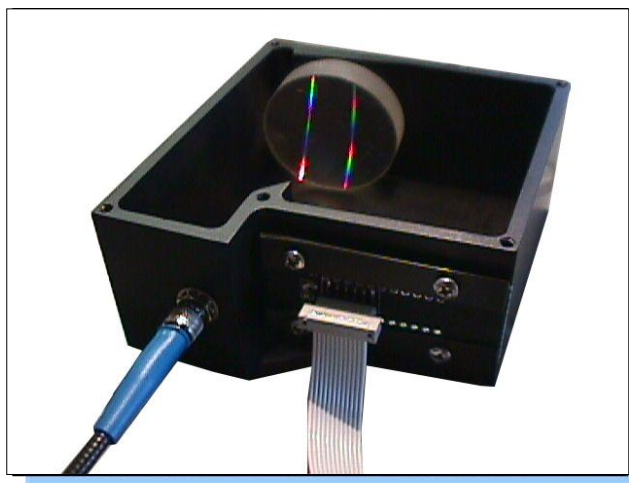StellarNet Inc

BLACK-COMET Concave Grating Spectrometers for UV-VIS & NIR

The BLACK-*C*omet 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 comma 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. **Thermo Electric Cooling (TEC) is optional and can be added to any of the models.**

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

Specifications [1] zAP1 Electronics Upgrade [2] zAP2 Wifi + Applications Processor Upgrade with SpectraWiz Mobile Software [3] SMART-Control Interface

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Dynamic range:	2000:1 with 6 decades	Dimensions:	69mm x 100mm x 150 mm
Optical resolution:	see resolution table	Power consumption:	100mA @ 5 VDC
Detector type:	2048 pixel CCD/CMOS	Interface: USB2 or WiFi[2], RS232[3], SPI[3], 4-20mA[3],	
Pixel size:	14um wide x 200um tall	Digital I/O[3] or ethernet[3]	
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 0.22 NA single fiber
Concave Grating:	Aberration corrected	Signal to noise:	1000:1 *TEC optional upgrade
Grating type:	Holographic, 590g/mm	Operating systems:	Windows, Linux[2], Andriod[2], iOS[2]
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	

StellarNet Inc

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-*C*omet 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/m^2, 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*.
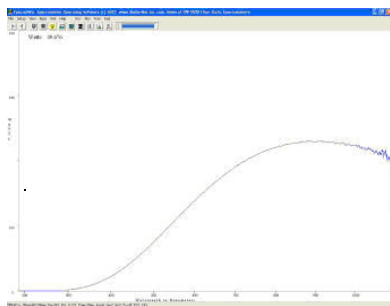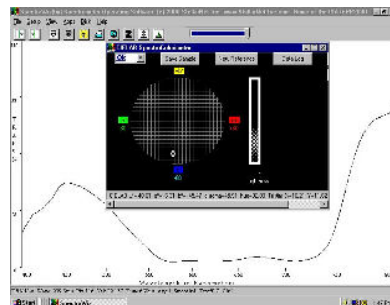
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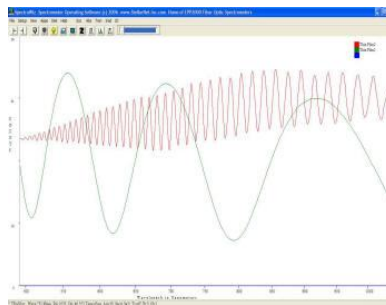Tungsten-Halogen Lamp Spectra
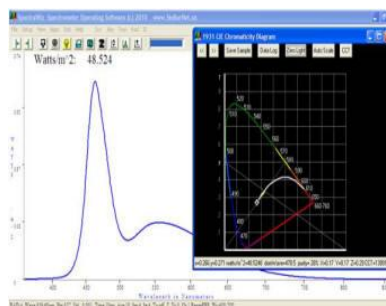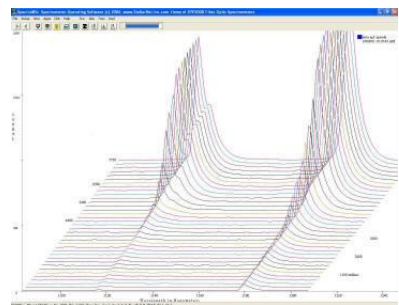
LED Metrology:
Complete Analysis Systems
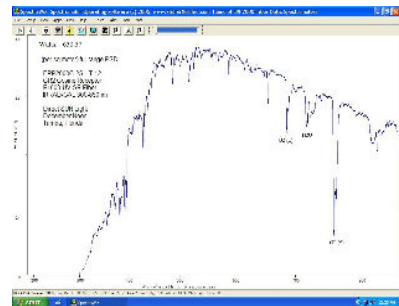
Solar Irradiance
Measurements

Optical Metrology and
Colorimetry

Metrology of Films, Filters, and
Optical Components

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

Upgrades available: ZAP① ZAP② SMART-Control