CDG-17B Scattering Radiometer

For weather automation applications

Features

- Solar energy resources evaluation
- Solar energy & photovoltaic power generation
- High sensitivity
- Low power consumption
- Agriculture and forestry monitoring
- Crop growth monitoring
- Good azimuth accuracy: it has a certain azimuth accuracy on 360° rotation

Scattering radiometer is composed of Pyranometer and shielding ring.The purpose of a shielding ring is to keep the sun's direct radiation out from sunrise to sunset.The shielding ring is composed of shielding ring, ruler,adjusting screw, bracket and chassis.The width of the shielding ring is 65mm and the diameter is 400mm. The shielding ring is fixed on the screw rod adjustment spiral of the ruler, on which the latitude scale and declination scale are engraved.The ruler and bracket shall be fixed on the chassis according to the geographical latitude of the location.It can be widely used to continuously measure the scattered radiation intensity of the sky with meteorological stations and scientific research departments.

Typical installation locations

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

Design structure

The scattered radiometer is composed of TBQ-2 total radiometer and TBD-1 shielding ring. The function of the shielding ring is to ensure that the direct radiation of the sun can be continuously blocked from sunrise to sunset. It is composed of shielding ring, ruler, screw adjusting screw, support and chassis.

Easy installation

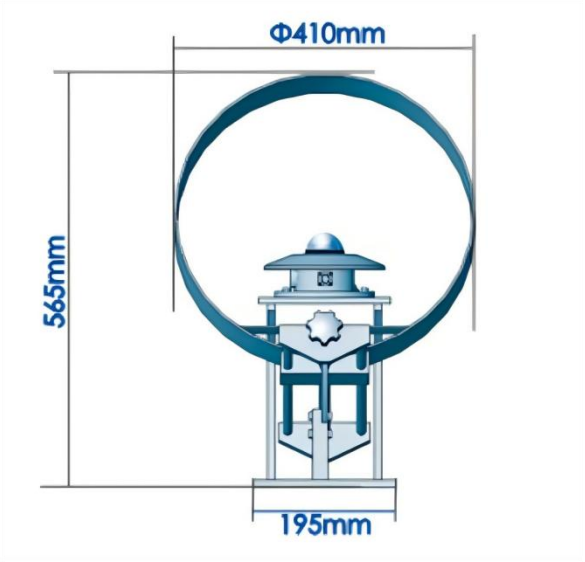
The conditions for the installation of scattered radiometer and the requirements for the installation of bench are the same as those for the total radiometer. Because the shielding ring is very heavy and the chassis is large, the instrument should be firmly installed. The orientation and level of the shielding ring is very important. Therefore, when the shielding ring is installed on the platform, the chassis edge must be aligned to north and south, and the instrument scale must be pointed to north and south (the masking ring screw adjusting knob faces north).

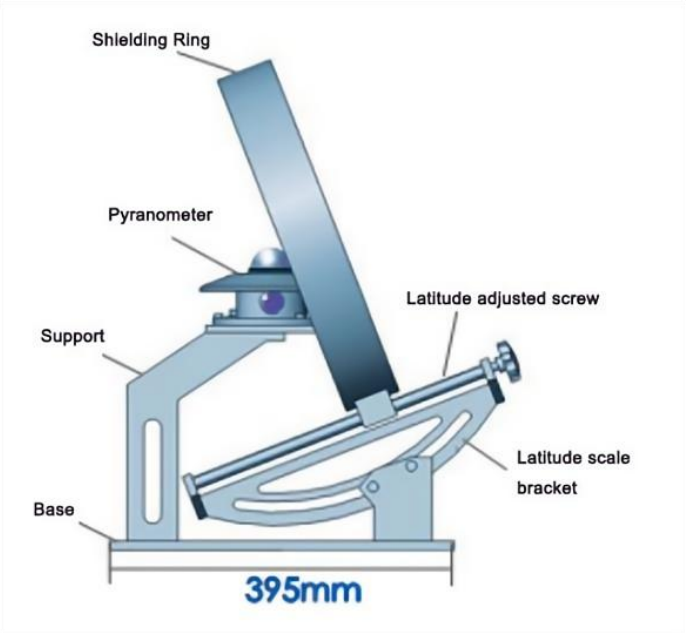
Reliable operation

Always keep the halo parts clean and the screw rotation flexible. When it is found that the screw has dust or rotation is not flexible, it is necessary to wipe the screw with gasoline or alcohol after the wind and sand. If it is not used for a long time, the shielding ring should be removed or covered with a cover to avoid rust of the lead screw and related parts.

Dimensions & installing

CDG-17B connector dimension





Maintenance

Use and maintenance of scattered radiometers as well as total radiometers. When observing scattered radiation, turn the screw before sunrise, and adjust the knob of the screw to adjust the shielding ring to the corresponding position of the scale according to the declination of the day (sometimes once a few days) so that the shielding ring covers the direct solar radiation throughout the day. Inspect every afternoon once a day to check whether the shading halo shadow completely covers the sensor surface and glass cover of the instrument, otherwise it should be adjusted in time.

Always keep the halo parts clean and the screw rotation flexible. When it is found that the screw has dust or rotation is not flexible, it is necessary to wipe the screw with gasoline or alcohol after the wind and sand. If it is not used for a long time, the shielding ring should be removed or covered with a cover to avoid rust of the lead screw and related parts.

Installing

The total radiometer is mounted on a support platform at a height just so that the radiation-sensing plane (blackbody) is located in the center of the shielding ring. By adjusting the latitude, the shielding ring can cover the direct radiation of the sun throughout the day.

The conditions for the installation of scattered radiometer and the requirements for the installation of bench are the same as those for the total radiometer. Because the shielding ring is very heavy and the chassis is large, the instrument should be firmly installed. The orientation and level of the shielding ring is very important. Therefore, when the shielding ring is installed on the platform, the chassis edge must be aligned to the north and south, and the instrument scale must point to the north (the shielding ring screw adjustment knob faces north). Then bolt the curtain plate to the observation bracket. The scale position is fixed according to the local geographical latitude. Install the total radiometer horizontally on a platform in the shielding ring so that the output plug faces north and is positioned just so that the blackened sensing surface of the radiometer is in the center of the shielding ring. Adjust and fix the general radiation meter level. The shielding ring is adjusted to the corresponding position according to the sun declination of the day, so that the shielding ring exactly covers the induction surface and glass cover of the total radiometer. The summary output line is connected to the recorder.

Technical data

Measurement performance, models CDG-17B

Item	Specification
Spectral range	280-3000nm
Supply	12-24VDC
Range	0-2000W/m2
Output	0-5V,4-20mA,RS485
Sensitivity	7-14μV*W-1*m2
Latitude scale range	0～50° N or S
Red latitude	±25°
Ring diameter	Φ400mm
Accuracy	<±2%
Response time	≤30s(99%)
Stability	±1%/year
Temperature effect	±1%(-10℃-+40℃)
Operating temperature	-40℃-+80℃
Weight(unpacked)	15kg
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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