Solar Radiation Sensor



6450

VANTAGE PRO

The Solar Radiation Sensor, or solar pyranometer, measures global radiation, the sum at the point of measurement of both the direct and diffuse components of solar irradiance. The sensor's transducer, which converts incident radiation to electrical current, is a silicon photodiode with wide spectral response. From the sensor's output voltage, the console calculates and displays solar irradiance. It also integrates the irradiance values and displays total incident energy over a set period of time.

The outer shell shields the sensor body from thermal radiation and provides an airflow path for convection cooling of the body, minimizing heating of the sensor interior. It includes a cutoff ring for cosine response, a level indicator, and fins to aid in aligning the sensor with the sun's rays. The space between the shield and the body also provides a run-off path for water, greatly reducing the possibility of rain- or irrigation-water entrapment. The diffuser is welded to the body for a weather-tight seal; it provides an excellent cosine response. The transducer is an hermetically-sealed silicon photodiode; the included amplifier converts the transducer current into 0 to +2.5 VDC. Spring-loaded mounting screws, in conjunction with the level indicator, enable rapid and accurate levelling of the sensor. Each sensor is calibrated against a secondary standard which is calibrated periodically against an Eppley Precision Spectral Pyranometer in natural daylight.

The Solar Radiation Sensor is included with the Vantage Pro Plus weather station and is optional on the Vantage Pro.

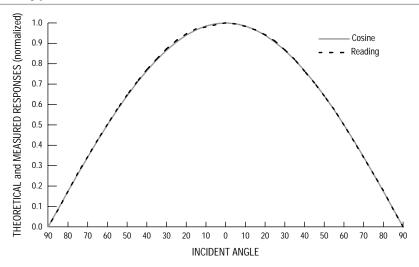
Please refer to the WeatherLink for Vantage Pro Spec Sheet for optional data logging and charting capabilities available for this product.

Specifications

General	
Operating Temperature	40° to +150° F (-40° to +65° C)
Non-operating Temperature	50° to +158°F (-45° to +70°C)
Transducer	Silicon photodiode
Spectral Response (10% points)	400 to 1100 nanometers
Cosine Response	
Percent of Reading	$\pm 3\%$ (0° to $\pm 70^\circ$ incident angle); $\pm 10\%$ ($\pm 70^\circ$ to $\pm 85^\circ$ incident angle) $\pm 2\%$ (0° to $\pm 90^\circ$)
Supplied Cable Length	3' (0.9 m)
Cable Type	4-conductor, 26 AWG
Connector	Modular RJ-11
I/O Specificiations	
Green wire	
Red & Black wires	
Yellow wire	. (3)
Temperature Coefficient	
Correction per degree above reference temp	0.067% of reading per °F (-0.12% per °C)
Housing Material	
Dimensions	2" x 2.75" x 2.25" (51 mm x 70 mm x 57 mm)
Weight	0.5 lbs. (226 g)
Sensor Output (as displayed on Vantage Pro display cor	nsoles.)
Resolution and Units	1 W/m²
Range	0 to 1800 W/m ²
Accuracy	$\dots \pm 5\%$ of full scale (Reference: Eppley PSP at 1000 W/m^2) plus 45 W/m² per 100' (30 m) of additional cable
Drift	up to ±2% per year
Update Interval	50 seconds to 1 minute (5 minutes when dark)
	Instant Reading and Hourly Average; Daily, Monthly High
Historical Data	Hourly Average, Daily, Monthly Highs

Alarm High Threshold from Instant Reading

Cosine Response (typical)



Connections

