

BROCHURE

SOLAR SIMULATOR

SPECTRORADIOMETER



AVASPEC-SOLAR-MINI + (ONLY AVAILABLE IN THE AMERICAS)

Solar simulator characterization is made easy with the AvaSpec-Solar-Mini+ spectroradiometer system. This radiometrically calibrated systems consists of the AvaSpec-Nexos 2048CL and the AvaSpec-Mini-NIR spectrometers, AvaTrigger-USB2 external trigger box, 1.5 meter fiber optic (trifurcated fiber for the dual\system), 90 degree cosine receptor, dedicated software application and a NIST traceable calibration. The system and software are fully compliant with IEC 60904-9 (2020) for pulsed or steady state solar simulators providing A, B or C classification across six spectral bands. This standard covers 300-1200 nm but the soft-ware also supports the prior 2007 IEC standard covering 400-1100 nm.



Model	AvaSpec-Solar-Mini+	
Spectrometer	AvaSpec-NXS2048CL	AvaSpec-Mini-NIR
Grating(s)	UV/VIS Grating VA – 300 grooves/mm	NIR Grating -NIR200-1.6
Slit Size	Slit-50	
Wavelength range	UV/VIS 300-1100 nm	NIR – 975-1700 nm
Signal to Noise	UV/VIS: 525:1	NIR: 5000:1
Calibration	Wavelength calibration, irradiance calibration to NIST traceable standard 300-1700 nm (ISO 17025 calibration also available upon request)	
Integration time range	UV/VIS 2 μ s to 20 seconds	NIR – 10 μ s to 300 ms
Dynamic range	13,700	
Fiber Optic	FC3X2-UVIR600-1.5-BXS - Bifurcated to trifurcated 400 micron high OH silica fiber with BX stainless steel jacketing, 5 X SMA 905 connectors	
Collection Optic	Cosine Corrector - COL-90-UV/VIS-CC-CRADLE, COL-90-UV/VIS	
Avatrigger-USB2	External trigger box	
Dimensions/Weight	95 x 154.5 x 157 mm; 1 kg	

SYSTEM COMPONENTS

CARRYING CASE: Waterproof foam-protected case for easy travel and secure transport of your solar simulator system. It offers protection against water, dust, and impacts.

SPECTROMETER: The [AvaSpec-NXS2048CL](#) spectrometer is a miniature deck of cards sized spectrometer with exceptional performance over the range from 300-1100 nm. For the NIR wavelengths, the AvaSpec-Mini-NIR covers 900-1700 nm. The UV/VIS spectrometer is based on a high performance CMOS detector while the [NIR spectrometer](#) features an InGaAs sensor. The spectrometer configuration for the Avaspec-Solar-Mini+ provides 2.4 nm resolution from 300-1100 nm and 6 nm resolution from 900-1700 nm. Both instruments fit nicely inside the lightweight housing which allows for easy removal of the instruments if desired.

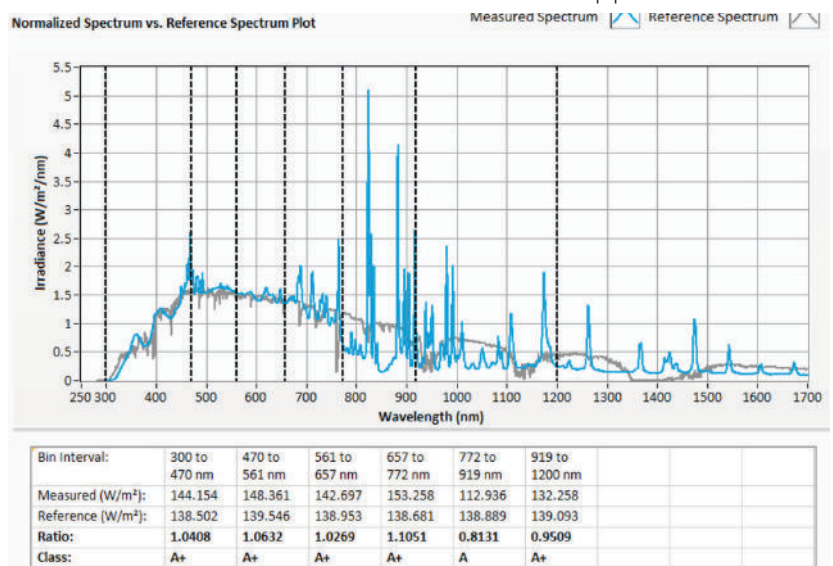
TRIGGER BOX: Many Many solar simulators are pulsed and for this reason the AvaSpec-Solar-Mini+ features an trigger box which provides for optical triggering of the two spectrometers. When the sensor head detects light within 300 nanoseconds the Avatrigger-USB2 sends a trigger to the two spectrometers causing them to measure the source. If a continuous (steady state) solar simulator source is used the Avatrigger can be bypassed.

FIBER + COSINE CORRECTOR: The fiber optic cable for the system are designed with robustness in mind featuring stainless steel interlocking jacketing surrounding a 400 micron core high OH silica/silica fiber and SMA connector. The small form factor 90 degree cosine corrector has a 180 degree field of view making it easy to collect light under your simulator no matter how small the illumination area. A second 90 degree optic is used to collect light to engage the trigger box at the precise moment of flash. The AvaSpec-Solar-Mini+ employs a bifurcated to trifurcated (2 legged branching to 3 legged) fiber optic to port light evenly into each separate spectrometer channel and the Avatrigger external trigger box.

PULSED OR STEADY STATE: The AvaSpec Solar-Mini+ is suited for pulsed or steady state simulators.

SINTON INSTRUMENTS SOFTWARE: Sinton instruments is a leading company in the world of solar metrology technologies. Sinton provides the controlling software for the AvaSpec-Solar-Mini+. The software provided by Sinton Instruments is fully compatible with Avantes DLL so it is capable of controlling the spectrometers settings including integration time, averaging, external trigger delay, merging of spectra. It's capable of supporting both pulsed or continuous solar simulators. The software also provides AM1.5 and AM0 reference spectrums (both global and direct) which are loaded automatically during spectral acquisition for comparison to the acquired spectra. Both the 2020 and 2007 IEC 60904-9 standards are supported for the software.

All spectral bands are calculated with A+, A, B, and C scoring provided. The software provides for report and certificate print outs as well as data file exporting. The application has the ability to determine spectral mismatch factor between the measured and reference spectrums for a given device by uploading device quantum efficiency curves. Additionally, it supports the ability to compare measured and reference spectrums either by irradiance (as defined by the IEC standard), or by photon flux, which is more relevant for determining the impact on measured current.



CONTACT

WE'RE HAPPY TO HELP

Curious how spectroscopy can help you reveal answers by measuring all kind of materials, in-line, at your production facility, in a lab or even in the field? Please visit our website or contact one of our technical experts, we're happy to help you.

Avantes Headquarters

Phone: +31 (0) 313 670 170
Email: info@avantes.com
Website: www.avantes.com

Avantes Inc.

Phone: +1 (303) 410 866 8
Email: infousa@avantes.com
Website: www.avantesUSA.com

Avantes China

Phone: +86 (0) 108 457 404 5
Email: info@avantes.com.cn
Website: www.avantes.cn

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