

REMOTE SENSING SERIES

FIELD-PORTABLE UV-VIS-NIR SPECTRORADIOMETERS



RUGGED & RELIABLE

COMPACT & PORTABLE

UNPARALLELED ACCURACY

HIGH SPECTRAL RESOLUTION

FULLY PORTABLE REMOTE SENSING SOLUTIONS DESIGNED SPECIFICALLY FOR THE FIELD

Spectral Evolution manufactures spectroradiometers differently. With a variety of features including rechargeable batteries, Bluetooth connectivity, lightweight housing, and a rugged design, you can be sure that you are getting the most accurate and reliable data in the field with a Spectral Evolution Remote Sensing series spectroradiometer.



COMMITTED TO QUALITY

Every instrument and accessory built and sold by Spectral Evolution is subject to rigorous quality testing. Each component is meticulously designed, assembled, and calibrated at our facility in Haverhill, MA to ensure the maximum performance and reliability.

978-687-1833 • www.spectralevolution.com • info@spectralevolution.com

FAST, RUGGED, RELIABLE SPECTRORADIOMETERS

Superior Detectors

We use state-of-the-art TE-cooled photodiode arrays that integrate the complete light signal simultaneously, resulting in faster scan time and more accurate data. With no moving parts you can count on a rugged and reliable performance in the field.

First-Rate Fiber Optic Cables

Our fiber optic cables bring the complete signal straight to the detectors with a uniform field of view for the best signal-to-noise ratio. With a Spectral Evolution instrument, you don't need to worry about data loss due to loose connections or fiber optic coupling - our fibers are precisely aligned with a keyed entrance, making it quick and easy to replace right in the field without loss of calibration.

Outstanding Optimization

With our DARWin™ software, manual optimization is a thing of the past. DARWin performs auto-optimization before each and every scan, including auto-integration, auto-exposure, and auto-dark current. This process maximizes signal-to-noise and ensures repeatable and accurate measurements.

Essential Accessories

All of our spectrometers have SMA connectors to quickly and easily connect to a variety of accessories including contact probes, leaf clip, R/T sphere, field of view lenses, cosine diffusers, and more for radiance, irradiance, reflectance, and transmittance measurements.

ILM-550



- Illuminates large spot size for standoff measurements
- Aluminum reflector for bright, uniform illumination across the entire spectral range
- Includes two 50-watt tungsten-halogen bulbs for diffuse or spot illumination mode - addtional bulb options available
- Mount on lab benches, optical tables, or tripod for repeatable data collection

R/T Sphere



- Measures absorbance, reflectance, and transmittance
- Small size and lightweight for use in the lab or field
- Use with included stand or mount on tripod
- Choose a High or Low intensity light setting to scan a variety of samples

Rugged Handheld Tablet



- Real-time, wireless instrument control
- Instantly view scans & match to vegetative, geological, and soil libraries *in situ* with DARWin™ and EZ-ID™
- 8", sunlight readable touchscreen
- Built-in GPS, camera, and microphone to collect & organize essential field data

Leaf Clip



- Comfortable handle with push-button external triggering allows for single-handed operation
- Integrated 3mm spot size light source & reflectance standard
- Unique light source design minimizes heat to the sample to prevent damage.

Pistol Grip



- Ergonomic handle with trigger holds fiber optic in place for precise standoff measurements
- Picatinny rail to mount optional scopes & laser sights for enhanced targeting accuracy

Field of View Lenses



- Lenses provide flexibility for varying target sizes
- Direct attach lenses available: 4°, 8°, 14°
- SMA fiber mount lenses available: 1°, 2°, 3°, 4°, 5°, 8°, and 10°

Benchtop Probe w/Compactor



- Ideal for hands-free measurement of loose samples such as soil, crushed stone, or powders
- Optional compactor for consistant sample preparation
- SMA-905 fiber optic connection
- Built-in 5-watt tungsten-halogen bulb and durable sapphire window

Contact Probes



- Ergonomic design with external trigger for quick contact measurements
- Built-in 5-watt illumination for great signal to noise across the full spectral range
- Available in 10mm or 3mm spot sizes for flexible targeting
- Scratch-resistant sapphire window

Cosine Diffusers



- Ideal for irradiance measurements
- Compact alternative to an integrating sphere
- Inline and right angle options available

ILM-660



- Our highest-intensity light source
- Includes two 40-watt tungsten-halogen bulbs for maximum illumination
- Ideal for dark samples like solid rock or loose mineral/soil

