Quickstart Guides for Open and Measure Analyzers

Introduction to Open and Measure Analyzers

StellarNet line of rugged StellarCASE systems are integrated portable case systems for material identification and composition analysis using NIR, Raman, and LIBS spectroscopy. They include interior mounting of spectrometer instrumentation pre-configured for "Open & Measure" application, with no additional setup required. With a simple press of the "Analyze" button instantaneous match results or sample % composition can be displayed on your screen.

Each StellarCASE System is delivered with standard StellarNet spectrometer modules and mounted inside of a rugged pelican case. The Systems contain an internal main power control system with ON, OFF, & Charge buttons. Additionally, there is a USB Hub which you can connect a mouse OR USB storage device. Each system comes with a mounted tablet with pre-installed SpectraWiz Software and is tested with sample verification standards prior to shipment. The systems are ready for use as soon as they arrive at your facility. Please review the system diagrams below to understand system powering, buttons, and safety features. For software tutorials please review our StellarNet Manual and Tech Support Webpage http://www.stellarnet.us/stellarnet-technical-support-online/ and YouTube Channel.

StellarCASE-Raman™

USB Hub with blue light power

Main Power Control Panel
Includes (l to r) System Power Button, 14.8V Battery charge input plug, and 19V DC input for direct wall power with supplied 19V DC Adapter. Can use both inputs to charge and run simultaneously.

Ramulaser Vial-Mounted Ramulaser Vial module with laser key safety switch, power setting selection dial, and fire button

Vial holder with safety

Ramulaser Power control

Acrylic Mounting Surface

Ramulaser Fire Button
Always use Laser Safety Goggles and cover sample vial holder with safety lid when firing laser

Ramulaser Safety Key

5VDC Ramulaser

F1000 fiber output to spectrometer Caution: Fragile

Ramulaser Power Button

Ramulaser mounting strap

VISIBLE AND INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION CLASS 4 LASER PRODUCT

Note: System automatically switches to battery power if AC adapter is unplugged while the main power button is on

StellarCASE-LIBS™

USB Hub with blue light power

Main Power Control Panel
Includes (l to r) System Power Button, 14.8V Battery charge input plug, and 19V DC input for direct wall power with supplied 19V DC Adapter. Can use both inputs to charge and run simultaneously.

Laser Safety Key

Laser Fire Button

Sample

Acrylic Mounting Surface

Note: System automatically switches to battery power if AC adapter is unplugged while the main power button is on

StellarCASE-NIR™

USB Hub with blue light power

Main Power Control Panel
Includes (l to r) System Power Button, 14.8V Battery charge input plug, and 19V DC input for direct wall power with supplied 19V DC Adapter. Can use both inputs to charge and run simultaneously.

Lamp On/Off Control

Sample Reflectance

Reflectance Standard

Acrylic Mounting

Note: System automatically switches to battery power if AC adapter is unplugged while the main power button is on

StellarRad- Handheld SpectroRadiometer

The Stellar-RAD Handheld SpectroRadiometer system is delivered pre-installed and has pre-loaded calibration files. All a user must do is to power up the tablet by holding down the PWR On/Off button on the system for 3-5 seconds and the tablet computer will boot. Once logged into Windows the Stellar-RAD can be run with either of two software options both installed on the tablet. The first is called SpectraWiz (http://www.stellarnet.us/software/) which has many applications built in for light measurement and control of your portable spectroradiometer. The second is called StellarRAD and is a slimmed down program designed for a tablet with simple radiometric measurement capability.

