

www.StellarNet-Inc.com

Analytical Instrumentation

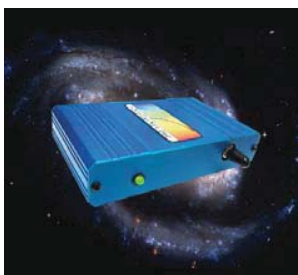
Surf the New Wave in Portable Fiber Optic Spectrometry

StellarNet Miniature Spectrometers are fiber optic instruments designed for laboratory, field, and industrial applications requiring spectroscopy measurements in the 190-2300nm wavelength ranges. The instruments are designed to be vibration tolerant with **no moving parts** or detector sockets for **portable test measurements** and industrial reliability. StellarNet includes SpectraWiz software **Free** with customizable LabView and Excel+VBA programs !



BLACK-Comet Spectrometers for UV-VIS (and NIR w/Super Range -SR)

- o Aberration Corrected **Concave** gratings **Deliver** near Perfect Spectral Images
- o Concave optics have **No Mirrors** to provide the Lowest Possible **Stray Light**
- o Flat field produces **Uniform Resolution** (<1nm) over wavelength range
- o 50% **Higher UV** sensitivity below 400nm compared to plane grating optics
- o **Ruggedized 16bit Instrument** in Miniature Metal Enclosure (2.7 x4.3 x6 inch)
- o Robust instrument is shock proof with no internal optical adjustments
- o **4 models:** C 190-850nm, CXR 280-900nm, C-SR 200-1080nm, CXR-SR 220-1100nm



BLUE-Wave Miniature Fiber Optic Spectrometers for UV-VIS-NIR & OEM

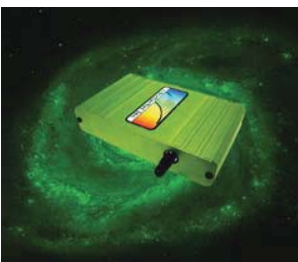
- o Wide selection of models for measurements in **190-1150nm wavelength range**
- o UVN **eXtreme Grating** technology delivers high efficiency in both UV and NIR
- o **16-bit** digitizer with onboard spectral memory and **high speed USB-2** interface
- o Up to 8 instruments **connect and operate simultaneously** via USB hub
- o External **TTL trigger** for synchronized capture for plasma monitoring and LIBS
- o Robust system is shock proof in Miniature Rugged Metal Enclosure

Detector upgrades for UV range or DLENS cost extra



RED-Wave NIR-InGaAs Spectrometers for 0.9-1.7um & 0.9-2.3um ranges

- o **TE cooled** 512 Element InGaAs Photo Diode Array with 25x500um pixels
- o Detector delivers **4000:1 Signal/Noise** using Correlated Double Sampling
- o **Zero Defect** 512 Detector Array provides 5nm Resolution with 25um slit
- o **Optional 1024 Detector** for 2.5nm Resolution with 25um slit - **only \$4570** extra
- o **16bit digitizer** with x10 detector gain switch and **high speed USB-2** Interface
- o Robust operation in Miniature **Rugged Metal Enclosure** (2.7 x4.3 x6 inch)



GREEN-Wave Miniature Low Cost Fiber Optic Spectrometers for UV-VIS-NIR

- o Wide selection of models for measurements in **190-1150nm wavelength range**
- o UVN **eXtreme Grating** technology delivers high efficiency in both UV and NIR
- o **12-bit** digitizer with onboard spectral memory and **USB-1** interface
- o Single unit operations with optical resolutions down to 0.3nm FWHM
- o Robust system is **shock proof** in Miniature **Rugged Metal Enclosure**
- o **Ideal for low cost** applications like educational labs and field spectroradiometers