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REMOTE SENSING SERIES TECHNICAL SPECIFICATIONS

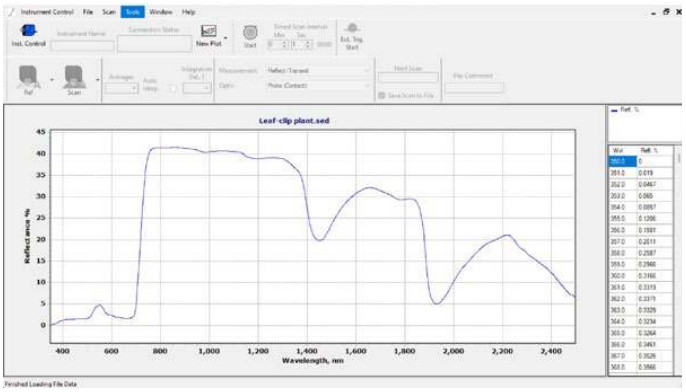
Model	PSR-1100[f]	RS-3500			PSR+			NATURASPEC			RS-8800		
													
	• Smallest full-featured portable instrument • Spectral range is ideal for vegetation analysis • Internal memory & onboard controls - no need for external PC to operate • Tripod mountable	• Tried and true full-range model • Standard spectral resolution • Lightweight and portable for field research			• Lightest, most portable full-range instrument • Internal memory & onboard controls - no need for external PC to operate • Option for direct attach lense or fiber optic • Tripod mountable			• Best signal to noise compromise in a field instrument • High resolution & sensitivity • Better quality data - especially from dark samples			• Built-in computer with IoT operating system to control instrument with smartphone • See field of view in real-time & record essential metadata with exclusive accessory *Sensaprobe™*		
Spectral Range	320-1100nm	350-2500nm			350-2500nm			350-2500nm			350-2500nm		
Spectral Resolution	3.0nm @ 600nm	2.8nm @ 700nm	8nm @ 1500nm	6nm @ 2100nm	2.8nm @ 700nm	8nm @ 1500nm	6nm @ 2100nm	2.7nm @ 700nm	5.5nm @ 1500nm	5.8nm @ 2100nm	3nm @ 700nm	8nm @ 1500nm	6nm @ 2100nm
Spectral Sampling Bandwidth (nm)	1.5 @ 600nm	1.3 @ 700nm	3.5 @ 1500nm	2.3 @ 2100nm	1.3 @ 700nm	3.5 @ 1500nm	2.3 @ 2100nm	0.6 @ 700nm	1.7 @ 1500nm	1.2 @ 2100nm	1.3 @ 700nm	3.5 @ 1500nm	2.3 @ 2100nm
Detector(s)	512-element Si Array	512-element Si Array Two 256-element TE-cooled InGaAs Arrays			512-element Si Array Two 256-element TE-cooled InGaAs Arrays			1024-element UV-enhanced Si Array Two 512-element extended TE-cooled InGaAs Arrays			512-element Si Array Two 256-element TE-cooled InGaAs Arrays		
Calibration	Factory calibrated for radiance/irradiance using NIST traceable sources (depending upon optics selection)	Factory calibrated for radiance/ irradiance using NIST traceable sources (depending upon optics selection)			Factory calibrated for radiance/ irradiance using NIST traceable sources (depending upon optics selection)			Factory calibrated for radiance/ irradiance using NIST traceable sources (depending upon optics selection)			Factory calibrated for radiance/ irradiance using NIST traceable sources (depending upon optics selection)		
Noise Equivalence Radiance $W/cm^2/nm/sr$ (1.2m fiber optic)	$0.8x10^{-9}$ @ 700nm	$0.8x10^{-9}$ @ 400nm	$1.2x10^{-9}$ @ 1 1500nm	$1.8x10^{-9}$ @ 2100nm	$0.5x10^{-9}$ @ 400nm	$0.8x10^{-9}$ @ 1500nm	$1.0x10^{-9}$ @ 2100nm	$0.3x10^{-9}$ @ 400nm	$0.1x10^{-9}$ @ 1500nm	$2.5x10^{-9}$ @ 2100nm	$0.8x10^{-9}$ @ 400nm	$1.2x10^{-9}$ @ 1500nm	$1.8x10^{-9}$ @ 2100nm
Sofware Included	DARWin™ SP Data Acquisition	DARWin™ SP Data Acquisition			DARWin™ SP Data Acquisition			DARWin™ SP Data Acquisition			DARWin™ SP Data Acquisition		
Power	7.5V, 5W	7.5V, 22.5W			7.5V, 22.5W			7.4V, 28W			7.5V, 22.5W		
Dimensions (in/mm)	7 x 3.3 x 5.8/ 177.8 x 82.5 x 147.3	8.5 x 12 x 3.5/ 215.9 x 304.8 x 88.9			8.5 x 11.5 x 3.3/ 215.9 x 292.1 x 82.5			12.4 x 8.7 x 4.4/ 314.9 x 220.9 x 111.7			12.4 x 9 x 15/ 314.9 x 228.6 x 381		
Weight (lbs/kg)	4/1.8	8.9/4			7.9/3.5			12.6/5.7			9.4/4.2		
Interface	USB, Bluetooth	USB, Bluetooth			USB, Bluetooth			USB, Bluetooth			USB, Bluetooth		
Minimum Scan Speed	100ms	100ms			100ms			100ms			100ms		
Wavelength Reproducibility (nm)	0.1	0.1			0.1			0.1			0.1		
Wavelength Accuracy (nm)	±0.5 bandwidth	±0.5 bandwidth			±0.5 bandwidth			±0.5 bandwidth			±0.5 bandwidth		
Automatic Exposure	✓	✓			✓			✓			✓		
Shutter for Dark Scans	✓	✓			✓			✓			✓		
Onboard Storage	✓ 2500 Scans	⛔			✓ 1000 Scans			⛔			✓ Integrated Computer		

