



All-Season Pyranometer

Heater prevents snow, frost, and dew accumulation

Overview

The SP230 and SP230SS pyranometers, manufactured by Apogee measure total sun and sky solar radiation. They include a 0.18 W internal heater and an elevated base that allow it to provide solar radiation measurements during the most severe weather. Its small heater draws just 15 mA of current, allowing it to be powered by a small solar panel and battery—even on days with a short duration of daylight and at high latitudes (far away from the equator).

Note: In the image, the SP230 is shown mounted to a #18356 Levelling Base and a CM225 Solar Sensor Mounting Stand.

Note: The SP230SS replaced the SP230 in August 2018. It has a stainless-steel connection, a removable cable, different wire colours, and a serial number of 9898 or above.

Benefits and Features

- › Designed to prevent snow, frost, and dew accumulation
- › Heater uses 1/80th of the power that other heated pyranometers use, making it ideal for remote battery-powered applications
- › Measurement waveband of 360 to 1120 nm
- › Compatible with most Campbell Scientific data loggers
- › Dome-shaped head prevents water from accumulating on the sensor head

Technical Description

The SP230-L uses a silicon photovoltaic detector mounted in a cosine-corrected head to provide solar radiation measurements. It is calibrated against a Kipp & Zonen CM21 thermopile pyranometer to accurately measure sun plus sky radiation for the spectral range of 360 to 1120 nm. The

SP230-L outputs a millivolt signal that Campbell Scientific data loggers can measure.

Note: Sensors calibrated to the 360 to 1120 nm spectral range should not be used under vegetation or artificial lights.

Specifications

Light Spectrum Waveband 360 to 1120 nm (wavelengths where response is 10% of maximum)

Measurement Range 0 to 1750 W/m² (full sunlight ≈1000 W/m²)

Heater	780 Ω , 15.4 mA current drain, 185 mW power at 12 Vdc
Absolute Accuracy	$\pm 5\%$ for daily total radiation
Sensitivity	(0.2 mV/W/m ²)
Calibration Factor	5 W/m ² /mV
Cosine Response	$\pm 5\%$ at 75° zenith angle; $\pm 1\%$ at 45° zenith angle
Temperature Response	-0.04 $\pm 0.04\%$ per °C

Long-Term Stability	< 2% per year
Operating Temperature Range	-40° to +70°C
Relative Humidity Range	0 to 100%
Diameter	3.15 cm (1.24 in.)
Height	12.75 cm (5.02 in.)
Weight	142.0 g (5.01 oz) with 2 m (6.56 ft) cable

For comprehensive details, visit: www.campbellsci.eu/sp230 



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