



CDG-11B Pyranometer Sensor

For weather automation applications



Features

- Designed on silicon-cell principle
- No moving parts, no maintenance, can work in any altitude• Strong corrosion resistant ability
- High sensitivity
- Low power consumption
- Light weight, long service life
- Used as sunshine duration sensor
- The effect of cosine error on measurement can be effectively reduced, and the solar radiation can be accurately measured when the solar altitude Angle is small

CDG-11B Pyranometer is produced based thermopile principle; sensing elements are made by winding - plated thermopiles with multi contacts. Its surface is coated by black coating with high absorption rate. Hot contacts on the sensors surface, while the cold junction is located within the body, temperature difference between the hot and cold junction generates electromotive force, the thermoelectric effect is proportional to the solar radiation. In order to reduce the ambient temperature effect, temperature compensation circuit designed here to reduce the effects to products properties.

Typical installation locations

- Top of building
- Solar energy
- Open areas
- Outdoor locations

Design structure

The wavelength range of solar radiation energy can be measured is usually between 0.3 and 3 μ m, which can meet the observation needs of solar radiation.

With a temperature compensation unit or good temperature characteristics, accurate measurement data can be obtained over a wide temperature range. It has good waterproof and dust-proof performance and can work normally in various harsh environments.

Easy installation

Open without shelter: It should be installed in an open area without shelter from tall buildings, trees, etc., to ensure that it can fully receive solar radiation.

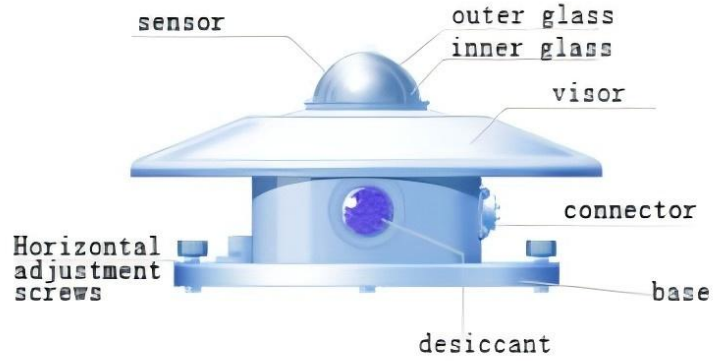
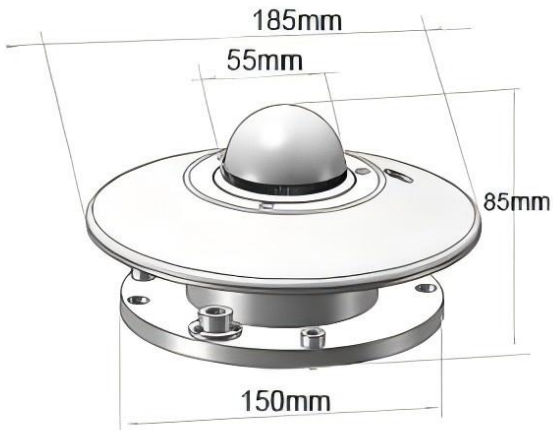
Sensors usually need to be mounted horizontally to ensure measurement accuracy. You can calibrate using a level to ensure that the sensor is mounted on a level surface.

Reliable operation

Usually made of high-strength materials, such as aluminum alloy, can withstand a variety of harsh environmental conditions, such as wind and rain, sand, high temperature, low temperature and so on. The housing is well sealed to prevent moisture, dust and other impurities from entering the interior of the sensor, affecting its performance and life. It can accurately measure the intensity and spectral distribution of solar radiation. The sensor has high sensitivity, low noise and good linearity, which can maintain stable performance under different environmental conditions.