Detector upgrade for UV range <350nm cost extra



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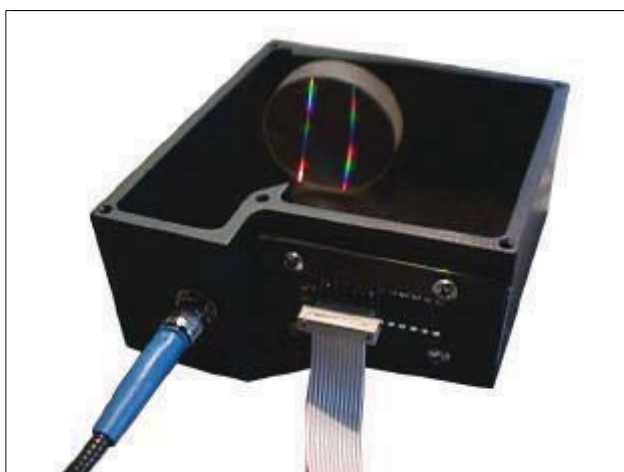
Surf the New Wave in Portable Fiber Optic Spectrometry



Concave Grating Spectrometers for UV-VIS & NIR

The BLACK-Comet spectrometer series offers low cost, research grade performance in a small, ruggedized package. The instruments are exceptionally robust with no moving parts and are packaged in a small metal enclosure for a variety of spectroscopy applications in field, research lab, factory process, and QA/QC environments.

Each spectrometer utilizes a 40mm diameter concave grating with aberration correction to provide superb spectral imaging. This significantly improves spectral shapes by reducing coma and astigmatism present in



plane grating miniature spectrometer designs. The flat field spectrograph architecture does not utilize mirrors and therefore provides the lowest possible stray light in the UV. StellarNet's patented optical design with permanent alignment employs no grating adjustments to provide unbeatable thermal stability minimizing wavelength drift from temperature. A multi-band filter is integrated into the spectrograph to provide order sorting and prevent optical aliasing. The instruments optical input is a standard SMA-905 connector, using single strand fiber optic cable with typical silica core diameters of

400um, 600um, and 1000um. Each spectrometer connects via the supplied USB2 cable and requires no external power supply. ThermoElectric Cooling (TEC) is optional and can be added to any of the models. Six different models are available, ranging from the -HR high resolution series to the -SR wide range models – perfect for any application!

BLACK-Comet Model and Resolution Table			Estimated resolving resolution based on slit size				
Model	Wavelength Range		Slit-200um	Slit-100um	Slit-50um	Slit-25um	Slit-14um
BLK-C	190-850nm		6.0	3.0	1.5	0.85	0.75
BLK-CXR	280-900nm		6.0	3.0	1.5	0.85	0.75
BLK-C-SR	200-1080nm		8.0	4.0	2.0	1.4	1.3
BLK-CXR-SR	220-1100nm		8.0	4.0	2.0	1.4	1.3
BLK-HR-UV	200-600nm		3.0	1.5	0.7	0.5	0.4
BLK-HR-VIS	350-780nm		3.0	1.5	0.7	0.5	0.4



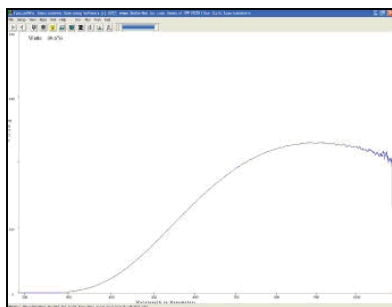
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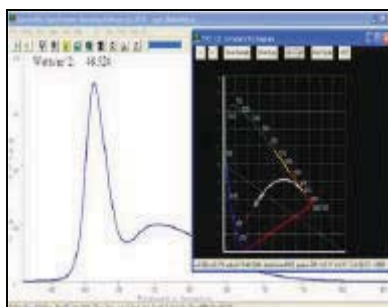
StellarNet BLACK-Comet Concave Grating Spectrometers for UV-VIS & NIR

StellarNet offers a variety of fiber optic sampling accessories for a multitude of applications with the BLACK-Comet spectrometer series. For SpectroRadiometric measurements, StellarNet offers NIST calibrated integrating spheres, cosine receptors, and lens attachments. High performance light sources, optical fibers, probes, and transmission/reflectance fixtures are available for any Optical Metrology and Colorimetry application. StellarNet also offers cuvette holders, dip probes, and flow cells for SpectroChemistry and Fluorimetry measurements.

