PSR Series InGaAs/Si All Photodiode Array UV-VIS-NIR Full Range Portable Spectroradiometers

Technical Specifications

	PSR+ 3500	PSR-2500	PSR-1900
Spectral Range	350–2500nm	350–2500nm	350-1900nm
Spectral Resolution	3nm (@700nm) 8nm @ 1500nm 6nm @ 2100nm	3nm (@700nm) 22nm @ 1500nm 22nm @ 2100nm	3nm (@700nm) 10nm (1000-1900nm)
Sampling Interval	Data output in 1nm increments; 2151 channels reported	Data output in 1nm increments; 2151 channels reported	Data output in 1nm increments; 1551 channels reported
Si Detector	512 element Si array (350–1000nm)	512 element Si array (350–1000nm)	512 element Si array (350–1000nm)
InGaAs Detectors (TE-cooled)	256 element extended wave-length array (970–1910nm) 256 element extended wavelength array (1900-2500nm)	256 element extended wave-length array (970–2500nm)	256 element extended wave-length array (970-1900nm)
FOV Options	4°, 8°, or 14° lens, 25° fiber optic, diffuser, integrating sphere	4°, 8°, or 14° lens, 25° fiber optic, diffuser, integrating sphere	4°, 8°, or 14° lens, 25° fiber optic, diffuser, integrating sphere
Noise Equivalence Radiance (4° lens)	$\leq 0.5 \times 10^{-9}$ W/cm²/nm/sr@400nm $\leq 0.8 \times 10^{-9}$ W/cm²/nm/sr@1500nm $\leq 1.0 \times 10^{-9}$ W/cm²/nm/sr@2100nm	$\leq 0.8 \times 10^{-9}$ W/cm²/nm/sr@400nm $\leq 1.5 \times 10^{-9}$ W/cm²/nm/sr@1500nm $\leq 1.8 \times 10^{-9}$ W/cm²/nm/sr@2100nm	$\leq 0.8 \times 10^{-9}$ W/cm²/nm/sr@400nm $\leq 1.2 \times 10^{-9}$ W/cm²/nm/sr@1500nm
Max Radiance @ 700nm (4° lens)	1.5×10^{-4} W/cm²/nm/sr	1.5×10^{-4} W/cm²/nm/sr	1.5×10^{-4} W/cm²/nm/sr
Calibration Accuracy (NIST Traceable)	±5% @ 400nm ±4% @ 700nm ±7% @ 2200nm	±5% @ 400nm ±4% @ 700nm ±7% @ 2200nm	±5% @ 400nm ±4% @ 700nm
Minimum Scan Speed	100 milliseconds	100 milliseconds	100 milliseconds
Wavelength Reproducibility	0.1nm	0.1nm	0.1nm
Wavelength Accuracy	±0.5 bandwidth	±0.5 bandwidth	±0.5 bandwidth
Communications interface	USB or Class I Bluetooth–laptop or PDA compatible	USB or Class I Bluetooth–laptop or PDA compatible	USB or Class I Bluetooth–laptop or PDA compatible
Size	8.5" x 11.5" x 3.25"	8.5" x 11.5" x 3.25"	8.5" x 11.5" x 3.25"
Tripod mounting	2 each ¼-20 mounting holes provided	2 each ¼-20 mounting holes provided	2 each ¼-20 mounting holes provided
Weight	7.3 lbs	7.3 lbs	7.3 lbs
Batteries	Two lithium ion; 7.4V	Two lithium ion; 7.4V	Two lithium ion; 7.4V
Battery Operation	Removable battery; 4 hour opera-tion/battery (2 provided)	Removable battery; 4 hour opera-tion/battery (2 provided)	Removable battery; 4 hour opera-tion/battery (2 provided)
On board memory	Storage of 1000 spectra	Storage of 1000 spectra	Storage of 1000 spectra

SPECTRAL EVOLUTION

1 Canal Street ◊ Unit B1
Lawrence, MA 01840 USA
Tel: 978 687-1833 ◊ Fax: 978 945-0372
Email: sales@spectralevolution.com
www.spectralevolution.com

SPECTRAL EVOLUTION

Field Portable Spectroradiometers For Geological and Environmental Remote Sensing

