

# S-EOS™ HYPER SPECTRAL CAMERA



Integrating our new ZephIR camera, the EOS family now covers the SWIR spectral region up to 2.5  $\mu\text{m}$ . Our S-EOS 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. S-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		
STANDARD PRODUCTS	S-EOS 1.7	S-EOS 2.5
Spectral Range	0.9-1.7 $\mu\text{m}$	1-2.5 $\mu\text{m}$
Spectral Channels	Continuously tunable	
Entrance Slit Size	No slit / Full field of view measured for each wavelength	
Spectral Width Sampling	$\geq 0.2$ nm programmable	
Spectral Resolution	< 5 nm	
Spectral Image Rate	15-20 fps	
Pixel Size	30 $\mu\text{m}$	
Dynamic Range (digitization)	14 bit	
Sensor Frame Rate	Up to 346 fps	
Camera Type	FPA	
Camera Acquisition (linear or matrix)	Matrix	
Lens Mount Standard	C-Mount (option for CS-Mount)	
Cooling	Yes	
Camera Interface	Camera Link™ Yes	
Frame Grabber Needed	PHYSpec™ software controlled	
Exposure Control	HgCdTe (MCT)	
Detector Type		
SOFTWARE & DATA PROCESSING		
Operating System	Windows XP SP2, Vista, 7	
Acquisition	PHYSpec™ Software	
Preprocessing	Image stabilization, spatial filtering, statical tools, spectrum extraction, data normalization, spectral calibration	
Hyperspectral Data Format	FITS	
Single Image Data Format	FITS, PNG, TIFF, JPG	
Spectrum Data Format	JPG, PNG, TIFF, CSV, PDV, SGV	
Option	C++ SDK plugin interface included	
DIMENSIONS, WEIGHT & POWER		
Footprint	305 mm x 610 mm x 270 mm	
Weight	20 Kg	
Power Consumption	$\leq 25$ W (including detector)	
Power Supply	24 V	
PORTABILITY		
Mounting	305 mm x 610 mm optical breadboard; 1/4 imperial threaded	
Tripod	Optional	
ENVIRONMENTAL CONDITION		
Operation Temperature	10°C to 40°C	
Storage Temperature	0°C to 50°C	
ACCESSORIES		
Computer	Not included	
Reference Panels	Reflectance standard and calibration lamp	

# GRAND-EOS™ HYPERSPPECTRAL CAMERA



Macro-imaging modality



Micro-imaging modality

## 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		
<b>Macro-imaging modality</b>			
Field of view	Optimized from 20 x 20 mm to 160 x 160 mm		
<b>Micro-imaging modality</b>			
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 laser <i>Other wavelengths available upon request</i>		

GRAND-EOS combines a hyperspectral microscopy system with a hyperspectral wide-field imaging platform, giving access to micro and macro modalities with both VNIR (400-1000 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.