METEOROLOGY
HYDROLOGY
ENVIRONMENTAL MONITORING

Spectrally Flat Class C (ex second class) ISO9060 pyranometer

Description

The sensor belongs to an economical range of ISO 9060 class C pyranometers for measurement of global solar radiation received by a plane surface, in W/m², from a 180 o field of view angle.

The measured radiation is the sum of direct solar radiation and diffused sky radiation (global radiation).

The sensor complies with ISO 9060 Spectrally flat Class C pyrometers and the WMO publication "Guide to meteorological instruments and observation methods" No. 8 (2008).

5 pyranometers employ a thermopile sensor with black coated surface, one dome and an anodised aluminium body with visible bubble level.

The coating absorbs all solar radiation and, upon absorption, converts it into heat. The heat flows through the transducer to the sensor body. The thermopile sensor generates a voltage signal proportional to the global solar radiation.

The glass dome limits the spectral range from 285 nm to 3000 nm (cutting the part above 3000 nm), preserving the visible angle of 180°. Another function of the dome is protecting the thermopile sensor from the environment (convection, rain).

The sensor is ideal for measurements of solar radiation in (agro) weather networks and photovoltaic monitoring systems. It is easy to mount and install. Various outputs are available, both digital and analog, for easy integration.

The digital versions have a high-end 24-bit A/D converter, which is used by the sensor to convert the analog thermopile voltage into a digital signal.

Spectrally Flat Class C pyranometer

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Technical specifications

Measuring type	Irradiation in W/m^2
Sensor type	Thermopile
ISO classification (ISO9060:2018)	Spectrally flat Class C (second class)
Measuring range	0 … 2000W/m²
View range	180°
Spectral range (dome transmission)	285 … 3000nm
Operating temperature	-40 … 80°C
Weight	0.35Kg
Protection rate IP	IP67
Power supply for sensors with 4...20mA output	10 … 30c
Response time (95%)	18s
Zero off-set	- Response to a thermal radiation of 200W/m²: <15W/m² - Response to a an enviromental temperature change of 5K/h: <±4W/m²
Long-term instability (1 year)	< ±1 %
Non-linearity	< ±1 % (100 ... 1000W/m²)
Directional response	< ±25W/m²
Spectral selectivity	< ±5 % (0.35 … 1.5µm)
Response depending on the temperature	< ±3 % (-10 ... +40°C)
Tilt response	< ±2 % (0 … 90° @ 1000W/m^2)

Ordering codes

Spectrally flat Class C pyranometer with 4 … 20mA output→ 0 … 1600W/m²	**PCTRA094**
Spectrally flat Class C pyranometer with RS485 output - Modbus (RTU)	**PCTRA103**

Technical specifications may be varied without prior notice

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Ver. EN.1.1. 19/09/2023