SPECTRAL EVOLUTION

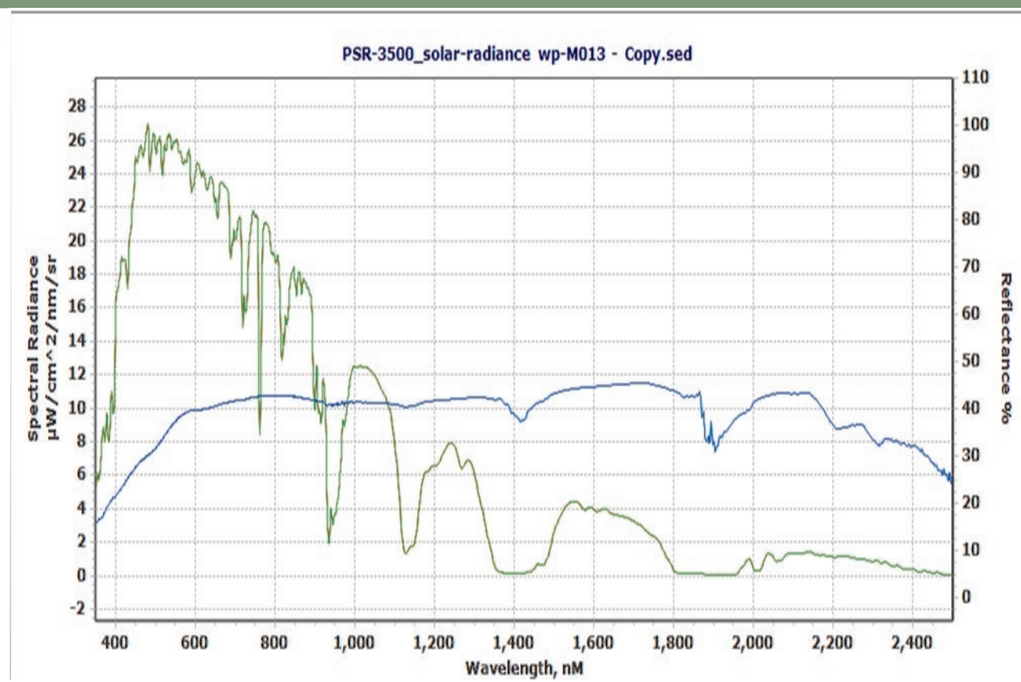
Fast, full featured and flexible

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

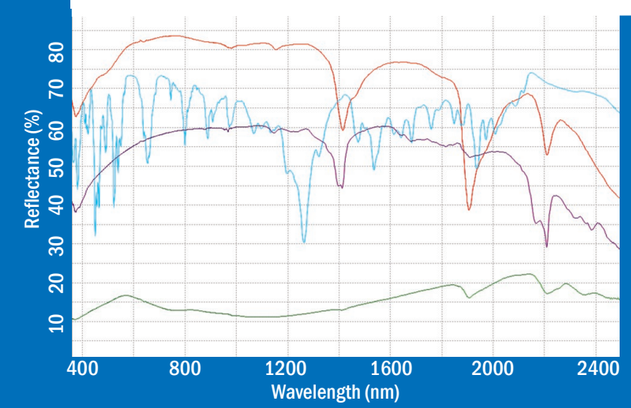
- Remote Sensing
- Geological Remote Sensing
- Radiance and Irradiance Measurement
- Ground Truthing
- Spectral Remote Sensing
- Crop and Soil Studies
- Forestry and Canopy Studies
- Atmospheric Research
- Landscape Ecology
- Water Body Studies
- Calibration Transfer
- Satellite Image and Data Validation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

Order a PSR Series Portable Spectroradiometer with a shoulder strap, backpack, or a tripod. It delivers:

- *Fast, full spectrum UV/VIS/NIR with a single scan*
- *Ultra-fast auto-shutter, auto-exposure, and auto-dark correction —no optimization step*
- *Superior field reliability with no moving parts*
- *Lightweight and compact*
- *Rechargeable lightweight Li-ion batteries*
- *Removable fiber optic cable—field swappable*
- *Direct mount lens for maximum throughput*
- *Built-in laser targeting for precision and accuracy*
- *Best in class NER*
- *Standalone operation—stores up to 1000 spectra*
- *Bluetooth connectivity (Class 1)*
- *Rugged handheld Getac PS336 PDA with auto-focus digital camera, e-compass, altimeter, voice note capability, GPS/photo/voice note tagging, and sunlight readable 480x640 pixel display*
- *DARWin SP Data Acquisition software saves files as ASCII for use with analysis software (no pre-processing)*
- *DARWin SP pull down menus for access to USGS spectral library and 19 vegetation indices*

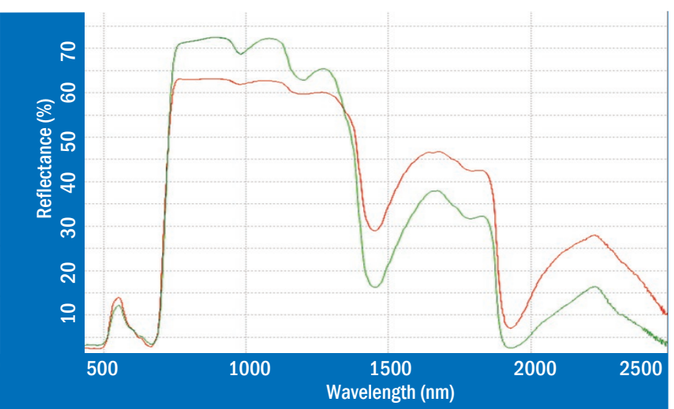


Soil reflectance measurements were taken using the PSR-3500 field portable spectroradiometer using its standard 4 degree field of view lens from a distance of 1 meter at an exposure time of 1 second (blue trace). Solar radiance of the reflected light (red trace) was also captured in the same measurement. 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.



Mineral Reflectance Studies

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™.



Leaf Reflectance

Rhododendron decorum (green trace) and Acer saccharum (red trace) leaf reflectance were measured using a SPECTRAL EVOLUTION PSR-3500 Spectroradiometer using the companion SPECTRAL EVOLUTION ILM-105 Fiber Optic Illumination Module fitted with an optional 1 meter bifurcated fiber optic cable. 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.

www.spectralevolution.com