Measurements using the Stellar-Rad Software

StellarRAD is a fast, easy-to-use spectroradiometer in a touchscreen, tablet format. It incorporates live spectrum and CIE 1931 color space chromaticity displays among other real-time features. It is designed specifically for touch-screen use.
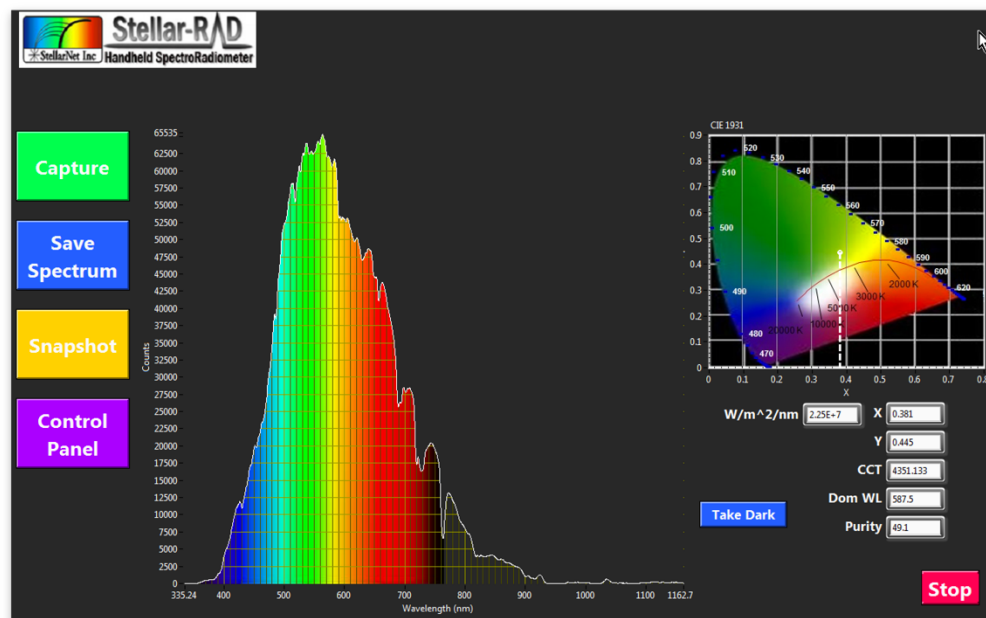
Special features include:

- Timestamped .PDF reports may be generated at any time and are saved to disk. You can choose whether or not to display reports as they are generated. (See Capture section.)
- Spectra may be saved as a tab-delimited spreadsheet file of virtually universal compatibility.
- Dark and comparative spectra functionalities are supported.
- A built-in command parser provides local or remote scriptability via MATLAB, Python and other languages, allowing repetitive tests to be programmed without a deep-dive into instrumentation programming.

Operation

Begin StellarRAD execution by tapping the "Go" button at the upper left corner of the screen:
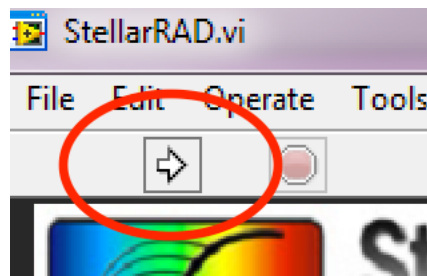
To adjust operating parameters such as integration time, click the Control Panel button. The Control Panel pane will open:
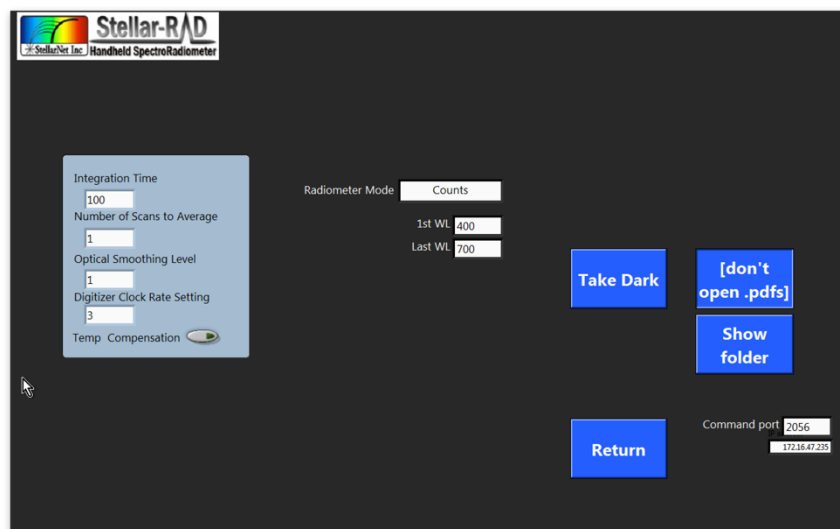

To adjust a parameter: click in its field, type in or select the desired value, then press the Return button. To take a dark spectrum, click its button on either the main operating panel or the Control Panel, and follow the on-screen instructions.

Certain operating parameters are saved to disk. These files are stored in the user's home directory (usually c:/Users/[username]).

