### RS-3500 and RS-5400 Remote Sensing Bundles

**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
- 6x5 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 (2 of each)
- Battery power cable

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### RS-3500/RS-5400 Spectroradiometers

<table>
<thead>
<tr>
<th>Specification</th>
<th>RS-3500 Spectroradiometer</th>
<th>RS-5400 Spectroradiometer</th>
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</thead>
<tbody>
<tr>
<td>Spectral Range</td>
<td>350-2500 nm</td>
<td>350-2500 nm</td>
</tr>
<tr>
<td>Spectral Resolution</td>
<td>2.8 nm @ 700 nm</td>
<td>2.7 nm @ 700 nm</td>
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<tr>
<td></td>
<td>8 nm @ 1500 nm</td>
<td>5.5 nm @ 1500 nm</td>
</tr>
<tr>
<td></td>
<td>6 nm @ 2100 nm</td>
<td>5.8 nm @ 2100 nm</td>
</tr>
<tr>
<td>Spectral Sampling Bandwidth</td>
<td>Data output</td>
<td>Data output</td>
</tr>
<tr>
<td></td>
<td>in 1 nm increments</td>
<td>in 1 nm increments</td>
</tr>
<tr>
<td></td>
<td>2151 channels reported</td>
<td>2151 channels reported</td>
</tr>
<tr>
<td>Si Detectors</td>
<td>512 element Si photodiode array (350-1000 nm)</td>
<td>1024 element UV-enhanced Si photodiode array (350-1000 nm)</td>
</tr>
<tr>
<td>InGaAs Detectors (thermoelectrically cooled)</td>
<td>256 element extended wavelength photodiode array (1000-1900 nm)</td>
<td>312 element extended InGaAs photodiode array (1000-1900 nm)</td>
</tr>
<tr>
<td></td>
<td>256 element extended wavelength photodiode array (1900-2500 nm)</td>
<td>312 element extended InGaAs photodiode array (1900-2500 nm)</td>
</tr>
<tr>
<td>FOV Options</td>
<td>SMA-905 fiber end mount lenses: 1, 2, 3, 4, 5, 8 and 10° field of view, irradiance diffuser</td>
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</tr>
<tr>
<td>Noise Equivalence Radiance (1.2 meter fiber optic)</td>
<td>0.8 x 10^-9 W/cm²/nm/sr @ 700 nm</td>
<td>0.5 x 10^-9 W/cm²/nm/sr @ 700 nm</td>
</tr>
<tr>
<td></td>
<td>1.2 x 10^-9 W/cm²/nm/sr @ 1400 nm</td>
<td>0.2 x 10^-9 W/cm²/nm/sr @ 1400 nm</td>
</tr>
<tr>
<td></td>
<td>1.8 x 10^-9 W/cm²/nm/sr @ 2100 nm</td>
<td>2.5 x 10^-9 W/cm²/nm/sr @ 2100 nm</td>
</tr>
<tr>
<td>Minimum Scan Speed</td>
<td>100 milliseconds</td>
<td>100 milliseconds</td>
</tr>
<tr>
<td>Wavelength Reproducibility</td>
<td>±0.1 nm</td>
<td>±0.1 nm</td>
</tr>
<tr>
<td>Wavelength Accuracy</td>
<td>±0.5 bandwidth</td>
<td>±0.5 bandwidth</td>
</tr>
<tr>
<td>Communications interface</td>
<td>USB or Class I Bluetooth – laptop compatible</td>
<td>USB or Class I Bluetooth – laptop compatible</td>
</tr>
<tr>
<td>Size</td>
<td>8.5 x 12.3 x 3.5 inches (21.59 x 30.48 x 8.89 cm)</td>
<td>12.4 x 8.7 x 4.4 inches (31.5 x 22.9 x 38.7 cm)</td>
</tr>
<tr>
<td>Batteries</td>
<td>External Li-ion battery and universal power charger (2 of each included)</td>
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</tr>
<tr>
<td>Weight</td>
<td>7.3 lbs (3.31 kg)</td>
<td>11 lbs (4.99 kg)</td>
</tr>
</tbody>
</table>

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26 Parkridge Road, Suite 104
Haverhill, MA 01835 USA
Tel: 978 687-1833 Fax: 978 945-0372
Email: sales@spectralevolution.com

www.spectralevolution.com
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, 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 RS-5400 provides high resolution/high sensitivity performance for remote sensing application with the following spectral resolution:

- 2.5nm @ 700nm
- 5.5nm @ 1500nm
- 5.8nm @ 2100nm

RS-3500 and RS-5400 bundles include an ALGIZ BX 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 available.

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

We also offer a benchtop probe with sample holder and compactor for vegetation and soil measurements.

For reflection and transmittance measurements of leaves and needles, we offer an RT sphere.

A Field Instruments to Fit Your Research

The RS-3500 and RS-5400 Spectroradiometer Bundles

Our RS-3500 and RS-5400 bundles feature the spectroradiometers with NIST-traceable calibration for spectral radiance or irradiance measurements (depending on your optics choice) so you can get to work immediately. They are ideal for reflectance measurements in applications like vegetation studies, climate research, and soil analysis.

RS-3500 and RS-5400 Spectroradiometer Bundles 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—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 BX 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

- 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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