

# UniSpec-SC Spectral Analysis System

*Trusted and tested technology*

The UniSpec-SC is a single channel (VIS/NIR), portable instrument commonly referred to as a "leaf reflectometer". It is an ideal instrument for measurement of leaf level reflectance on individual leaves (including samples as small as tiny conifer needles) as well as for use in ecosystem remote sensing applications. **It is a truly self contained system that does not require a separate PC for operation.**

## High Precision Detector

The heart of the **UniSpec-SC** is a high precision, miniature photodiode array detector that features high sensitivity, repeatability and long term calibration stability. It is compact, sensitive to light and insensitive to external influences (i.e. temperature) making it an ideal unit for field applications. The design of the detector allows for full spectrum (310-1100 nm) measurements in less than 1 second.

## Portability

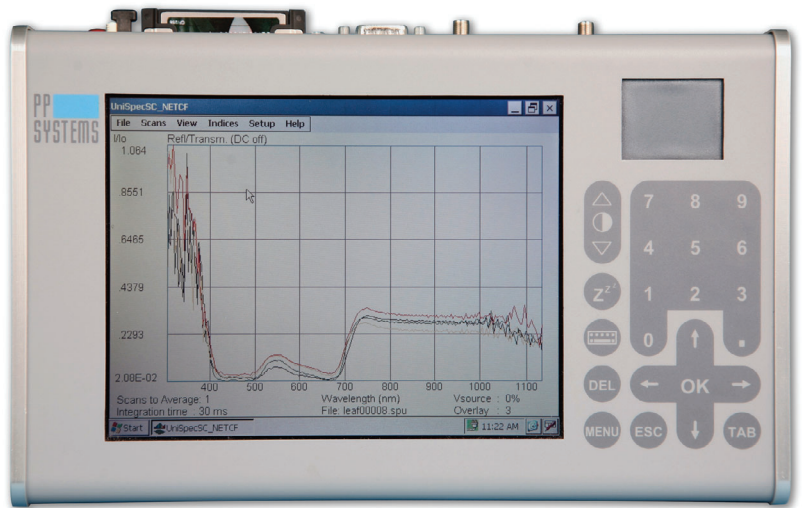
A built-in, rechargeable 7.2V Li-Ion battery provides power to the entire system. Typically, a fully charged battery will ensure approximately 4-6 hours of continuous operation in the field (dependent on use of internal light source). An optional battery pack (external) is also available for extended operation in the field.

## Integral Light Source

A tungsten halogen light source is built into the **UniSpec-SC** providing a steady, user-adjustable light source required for measurement of leaf level reflectance in the VIS/NIR. A built-in shutter is included for dark current compensation ensuring accurate results.

## User Interface

Unlike other remote sensing instruments, the **UniSpec-SC** features an innovative, ergonomic system console designed specifically for demanding field conditions. It has a built-in user interface including integral computer, large, full color graphical LCD with sunsreen for field use, keyboard and touchpad for user inputs, RS232 and USB interface and PCMCIA slot for unlimited data storage.



## System Features

- High precision spectrometer
- Range: 310-1100 nm (VIS/NIR)
- No recalibration required
- Rapid measurement (< 1 second)
- Lightweight (2.0 kg)
- Field portable
- Rugged aluminum enclosure with field carrying case
- Flexible foreoptic interface
- Powerful user interface and software
- Unlimited data storage
- GPS capability

## For Use In:

- Plant Physiology & Ecology
- Forestry
- Field crop monitoring
- Remote sensing
- Ground truthing
- Atmospheric science
- Aquatic plants
- Chlorophyll quantification



*Leaf reflectance measurement in the field*



*Leaf clip and bifurcated fiber optic*

PP  
SYSTEMS

## Wide Range Of Accessories

A wide selection of accessories are available for use with the **UniSpec-SC** including fiber optics, leaf clips, FOV lens, cosine receptor, external battery pack and reference standards. Let PP Systems configure a system that is ideal for your application.

## Powerful Software & Data Analysis

Easily configure the system to meet your application. The **UniSpec-SC** is supplied with a powerful software package running under Windows CE V5 that allows you to measure and analyze reflectance with on-line help to guide you every step of the way. In addition to measuring, viewing and storing data, the system is capable of calculation of common vegetation indices such as NDVI, mNDVI, PRI, WBI, summed green reflectance and red/green ratio.

## Software Features

- Manual or auto-scan capability
- User selectable integration time
- Manual or automatic graph scaling
- Switch from raw data to reflectance/absorbance data
- Calculation of common vegetation indices
- Perform mathematical functions on stored data
- Manual or auto-save data
- GPS capability
- On-line help system



GPS satellite data



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## Technical Specifications

### Detector Type\*

VIS/NIR

**Wavelength Range**

310-1100 nm

**Raleigh Resolution**

< 10 nm

**Bin Size (diode array)**

3.3 nm

**Absolute Accuracy**

< 0.3 nm

### Scan Time

< 1 second (plus integration time)

### A/D Converter

16 bit (dynamic range of 65,000 A/D counts)

### Integration time

4-3,200 ms

### Fiber Optic Inputs

Standard SMA 905 connectors

### Power

Internal rechargeable 7.2V Li-Ion battery (including charger).

### Operating Temperature

0-50° C

### User Interface

#### Display

7.2" VGA (640 x 480) color STN LCD

#### User Input

24 keys plus touchpad for data input, keyboard, display contrast

#### Serial Port

RS232 and USB

#### PCMCIA

Type 1. For additional data storage. Memory dependent upon RAM card used.

#### Dimensions

25 cm (L) x 15.5 cm (H) x 8.5 cm (D)

#### Weight

2.0 kg

\*PP Systems can also supply the UniSpec-SC with a UV (190-400 nm) or UV/VIS (190-730 nm) detector if required. Contact PP Systems for more details.

PP Systems is continuously updating its products and reserves the right to amend product specifications without notice.

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UniSpec-SC foreoptics interface (Detector and Source), serial and USB ports, PCMCIA port, auxiliary connector and system power.

## Aiding scientific research with versatile, proven technology.

Our UniSpec range of products have become the industry standard for measurement of vegetation reflectance from individual leaves to whole canopies and large transects. Our customers are made up of research scientists and students from universities and colleges, government research institutes and research laboratories throughout the world.

Distributor

For further information, please contact us at:

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