Dimensions & packing

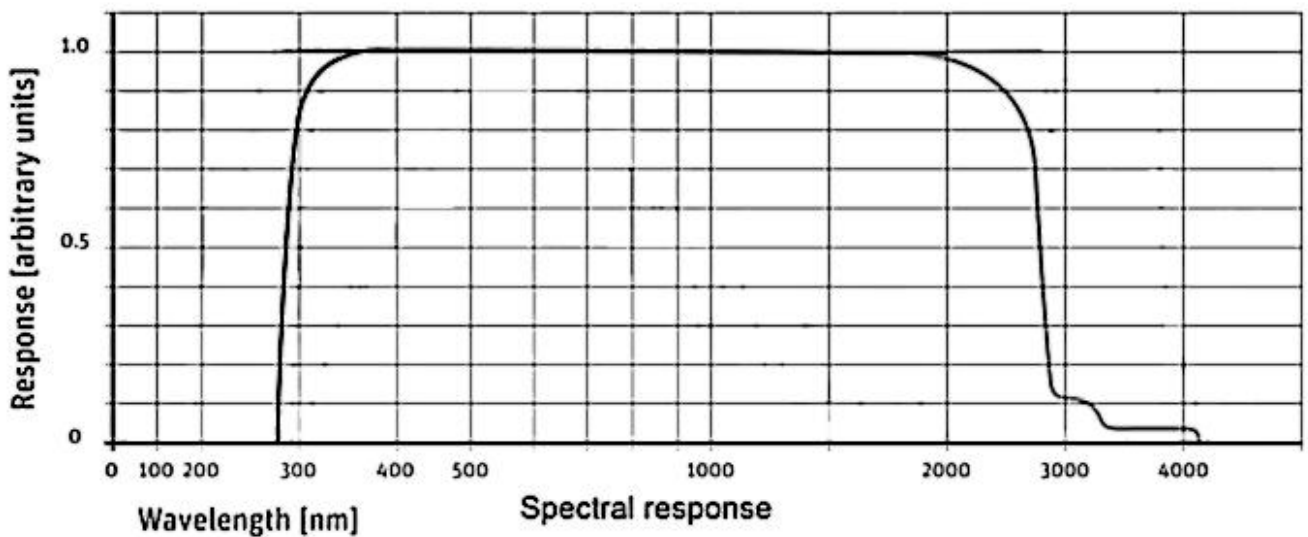
CDG-11B connector dimension



Suitcase packing



Spectral response



Technical data

Measurement performance, models CDG - 11 B

Item	Specification
Spectral range	300-3200nm
Supply	5V,12-24VDC①
Range	0-2000W/m ²
Output	0-20mV,0-5V,4-20mA,RS485
Sensitivity	7-14μV*W-1*m ²
Internal resistance	350Ω
Non-linearity	<±2%
Measuring angle	2π solid angle
Response time	≤20s(99%)
Zero drift(temperature drift:5k/h)	±5W/m ²
Stability	±2%/year
Cosine correction	±7%(Solar elevation angle=10°)
Temperature effect	±2%(-10℃-+40℃)
Operating temperature	-40℃-+80℃
Recalibration interval	2 years
Weight(unpacked)	2.5kg
Pack	Aluminum alloy instrument box
Dimension	ø185*120mm
Ingress protection	IP65
Storage condition	10℃-60℃@20%-90%RH

Model number	Type	Output	Special features
CDF-10A	Wind speed	Pulses(PNP) RS485 4-20MA 0-5V	Three cup plastic wind speed
CDF-11A	Wind direction	RS485 4-20MA 0-5V	Plastic wind direction sensor
CDF-20B	Combined Wind Speed & Direction	RS485 4-20MA 0-5V 0-10V	Integrated wind speed and direction
CDF-21A	Ultrasonic Wind Speed & Direction	RS232/RS485(Modbus/NMEA-0183), Voltage(0-5V),Current(4-20mA) optional	Ultrasonic principle
CDW-33A	Atmospheric Temperature, Humidity & Pressure	RS485	Shelter installation
CDQ-T6A	Miniature Ultrasonic Automatic Weather	RS485	Wind speed & direction temp & humidity & pressure
CDY-12A	Economical Tipping Bucket Rainfall	Pulses(@10kΩ&0.01uF),RS485	Diameter :φ200mm, height: 271mm
CDG-10B	Solar Radiation	0-5V,4-20mA,RS485	Spectral range:300~1100nm
CDG-11B	Pyranometer	0-20mV,RS485	Spectral range:300~3000nm Class one
CDG-12B	PAR sensor	0-5V 4-20mA RS485	Spectral range:400~700nm
CDG-13B	Ultraviolet(UV) Radiation	0-5V 0-10V 4-20mA RS485	Spectral range:280~400nm
CDG-14A	Illuminance Sensor	0-5V 0-10V 4-20mA RS485	Spectral range:380~780nm
CDG-17B	Scattering Radiometer	RS485	Spectral range:280~3000nm

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Hunan Coda Electronic Tech Co.,Ltd

T:+86-0731-85117089 W:www.codasensor.com E:Molly@codasensor.com