spectral camera sCMOS

Hyperspectral camera operating in the VIS and VNIR ranges of 380-800 nm and 400-1 000 nm. With its extremely low noise, high resolution, high image rate, and rugged structure Spectral Camera sCMOS is an excellent tool for various scientific and commercial applications.

The Spectral Camera sCMOS consists of an ImSpector V8E or V10E, and a high speed sCMOS area monochrome camera. It works as a pushbroom type line scan camera and provides full, contiguous spectral information for each pixel. 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 sCMOS provides outstanding performance with extremely low noise (a few electrons) and high signal-to-noise ratio. Spatial resolution of 2 184 pixels, image rate up to 100 images/s and adjustable binning make it a tool which can meet the highest hyperspectral imaging requirements.

Applications

Color control
Counterfeit detection
Fruit and vegetable inspection
Geology
Life science applications
Plant and vegetation research
Printing testing
Scanning works of art

Spectral Camera sCMOS

OPTICAL CHARACTERISTICS		
Camera model	sCMOS-CL-50-V8E	sCMOS-CL-50-V10E
Spectral range	380 - 800 nm	400 - 1 000 nm
Spectral resolution FWHM	2.3 nm (30 µm slit)	2.9 nm (30 µm slit)
Spectral sampling	0.44 - 3.5 nm*	0.63 - 5.07 nm*
Spatial resolution	Average rms spot radius < 9 µm	
F/#	F/2.4	
Slith width	30 µm (18, 50, 80 or 150 µm optional)	
Effective slit length	14.2 mm	
ELECTRICAL CHARACTERISTICS		
Sensor	Temperature stabilized sCMOS	
Spatial pixels	2 184	
Spectral pixels	946	
Pixel pitch	6.5 µm	
Signal-to-noise ratio (peak)	170:1 (no binning) to 680:1 (with 8x2 binning)	
Camera output	16 bit CameraLink	
Data cable	Length 5m	
Camera control	CameraLink	
Frame grabber	BitFlow Carbon	
Frame rate	100 fps (full frame)	
Additional features	Asymmetric spatial and spectral binning (SW)	
Exposure time range	8.1 - 100 ms	
Power consumption	60 W	
Input voltage	110/230 V, 50/60 Hz or 24 VDC	
MECHANICAL CHARACTERISTICS		
Size (L x W x H)	400 x 110 x 120 mm	
Weight	2.0 kg	
Lens mount	C-mount	
Shutter	Electro-mechanical	
ENVIRONMENTAL CHARACTERISTICS		
Storage	- 20 ... +50 ºC	
Operating	+ 5 ... +40 ºC, non-condensing	

*) Adjustable by spectral binning

ACCESSORIES

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

Fore objective lenses, specifically designed for optimized performance in 400 - 1 000 nm.

Lens	Focal length	FOV
OLE 18	18 mm	43.0 degrees
OLE 23	23 mm	34.3 degrees
OLE 140	140 mm	5.8 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, or with X-stage sample mover for desktop and microscope applications.

ACQUISITION SOFTWARE

SPECIM Spectral Camera sCMOS is supported by Lumo software, which allows for:
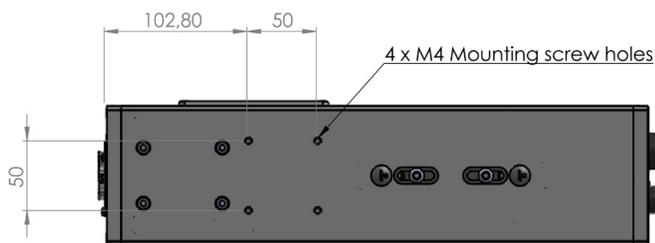- data acquisition and saving data in the hard disk
- to set camera parameters
- image visualization in real time

Datacubes are saved in non-proprietary ENVI, Matlab and R compatible format that allows further image processing with several commercial software packages. SPECIM can also provide SDK for quick and efficient application development.

Side view

102,80   50
4 x M4 Mounting screw holes
50

Bottom view

107
115
52,50