = 0.6W/m^2$

7.2 The 06H Function Code Example: Modify the slave address

Host Scan Order (Changed to 02H, read and write address must be 01H):

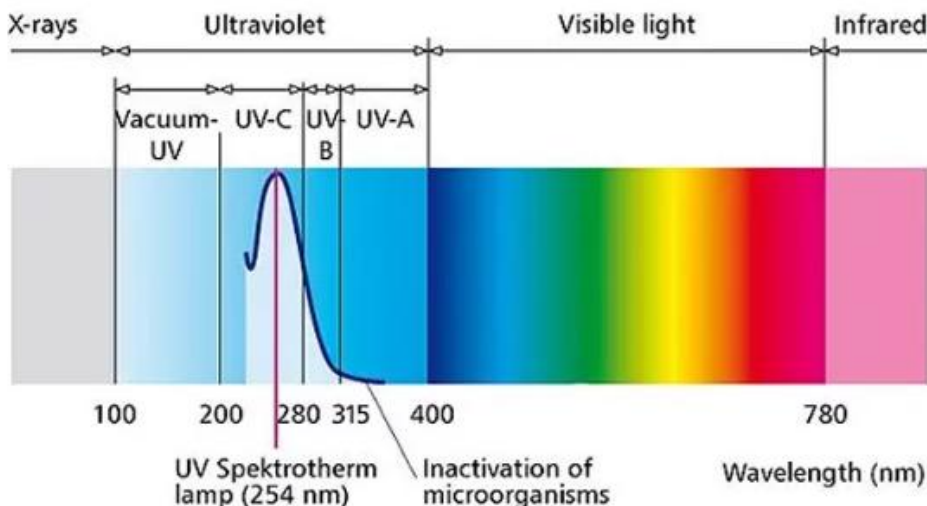
Host Scan Order (Changed from 01H to 02H):

01 06 00 10 00 02 09CE

Note:

1. All underlined is fixed bit;
2. The last two bytes is CRC check command.

Note: This product has been tested and complies with European CE requirements for EMC directive.



8. Troubleshooting

If some error occurs, such as no output or unreliable. Please disconnect the sensor first, then check if the sensor installation and connection is correct with the instruction manual.

If still not successful, please contact our company.

9. Support contacts:



Complies with applicable CE directives.

Manual subject to change without notice. Version 1.0

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