

Hyperspectral Camera

With Photon etc.'s **Hyperspectral Camera**, remote sensing acquisition no longer requires fastidious x-y sample scanning. More than simply increasing efficiency, getting both spectral and spatial content will allow you to perform completely new analysis, and push the limits of your most demanding applications.



No other technology, including imaging FTS, Fabry-Perot, acousto-optic, and liquid crystal, can compete with Photon etc.'s patented imaging Bragg tunable filter technology.

This new **non-dispersive** technology is the most **efficient** tunable filter technology on the market, allowing spectral and spatial information to be collected at the same time. It is now possible to select a **narrow bandwidth** for a spectral range of hundreds of nanometers. Because **no compromise** is made on **spatial** sampling or **resolution**, our imagers give a clear vision of the sample or target at the desired spectral resolution.

Integrated with a camera, it captures a series of **monochromatic images** and produces an optimized hyperspectral cube, allowing a high resolution spectral analysis of each and every pixel of the images.

Advantages

- ✓ High efficiency unpolarized
- ✓ Narrow bandwidth
- ✓ Wide spectral range
- ✓ Agile spectral scan
- ✓ High damage threshold
- ✓ Excellent image quality
- ✓ No slit required

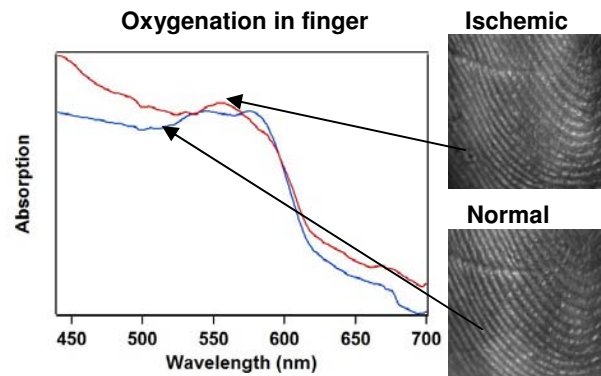
Numerous features are available, including an integrated CCD camera from high speed to high sensitivity for **wide field** (with a zoom lens) or **microscope** configurations with adapted software for data collection. Our PHySpec software provides full automation of the instrument's moving parts.

Applications

- ✓ Raman imaging
- ✓ Photoluminescence imaging
- ✓ Biological spectral imaging
- ✓ Pharmaceuticals
- ✓ Biothreat detection
- ✓ Forensic
- ✓ Gas leak imaging
- ✓ Mining and oil exploration
- ✓ Astronomy
- ✓ Food processing
- ✓ Biomedical, etc.

Biomedical application

The following acquisitions were made on human skin tissue when blood flows in a finger and a tourniquet around the finger blocks circulation. Absorption spectra of oxyhemoglobin and deoxyhemoglobin are shown with their reflectance images at 572nm.



Technical Specs

This technology requires a collimated input beam with minimum divergence to optimize throughput and bandwidth. Various options are available for wide field or microscope configurations as well as a great choice of CCD cameras from high speed to high sensitivity. A large range of optical systems is available to match macroscopic and microscopic applications.

Custom possibilities	
Available spectral window	400 - 2300 nm
Available bandwidths (FWHM)	From 0.3 nm to 3 nm depending on wavelength
Tuning range	From 250 nm to 1300 nm
Throughput (unpolarized)	Up to 60%
Wavelength relative resolution	0.05 nm (for FWHM = 0.3 nm)
Wavelength absolute accuracy	0.1 nm (for FWHM = 0.3 nm)
Damage threshold	> 100 kW/cm ² average power > 5 GW/cm ² peak power @ 1064 nm, 8 ns
Aperture diameter	≤ 10 mm
Dimensions (L x W x H)	10" x 7.5" x 9.25" (25.4 cm x 19.05 cm x 23.5 cm)
Operating temperature	10 to 40°C
Storage temperature	5 to 50°C
Software	PHySpec included or basic functions available with ActiveX drivers
Computer connection	USB 2.0 (compatible 1.1)
Power supply	100 - 240 V , 50 - 60 Hz

Standard Product

Product Name	Spectral Range (nm)	Approx. Bandwidth (nm)
V – EOS*	400 - 1000	2
S – EOS	1000 - 2300	4

* Different objectives are available

Accessories
Input Optical System
Output Optical System
External Spectral Calibration
Integration of CCD cameras (Apogee, Pixelfly, FLI)
Intensity Calibration
Microscope

Whether you need standard or custom products, our scientists and engineers will work to create an Hyperspectral Imager that meets your specifications. Photon etc.'s main products include Hyperspectral Imaging Systems, Tunable Sources, Bandpass Filters, Notch Filters, and Multiband Filters.