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Pyranometer Spectrally Flat Class A ISO9060

Description

The pyranometers measure the global irradiance on a flat surface (W/m²); sum of direct solar irradiance and diffuse irradiance.

The PCTRA119...124 models falls within the Spectrally Flat Class A 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.

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 A

Typical application

Technical specifications may be varied without prior notice

MTX S.r.l.
Via Zamboni, 74 – 41011 Campogalliano (MO) (I)
Tel. +39 059 2551150
C.F. - P.IVA - R.I. 04343730281
R.E.A. MO 370886
Capitale Sociale: € 100.000,00 i.v.
web: www.mtx.it – e-mail: sales@mtx.it – PEC: mtxsrl@pec.mtx.it

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Technical specifications

Sensor	Thermopile
Measuring range	-200…4000W/m² The irradiance range for the analog output is 0…2000 W/m2 by default, and is configurable
Resolution	0,1 W/m²
Viewing angle	2π sr
Spectral range (50%)	283...2800nm
Output	RS485 Modbus-RTU (Isolated) RS485 Modbus-RTU (Isolated) + analog configurable 4…20mA (default), 0…20mA, 0…1V, 0…5V o 0…10V
Power supply	7…30Vdc for RS485 output 10…30Vdc for analog output (exept 0…10V) 15…30Vdc for 0…10V output
Consumption	Modbus sensors: 15mA @ 24Vdc / 21mA @ 12Vdc Analog sensors: 37mA @ 24Vdc & Iout=22mA / 43mA @ 12Vdc & Iout=22mA
Connection	M12 5 poles (modbus output) / M12 8 poles (Analog output option)
Weight	620 g
Operating conditions	-40…+80 °C / 0…100 %UR / Altitude max. 6000 m
Bubble level accuracy	< 0,2°
Protection degree	IP67
Materials	Housing: anodized aluminium - Screen: ASA - Dome: optical glass
MTBF	> 10 years
Technical Specifications According to ISO 9060:2018	
Classification	Spectrally Flat Class A
Response time (95%)	<2s
Zero off-set	- response to a 200 W/m² thermal radiation: <|±7|W/m² - response to a 5 K/h change in ambient temperature: <|±2|W/m² - total zero offset including the effects a), b) and other sources: <|±10|W/m²
Long-term instability (1 year)	<|±0,5| %
Non-linearity	<|±0,2| %
Directional response (up to 80° with 1000 W/m² beam)	<|±10|W/m²
Spectral error	<|±0,2| %
Temperature response (-10…+40°C)	<|±0,5| %
Tilt response	<|±0,2| %
Diagnostic sensors	
Internal Temperature	Measuring range: -40…+80°C - Resolution: 0,1°C - Accuracy: ±0,5°C (0…60°C)
Internal Relative Humidity	Measuring range: 0…100% - Resolution: 0,1% - Accuracy: ±3% @ T=25°C & UR=20…80%
Internal pressure	Measuring range: 300…1100hPa - Resolution: 0,1hPa - Accuracy: ±1hPa (0…60°C)
Tilt sensor	Measuring range: 0…180° - Resolution: 0,1° - Accuracy: < 0,5°

Ordering codes

Spectrally Flat Class A pyranometer with µV output	**PCTRA119**
Spectrally Flat Class A pyranometer with 4 … 20mA output (current loop)	**PCTRA120**
Spectrally Flat Class A pyranometer, modbus output, without tilt option	**PCTRA121**
Spectrally Flat Class A pyranometer, modbus output, with tilt option	**PCTRA122**
Spectrally Flat Class A pyranometer, modbus output+ 1 configurable analog output (0/4…20mA / 0…1/5/10V), without tilt option	**PCTRA123**
Spectrally Flat Class A pyranometer, modbus output + 1 configurable analog output (0/4…20mA / 0…1/5/10V), with tilt option	**PCTRA124**

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