



Spectrafy
solar spectral sensors

SolarSIM-G

The SolarSIM-G delivers a **new standard** in solar measurement. It combines Spectrafy's ground-breaking, multi-spectral measurement approach with innovative optics to enable highly accurate retrieval of full-range **global and spectral** solar irradiance - all within one rugged, compact sensor.

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

The SolarSIM-G offers **unprecedented versatility** and ease-of-use. In addition to resolving full-range spectra and GHI within a single sensor, the SolarSIM-G's software also offers **automated calculation** of spectral correction factors which makes implementing the benefits of spectral data a breeze.

▪ **All-in-one**

Measure full-range spectral and total irradiance all in one, compact, reliable, digital sensor.

▪ **Easy-to-use**

Easy to deploy with minimal maintenance required. Automated calculation of spectral correction factors.

▪ **Accurate & reliable**

Validated by leading laboratories all over the world. The SolarSIM-G uses the highest quality optical and electronic components, ensuring highly stable and accurate performance for years.





SolarSIM-G: Specifications

Broadband Irradiance

Spectral range	280 – 4000 nm
Custom range selection	Yes
Maximum Irradiance	2000 W/m ²
Response Time (95%)	< 0.5s
Zero offset A	n/a
Zero offset B	n/a
Non-stability (change per year)	< 0.2%
Non-linearity	< 0.5%
Spectral selectivity	n/a
Temperature response	< 0.1% (on-board temp. correction)
Directional/cosine response	< 10 W/m ²
Tilt response	n/a
Calibration uncertainty	1.1%
ISO 9060 equivalence	secondary standard*

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
Max. acquisition rate	0.5 Hz
Temperature dependency	< 0.1% (on-board temp. correction)

General

Weight	1.3 kg
Dimensions	132 x 132 x 110 mm
Power supply	12 VDC
Power consumption	< 1W
Communication	RS-485 ASCII, Direct to PC, serial over ethernet, datalogger
Operating Temperature	-30 to 65 °C
Humidity Range	0 to 100% RH

*Because the SolarSIM-G measures only several narrow spectral bands, it does not meet the 'spectrally flat' criteria of ISO 9060. Nonetheless, the SolarSIM-G does eliminate spectral selectivity errors, because all broadband irradiance values are calculated directly from the integrals of measured spectra. The SolarSIM-G meets or exceeds all other ISO 9060 requirements