### Field Portable Spectroradiometers

**For Geological and Environmental Remote Sensing**

#### Probes
- Contact probe
- Leaf clip
- Pistol grip
- Benchtop probe

#### Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>PSR+ 3500</th>
<th>PSR-2500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spectral Range</strong></td>
<td>350-2500nm</td>
<td>350-2500nm</td>
</tr>
<tr>
<td><strong>Spectral Resolution</strong></td>
<td>2.8nm @ 700nm</td>
<td>3.5nm @ 700nm</td>
</tr>
<tr>
<td></td>
<td>8nm @ 1500nm</td>
<td>20nm @ 1500nm</td>
</tr>
<tr>
<td></td>
<td>6nm @ 2100nm</td>
<td>18nm @ 2100nm</td>
</tr>
<tr>
<td><strong>Sampling Interval</strong></td>
<td>Data output in 1nm increments; 2151 channels reported</td>
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</tr>
<tr>
<td><strong>Si Photodiode Detector</strong></td>
<td>512 element Si array (350–1000nm)</td>
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</tr>
<tr>
<td><strong>InGaAs Photodiode Detectors</strong></td>
<td>256 element extended wavelength array (970–1910nm)</td>
<td>256 element extended wavelength array (970–2500nm)</td>
</tr>
<tr>
<td><strong>FOV Options</strong></td>
<td>4°, 8°, or 14° lens, 25° fiber optic, diffuser, integrating sphere</td>
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</tr>
<tr>
<td><strong>Noise Equivalence Radiance (4° lens)</strong></td>
<td>$\leq 0.5 \times 10^{-9}$ W/cm²/nm/sr @400nm</td>
<td>$\leq 0.5 \times 10^{-9}$ W/cm²/nm/sr @440nm</td>
</tr>
<tr>
<td><strong>Max Radiance @ 700nm (4° lens)</strong></td>
<td>$1.5 \times 10^{-4}$ W/cm²/nm/sr</td>
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</tr>
<tr>
<td><strong>Minimum Scan Speed</strong></td>
<td>100 milliseconds</td>
<td>100 milliseconds</td>
</tr>
<tr>
<td><strong>Wavelength Reproducibility</strong></td>
<td>±0.01nm</td>
<td>±0.01nm</td>
</tr>
<tr>
<td><strong>Communications interface</strong></td>
<td>USB or Class I Bluetooth – laptop or PDA compatible</td>
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</tr>
<tr>
<td><strong>Size</strong></td>
<td>8.5” x 11.5” x 3.25”</td>
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</tr>
<tr>
<td><strong>Weight</strong></td>
<td>7.3 lbs</td>
<td>7.3 lbs</td>
</tr>
<tr>
<td><strong>Batteries</strong></td>
<td>Two lithium ion; 7.4V</td>
<td>Two lithium ion; 7.4V</td>
</tr>
<tr>
<td><strong>Battery Operation</strong></td>
<td>Removable battery; up to 4 hour operation/battery (2 provided)</td>
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</tr>
<tr>
<td><strong>On board memory</strong></td>
<td>Storage of 1000 spectra</td>
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</tr>
</tbody>
</table>
Fast, full featured and flexible

PSR Series Spectroradiometers are ideal for a range of applications, including:

- Remote Sensing
- Geological Remote Sensing
- Radiance and Irradiance Measurement
- Ground Truthing
- Spectral Remote Sensing
- Crop and Soil Studies
- Forestry and Canopy Studies
- Atmospheric Research
- Landscape Ecology
- Water Body Studies
- Calibration Transfer
- Satellite Image and Data Validation
- Agricultural Analysis
- Plant Species Identification
- Soil Mapping
- Alteration Zone Mapping

Reflectance of kaolinite (purple), illite (green), montmorillonite (red) and SRM-1920 (cyan) was measured and charted simultaneously using the DARWin SP Data Acquisition Module. PSR Series Spectroradiometers can collect spectra in as little as 100 milliseconds. The exclusive DARWin SP Data Acquisition Module included with each unit allows for full featured instrument control and data handling and is compatible with a range of third party analysis software, including specMIN™ and GRAMS™.

Remote Sensing
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Leaf Reflectance

Rhododendron decorum (green trace) and Acer saccharum (red trace) leaf reflectance were measured using a SPECTRAL EVOLUTION PSR-3500 Spectroradiometer. The graphs were generated using the easy-to-use DARWin SP Data Acquisition and Analysis software included with each PSR-Series Spectroradiometer. DARWin SP allows users to plot multiple scans on the same graph for easy comparison and analysis. All units feature automatic exposure control and auto-shutter for simple operation.

Mineral Reflectance Studies

Soil reflectance measurements were taken using the PSR-3500 field portable spectroradiometer using its standard 4 degree field of view lens from a distance of 1 meter at an exposure time of 1 second (blue trace). Solar radiance of the reflected light (red trace) was also captured in the same measurement. Soil scan was taken on site at the Railroad Valley Playa in Nevada on June 22, 2011; latitude 38.50971, longitude -115.70020, GPS time 8:21:05PM.