SR-6500 and SR-6500A Ultra-High Resolution Spectroradiometers

Ultra-High Resolution for Demanding NIR Spectroscopy Applications

The SR-6500 and SR-6500A portable spectroradiometers provide the highest resolution for applications where the ability to see and save additional information about absorbance and reflectance features is critical. The SR-6500 and SR-6500A are full range UV/VIS/NIR spectroradiometers covering the 350-2500nm spectral range. Three thermoelectrically cooled photodiode arrays provide the ultimate in stable performance.

The SR-6500 has a drift stability of <2%; the SR-6500A has a drift stability of ≤0.4%. The photodiode arrays are:

- 1024 element TE-cooled silicon detector array covering wavelengths from 350 to 1000nm
- 512 element TE-cooled InGaAs detector array covering wavelengths from 1000 to 1630nm
- 512 element TE-cooled extended InGaAs detector array covering wavelengths from 1630 to 2500nm

The SR-6500 and SR-6500A deliver very high resolution for accurate and precise spectra. Resolution is:

- 1.5nm @ 700nm
- 3.0nm @ 1500nm
- 3.8nm @ 2100nm

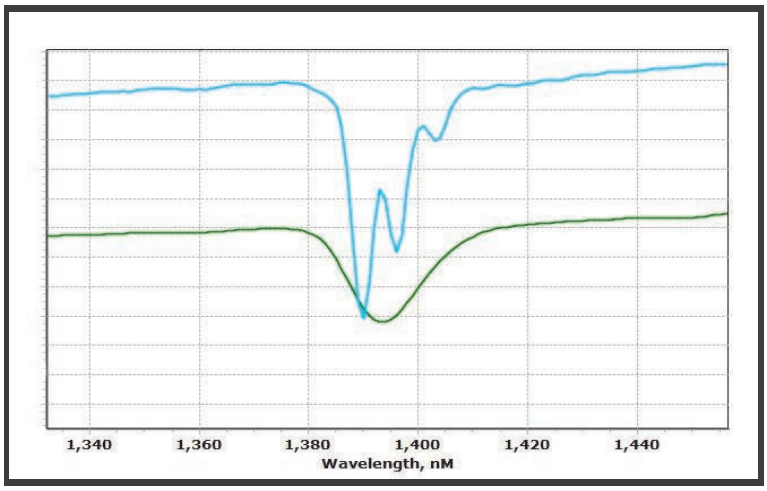
Using all thermoelectrically cooled photodiode arrays and custom heating and cooling management features, the SR-6500A spectroradiometer is built specifically for high performance that demands unsurpassed drift stability. The SR-6500A features:

- Drift stability of ≤0.4% which delivers greater accuracy for long-term stability applications
- Stability is achieved through heating and cooling thermal management features
- A temperature controller maintains the instrument at a stable temperature along with individually temperature stabilized detector arrays
- All temperatures are integrated into our DARWin™ SP Data Acquisition software readout for monitoring

The SR-6500 and SR-6500A spectroradiometers can be used with bare fiber, FOV (field-of-view) fiber-attached lenses and a high-power light source, with our unique leaf clip or with our convenient handheld Miniprobe, a sample con-tact probe with a built-in light source and 3mm spot size.

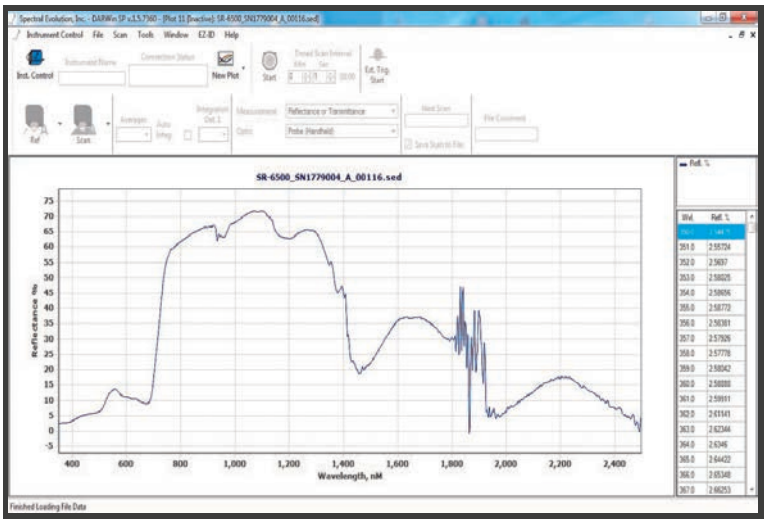
The SR-6500 and Miniprobe can focus mineral identification on smaller parts of sample (3mm spot) and deliver greater detail for more accurate mineral identification, unmixing, and analysis.

