spectral camera **SWIR**

SPECIM launches a new fully redesigned and re-engineered hyperspectral SWIR camera with breakthrough features. It has more spatial pixels (384) and still achieves much faster image rates up to 450 frames per second using CameraLink connection. To assure indoor/outdoor usage in varying conditions it now has rugged weather-proof IP54 casing and temperature stabilized optics but still uses less power than before, only 50W nominal.

High-speed hyperspectral camera in the range 1 000 - 2 500 nm. With its temperature stabilized optics, it provides the stability and sensitivity required in today's most challenging near-infrared chemical imaging applications, from pharmaceutical quality assurance to food and agriculture analysis. The camera meets the highest requirements in lab, industry and field.

Applications

Chemical and Material Sorting
Pharmaceutical manufacture
Recycling
Mineral mapping
Food and agriculture
Moisture content distribution
Art research and archiving
Forensics

Spectral Camera SWIR

OPTICAL CHARACTERISTICS	TYPICAL SPECIFICATIONS
Spectral range	1 000 - 2 500 nm
Spectral resolution FWHM	12 nm (30 µm slit)
Spectral sampling	5.6 nm
Spatial resolution	rms spot radius < 15 µm
F/#	F/2.0
Slith width	30 µm (50 or 80 µm optional)
Effective slit length	9.2 mm

ELECTRICAL CHARACTERISTICS	
Detector	Cryogenically cooled MCT detector
Spatial pixels	384
Spectral bands	288
Pixel size	24 x 24 µm
Detector cooling	Stirling, 25 000 h MTTF
Optics temperature stabilization	Yes
Camera output	16 bits CL
SNR	1 050:1 (at max. signal level)
Data cable	Length 5 meters
Frame grabber	National Instruments NI 1427
Camera control	USB / RS232
Frame rate	450 fps (maximum full frame)
Exposure time range	0.1 - 20 ms
Power consumption	Nominal < 50 W
Input voltage	Wide 24 V

MECHANICAL CHARACTERISTICS		
Size (L x W x H)	Sensor	Power supply & Control Unit
	470 x 176 x 178 mm	300 x 190 x 130 mm
Weight	14 kg	approx. 5 kg
Body	Anodized aluminium with mounting screw holes	
Lens mount	Standard C-mount	
User adjustments	None	
Shutter	Electro-mechanical shutter for dark image acquisition	

ENVIRONMENTAL CHARACTERISTICS	
Storage	- 20 ... +50 ºC
Operating	+ 5 ... +40 ºC, non-condensing
SpectralDAQ support	Yes
SDK support	Yes
Mounting	Standard mounting see illustration, for other mounting options ask SPECIM
Accessories	Lenses, radiometric calibration, white calibration tile, scanner stages

ACCESSORIES

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

Fore objective lenses, specifically designed for optimized performance in 900-2500 nm.

Lens	Focal length	FOV
OLES 15	15 mm	34 degrees
OLES 22,5	22,5 mm	23 degrees
OLES 30	30 mm	17 degrees
OLES 56	56 mm	9 degrees
OLES Macro	1:1 imaging	

Fiber optics with collection lenses or SMA connectors: from 4 to 110 input channels in one spectrometer without a moving multiplexer.

Various scanning systems: mirror scanner on rotary stage for scanning static target and outdoor scenes, and X-stage sample mover for desktop and microscope applications.
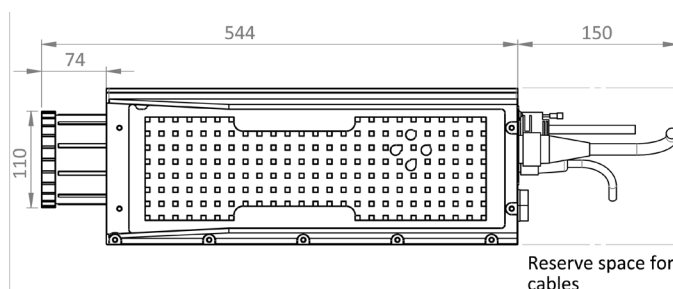
ACQUISITION SOFTWARE

SPECIM Spectral Camera SWIR 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
- to control scanner systems

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

74
544
150
110
Reserve space for cables

Bottom view

0
35
155
188,5
241,5
275
395
12 x M6x1.0 8
120
53