

## PSR-1100 SERIES FIELD PORTABLE SPECTRORADIOMETERS

The PSR-1100 series offers two budget-minded, lightweight, handheld spectroradiometers to meet the rigorous demands of the Remote Sensing community. The PSR-1100 features a durable, fixed 4 degree FOV optic and laser targeting for field operation. For greater optical flexibility, we also offer the PSR-1100-F which includes a detachable fiber optic cable with a wide array of optional fiber mount FOV lenses and irradiance diffusers. Whatever your measurement needs, Terraplus offers an appropriate solution.

PSR-1100 series units offer:

- 320-1100nm spectral range
- Keypad and LCD display—can collect and store 1000 spectra without a computer
- Autoexposure and auto-dark shutter for easy, one-touch operation
- Snap-in 2800mAH Li-ion rechargeable battery for more than four hours of continuous use
- Tag spectra with GPS, elevation, photos, and voice notes with the optional GETAC PS336 handheld microcomputer
- High reliability with all photodiode arrays for stable calibration
- Wireless Bluetooth interface for cable-free data connection
- Lightweight, less than four pounds
- Exclusive DARWin SP Data Acquisition software charts radiance, irradiance, reflectance, absorbance, or transmittance
- All data is automatically saved as an ASCII file for immediate use with 3rd party software



*PSR-1100 with fixed 4° FOV optic*



*PSR-1100-F with removable fiber optic cable*

### Small, Lightweight, Full Featured

The PSR-1100 series spectroradiometers are well suited for a range of remote sensing applications:

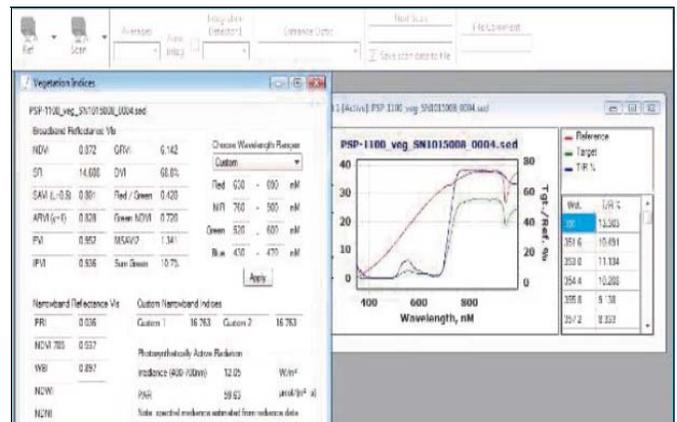
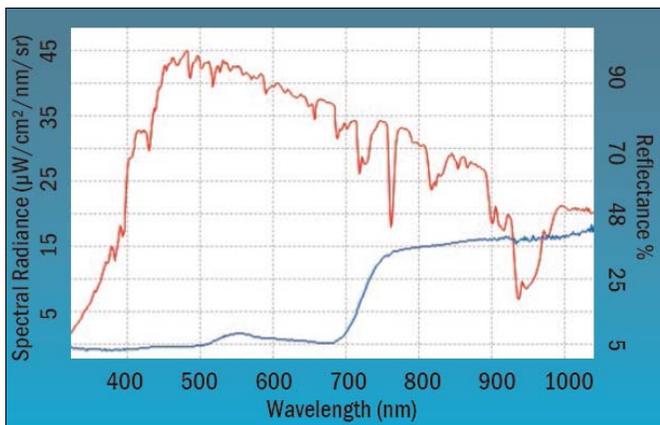
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| <ul style="list-style-type: none"> <li>• Vegetation studies</li> <li>• Soil analysis</li> <li>• Crop health</li> <li>• Agricultural research</li> <li>• Plant science</li> <li>• Biomass research</li> <li>• Leaf chlorophyll content</li> </ul> | <ul style="list-style-type: none"> <li>• Water Body Studies</li> <li>• Climate studies</li> <li>• Environmental research</li> <li>• Nitrogen level measurements</li> <li>• Forest canopy studies</li> <li>• Ecological research</li> <li>• Ice and glacier research</li> </ul> |
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The PSR-1100F can be ordered with a range of accessories for field and laboratory use, including:

- Leaf clip—specifically designed for leaf reflectance measurements with a built-in white plate, small spot, and low power illumination. Perform measurements on a very small leaf area without damaging the sample. (Requires ILM-105 fiber optic illuminator and bifurcated cable)
- Tungsten halogen contact probe—easy-to-use with a built-in light source, it is well-suited for vegetation reflectance studies in the field.
- FOV lenses—with a 1 meter 25° FOV fiber optic cable with an industry standard FC connector, the PSR-1100F can be equipped with 1, 2, 3, 4, 5, and 8° FOV lenses to meet your application requirements
- GETAC PS336 microcomputer—with a sunlight readable display or viewing spectra, the ability to store an almost limitless number of scans, and the capability of tagging scans with voice notes, images from its digital camera, GPS coordinates, and altimeter reading, the GETAC is the perfect complement to the PSR-1100F in the field.



## Reflectance of grass field

Reflectance of grass field section was measured using the PSR-1100 Spectroradiometer with its standard 4° field of view lens. The graphs were generated with DARWin SP Data Acquisition and Analysis software included with each PSR-1100. Red trace represents a control solar scan as measured from a reflectance panel. The reflectance scan of green grass is shown in blue. DARWin SP allows users to plot multiple scans on the same graph for easy comparison using DARWin's built-in analysis features. Data is output in ASCII format and can be exported to many 3rd party programs for further analysis.

## Analyze spectra using 19 Vegetation Indices

DARWin SP Data Acquisition software provides pull-down menu access to more than 19 vegetation indices, including NDVI, SR, SAVI, ARVI, EVI, IPVI, PRI, WBI, PAR, and more. In addition, since DARWin SP saves your spectra as ASCII files, they can be used with other third party application software, without requiring pre-processing.



## PSR-1100 Specifications

Model	PSR-1100	PSR-1100-F
Optics (included):	Fixed 4 degree field of view lens	Removable 1 meter fiber optic cable with FC-mount
Optional Optics Choices:	None	1, 2, 3, 4, 5 and 8 degree field of view fiber mount lenses, irradiance diffusers, contact probes, leaf clips, integrating spheres and more
Spectral Range:	320-1100nm	320-1100nm
Spectral Resolution:	3.2nm	3.2nm
Sampling Bandwidth:	1.5nm	1.5nm
Spectrometer Type:	Tall 512 element Si photodiode array with 25 $\mu$ x 2.5mm pixel dimension; fixed grating	Tall 512 element Si photodiode array with 25 $\mu$ x 2.5mm pixel dimension; fixed grating
Calibration:	Factory calibrated for radiance using NIST traceable source	Factory calibrated for radiance and/or irradiance (depending upon optics choices) using NIST traceable sources
Slit:	50 $\mu$ m	50 $\mu$ m
A/D Converter:	16 bit	16 bit
$\Lambda$ Reproducibility:	0.1nm	0.1nm
$\Lambda$ Accuracy:	0.5nm	0.5nm
Integration Time:	8-2000ms	8-2000ms
Internal Battery:	2800mAH Li-Ion snap-in battery with AC charger; runs for >4 hours on a full charge	2800mAH Li-Ion snap-in battery with AC charger; runs for >4 hours on a full charge
Shutter for Dark Scans:	Yes	Yes
Targeting:	Yes - internal red laser	No
Internal Memory:	1000 scans in stand-alone mode	1000 scans in stand-alone mode
Automatic Exposure:	Yes	Yes
Interface:	USB and Wireless Class 1 Bluetooth (100 meter range)	USB and Wireless Class 1 Bluetooth (100 meter range)
Dimensions:	7.0" x 3.25" x 5.75"	7.0" x 3.25" x 5.75"
Weight:	less than 4 pounds	less than 4 pounds
Mounting:	Tripod mount (1/4 x 20 mounting thread)	Tripod mount (1/4 x 20 mounting thread)
Software:	DARWin SP Data Acquisition Package (Windows compatible)	DARWin SP Data Acquisition Package (Windows compatible)

