

Sunmeter PRO

Sunmeter PRO is a digital photovoltaic pyranometer (or irradiation sensor) equipped with a monocrystalline silicon cell laminated with a high performance glass. This sensor is available in two models: the “complete model” with Analog and Digital output, that with digital output only (when ordering, specify the model). Manufacturing and Calibrations are done following the **IEC 61215, IEC 60904-2; 60904-4; 60904-10 regulations.**

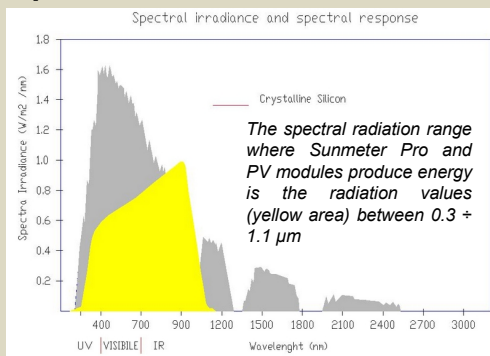
Measurement features

Sunmeter PRO has a **photovoltaic cell** which is laminated with a **high performance antireflective glass** for **photovoltaic modules and E.V.A.** The advantage of the high linearity and stability of our monocrystalline cells is added to the photovoltaic glass; **these two features together improve the accuracy of the actual value measurement for all possible solar inclinations**; the duration has also improved. Comparative observations lead us to affirm that the measurement uncertainty is better than $\pm 2.1\%$.

All Sunmeters are calibrated with our Primary Reference cell calibrated periodically by **ISFH Institute**, accredited by **Dakks**.

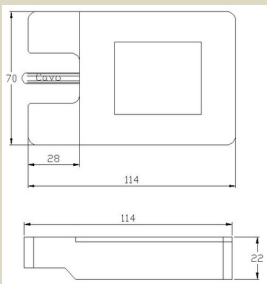
Thanks to its performances, Sunmeter Pro is used to realize accurate measurement of solar radiation of medium and large PV systems.

Spectrum of interest



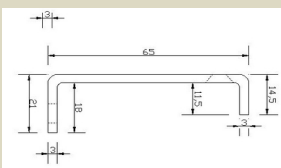
Calibration

Each SM PRO is calibrated for comparison with our Silicon Reference Cell referenced by ISFH Institute, accredited by Dakks



Physical features

Silicon sensor laminated in glass, anodized aluminum housing, high durability, practical mounting bracket with screw clamp, UV-resistant cable.



Most common uses

It's used to calculate **P/R** (Performance Ratio) of medium-large PV systems.

SUNMETER SENSOR		
Product	Sunmeter PRO	
Reference Standard	IEC 60904-2 IEC 60904-4 IEC 60904-10 IEC 61724-1	
Output	Digital and Analog	
Input Range	Irradiance	$0 \div 1500 \text{ W/m}^2$
	Spectral range	$0,3 \mu\text{m} \div 1,1 \mu\text{m}$
	Temperature	$-30 \div +90 \text{ }^\circ\text{C}$ (with external PT100)
Output	Digitale	RS485, standard Modbus RTU protocol
	Analog	$0 \div 5 \text{ V}$, $0 \div 10 \text{ V}$, $0 \div 20 \text{ mA}$, $4 \div 20 \text{ mA}$
Output precision	Irradiance	$< \pm 2 \%$ ⁽¹⁾
	Temperature	$\leq \pm 0.5 \text{ }^\circ\text{C}$
	Response Time	$< 100\text{ms}$
Sensor Type	Photovoltaic Pyranometer	
Supply	Ext. Current loop	$9 \div 30 \text{ Vdc}$ protected against reverse polarity, short circ.
Electronics non-linearity	$\pm 0,03\%$ of range	
Temperature drift. $-30 \div +90^\circ\text{C}$	$< \pm 0,2\%$ at 1000 W/m^2	
Overall measurement uncertainty	$\pm 2,1\%$ @ 1000 W/m^2	
Uncertainty reference cell	$\pm 1,2\%$ (ISFH, accredited by Dakks)	
Encapsulant	Glass + E.V.A. + Poliester	
PV cell	monocrystalline silicon	
Cable	50cm UV-resistant cable with Male connector	
Connectors	Male M12 8 pin, IP67 (main) Female M8 3pin, IP67 (temp. probe)	
	Female M12 8 pin, IP67 for field installation	
Dimensions	114x70x22 mm without fixing bracket	
Weight	357 g	
IP code	IP 65	

(1): Note: recalibration advised after 18-24 months and then after 2 years.