

SolarSIM-G

Global Solar Spectral Irradiance Meter

The SolarSIM-G delivers a new standard for solar measurement. It combines Spectrafy's ground-breaking, multi-spectral measurement approach, with an innovative optical design to enable highly accurate measurements of global irradiance, custom global irradiance bands and global solar spectral irradiance all in one robust, compact, sensor.

The SolarSIM-G uses silicon and III-V photodiodes, coupled with hard-coated optical filters to accurately measure the global solar spectrum in several narrow wavelength bands. The SolarSIM-G's powerful software then uses these measurements to resolve the complete solar spectrum.

The SolarSIM-G offers unprecedented versatility. In addition to resolving global spectral irradiance over the full solar spectral range (**an industry first**), the SolarSIM-G can also provide measurements of full-range and/or custom-range broadband irradiance – **another first**.

ACCURATE - The SolarSIM-G's ability to accurately resolve both broadband and spectral irradiance enables a level of analysis and certainty that is unattainable with traditional broadband sensors. Spectral losses, or gains, can now be routinely quantified and incorporated into PV performance predictions and O&M analysis.

RELIABLE - With no moving parts, the SolarSIM-G's simple, rugged design makes installation a breeze and minimizes maintenance requirements.

VERSATILE - The SolarSIM-G integrates the functionality of multiple spectroradiometers and a pyranometer into a single device. Any or all of its capabilities can be independently purchased and enabled, providing a scalable measurement solution that can be adapted as necessary.



The SolarSIM-G is an easily deployable, reliable and affordable solution for highly accurate solar spectral data



HOW DOES THE SOLARSIM-G ACHIEVE HIGH ACCURACY?

The SolarSIM technology is based upon the insight that sunlight is a constrained light source. The extraterrestrial solar spectrum is known, through decades of measurement, to an extremely high level of accuracy and there are only a handful of phenomena that impact the sun's spectrum as it passes through our atmosphere.

The SolarSIM-G use a series of highly accurate sensors combined with proprietary algorithms to quantify the spectral impact of various atmospheric components such as aerosols, water vapour, ozone and Rayleigh scattering. This approach enables the SolarSIM-G to generate highly accurate, high-resolution solar spectra, over the full 280-4000nm wavelength range.

Specifications



Total Irradiance (GHI, GTI)

ISO 9060 Classification.....	Secondary Standard Pyranometer
Spectral Range.....	280-4000 nm
Custom Range Selection.....	Yes
Maximum Irradiance.....	2000 W/m ²
Response Time (95%).....	< 0.5s
Zero offset A.....	< 1W/m ²
Zero offset B.....	< 1W/m ²
Non-stability (change/year).....	0.5%
Non-linearity.....	0.5%
Spectral Selectivity.....	negligible
Temperature Response.....	0 %
Directional Response.....	<10W/m ²
Tilt Response	0 %
Calibration Uncertainty.....	<1 %

Spectral Irradiance

Wavelength Range.....	280-4000 nm
Spectral Resolution (FWHM).....	1 nm
Wavelength Accuracy.....	± 0.1 nm
Spectral Measurement Uncertainty.....	5% per wavelength
Exposure Time.....	< 1 ms
Acquisition Rate.....	< 1 s
Temperature Dependency.....	negligible

General

Weight.....	1.3 kg
Dimensions.....	122 x 122 x 90 mm
Power Supply.....	12 VDC
Power Consumption.....	< 1W
Communication.....	2-wire RS-485. Direct to PC, serial over ethernet or data logger
Operating Temperature.....	-30 to 65 °C
Humidity Range.....	0 to 100 % RH



FIND OUT MORE.

Learn more about how Spectrafy's revolutionary SolarSIM technology is able to resolve highly accurate spectral irradiance:

<https://spectrafy.com/technology/overview>

