

# SVC HR-640i™

## High Resolution Field Portable Spectroradiometer

The SVC HR-640i provides high quality spectral data across the full spectral region from 350nm to 2500nm. The spectral resolution in the SWIR region is suitable for many applications in forestry, agriculture and environmental assessment. The ability to set parameters and review data on the built-in touch screen makes the SVC HR-640i extremely portable and easy to use. The internal GPS and camera add critical information to the spectral signatures and can save countless hours during the data analysis. The ability to receive and store data from up to 16 external sensors adds dimension to the field data and helps guide the user towards making better measurements. Stored downwelling sensor information will alert the user to altered radiance conditions between reference and target acquisitions and other important parameters. Real time monitoring of a downwelling sensor allows the user to revisit the reference panel should a change in irradiance be detected.

The use of 100% linear array detectors ensures excellent wavelength stability, while the thermoelectrically cooled InGaAs and extended InGaAs detectors provide superior radiometric stability.

Fixed foreoptics and hard-mounted internal spectrometer elements combine to produce a robust and efficient optical path, ensuring reliable data under the most demanding field conditions. The internal CPU enables a full day's data to be acquired, displayed and recorded with no external computer. The SVC HR-640i firmware/software automatically record the longitude, latitude and time of day from the internal GPS receiver, and a digital photograph is stored as a separate linked file for each spectral measurement. This greatly eases record keeping in the field, while providing positive, coded identification for subsequent data analysis.

The SVC HR-640i, weighing only 8.5 pounds, is one of the lightest and the most portable field spectroradiometers providing this full range of features.

The system is available with optional foreoptics and fiber optic bundles that are easily changed in the field. The spectroradiometer system is furnished in a durable, waterproof field case.

### Rugged PDA

The SVC HR-640i is furnished with two versions of SVC's proprietary software. One operates with PCs and laptop computers running Windows Operating Systems. The second is for PDA operation and runs under Windows Embedded OS. The rugged PDA provided with the SVC HR-640i is an extremely durable, reliable, and lightweight unit. It is waterproof and drop resistant to IP67 and MIL-STD-810F ratings and provides excellent battery life.

The compact size and sunlight readable display contribute to ease of operation when acquiring and reviewing collected field data.

Non-volatile flash memory guards against the loss of valuable sensor data while the RS-232 and USB ports provide optimum connectivity in the field or in the lab.

The Bluetooth wireless communication streamlines the field collection process. SVC offers optional, rugged laptop, tablet and mobile devices.

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# SVC HR-640i <sup>TM</sup>

**Spectral Range** 350-2500 nm  
**Internal Memory** 1000 scans  
**Channels** 640  
**Linear Array** (1) 512 Si, 350-1000 nm  
 (1) 64 InGaAs, 1000-1890 nm  
 (1) 64 Extended InGaAs, 1890-2500 nm

**Spectral Resolution (FWHM)** ≤ 3.3 nm, 700 nm  
 ≤ 30 nm, 1500 nm  
 ≤ 28 nm, 2100 nm

**Bandwidth (nominal)** ≤ 1.5 nm, 350-1000 nm  
 ≤ 14 nm, 1000-1890 nm  
 ≤ 10 nm, 1890-2500 nm

**Minimum Integration** 1 millisecond

**FOV** 4° standard, 8° or 14° optional  
 25° optional armored fiber optic

**Head Size** 8.5" x 11.5" x 3.0"  
 22 cm x 29 cm x 8 cm

**Weight** 8.5 lbs., 3.8 kg

**Battery Type** 7.4 V lithium ion

**Battery Life** 3 hours approx.

**Digitization** 16 bit

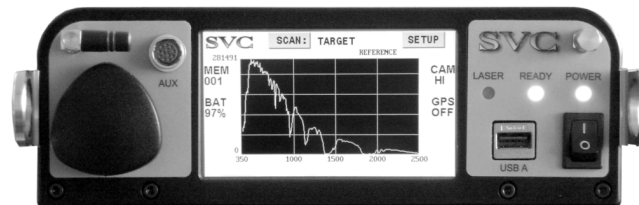
**Wavelength Repeatability** 0.1 nm

**Noise Equivalent Radiance (1.0 sec scan)** ≤ 0.8 x 10<sup>-9</sup> W/cm<sup>2</sup>/nm/sr @ 700 nm  
 ≤ 1.0 x 10<sup>-9</sup> W/cm<sup>2</sup>/nm/sr @ 1500 nm  
 ≤ 1.0 x 10<sup>-9</sup> W/cm<sup>2</sup>/nm/sr @ 2100 nm

**Radiometric Calibration Accuracy (NIST Traceable)** ± 5% @ 400 nm  
 ± 4% @ 700 nm  
 ± 7% @ 2200 nm

**Dark Current Correction** automatic /selectable  
**Spectrum Averaging** automatic /selectable

**Operating Environment**  
**Humidity** to 90% RH, non-condensing  
**Temperature** -10° to +40° C  
**Sighting** diode laser



**STAND-ALONE INSTRUMENT CONTROL PANEL**

## Features

- One half the size and weight of other field spectroradiometers
- Internal digital camera captures scene of target area
- Internal GPS provides time and location for Stand Alone, PDA and PC measurements
- QVGA sunlight readable touch screen delivers a quick graphic data display
- Second Bluetooth radio receives data from up to 16 external sensors (optional interface required)
- Provides exceptionally high spectral resolution operating across the full spectral region
- Incorporates 100% linear array technology and cooled InGaAs detectors thus providing superior wavelength and radiometric stability
- State of the art linear arrays provide low noise (improved data) across the 350 nm to 2500 nm range
- Fixed foreoptics ensure a reliable optical path for repeatable data
- Critical optical components are hard mounted to the spectrometer platform
- Provides fast, full spectral measurements with no moving gratings
- Internal 32-bit CPU allows measurements to be made without an external computer
- Full spectral measurements can be acquired in 1 second
- Designed for minimal set-up & warm-up time
- Supplied with rugged PDA with Bluetooth for wireless operation
- Field-changeable fiber optic light guides are available in many lengths
- Integral, removable Lithium Ion battery enhances mobility (no power cord)
- Many options available including: Direct Connect Reflectance/Transmission Sphere, Reflectance Probe, Cosine Receptors, Fiber Optic Light Guides, Back Packs, Reflectance Panels, Stands, Rugged Computers and PDAs.

## Applications

- Vegetative Stress Analysis
- Forestry Analysis
- Plant Physiology
- Land and Crop Management
- Marine and Wetland Studies
- Environmental Monitoring
- Ground Truthing
- Industrial QC and Process Control
- Surface Color Measurements



**WATERTIGHT FIELD CASE**

