

SPECTRAL EVOLUTION

UDS-1100 Upwelling/Downwelling Field Spectroradiometer

Simultaneously measure upwelling/downwelling radiation

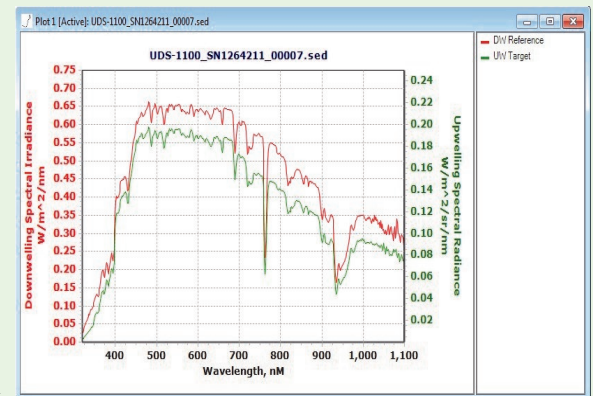
The UDS-1100 is well-suited for simultaneous upwelling and downwelling measurement and side-by-side display of the radiance and irradiance spectra. The UDS-1100 is available in two configurations: our standard package for field use and our optional UDS-1100SA standalone configuration for automatic unattended collection of scans. Both packages are built into a NEMA 4 enclosure.

The UDS-1100 uses a single, 512-element photodiode array with a spectral range of 320-1100nm. The system can be configured with a 4° lens or a 25° optic window for the bottom optic. Energy enters the spectrometer through the top and bottom entrance optics via a bifurcated fiber optic cable. Electronic shutters control the sampling of each foreoptic's incident illumination in turn. Using a computer attached via a USB connection and loaded with SPECTRAL EVOLUTION's DARWin SP Data Acquisition software, the operator can adjust parameters and collect scans manually, or with our standalone configuration, set up the application to collect scans automatically at regular intervals. In standalone mode, the system includes a rechargeable lithium-ion battery that can scan continuously for up to 24 hours. For information on modification of the UDS-1100SA to connect to different power sources, such as a 12V automotive or marine battery or a solar powered battery, please inquire. The standalone configuration collects up to 800 combined upwelling and downwelling scans.



Simultaneously measuring upwelling and downwelling radiation can be used in:

- ◆ Research into the spectral characteristics of vegetation, including plant canopies
- ◆ Soil and crop studies
- ◆ Forest canopy studies accounting for the effects of light and shade on leaves and soil
- ◆ Ocean and seabed studies looking at chlorophyll concentration for sea grass and coral reef health
- ◆ Environmental studies on snow and ice conditions
- ◆ Weather station research including studies on UV and variations in long-term radiation or meteorological measurements at remote locations



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SPECTRAL EVOLUTION

UDS-1100 Upwelling/Downwelling Field Spectroradiometer

	UDS-1100
Spectral Range	320- 1100nm
Spectral Resolution	3.2nm
Sampling Bandwidth	1.5nm
Noise Equivalence Radiance (1 sec integration time)	8x10 ⁻¹⁰ W/cm ² /nm/sr@400nm 7.0x10 ⁻¹⁰ W/cm ² /nm/sr@700nm 1.5x10 ⁻⁹ W/cm ² /nm/sr@900 nm
Max Radiance @ 700nm	1.5x10 ⁻⁴ W/cm ² /nm/sr
Spectrometer Type	Tall 512 element Si photodiode array with 25µ x 2.5mm pixel dimension; fixed grating
Optics	Fixed 4° field of view lens for upwelling; circular diffuser at top for downwelling. Optional 25° degree FOV window for upwelling.
Calibration	Factory calibrated for radiance and irradiance using NIST traceable source (±5% @400nm)
Slit	50µm
A/D Converter	16 bit
Wavelength Reproducibility	0.1nm
Wavelength Accuracy	±0.5 bandwidth
Integration Time	8-2000ms
Shutter for Dark Scans	Yes
Automatic Exposure	Yes
Communications interface	USB (optional Bluetooth)
Dimensions	10" x 12.5" x 6"
Power	6-12V; 0.5W (optional Li-ion battery with charger), 7.5V nominal (optional external 12V power connections)
Tripod mounting	2 each ¼-20 mounting holes provided/bracket for pole mounting
Weight	4 lbs
Software	DARWin SP Data Acquisition Package (Windows compatible)
Storage	UDS-1100SA: 800 scans
Enclosure	NEMA 4 sealed enclosure



UDS-1100SA with DARWin SP Software is Ideal for Unattended, Automatic Scanning

- UDS-1100SA has the same specifications as the UDS-1100 *plus* it's built for standalone operation
- Stores up to 800 combined upwelling and downwelling scans before offloading to a PC
- Optional 12V power connection for 12V auto/marine battery
- Operator controlled scanning parameters including number of scans and scanning intervals
- Optional Bluetooth communications



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