	RS-3500 Bundle SR-3500 Spectroradiometer
Spectral Range	350–2500nm
Spectral Resolution	3nm @ 700nm 8nm @ 1500nm 6nm @ 2100nm
Spectral Sampling Bandwidth	Data output in 1nm increments 2151 channels reported
Si Detectors	512 element Si photodiode array (350–1000nm)
InGaAs Detectors (thermoelectrically cooled)	256 element extended wavelength photodiode array (970–1910nm) 256 element extended wavelength photodiode array (1900-2500nm)
FOV Options	SMA-905 fiber end mount lenses: 1, 2, 3, 4, 5 , 8 and 10° field of view, irradiance diffuser
Noise Equivalence Radiance (1.2 meter fiber optic)	$0.8x10^{-9}$ W/cm²/nm/sr@700nm $1.2x10^{-9}$ W/cm²/nm/sr@1400nm $1.8x10^{-9}$ W/cm²/nm/sr@2100nm
Calibration Accuracy (NIST Traceable)	±5% @ 400nm ±4% @ 700nm ±7% @ 2200nm
Minimum Scan Speed	100 milliseconds
Wavelength Reproducibility	0.1nm
Wavelength Accuracy	±0.5 bandwidth
Communications interface	USB or Class I Bluetooth – laptop or PDA compatible
Size	8.5" x 12" x 3.5"
Batteries	External Li-ion battery and universal power charger (2 of each included)
Weight	7.3 lbs (spectroradiometer only)

RS-3500 Remote Sensing Bundle Includes:

- SR-3500 compact, portable spectroradiometer
- Ergonomically designed pistol grip with industry-standard Picatinny rail for mounting accessories, for example, a laser sight
- AC universal power supply
- DARWin SP Data Acquisition software
- Pelican protective case
- TENBA Shootout padded backpack
- 5x5 inch reflectance standard (99%) with aluminum case and cover
- GETAC PS336 handheld mi-crocomputer
- 1.2 meter metal clad fiber optic with SMA-905 input connector (includes wrench for removal)
- NIST-traceable radiance cali-bration of 25 degree FOV fi-ber optic cable
- Rechargeable battery and universal AC charger (2 of each)
- Battery power cable

SPECTRAL EVOLUTION

www.spectralevolution.com

SphereOptics
www.sphereoptics.de
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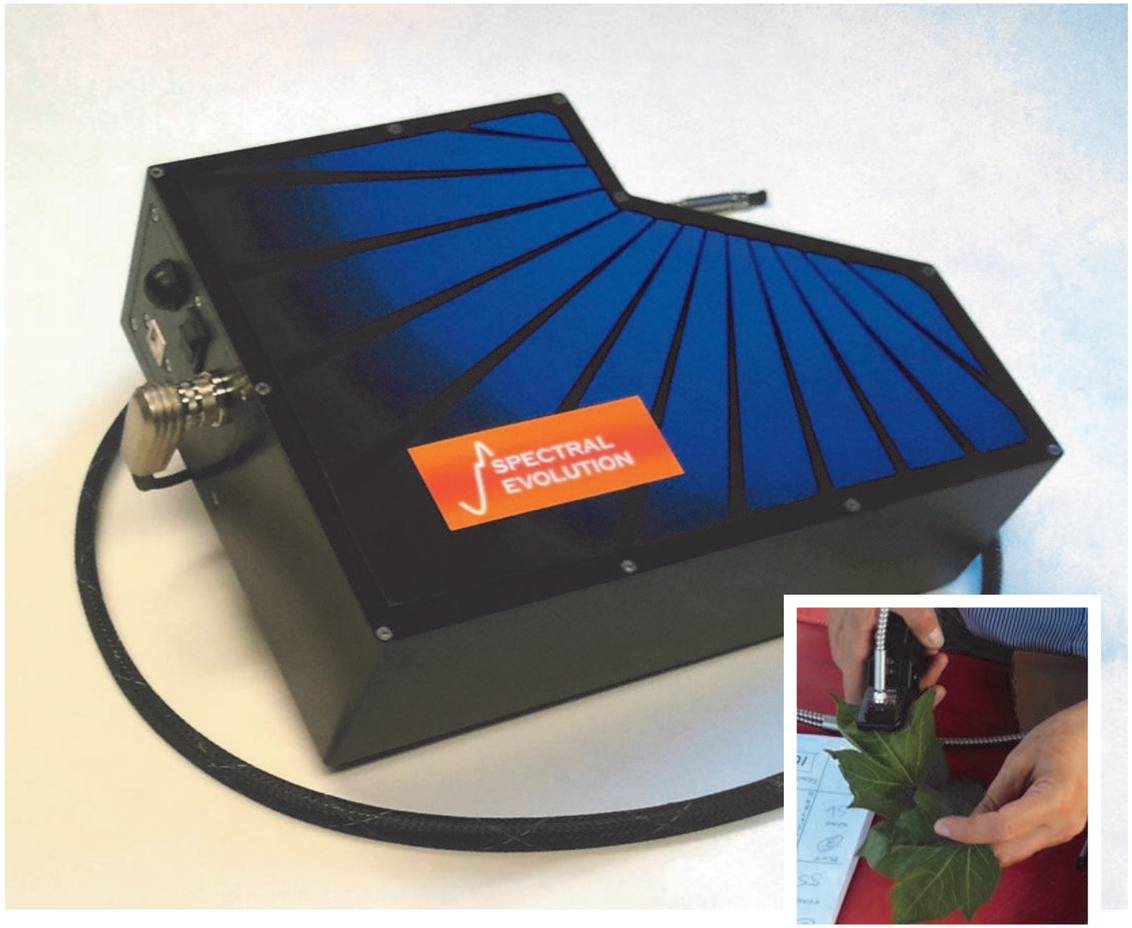
RS-3500 Remote Sensing Bundle



