

## Pyranometer Spectrally Flat Class C ISO9060



### Description

The pyranometers measure the global irradiance on a flat surface ( $W/m^2$ ); sum of direct solar irradiance and diffuse irradiance.

The PCTRA107...112 models falls within the Spectrally Flat Class C pyranometers according to the ISO 9060:2018 standard and meets the requirements of the WMO "Guide to Instruments and Methods of Observation".

The internal temperature, relative humidity and pressure diagnostic sensors integrated allow keeping the pyranometer operating conditions under control all the time and foresee any maintenance work in advance, thus ensuring always reliable measurements.

The integrated bubble level and the adjustable feet facilitate horizontal positioning during installation. As option, the pyranometers can be equipped with a tilt sensor which, in addition to facilitating the installation of the pyranometer, allows continuous monitoring of the correct installation. The various models are distinguished by the type of output available and by the presence or absence of the "tilt" sensor.

The irradiance range for the analog output is user configurable (default, 0...2000  $W/m^2$ ).

The pyranometers are factory calibrated in accordance with the ISO 9847:2023 (Type A1) standard: "Calibration of pyranometers by comparison to a reference pyranometer". The calibration is performed by comparison with the reference sample calibrated annually at WRC (World Radiation Center).



Pyranometer Spectrally Flat Class C



Pyranometer - typical application

Technical specifications may be varied without prior notice

## Technical Specifications

<b>Sensor</b>	Thermopile
<b>Measuring range</b>	-200...4000W/m <sup>2</sup> The irradiance range for the analog output (default 0...2000W/m <sup>2</sup> ) and is configurable
<b>Resolution</b>	0,1 W/m <sup>2</sup>
<b>Viewing angle</b>	2π sr
<b>Spectral range (50%)</b>	300...2800nm
<b>Output</b>	RS485 Modbus-RTU (isolated) Uscita analogica opzionale configurabile 4...20mA (default), 0...20mA, 0...1V, 0...5V o 0...10V
<b>Power supply</b>	7...30Vdc for RS485 output 10...30Vdc for analog output (except 0...10V) 15...30Vdc for 0...10V output
<b>Consumption</b>	Modbus sensors: 15mA @ 24Vdc / 21mA @ 12Vdc Analog sensors output: 37mA @ 24Vdc & Iout=22mA / 43mA @ 12Vdc & Iout=22mA
<b>Connection</b>	M12 5 poles (modbus output) / M12 8 poles (with analog output option)
<b>Weight</b>	230g
<b>Operating conditions</b>	-40...+80 °C / 0...100 %UR / Max. altitude 6000 m
<b>Bubble level accuracy</b>	< 0,2°
<b>Protection degree</b>	IP67
<b>Materials</b>	Housing: anodized aluminium - Screen: ASA Dome: optical glass
<b>MTBF</b>	> 10 years
<b>Technical specifications according to ISO 9060:2018</b>	
<b>Classification</b>	Spectrally Flat Class C
<b>Response time (95%)</b>	<18sec
<b>Zero off-set</b>	- Response to 200W/m <sup>2</sup> thermal radiation: < ±15 W/m <sup>2</sup> - Response to a 5K/h change in ambient temperature: < ±4 W/m <sup>2</sup> - Total zero off-set including the effects a), b) and other sources: < ±20 W/m <sup>2</sup>
<b>Long-term instability (1 year)</b>	< ±1  %
<b>Non-linearity</b>	< ±1  %
<b>Directional response (up to 80° with 1000 W/m<sup>2</sup> beam)</b>	< ±20 W/m <sup>2</sup>
<b>Spectral error</b>	< ±1  %
<b>Temperature response</b>	< 2 %
<b>Tilt response</b>	< ±1,5  %
<b>Diagnostic sensors</b>	
<b>Internal temperature</b>	Measuring range: -40...+80°C - Resolution: 0,1°C - Accuracy: ±0,5°C (0...60°C)
<b>Internal relative humidity</b>	Measuring range: 0...100% - Resolution: 0,1% - Accuracy: ±3% @ T=25°C & UR=20...80%
<b>Internal pressure</b>	Measuring range: 300...1100hPa - Resolution: 0,1hPa - Accuracy: ±1hPa (0...60°C)
<b>Tilt sensor</b>	Measuring range: 0...180° - Resolution: 0,1° - Accuracy: < 0,5°

## Ordering codes

Spectrally Flat Class C pyranometer with mV output	<b>PCTRA107</b>
Spectrally Flat Class C pyranometer with 4...20mA output (current loop)	<b>PCTRA108</b>
Spectrally Flat Class C pyranometer, modbus output, without tilt option	<b>PCTRA109</b>
Spectrally Flat Class C pyranometer, modbus output, with tilt option	<b>PCTRA110</b>
Spectrally Flat Class C pyranometer, modbus output + 1 configurable analog output (0/4...20mA / 0...1/5/10V), without tilt option	<b>PCTRA111</b>
Spectrally Flat Class C pyranometer, modbus output + 1 configurable analog output (0/4...20mA / 0...1/5/10V), with tilt option	<b>PCTRA112</b>

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