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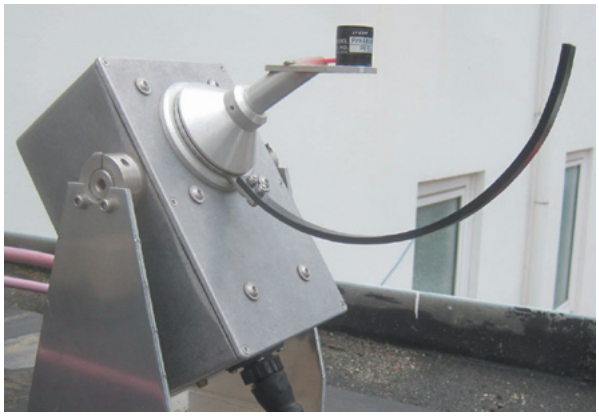
Rotating Shadowband Pyranometer



Description

Rugged and precise sensor for the measurement of global radiation, as well as diffuse and direct components of solar irradiance.

A photodiode measures the incident radiation of a horizontal surface exposed to sunlight. Output current depends linearly on incident solar power. A rotating band creates shadow on the sensor in regular intervals. The data logger **blueberry COMPACT** controls the sensor and converts the output into global, direct and diffuse radiation.

The sensor is typically used for solar resource assessment for concentrated solar power (CSP) or PV plants, sunshine duration measurements and meteorological observations.

Based on individual calibration, a correction algorithm converts the photodiode output to an output similar to a thermopile pyranometer. The sensor represents an economical and low power alternative to a tracked pyrheliometer. Apart from occasional cleaning of the measurement cell the sensor is maintenance free. This makes it ideal for unattended measurements at remote sites.

Technical Data

Sensor

Sensing element	Silicon photodiode (Li-COR LS-200)
Output signal global irradiance (Median)	0..1500 W/m² = 0..135 µA
Output signal diffuse irradiance (Min)	0..1500 W/m² = 0..135 µA
Output temperature	–40..60 °C = 2.3315..3.3315 V = (10 mV/K)
Spectral response	400..1100 nm enhanced spectral response provided by individual calibration and correction algorithm

Accuracy

Longterm accuracy of DNI	±3 %
Response time	10 µs

Power Supply

Supply voltage	12 VDC ± 10 %
Current consumption	typ. 150 mA

Casing

Material	Aluminium
Protection class	IP 65
Weight	Approx. 1.5 kg
Mounting	Mounting on flat plate

Electrical Connection

Connector	circular connector
Cable	10 x 0.5 mm², shielded
Cable length	1.6 m
Terminals	wire end sleeves

Wiring

red	(+) supply
blue	(–) suply
yellow	(+) output radiation
grey	(–) output
black	(+) output temperature
yellow/green	Cable screen

Environmental Conditions

Operating temperature	–40..+70°C
Relative humidity	0..100%

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