



## Accurate and Dependable

Ideal for long-term deployment in harsh conditions

### Overview

The CS301, manufactured by Apogee Instruments, measures total sun and sky solar radiation for solar, agricultural, meteorological, and hydrological applications. Its spectral range of 360 to 1120 nanometers encompasses most of the short-wave radiation that reaches the Earth's surface. Because the CS301 connects directly to Campbell Scientific data

loggers, the output of this pyranometer can be collected on site, as well as remotely.

This pyranometer features an IP67-rated, marine-grade 316L connector that allows the user to easily swap sensors for recalibration or to replace damaged cables.

### Benefits and Features

- › Compatible with most Campbell Scientific data loggers
- › Measurement waveband of 360 to 1120 nm
- › Designed for continuous, long-term, unattended operation in adverse conditions
- › Dome-shaped head prevents water from accumulating on the sensor head

### Detailed Description

The CS301 uses a silicon photovoltaic detector mounted in a cosine-corrected head to provide solar radiation measurements. Its dome-shaped head prevents water from accumulating on the sensor head. To eliminate internal

condensation, the sensor head is potted solid and the cable is shielded with a rugged Santoprene casing. The CS301 is calibrated against a Kipp & Zonen CM21 thermopile pyranometer to accurately measure sun plus sky radiation.

### Specifications

Sensor	Silicon photovoltaic detector mounted in a cosine-corrected head	ISO Classification	Class C (second class)
Measurement Description	Measures sun plus sky radiation	Light Spectrum Waveband	360 to 1120 nm (wavelengths where response is 10% of maximum)

Measurement Range	0 to 2000 W/m <sup>2</sup> (full sunlight ≈1000 W/m <sup>2</sup> )
Output Range	0 to 400 mV (full scale output)
Absolute Accuracy	±5% for daily total radiation
Spectral Range	360 to 1120 nm
Calibration Factor	5 W/m <sup>2</sup> /mV
Cosine Correction Error	±5% at 75° zenith angle; ±2% at 45° zenith angle
Temperature Response	0.04 ± 0.04% per °C

Response Time	< 1 ms
Long-Term Stability	< 2% per year
Operating Temperature Range	-40° to +70°C
Relative Humidity Range	0 to 100%
Sensitivity	0.2 mV/W/m <sup>2</sup>
Diameter	2.4 cm (0.9 in.)
Height	2.5 cm (1.0 in.)
Weight	65 g (2.3 oz) with 2-m (6.6-ft) lead wire

For comprehensive details, visit: [www.campbellsci.com/cs301](http://www.campbellsci.com/cs301) 



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