RS-3500 Remote Sensing Bundle

Includes:
- RS-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, cover and tripod mount
- GETAC PS336 handheld microcomputer
- 1.2 meter metal clad fiber optic with SMA-90S input connector (includes thumb-screw release mount)
- NIST-traceable radiance calibration of 25 degree FOV fiber optic cable
- Rechargeable battery and universal AC charger (2 of each)
- Battery power cable

RS-3500 Remote Sensing Bundle

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Range</td>
<td>350-2500nm</td>
</tr>
<tr>
<td>Spectral Resolution</td>
<td>3nm @ 700nm, 8nm @ 1500nm, 6nm @ 2100nm</td>
</tr>
<tr>
<td>Spectral Sampling Bandwidth</td>
<td>Data output in 1nm increments, 2151 channels reported</td>
</tr>
<tr>
<td>Si Detectors</td>
<td>512 element Si photodiode array (350-1000nm)</td>
</tr>
<tr>
<td>InGaAs Detectors (thermoelectrically cooled)</td>
<td>256 element extended wavelength photodiode array (970-1910nm)</td>
</tr>
<tr>
<td></td>
<td>256 element extended wavelength photodiode array (1900-2500nm)</td>
</tr>
<tr>
<td>FOV Options</td>
<td>SMA-90S fiber end mount lenses: 1, 2, 3, 4, 5, 8, and 10° field of view, irradiance diffuser</td>
</tr>
<tr>
<td>Noise Equivalence Radiance (1.2 meter fiber optic)</td>
<td>0.8x10^-9 W/cm²/nm/sr @700nm</td>
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<tr>
<td></td>
<td>1.2x10^-9 W/cm²/nm/sr @1400nm</td>
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<tr>
<td></td>
<td>1.8x10^-9 W/cm²/nm/sr @2100nm</td>
</tr>
<tr>
<td>Minimum Scan Speed</td>
<td>100 milliseconds</td>
</tr>
<tr>
<td>Wavelength Reproducibility</td>
<td>±0.1nm</td>
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<tr>
<td>Wavelength Accuracy</td>
<td>±0.5 bandwidth</td>
</tr>
<tr>
<td>Communications interface</td>
<td>USB or Class I Bluetooth - laptop or PDA compatible</td>
</tr>
<tr>
<td>Size</td>
<td>8.5&quot; x 12&quot; x 3.5&quot;</td>
</tr>
<tr>
<td>Batteries</td>
<td>External Li-ion battery and universal power charger (2 of each included)</td>
</tr>
<tr>
<td>Weight</td>
<td>7.3 lbs (spectroradiometer only)</td>
</tr>
</tbody>
</table>
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

A Field Instruments to Fit Your Budget

The RS-3500 Spectroradiometer Bundle

Our RS-3500 bundle features the RS-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**

- 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 a board 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/NIR (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 pull-down menu in DARWin SP Data Acquisition software. 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)

**Identifying Clays in Soil**

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. DARWin allows the user to display single or multiple plot spectra. In the display on the left, the RS-3500 was used to identify and classify different clay mixtures in soils in different test pits. The