# 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

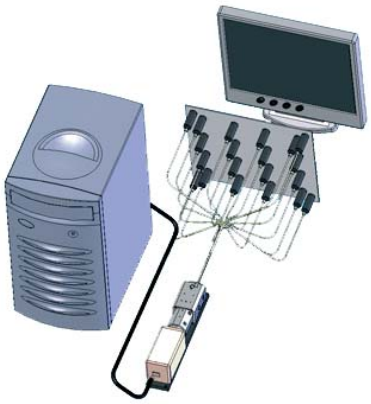
Spectral Camera is an imaging spectrometer, an integrated combination of our ImSpector imaging spectrograph and an area monochrome camera. It works as a push-broom type line scan camera and provides full, contiguous spectral information for each pixel.

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**

Spectral Imaging Ltd.
POB 110
Teknologiantie 18 A
FIN–90571 Oulu, Finland

Tel. +358 (0)10 4244 400
Fax +358 (0)8 388 580
Email info@specim.fi
www.specim.fi

# 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 (ROI) | |
| Exposure time range | 0.1 - 100 ms | |
| 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 |
| 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.

- Several fore objective lenses with different FOVs are available which have been designed to provide the optimal image and spectral quality across the full spectral range of the Spectral Camera.
- The Spectral Camera can also be delivered with collection fiber optics to convert the camera into a multiple point spectrometer. 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 microscope applications.

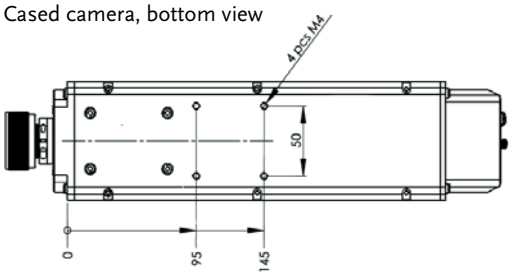
## SPECTRALDAQ SOFTWARE

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

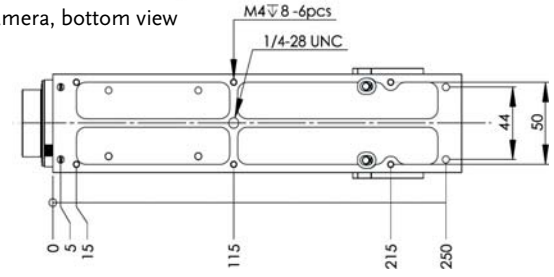
- data acquisition and saving data in the hard disk
- camera parameters settings
- basic visualization in real time

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

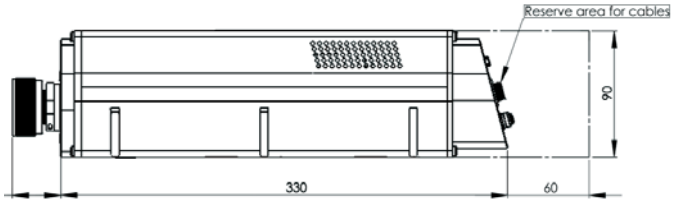
Cased camera, bottom view




OEM camera, bottom view




Cased camera, side view




OEM camera, side view