spectral camera HS

Hyperspectral camera operating in the VIS and VNIR ranges of 380-800 nm and 400-1000 nm. With its high spatial and spectral resolution, high image rate, and rugged structure Spectral Camera HS is an excellent tool for both industry and science.

Cased Spectral Camera HS

OEM Spectral Camera HS

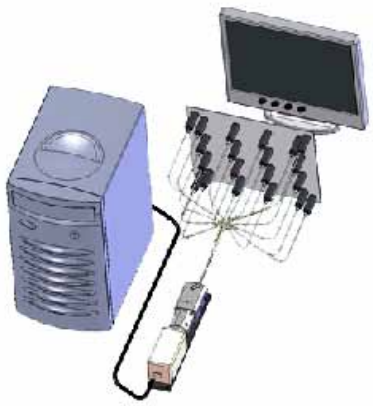
Spectral Camera is an imaging spectrometer, an integrated combination of our ImSpector imaging spectrograph and an area monochrome camera. It works as a push-broom type line scan camera and provides full, contiguous spectral information for each pixel.

The Spectral Camera HS consists of an ImSpector V8E or V10E for the wavelength range 380-800 nm or 400-1000 nm, respectively, and a sensitive high speed interlaced CCD detector. The transmission diffraction grating and lens optics used in the spectrograph provide a high quality, low distortion image that is designed to fulfill the most demanding specifications.

The Spectral Camera HS provides outstanding performance at affordable cost. Spatial resolution of 1600 pixels, image rate up to 120 images/s, and adjustable spectral sampling make it a tool which can meet the highest industrial and scientific hyperspectral imaging requirements.

Applications

Color control and sorting
Scanning of art works
Flat panel display measurement
Printing testing
Counterfeit detection
Fruit and vegetable inspection and sorting
Life science applications
Plant and vegetation research
Environmental monitoring
Hyperspectral microscopy



Flat pannel display measurement with a multiple point solution

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Performance Specifications

SPECTRAL CAMERA HS	V8E	V10E
Optical characteristics		
Spectrograph	V8E	V10E
Spectral range	380-800	400-1000
Spectral resolution (30 µm)	2.0nm	2.8nm
Spectral sampling	0.55 - 4.4 nm/pixel *)	0.72 - 5.8 nm/pixel *)
Spatial resolution	RMS spot size <9µm	
Aberrations	Insignificant asligmatism, keystone or smile	
Numerical aperture	F/2.4	
Slit width options	30 µm (18, 50, 80, 150 µm)	
Effective slit length	11.84 mm	
Total efficiency (typical)	> 50% independent on polarization	
Stray light	< 0,5% /halogen lamp, 590nm LPF)	
Electrical characteristics		
Sensor	Interline CCD	
Pixels in full frame	1600 (spatial) x 1200 (spectral)	
Active pixels	1600 (spatial) x 840 (spectral)	
Pixel pitch	7.4 µm	
Camera output	Digital 12 bit	
Interface	Base CameraLink	
Camera control	CameraLink	
Frame rate	33 fps (full frame) up to 120 fps (binning)	
Exposure time range	0.1 - 100 ms	
Additional features	Separate spatial and spectral binning	
Power consumption	< 5W	
Input voltage	12V (OEM), 24V (cased)	
Environmental characteristics		
Storage	-20... +50 °C	
Operating	+5... +40 °C non-condensing	

Mechanical characteristics		
	OEM	Cased
Size (L x W x H)	260 x 70 x 79 mm	330 x 85 x 90 mm
Weight	1.8 kg	2.7 kg
Body	Anodized aluminium with mounting screw holes	
Lens mount	Standard C-mount	
User adjustments	None	
Shutter	Optional	Yes, with USB control

*) Adjustable by spectral binning

ACCESSORIES

SPECIM can provide various accessories for the Spectral Cameras to broaden their applicability.

- Fore objective lenses which are designed to provide the optimal image and spectral quality across the full spectral range of the Spectral Camera.

Lens	Focal length	FOV
OLE 18,5	18,5 mm	35,5 degrees
OLE 23	23 mm	28,9 degrees
OLE 140	140 mm	4,8 degrees

- Collection fiber optics to convert the camera into a multiple point spectrometer. All the points are measured simultaneously without a moving multiplexer.
- Mirror Scanner or rotating stage for scanning static targets and outdoor scenes, and X-stage sample mover for desktop and microscope applications.

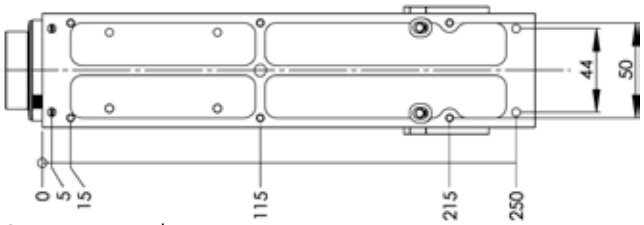
SPECTRALDAQ SOFTWARE

SPECIM Spectral Camera HS is supported by SpectralDAQ software, which allows:

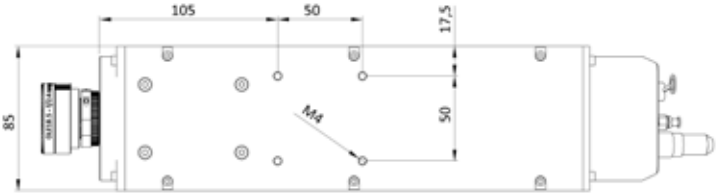
- data acquisition and saving data in the hard disk
- camera parameters settings
- basic visualization in real time
- to control scanner systems

Datacubes are saved in ENVI compatible format that allows further processing by several software packages for hyperspectral data processing.

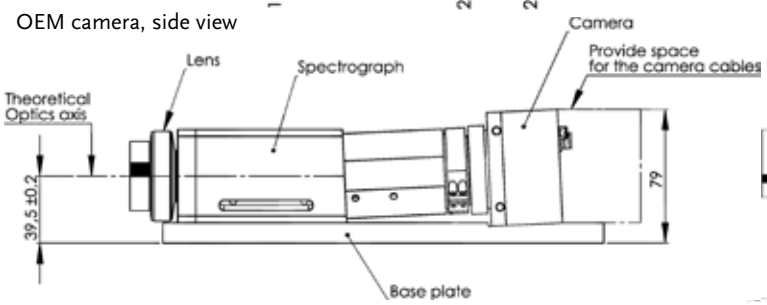
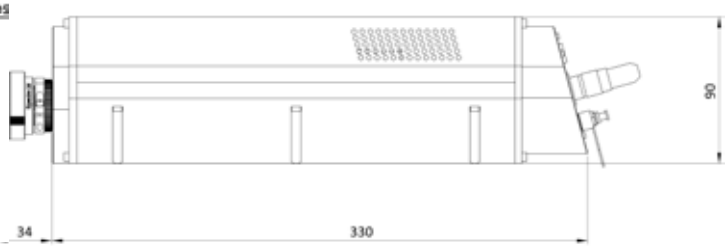
OEM camera, bottom view



Cased camera, bottom view



OEM camera, side view



Cased camera, side view