The SR-6500 is well-suited for taking high resolution scans of soil for capturing soil characteristics, vegetation for assessing health and CEC capacity and radiance and irradiance measurements. These scans will show additional features not seen with standard field spectroradiometers allowing for better identification and analysis of the sample. With the Miniprobe they afford a researcher an impressive tool for identifying and unmixing minerals in samples. When used with Spectral Evolution's EZ-ID mineral identification software and three spectral libraries of more than 700 minerals, the SR-6500 offers new insight into mineral alteration and soil characteristics. The SR-6500 and SR-6500A include our DARWin™ SP Data Acquisition software for instrument control and data acquisition and saves all files as ASCII for easy use with other analysis software.



A close-up of scans taken with the SR-6500 and a standard resolution field spectrometer of a talc sample. Here you can see the dramatic difference the higher resolution capabilities of the SR-6500 bring to the spectra. The spectra show a distinct triplet where the standard spectrometer shows a single shallow absorption feature.

SR-6500 is a blue scan. Standard spectrometer is green scan. Scans offset for comparison.



A scan of vegetation taken with an SR-6500 outdoors in bright sunlight with a bare fiber on a cloudless day. The scan was of native grass groundcover.

What kind of applications would benefit from higher resolution scans?

- Mineral identification and analysis where higher resolution can provide better distinction between minerals with similar spectra
- Soil studies for the identification of different soil characteristics, clay types, presence or absence of nutrients and moisture
- Vegetation studies for plant health/stress, over-fertilization, species identification
- Lab applications including materials identification
- Solar radiance and irradiance research
- Microbial diversity research

The SR-6500 and SR-6500A with three thermoelectrically cooled photodiode arrays deliver the ultimate in high resolution and stable performance.

SR-6500/SR-6500A Technical Specifications:

Spectral range: 350-2500nm

Photodiode Arrays:

- 1024 element TE-cooled silicon detector (VIS-NIR)
- 512 element TE-cooled InGaAs detector (SWIR 1)
- 512 element TE-cooled extended InGaAs detector (SWIR 2)

All dispersive optics fixed in place – no moving parts

Auto dark current shutter & auto-exposure control

Fixed metal clad fiber optic cable with SMA-905 input
(User removable fiber/4 bolts for easy field replacement)

Wireless Bluetooth and USB interfaces

Comes complete with DARWin™ SP Data Acquisition Software
(Windows XP/Vista/System 7/8/10 compatible)

Minimum scan speed: 100milliseconds

Spectral resolution:

- 1.5nm @ 700nm
- 3.0nm @ 1500nm
- 3.8nm @ 2100nm

Noise Equivalence Radiance (with 1.5 meter fiber optic):

- 0.8x10-9 W/cm2/nm/sr @ 400nm
- 0.3x10-9 W/cm2/nm/sr @ 1500nm
- 5.8x10-9 W/cm2/nm/sr @ 2100nm

Auto-dark current measurement

Auto-optimization

Dimensions: 12.4 x 8.7 x 4.4 inches (31.5 x 22.9 x 38.7 cm)

Weight: 12.64 lbs. (5.73 kg)

Operating range: 0-40°C

Communications: Wireless and USB

Instrument Power (Max): 33W

Batteries: Re-chargeable Li-ion battery—7.4V 20Ah (148wh, 9059156-1C) - UN38.3 Passed

SR-6500 drift stability: <2% **SR-6500A drift stability: ≤0.4%**

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