

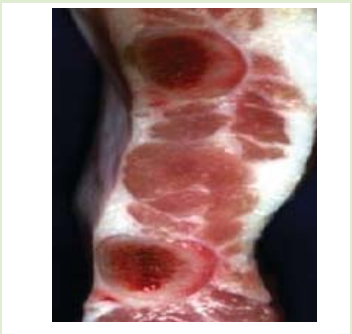
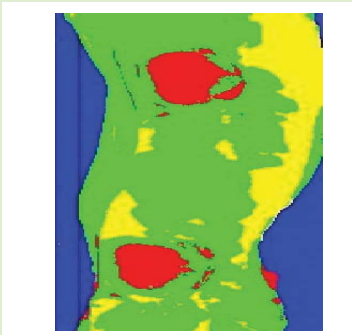
Spectral Camera SWIR

SPECTRASSENS SOFTWARE

Spectral Camera SWIR is supported by SpectraSENS 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 hyper-spectral data processing.



Pork meat analysis



RGB image of capsules



Classified NIR image for identical and QA of the capsules

APPLICATIONS

- Chemical imaging for R&D
- Process analytical technologies
- Pharmaceutical manufacture
- Plastics sorting
- Mineral mapping
- Food and agriculture
- Moisture content distribution

RANGE FROM 970 - 2500 NM

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

The Spectral Camera SWIR consists of an ImSpector N25E imaging spectrograph for the wavelength region 970-2500 nm and a cooled, temperature stabilized MCT detector. The transmission diffraction grating and lens optics used in the spectrograph provide a high quality, distortion free image which is designed to meet the unique requirements of the associated detector.

The rugged camera housing is designed for easy connectivity and operation. The camera is delivered with separate power supply / temperature control unit, frame grabber and the necessary cables.

UNIQUE DUAL COOLING SOLUTION

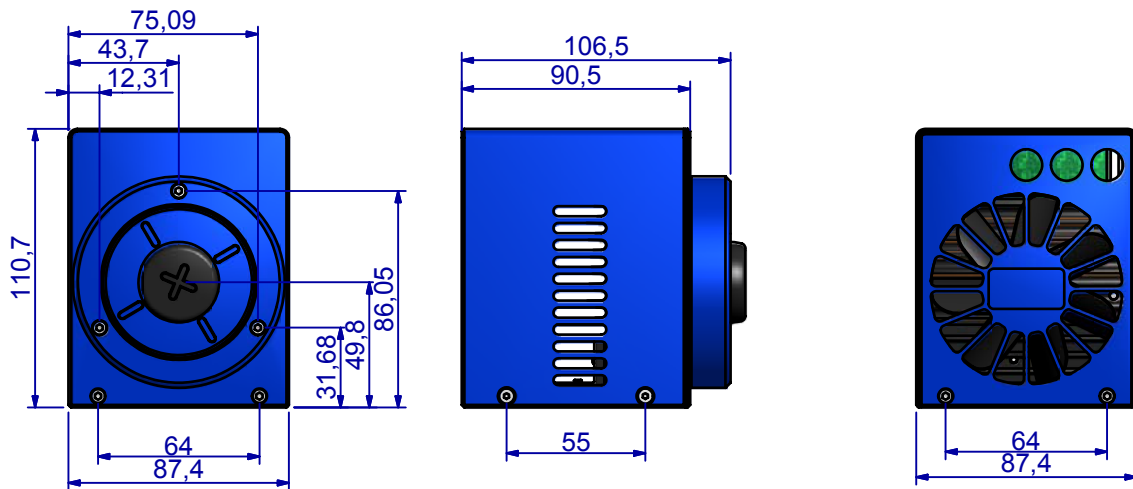
The MCT detector provides the highest sensitivity in the full SWIR spectral range. Gilden Photonics and Specim's dual cooling solution keeps the detector chip in the required operating temperature of < 200 K and stabilizes the total detector package temperature. It is designed to minimize the dark current and ensure high stability in the detector operations in a wide ambient temperature range. It makes the camera a real tool for process and outdoor uses.

ACCESSORIES

Gilden photonics can provide various accessories for the Spectral Cameras to broaden their applicability. Objective lenses, corrected for 900-2500 nm, focal lengths 15, 22.5, 30 and 56 mm and FOV 36, 24, 18 and 10 degrees, respectively. In addition to standard lenses, also a 900-2500nm corrected 1:1 imaging macro lens, OLESMacro, is available for NIR and SWIR Spectral Cameras.

Fiber optics with collection lenses or SMA connectors: from 4 to 110 input channels in one spectrometer without moving multiplexer. Different scanning systems: mirror scanner, on rotary stage for scanning static target and outdoor scenes, X-stage for desktop and microscope scanning





SPECTRAL CAMERA SWIR		
OPTICAL CHARACTERISTICS		UNIT
Spectrograph	ImSpector N25E	-
Spectral Range	900– 2500 ±	nm
Spectral Resolution	10 (30 µm slit)	nm (µm)
Spectral Sampling/ Pixel	6.3	nm
Spatial Resolution	rms spot radius < 15	µm
Aberrations	Insignificant astigmatism, smile or keystone < 5	µm
Numerical Aperture	F/2.0	-
Slit Width Options	30 (50 and 80 µm optional)	µm
Effective Slit Length	9.6	mm
Total Efficiency (typical)	> 50%, independent of polarization	-
Stray Light	< 0.5% (halogen lamp, 1400 nm notch filter)	-
ELECTRICAL CHARACTERISTICS		
Camera	MCT camera	-
Pixels in Full Frame	320 (spatial) × 256 (spectral)	-
Active Pixels	320 (spatial) × 240 (Spectral)	-
Pixel Size	30 × 30	µm
Cooling	4– stage Peltier for detector array. additional Peltier for active cooling for the detector package	-
Camera Output	14– bit LVDS / USB	-
Signal–to–Noise Ratio	800:1 (at max, signal level)	-
Data Cable	Length 5 meters	-
Frame Grabber	National instruments PCL– 1422	-

Spectral Camera SWIR

SPECTRAL CAMERA SWIR

ELECTRICAL CHARACTERISTICS

Exposure Time Range	0.1 – 20	ms
Power Consumption	< 200	W
Input Voltage	24	V
Camera Control	Serial port	-
Frame Rate	100 fps (maximum full frame)	-

MECHANICAL CHARACTERISTICS

Size (L × W × H)	Sensor	Power supply	-
	106 × 87 × 110	100 × 63 × 30	mm ³
Body	Anodized aluminium and painted steel with mounting screw holes		-
Lens Mount	Standard C-mount		-

Notes.