Full range, portable, fiber optic spectroradiometer for remote sensing

SPECTRAL EVOLUTION

SphereOptics

www.spectralevolution.com

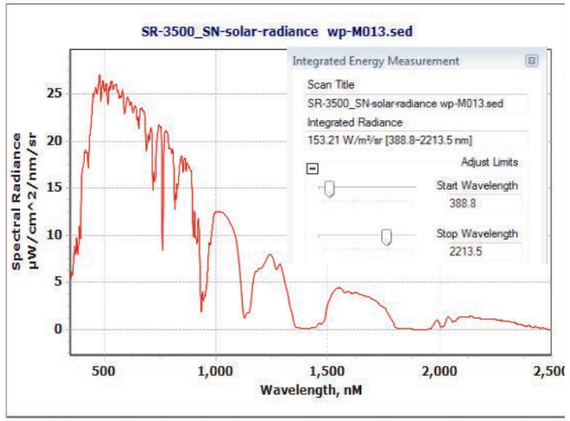
A Field Remote Sensing System to Match Your Application

Using NIR reflectance spectroscopy for remote sensing applications delivers the following benefits:

- It's fast— fast collection of quality data
- It's non-destructive—the sample remains untouched
- It typically doesn't require sample preparation for fast analysis in the field—data without the delay

SPECTRAL EVOLUTION's RS-3500 spectroradiometer bundle is used in the field for a wide range of remote sensing applications, Including :

- Ground truthing—confirming, disputing, or interpreting hyperspectral or multi-spectral data
- Environmental research
- Agricultural analysis
- Ecosystem change
- Forestry research, including canopy studies
- Glacial change and climate studies
- Atmospheric research
- Calibration transfer and satellite sensor validation
- Water body studies
- Plant species identification
- Urban development
- Crop health, including photosynthesis efficiency
- Irrigation assessment
- Soil analysis, including topsoil fertility and erosion risks
- Soil degradation, mapping, and monitoring
- Geological remote sensing, including surveying, mineral identification, and geomorphology

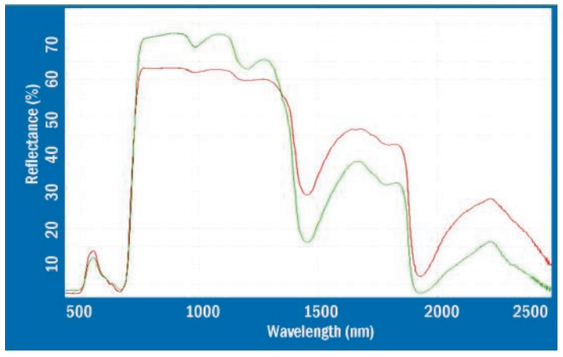


The full range RS-3500 bundle was used to measure outdoor solar radiance using a white reflectance panel and optional 4° lens foreoptic. Pull down menus allow for easy calculation of integrated energy measurement over user-definable boundary wavelengths .

