

# SPECTRAL CAMERA *QE*

Hyperspectral camera working in the ranges 380-800 nm and 400-1000 nm. Spectral Camera QE provides high resolution and sensitivity in the full VNIR range. It is an excellent hyperspectral tool particularly for research and development.



OEM camera

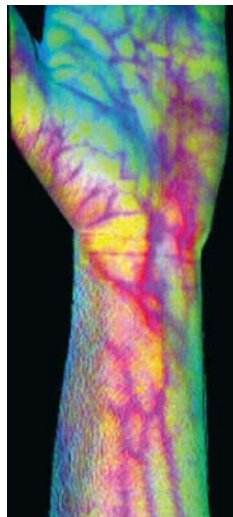
**S**pectral Camera is an imaging spectrometer, i.e., an integrated combination of ImSpector imaging spectrograph and an area monochrome camera. It works as a push-broom type line scan camera and provides full, contiguous spectral information for each pixel.

The transmission diffraction grating and lens optics used in the spectrograph provide a high quality, distortionless image that is designed to fulfill the specifications of the detector.

The Spectral Camera QE consists of our ImSpector imaging spectrograph V8E or V10E for the wavelength regions 380-800 nm or 400-1000 nm, respectively, and a sensitive CCD detector.

## Applications

- Color research
- Scanning of art works
- Flat panel display measurements
- Printing testing
- Counterfeit detection
- Life science applications
- Plant and vegetation research
- Hyperspectral microscopy



Biomedical research



Spectral color scanning of old work of art

## Performance Specifications

SPECTRAL CAMERA QE	V8E	V10E
<b>Optical characteristics</b>		
Spectrograph	ImSpector V8E	ImSpector V10E
Spectral ranges	380-800 nm	400-1000 nm
Spectral resolution (30 µm slit)	2.0 nm	2.8 nm
Spectral sampling	0.5 nm	0.65 nm
Spatial resolution	rms spot radius < 9 µm	
Aberrations	Insignificant astigmatism, smile or keystone	
Numerical aperture	F/2.4	
Slit width options	30 µm (18, 50, 80 µm optional)	
Effective slit length	8.67 mm	
Total efficiency (typical)	> 50%, independent of polarization	
Stray light	< 0.5 % (halogen lamp, 590 nm notch filter)	
<b>Electrical characteristics</b>		
Sensor	IT CCD camera	
Pixels in image frame	1344 (spatial) x 1024 (spectral)	
Pixel pitch	6.45 µm	
Camera output	Digital 12 bit	
Interface	Firewire	
Frame rate	9 fps (full frame), 45 fps (8x8 binning)	
Exposure time range	25 µm - 10 s	
Power consumption	< 5 W	
Input voltage	12 V DC	
<b>Mechanical characteristics</b>		
Size (L x W x H)	330 x 82 x 60 mm	
Weight	2.2 kg	
Body	Anodized aluminium with mounting screw holes	
Lens Mount	Standard C-mount	
User adjustments	None	
<b>Environmental characteristics</b>		
Storage	-20 ... +50°C	
Operating	+5 ... +40°C, non-condensing	

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

Several fore objective lenses are available which have been selected and manufactured to provide the optimal image and spectral quality and to meet the specifications of the Spectral Camera over the broad spectral ranges.

The Spectral Camera can also be delivered with collection fiber optics to convert the camera into a multiple point spectrometer. In the case of fiber optics, all the points are measured simultaneously without a moving multiplexer.

The Spectral Camera can be delivered with a Mirror Scanner or rotating stage for scanning static targets and outdoor scenes, or with X-stage sample mover for desktop and microscopic applications.

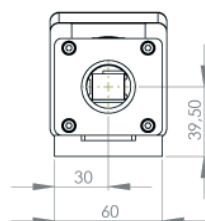
### SPECTRADAQ SOFTWARE

SPECIM Spectral Camera QE is supported by SpectralCube software, which allows:

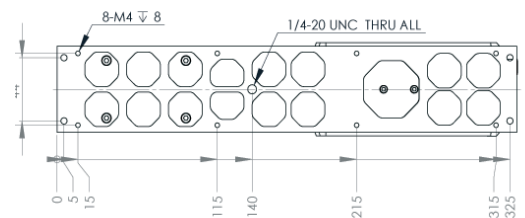
- data acquisition
- camera parameters settings
- basic visualization in real time

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

Front view



Bottom view



Side view

