

# CytoViva HSI System

## Specifications - Enhanced Sensitivity

CytoViva Hyperspectral Imaging System (400 nm – 1,000 nm)

**CytoViva's Hyperspectral Imaging** technology was specifically designed to provide quantitative spectral analysis of nanoscale materials imaged with the patented CytoViva Enhanced Darkfield Microscopy or with other microscopy modalities. This can include spectral analysis of both biological and materials-based nanoscale samples, which may be isolated or integrated in cells, tissue or other materials-based matrices.

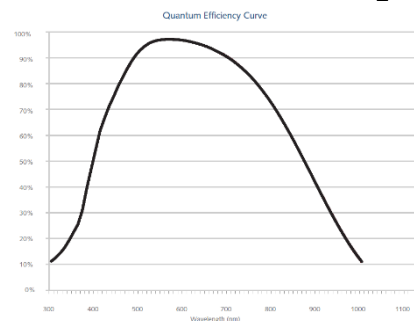
### Specifications

SPECTROPHOTOMETER	
Type	Transmission Grating
Spectral Range	400 nm – 1,000 nm
Spectral Resolution	1.5 nm (with 30 $\mu$ m Slit)
Bending of Spatial Lines Across Spatial Axis	Smile < 1.5 $\mu$ m
Bending of Spectral Lines Across Spectral Axis	Keystone < 1 $\mu$ m
Maximum Spatial Scan Width	819 $\mu$ m @ 10X Magnification
SPECTROPHOTOMETER INTEGRATED EMCCD	
Type	EMCCD
Pixel Size	16 $\mu$ m x 16 $\mu$ m
Exposure Settings	Select up to 12 Unique Exposure Times
Resolution	512 x 512
Frame Rate (Full Resolution)	67 to >3000 fps
Cooling	Air cooled (@ ambient air 20°C) -- 75°C
Dynamic Range A/D	16 bit
Camera Control	Turbo-1394™ Interface (IEEE-1394a)
Binning	1 x 1, 2 x 2, 4 x 4
COMPUTING	
Computer	Dell Precision Tower, 16GB RAM
Operating System	Windows 7
LIGHT SOURCE	
Lamp Type	Quartz Halogen Aluminum Reflector
Wavelength	400 nm - 2,500 nm
Power	150 watts
IMAGE ANALYSIS	
Image Analysis Software	ENVI 4.8 (IDL Available)
Spectral Image Display	Real Time Recreated RGB Image of Spectral Data
Spectral Identification	Spectral Mapping using Spectral Angle Mapper
Data Size (Spectra Cube*)	~ 500 MB (*Dependent on Image Scanned)
Image File Options	Up to 16 File Options Including GIF, JPEG, TIF
Spectral Delineation	Real Time Display of Pixel Level Spectra
Spectral Library Data Capture	Single/Multiple Pixel Spectral Libraries
ROI spectral Data Presentation	Created Using up to Five Different Techniques
Spectral Statistical Data	Mean, Min, Max (+) and (-) Standard Deviation
AUTOMATED STAGE	
Scan Resolution	10 nm Step Size
Repeatability	Worst Case 0.30 $\mu$ m
Travel Range	114 mm x 75 mm

### Application Examples

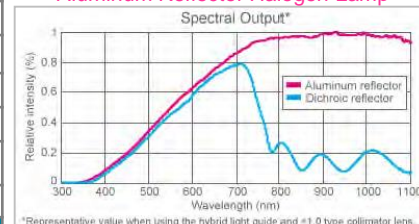
- Nanotoxicology
- Cancer Research
- Nanoparticle Characterization
- Drug Delivery

### EMCCD Detector Quantum Efficiency



### Illumination Spectral Output

Aluminum Reflector Halogen Lamp



\*Representative value when using the hybrid light guide and #1.0 type collimator lens.

Tel 888.737.3130 ▪ Fax 334.749.2627  
support@cytoviva.com  
www.cytoviva.com