V-EOS™ HYPERSPECTRAL CAMERA
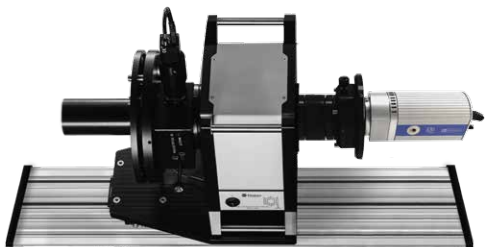

Our widefield hyperspectral imager will change your view of spectral analysis by providing complete spectral information for each and every pixel of a full resolution image. V-EOS™ delivers a series of monochromatic images, avoiding fastidious x-y or line scanning. The system allows unprecedented analysis by providing large scale distribution of spectral features, whether it is band gap variability of a semiconductor or molecular variation in a new compound.

APPLICATION EXAMPLES:

» Photovoltaic characterization

» Mineral analysis

» Forensic

» Food and plants sorting

PERFORMANCE	
Spectral Resolution	< 2 mm
Spectral Range	400 to 1000 nm
Spectral Channels	Continuously tunable
Spatial Resolution	2 mm at 1.20 m with a FOV of 1.85 m x 1.35 m
Spectral Image Rate	3 fps
Standard Field of View (customizable)	72° Horizontal, 50° Vertical
Calibration	Automatic
Wavelenght Absolute Accuracy	< 0.4 nm
Entrance Slit Size	No slit / Full field of view measured for each wavelength
Spectral Width Sampling	≥ 0.1 nm programmable
Pixel Size	6.45 µm x 6.45 µm
Dynamic Range (digitization)	14 bit
CCD Frame Rate	13.5 fps
Smile Distortion	≤ 0.5 nm
Keystone Distortion	No
Barrel Distortion	≤ 2% due to widefield entrance optics
Noise level	6e⁻ @ 10 MHz
Camera Type	Interline
Camera Acquisition (linear or matrix)	Matrix
Lens Mount Standard	C-Mount (option for CS-Mount)
Camera Interface	Firewire
Frame Grabber Needed	No
Exposure Control	PHySpec™ software controlled
Binning	1x1; 1x2; 2x1 ; 2x2
Detector Type	CCD
Focus	Motorized for Chromatism Correction

SOFTWARE & DATA PROCESSING	
Operating System	Windows Vista, 7 (64 bit)
Acquisition	PHySpec™ Software
Preprocessing	Image stabilization, spatial filtering, statical tools, spectrum extraction, data normalization, spectral calibration
Hyperspectral Data Format	FITS, HDF5
Single Image Data Format	FITS, PNG, TIFF, JPG
Spectrum Data Format	JPG, PNG, TIFF, CSV, PDF, SGV
Option	C++ SDK plugin interface included

DIMENSIONS, WEIGHT & POWER	
Footprint	305 mm x 610 mm x 270 mm
Weight	20kg
Power Consumption	≤ 20 W (including detector)

PORTABILITY	
Mounting	305 mm x 610 mm optical breadboard; 1/4 imperial threaded
Tripod	Optional

ENVIRONMENTAL CONDITION	
Operation Temperature	10ºC to 40ºC
Storage Temparature	0ºC to 50ºC

ACCESSORIES	
Computer	Not included
Objective Lens	Included
Reference Panels	Reflectance standard and calibration lamp

GRAND-EOS™ HYPERSPECTRAL CAMERA

TECHNICAL SPECIFICATIONS

	GRAND-EOS	
Spectral Range	400 - 1700 nm	
	VNIR	**SWIR**
Spectral Resolution	< 2.5 nm (400-1000 nm)	< 4 nm (900-1700 nm)
Spatial Resolution (with 10 X microscope objective)	< 7.5 µm	< 12 µm
Camera	Front-illuminated interline CCD camera	
Sample Holder	XY Manual translation stage (50 mm travel)	
Wavelength tuning speed	60 ms stabilization time for 2 nm step	
Wavelength Absolute Accuracy	< 0.3 nm	
Visualisation Camera	Monochrome or Color XMP camera 2/3" 5.1M Progressive Color CMOS / 2448 x 2048 pixels	
Preprocessing	Spatial filtering, statistical tools, spectrum extraction, data normalization, spectral calibration	
Hyperspectral Data Format	FITS, HDF5,	
Single Image Data Format	JPG, PNG, TIFF, CSV, PDF, SGV	
Software	PHySpec control and analysis software included	

Macro-imaging modality

Field of view	Optimized from 20 x 20 mm to 160 x 160 mm

Micro-imaging modality

Microscope	Upright or Inverted
Objectives	5x, 10x (other magnifications available upon request)
Illumination	Broadband and monochromatic illumination available via light guide
Excitation	532 nm, 660 nm, 785 nm, or 808 nm lasers *Other wavelengths avaiblable upon request*

Macro-imaging modality

Micro-imaging modality

GRAND-EOS combines a hyperspectral microscopy system with a hyperspectral wide-field imaging platform, giving access to micro and macro modalities with both VNIR (400-100 nm) and SWIR (900-1700 nm) spectral ranges. This imaging platform takes advantage Photon etc's patented filtering technology based on volume Bragg grating providing a non-polarized wavelength selection with high throughput and efficiency. This filtering method allows imaging of large field-of-view, scanning through a user defined wavelength range. Using a megapixel sensor, the acquisition of filtered images provides spectral information from million of points at the surface of the sample. The versatility of GRAND-EOS as well as its high spatial and spectral resolution makes it an ideal tool for both fundamental research or industrial applications.