DARWin™ DATA AQUISITION SOFTWARE

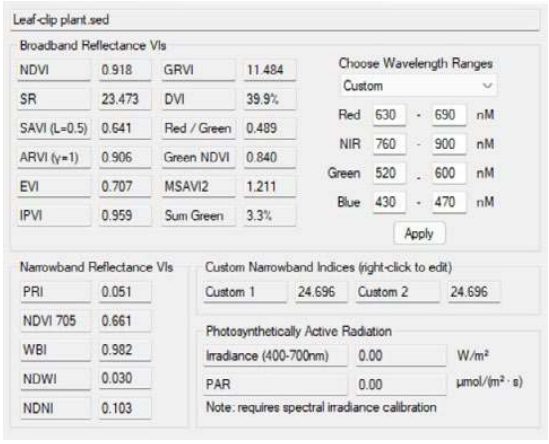
Every Spectral Evolution spectroradiometer includes the exclusive DARWin™ software – a full-featured, menu-driven program for easy data acquisition and analysis of multiple UV-VIS-NIR spectra.

DARWin comes equipped with features specifically for field measurements.

- One-touch operation
- Easy, intuitive menus for fast, effortless operation
- Ability to adjust parameters such as integration time, number of average scans, fore optics selection
- Spectra can be automatically collected at user adjustable intervals from 1 second to 1 hour
- Saves scans as ASCII files for use with third-party software without pre-processing
- Ability to trigger scan from either the software or accessory
- Instrument status displayed after each scan (voltage, temperature, scan title, etc.)
- Specialty pulldown menus to automatically calculate 19 broadband and narrowband vegetative indices
- User-modified index with simple on-screen menu-driven instructions
- Ability to display data as reflectance, transmittance, absorbance, or radiance/irradiance
- Compatible with Windows 7 and Windows 10
- DARWin LT is a simplified version of the software that can be run on a rugged field tablet



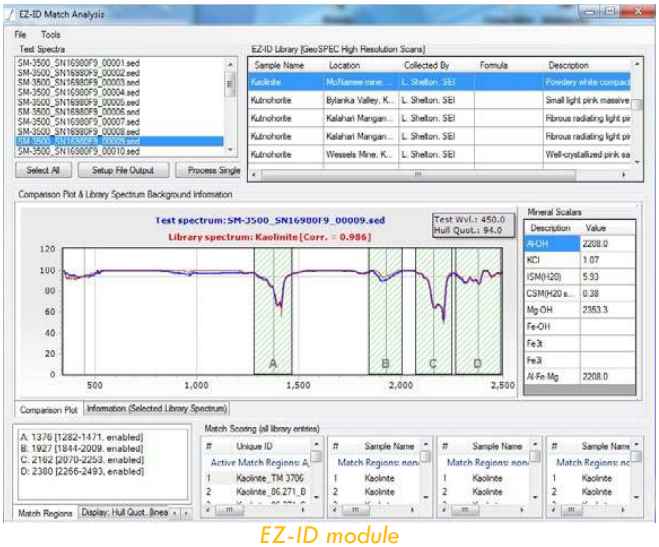
DARWin interface showing a vegetation scan



Vegetation indices screen

EZ-ID™ Spectral Matching Software

- Add-on module to DARWin
- Build your own custom spectral libraries
- Instantly compare acquired data to reference libraries for instant identification and classification
- Available with up to 3 spectral libraries for minerals, matching to more than 1000 known samples



EZ-ID module

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RS300

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