<table>
<thead>
<tr>
<th>Bundle</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-3500 Spectroradiometer</td>
<td>RS-5400 Spectroradiometer</td>
</tr>
<tr>
<td><strong>Spectral Range</strong></td>
<td>350-2500nm</td>
</tr>
<tr>
<td><strong>Spectral Resolution</strong></td>
<td>2.8nm @ 700nm</td>
</tr>
<tr>
<td></td>
<td>8nm @ 1500nm</td>
</tr>
<tr>
<td></td>
<td>6nm @ 2100nm</td>
</tr>
<tr>
<td><strong>Spectral Sampling Bandwidth</strong></td>
<td>Data output in 1nm increments</td>
</tr>
<tr>
<td></td>
<td>2151 channels reported</td>
</tr>
<tr>
<td><strong>Si Detectors</strong></td>
<td>512 element Si photodiode array (350-1000nm)</td>
</tr>
<tr>
<td><strong>InGaAs Detectors (thermoelectrically cooled)</strong></td>
<td>256 element extended wavelength photodiode array (1000-1900nm)</td>
</tr>
<tr>
<td></td>
<td>256 element extended wavelength photodiode array (1900-2500nm)</td>
</tr>
<tr>
<td><strong>FOV Options</strong></td>
<td>SMA-905 fiber end mount lenses: 1, 2, 3, 4, 5 and 10° field of view, irradiance diffuser</td>
</tr>
<tr>
<td><strong>Noise Equivalence Radiance (1.2 meter fiber optic)</strong></td>
<td>0.6x10⁻⁹ W/cm²/µm/sr @ 700nm</td>
</tr>
<tr>
<td></td>
<td>1.2x10⁻⁹ W/cm²/µm/sr @ 1400nm</td>
</tr>
<tr>
<td></td>
<td>1.8x10⁻⁹ W/cm²/µm/sr @ 2100nm</td>
</tr>
<tr>
<td><strong>Minimum Scan Speed</strong></td>
<td>100 milliseconds</td>
</tr>
<tr>
<td><strong>Wavelength Reproducibility</strong></td>
<td>±0.1nm</td>
</tr>
<tr>
<td><strong>Wavelength Accuracy</strong></td>
<td>±0.5 bandwidth</td>
</tr>
<tr>
<td><strong>Communications interface</strong></td>
<td>USB or Class I Bluetooth - laptop or PDA compatible</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>8.5 x 12.3 x 3.5 inches (21.59 x 30.48 x 8.89 cm)</td>
</tr>
<tr>
<td><strong>Batteries</strong></td>
<td>External Li-ion battery and universal power charger (2 of each included)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>7.3 lbs (3.31 kg)</td>
</tr>
</tbody>
</table>

**RS-3500/RS-5400 Remote Sensing Bundle Include:**
- RS-3500 and RS-5400 compact, portable spectroradiometers
- 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 case
- Padded backpack
- 5x5 inch reflectance standard (99%) with aluminum case, cover and tripod mount
- 1.5 meter metal clad fiber optic with SMA-905 input connector (includes thumbscrew release mount)
- RS-3500 includes an ALGIZ 8X handheld tablet running Windows 10, with a Bluetooth connection to DARWin SP and GPS—optional with RS-5400 bundle
- NIST-traceable radiance calibration of 25 degree FOV fiber optic cable
- Rechargeable battery and universal AC charger
- Battery power cable
Field Remote Sensing Systems to Match Your Application

SPECTRAL EVOLUTION’s RS-3500 and RS-5400 spectroradiometer bundles are used in the field for a wide range of remote sensing applications, including:

- Ground truthing—confirming, disputes, 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 RS-5400 provides high resolution/high sensitivity performance for remote sensing application with the following spectral resolution:

- 2.5nm @ 700nm
- 5.5nm @ 1500nm
- 8.8nm @ 2100nm

The full range RS-3500 bundle was used to measure soil samples to detect trace amounts of hydrocarbons in soil. The green scan represents a topsoil sample with prominent water absorption features at 1400nm and 1900nm. The light blue scan represents a sample of the same soil with trace amounts of hydrocarbons with features around 1700nm and 2300nm (united in yellow).

RS-3500 and RS-5400 bundles include an ALGIZ 8X handheld tablet running Windows 10 and connecting to DARWin SP and GPS using Bluetooth communications. Both the RS-3500 and RS-5400 bundles offer many different styles of contact probes and fiber holders such as a pistol grip with unique low reflectance and impact resistant thermoplastic 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 included.

For reflection and transmittance measurements of leaves and needles, we offer an RT sphere. This scan was taken with an RS-5400 using the leaf clip bundle accessory package.

A Field Instruments to Fit Your Research

The RS-3500 and RS-5400 Spectroradiometer Bundles

- 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—RS-3500 weighs only 3.3kg/7.3lbs; the RS-5400 11bs/4.99kg
- Rechargeable Li-ion batteries are included and provide up to 8 hours of field use
- Removable fiber optic cable—field swappable
- Best in class sensitivity/NER (low noise equivalent radiance)
- Bluetooth connectivity (Class I)
- Rugged ALGIZ 8X handheld tablet running Windows 10, a sunlight readable display, GPS, built-in camera and Bluetooth communication with the instrument and DARWin SP included with RS-3500 bundle—optional with RS-5400 bundle

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 measurements were taken with a contact probe by scanning the pit sidewalls.

A Field Instruments to Fit Your Research

The RS-3500 and RS-5400 Spectroradiometer Bundles Advantages

- 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)

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