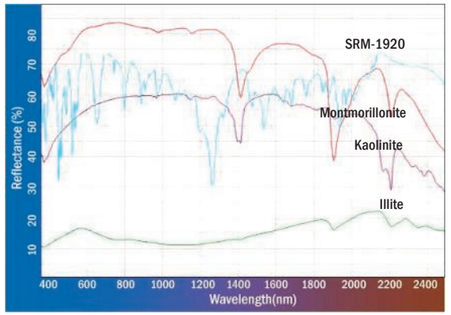
RS-3500 bundles include components such as the GETAC personal digital assistant (left) for one-handed spectroradiometer control. The GETAC tags spectra with GPS, photos and voice notes. We also offer many different styles of contact probes and fiber holders such as a pistol grip with unique low reflectance and impact resistant thermo-plastic handle, pushbutton trigger for data collection, and industry-standard Picatinny rail for mounting accessories such as laser sights. A sample contact probe with built-in light source is also available.

Fixed mount FOV lenses are available in different sizes, including 1, 2, 3, 4, 5, 8, and 10 degrees.

Our leaf clip bundle is specifically designed for leaf reflectance measurements. It features a separate tungsten halogen illuminator (ILM-105) to keep heat away from leaves during measurements to prevent burnout. An integral swing-away reflectance panel provides easy reference measurements.



This scan was taken with an RS-3500 in the field using the leaf clip bundle accessory package. The red trace is acer saccharum and the green is rhododendron decorum. The leaf clip bundle option includes an ILM-105 fiber optic illumination module fitted with a one meter fiber optic bifurcated cable.



Geological Remote Sensing for Mineral Identification

SPECTRAL EVOLUTION spectroradiometers cover the UV/Vis/NIR spectra using three photodiode arrays with no moving parts. This makes them supremely reliable in the field. The RS-3500 bundle can collect spectra in as little as 100 milliseconds. The exclusive DARWin SP Data Acquisition software included with each unit allows for full featured instrument control and data handling and is compatible with a wide range of 3rd party analytical software, including: SpecMIN, GRAMS, The Spectral Geologist (TSG) and others. In the graph, the RS-3500 bundle was used to measure reflectance of kaolinite (purple), illite (green), montmorillonite (red) and SRM-1920 (cyan).

A Field Instruments to Fit Your Budget

The RS-3500 Spectroradiometer Bundle

Our RS-3500 bundle features the SR-3500 spectroradiometer with NIST-traceable calibration for spectral radiance or irradiance measurements (depending on your optics choice) so you can get to work immediately. It is also ideal for reflectance measurements in applications like vegetation studies, climate research, and soil analysis.

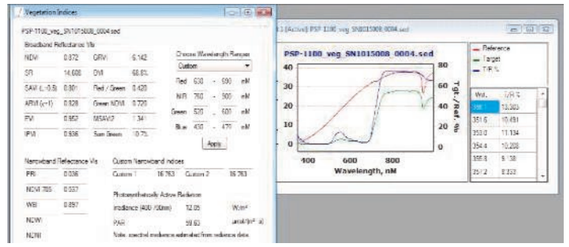
RS-3500 Spectroradiometer Bundle Advantages

The RS-3500 bundle delivers:

- Fast, full spectrum UV/VIS/NIR measurements (350-2500nm) with a single scan
- Autoshutter, autoexposure, and autodark correction before each new scan, with no optimization step, for one-touch operation
- Superior reliability—no moving optical parts to break down
- Lightweight and compact—the spectroradiometer weighs only 3.3kg/7.3lbs—small enough to carry on-board a plane and around a field or forest
- Two small, lightweight rechargeable LI-ion batteries are included and provide up to 4 hours of field use per battery
- Removable fiber optic cable—field swappable
- Best in class sensitivity/NER (low noise equivalent radiance)
- Bluetooth connectivity (Class I)
- Rugged, handheld GETAC PS336 PDA with auto-focus digital camera, e-compass, altimeter, voice note capability, GPS tagging, and sunlight readable VGA display
- DARWin SP Data Acquisition software for one-touch scanning , automatically saves data as ASCII files for use with 3rd party software (no post-processing), displays reflectance/transmittance data (percentage) or absorbance (logarithmic) versus wavelength, and produces single and multiple spectral plots

USGS Library & Vegetation Indices

Access to the USGS spectral library for vegetation and nineteen vegetation indices, is provided by a pull-down menu, in our DARWin SP Data Acquisition software. The vegetation indices include:



- NDVI (Normalized Difference Vegetation Index)
- SR (Simple Ratio Vegetation Index)
- SAVI (Soil Adjusted Vegetation Index)
- ARVI (Atmospherically Resistant Vegetation Index)
- EVI (Enhanced Vegetation Index)
- IPVI (Infrared Percentage Vegetation Index)
- PRI (Photochemical Reflectance Index)
- WBI (Water Band Index)
- PAR (Photosynthetically Active Radiation)
- GRVI (Green Ratio Vegetation Index)