

Spectrally Flat Class B (ex First Class) pyranometer ISO9060



Description

PCTRA056 pyranometer is intended for solar radiation measurement on a plane/level surface (Watt/m²). The radiation measured is the sum of direct sun and of diffuse irradiance (global radiation).

PCTRA056 uses a Spectrally Flat Class B (ex first class) pyranometer ISO 9060 and it complies with WMO publication "Guide to meteorological Instruments and Methods of Observation".

The pyranometer is based on a thermopile sensor. The sensing surface of the thermopile is coated with an opaque black paint providing a flat spectral response for the full wavelength range. The spectral range of the pyranometer is determined by the transmission through the glass dome K5 type.

The irradiance energy is absorbed by the blackened surface of thermopile providing a temperature difference between the centre of the sensor (hot junction) and the body of pyranometer (cold junction). This difference is then converted to a voltage according to the Seebeck effect.

PCTRA056 has two domes with 50 and 32 mm external diameter to guarantee correct thermal insulation from wind and to reduce sensitivity to thermal radiation. The dome protects the thermopile from dust which could modify spectral sensitivity. PCTRA056 is then provided with a bubble level for the correct leveling of the sensor.

To avoid condense formation on the inner surface of the dome, moisture absorbing silica-gel is put inside the pyranometer.



Spectrally Flat Class B pyranometer



Pyranometer with ring shield

Technical specifications may be varied without prior notice

Technical specifications

Sensor type	Thermopile
Sensitivity (typical)	6 ... 12 $\mu\text{V}/(\text{W}/\text{m}^2)$
Impedance	33 Ω ... 45 Ω
Measuring range	0 ... 2000 W/m^2 (4000 W/m^2 opt.)
Viewing angle	2 π sr
Spectral range (dome transmission)	283 ... 2800nm
Operating temperature	-40 ... 80°C
Output	According to the model: <ul style="list-style-type: none"> Analog in $\mu\text{V}/\text{W}/\text{m}^2$ Analog 4...20mA Analog 0...1V, 0...5V o 0...10V Double output: analog 4...20 mA + digital RS485 Modbus-RTU Digital RS485 Modbus-RTU - Digital SDI-12
Power supply	10...30V (outputs 4...20mA - 0...1V - 0...5V) 15...30V (output 0...10V) 5...30V (RS485 Modbus-RTU) 7...30V (SDI-12)
Protection rate	IP67
Response time (95%)	<10sec
Zero off-set	- Response to 200 W/m^2 thermal radiation: $< \pm 10 \text{W}/\text{m}^2$ - Response to 5K/h change in ambient temperature: $< \pm 4 \text{W}/\text{m}^2$ - Total zero off-set including the effects a), b) and other sources: $< \pm 15 \text{W}/\text{m}^2$
Long-term instability (1 year)	$< \pm 1 \%$
Non-linearity	$< \pm 1 \%$
Cosine response	$< \pm 18 \text{W}/\text{m}^2$
Spectral error	$< \pm 0.5 \%$
Response depending on the temperature	$< 1,5 \%$
Tilt response	$< \pm 2 \%$

Ordering codes

Spectrally Flat Class B (ex first class) pyranometer with μV output	PCTRA056
Spectrally Flat Class B (ex first class) pyranometer with 0 ... 1V output	PCTRA062
Piranometro Spectrally Flat Class B (e first class) with 4 ... 20mA output	PCTRA061

Technical specifications may be varied without prior notice