

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.

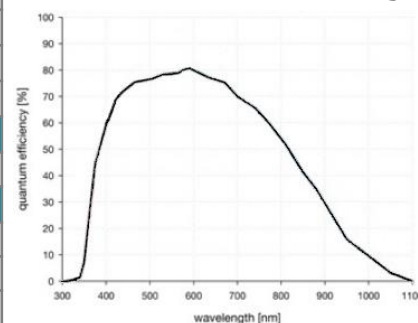
Specifications

SPECTROPHOTOMETER	
Type	Transmission Grating
Spectral Range	400 nm – 1,000 nm
Spectral Resolution	1.5 nm (with 30 μm Slit)
Bending of Spatial Lines Across Spatial Axis	Smile < 1.5μm
Bending of Spectral Lines Across Spectral Axis	Keystone < 1μm
Maximum Spatial Scan Width	819μm @ 10X Magnification
SPECTROPHOTOMETER INTEGRATED sCMOS	
Type	sCMOS
Pixel Size	6.5μm x 6.5μm
Resolution	2048 x 2048
Frame Rate (Full Resolution)	40 fps
Cooling	Passive Cooled
Dynamic Range A/D ²	16 bit
Data Interface	USB 3.1 Gen 1
Binning	1 x 1, 2 x 2, 4 x 4
COMPUTING	
Computer	Windows 10 Desktop Tower, 16GB RAM
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 0.30μm
Travel Range	114 mm x 75 mm

Application Examples

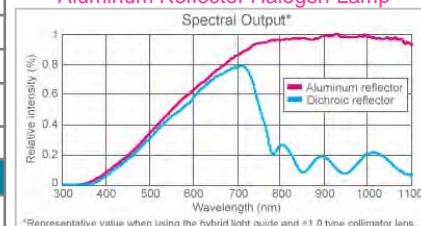
- Nanotoxicology
- Cancer Research
- Nanoparticle Characterization
- Drug Delivery

sCMOS Detector Quantum Efficiency



Illumination Spectral Output

Aluminum Reflector Halogen Lamp



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