TECHNICAL SPECIFICATIONS

SOC710

HYPERSPECTRAL CAMERA

The SOC710 Series hyperspectral imaging system is a precision sensor utilizing a high-speed, low-noise silicon-based CCD, high quality visible-to-near infrared spectrometer, and a novel integrated scanning system.

Traditional line scanning (often referred to as "push broom") hyperspectral imaging systems require a translation stage to move target samples in front of the camera, which necessitates multiple stages or additional hardware to perform varied lab and field experimental setups.

With the SOC710 Series the sensor moves behind the lens and the scanning speed or translation rate is intimately tied into the exposure parameters of the system. Internal translation eliminates the need for user calculation of speed vs. exposure settings and the need for proprietary external stages.

APPLICATIONS

Microscopy

Agriculture

Plant and Vegetation

Oceanography

Biology

Machine Vision

Art & Antiquities

Security & Defense

KEY FEATURES

- Eliminates need for translation or sample stage.
- Can be operated in traditional line scanning or internal scanning modes. Switch between acquisition modes with a simple software toggle.
- Precision scanning mechanism of the SOC710 allows for high dynamic range experiments with two scans of the same scene at different gain settings.
- Preview camera provides live video for scene framing and focusing
- Data recorded in open format binary compatible with third-party analysis software such as ENVI or MATLAB

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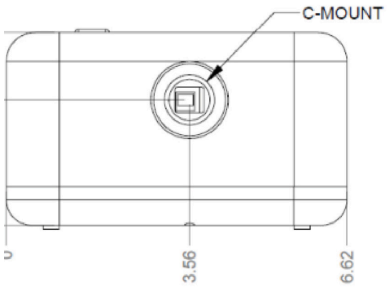
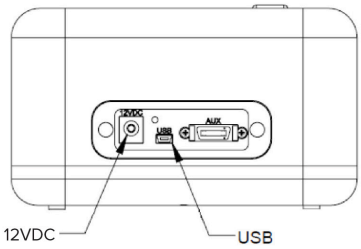
Capture hyperspectral datacubes with a portable, compact camera you can setup anywhere without compromising on the spectral resolution you need.

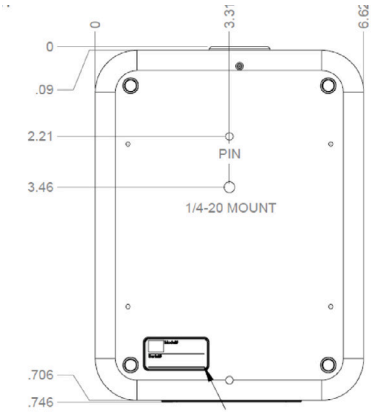
Built-in scanning makes the 710 Series extremely versatile. By eliminating the restrictions of external translation stages the SOC710 hyperspectral cameras can, as a single package, operate from any standard tripod, C-Mount microscope, remote sensing tower, or simply be placed on a bench in the lab.

The SOC710's small footprint and lack of external stage hardware makes it very portable and the best choice for applications benefited by in-situ field data collection or research labs with varied projects. The jitter-free, precision translation mechanism of the SOC710 internal scanner ensures that multiple cubes measured of the same target are in perfect registration.

DESIGN



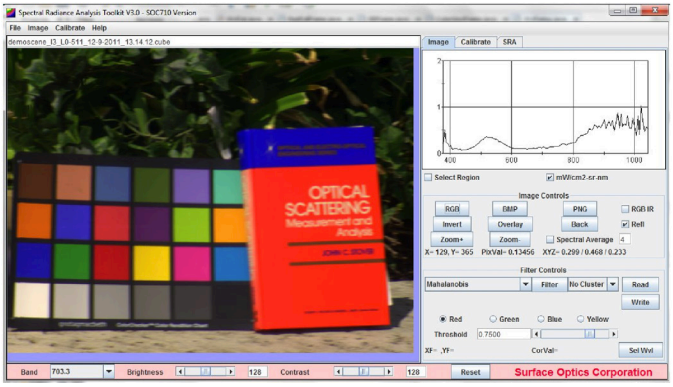




*710-VP model dimensions

SOFTWARE

SOC710 Series hyperspectral cameras are delivered with SOC's HyperScanner™ data acquisition and SRAnalysis™ software. The live video preview camera allows easy framing and focus of the scene before collecting a data cube in HyperScanner™.



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SPECIFICATIONS

	710-VP	710-E	710-SWIR
Spectral Range	400-1000 nm	4000 - 1000 nm	900 - 1700
Spectral Resolution (nominal / recorded)	4.69 / 4.09	2.31	2.86/5.71
Spectral Channels*	256 / 128	260	280 / 140
Sensor Material / Type	Silicon / CCD	Silicon / CCD	InGaAs
Spatial Pixels (max / nominal)*	1040 / 520	1392 / 696	640 x 512
Dynamic Range	66 dB / 12-Bit ADC	66 dB / 12-Bit ADC	74.5 dB / 12-Bit ADC
Bit Depth / ADC	12 / 16	12 / 16	14 / 16
Noise Equivalent Spectral Radiance (NESR)*	1.258E-03 W/m**2-sr-nm @ 550nm	1.258E-03 W/m**2-sr-nm @ 550nm	1.258E-03 W/m**2-sr-nm @ 550nm*
Aperture (F#)	2.8	2.8	2.0
F-Stop Radiometric Calibration	f4	f4	f4
Lens	C-Mount / NIR Corrected	C-Mount / NIR Corrected	C-Mount / SWIR Corrected
Spatial Resolution (Avg. RMS Spot Radius)	< 40 microns	< 40 microns	< 15 microns
Stray Light	< 0.5%	< 0.5%	< 0.5%
Data Cube Collection Rate (max/nominal)	100 / 30 frames/lines per sec* 6.96 / 23.2 seconds/cube**	100 / 30 frames/lines per sec* 6.96 / 23.2 seconds/cube**	80 frames/lines per second 8 seconds/cube
Pixel Pitch	4.65 microns	6.45 microns	25 microns
Interface	USB 2.0	USB 2.0	USB 2.0
Weight	2.95 Kg (6.5 lbs)	3.85 Kg (8.5 lbs)	5.44 Kg (12 lbs)
Dimensions (HWL)	9.5 x 16.8 x 22 cm	12.7 x 20.3 x 28 cm	13 x 20 x 27 cm
Power	12-VDC / 100-240 VAC (50-60 Hz)	12-VDC / 100-240 VAC (50-60 Hz)	12-VDC / 100-240 VAC (50-60 Hz)

* per binning option

** 696 x 520 x 128 cube dimensions

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