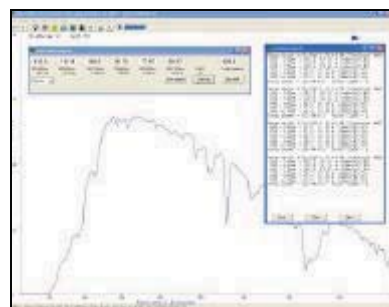
The SpectraWiz® software package, included free with every spectrometer, has many applications for spectroscopy. SpectroRadiometry applications include user defined calibrated absolute intensity modes (Watt/m², Lumen, Radiant/Luminous Flux, etc), CIELAB color analysis and color rendering, UVa/UVb/UVc monitoring, and solar simulator classification. Standard Optical Spectral Analysis tools such as FWHM, centroid, and peak wavelength are available with more advanced features such as baseline correction, data smoothing, spectral derivatives, and episodic data capture also included. ChemWiz® concentration analyzer creates a PLS method save and recall with concentration display the SpectraWiz ID® application provides element identification for LIBS/Plasma and OES. StellarNet also provides a developer's toolbox of source codes, customizable demo programs, and full spectroscopy programs in LabVIEW, Visual Basic, Delphi Pascal, and MS Visual C- ***All with your BLACK-Comet spectrometer.***



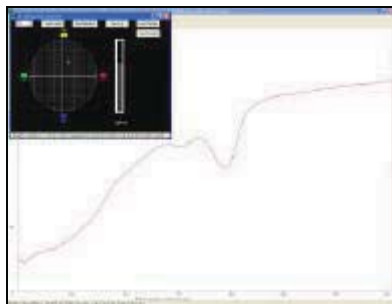
SpectroRadiometry
Tungsten-Halogen Lamp Spectra



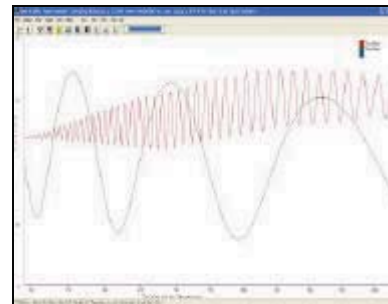
LED Metrology
Complete Analysis Systems



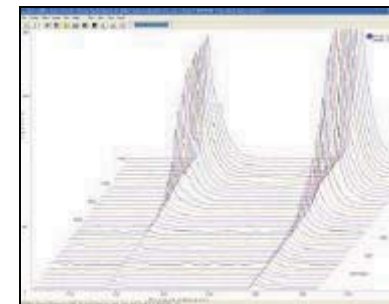
Solar Irradiance Measurements
and Simulator Classification



Reflectance Spectra and
Colorimetric Data for a Red
Habanero Pepper



Metrology of Films, Filters, and
Optical Components



Absorbance Chemistry and
Fluorimetry with high speed data
collection for kinetic study

Specifications

Dynamic range:	2000:1 with 6 decades	Dimensions:	69mm x 100mm x 150 mm
Optical resolution:	see resolution table	Power consumption:	<100mA via USB2
Detector type:	2048 pixel CCD/PDA (opt)	Interface:	USB2 cable
Pixel size:	14um wide x 200um tall	Digitizer:	16-bit @ 2.5MHz rate
Detector Integration:	1ms to 65s	Stray light:	0.02% at 435nm; 0.2% at 200nm
Slit size options:	14, 25, 50, 100, or 200um	Fiber optic input:	SMA905
Concave Grating:	Aberration corrected	Signal to noise:	1000:1
Grating type:	Holographic, 590g/mm	Operating systems:	Win98/Me/00/XP/Vista/7
Spectrograph:	f/2, Flat field – no mirrors	Software included:	SpectraWiz program & apps
Order sorting filter:	Integrated multi-band	Also free programs for:	LabView/VC/VBA/Delphi



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