

# ARCspectro SpectroSolar

ARCOptix  
Switzerland

## DATA SHEET



## Spectrometer for Solar Irradiance Measurements

The ARCSpectro SpectroSolar is a portable spectrometer designed for the measurement of light sources, with special emphasis on solar-like spectra. It incorporates a 2-dimensional detector, thus ensuring high signal-to-noise by averaging of 150 detector lines at each single measurement. Even spectra of millisecond pulsed light sources, such as those of flash-type solar simulators, can be measured reliably and easily thanks to the global electronic shutter architecture of the sensor and to the incorporated photo-cell optical trigger. The SpectroSolar has an entrance diffuser and does not need any extra optical fiber assemblies. The system is factory calibrated in irradiance using traceable irradiance standards.

Typical characteristics of the ARCSpectro SpectroSolar are:

- **Broad spectral range: 400nm-1100nm**
- **Factory-calibrated for Irradiance measurements**
- **Ranking of solar simulators to the IEC 60904-9 norm**
- **Automatic triggering with pulsed-type solar simulators**

Applications:

- **Measurement of continuous or pulsed light sources**
- **Qualification of solar simulators**

**For additional information please contact:**

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## FEATURES & BENEFITS

### **Two spectrometers in one:**

The SpectroSolar uses two diffraction gratings, allowing to keep a high diffraction efficiency all over the 400-1100 nm spectral range.

### **150 measurements in one shot:**

the SpectroSolar 2-dimensional detector with global electronic shutter and enhanced NIR sensitivity ensures excellent SNR.

The **incorporated photocell** automatically triggers measurements upon detection of light flashes.

**Ranking of solar simulators** to class A, B or C according to the IEC 60904-9 norm is performed automatically by a dedicated software module.

**Simple to use** because it is factory calibrated and there is no need for injection or fiber optics.

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ARCSpectro SpectroSolar specification overview:

<b>Spectral range</b>	400 – 1100 nm
<b>Spectral Resolution (FWHM)</b>	5 nm
<b>Wavelength Accuracy</b>	< 0.5 nm
<b>Wavelength Reproducibility</b>	<0.2 nm
<b>Wavelength temperature drift</b>	<0.03 nm/°C
<b>Stray-light rejection</b> Broadband Narrowband	-27dB -35dB
<b>Radiation acceptance angle</b> Relative irradiance diffuser option Absolute irradiance diffuser option	10° 180°
<b>Radiometric Accuracy*</b>	<5%
<b>Tested spectral match norms</b>	IEC 60904-9 (Ed. 2), JIS C 8912, ASTM E 927 IEC 60904-3 AM1.5 (50nm classes)
<b>Detector type</b>	CMOS 2D detector, 752x480 pixels, Global-Shutter ,10-bits ADC
<b>Read noise</b>	<0.2 counts RMS (value lower than 1 count due to averaging of 170 detector lines)
<b>Dynamic range</b>	5000:1
<b>Dark Rate</b>	0.1 counts/ms
<b>Non-linearity</b>	<1%
<b>Exposure time range</b>	0.1ms to 2000ms
<b>Trigger</b>	Photo-cell or via 9-pin Micro D
<b>Programmable trigger delay</b>	0 to 2000ms in steps of 0.1ms
<b>Software Interface</b>	Windows XP /Vista/ 7
<b>Operating Voltage</b>	5 V (USB powered)
<b>Communication Interface</b>	USB
<b>Product Dimensions</b>	175 mm x 125 cm x 52 mm
<b>Product Weight</b>	1800 g
<b>Operating Temperature</b>	10°C – 40°C

\* Relative irradiance, at 1ms exposure time with AM1.5 solar spectral irradiance, 1kW/m<sup>2</sup>

ARCOptix is a company located in Neuchâtel (Switzerland) in the heart of the watch valley.  
For more information about ARCOptix, visit [www.arcoptix.com](http://www.arcoptix.com)



Factory **irradiance calibration** using traceable national irradiance standards.



**Software interface** for Win XP /Vista/7 included.



Power supply and data transfer and via **USB port**.