Capture Button: Generate a .PDF Report

Pressing the Capture button will quickly generate a .pdf report that includes the full front panel plus summary information.
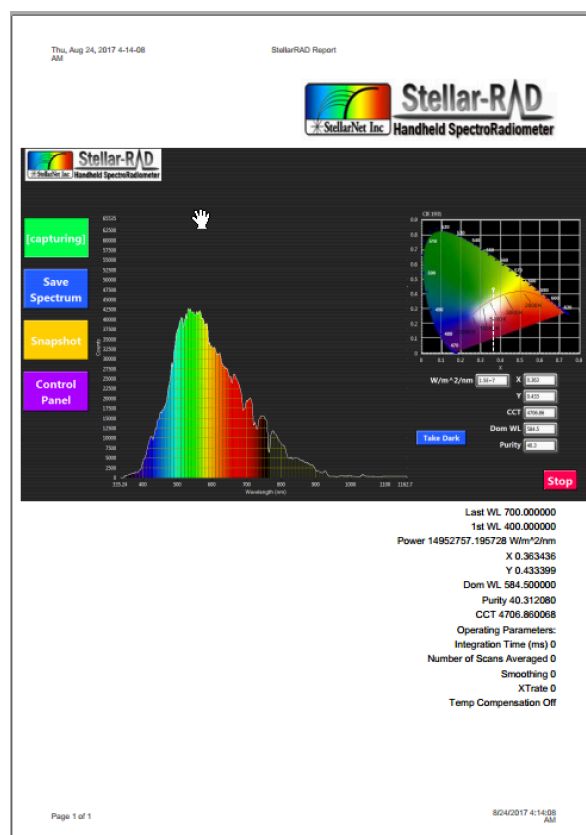
By default, each generated .pdf will open using your Windows computer's default .pdf viewer. You can turn this auto-view feature off and on by pressing the Control Panel, then clicking the Show/Don't Show button.

The .pdfs are written to disk in the user's documents directory (typically c:/Users/[username]/My Documents).

Save Spectrum as Spreadsheet

Pressing the Save Spectrum button will instantly save the current spectrum to disk as a tab-delimited spreadsheet text-file. These can be opened with Excel, MATLAB, Python, R, databases and most other software. The filenames are uniquely named with a timestamp.

The spectrum spreadsheets are written to disk in the user's documents directory (typically c:/Users/[username]/My Documents).

Take a Snapshot for comparing spectra

Press the Snapshot button to display a static outline of a spectrum you wish to use as a baseline for comparing changing data.
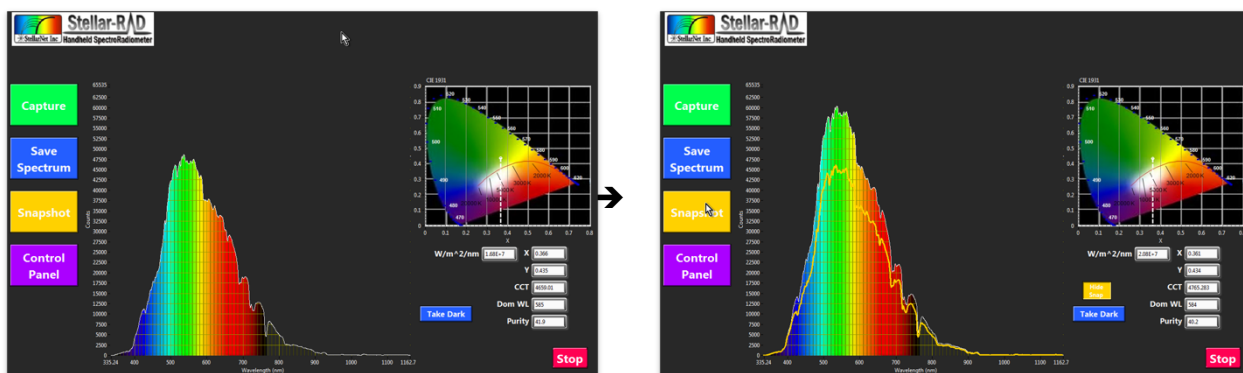
Assembly/Disassembly of the Stellar-Rad

The Stellar-Rad consists of a BLUE-Wave spectrometer, Tablet computer, SMA-Coupler, cosine receptor, USB Hub, & and rugged case. The case is designed so a user can take the system apart if they wish. Some users will often purchase other research grade light collecting accessories such as integrating spheres and will want to connect the spectrometer in a laboratory fashion. The Stellar-Rad can easily be assembled and taken apart and used with desktop computer as well. Often when trouble shooting the Stellar-Rad system it is advised to hook directly to another laptop or desktop computer, install SpectraWiz, & StellarNet drivers located here and test spectrometer functionality. Please review the StellarRAD User Guide for more information.