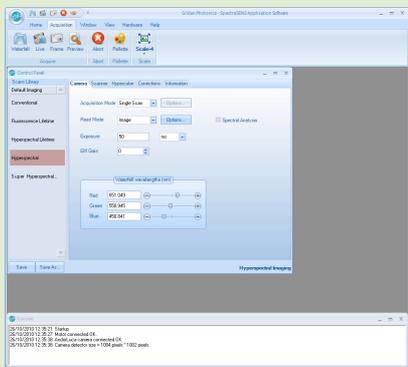


SPECTRASSENS SOFTWARE

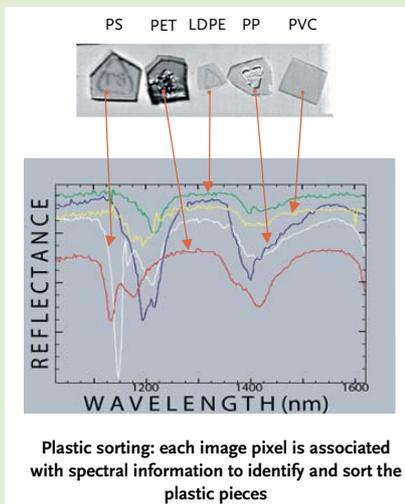
Spectral Camera NIR is supported by SpectraSENS software, which allows:

- 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.



SpectraSENS software interface



APPLICATIONS

- Moisture profiling
- Food analysis
- Chemical sorting
- Recycling
- Pharmaceutical QA
- Medical imaging
- Cosmetics

FAMILY OF HYPER-SPECTRAL CAMERAS OPERATING IN THE RANGE OF 900 - 1700 nm

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

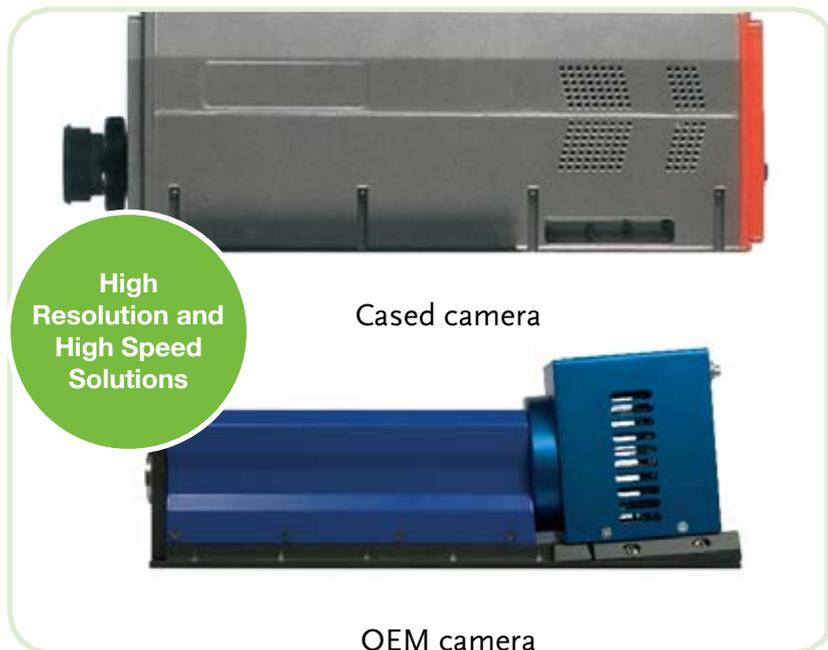
Gilden Photonics offers several Spectral Camera models in the NIR range in order to meet various application requirements. They provide 320 and 640 pixel spatial resolution and image rate from 50 to 350 Hz. Each Spectral Camera NIR model consists of an ImSpector N17E imaging spectrograph for the wavelength region 900 - 1700 nm and a temperature stabilized InGaAs camera. The transmission diffraction grating and lens optics included in the spectrograph provide high light throughput and a high quality and distortionless image which is designed to meet the unique requirements of the associated detector. The maintenance free cooling unit is designed to keep the detector temperature stable throughout a wide ambient temperature range.

Both a cased camera and uncased OEM model are available. The cased camera is equipped with an electro-mechanical shutter for dark image acquisition. The camera housing is designed for easy handling connectivity and operation. The cameras are delivered with separate power supply/control unit, frame grabber and the necessary cables.

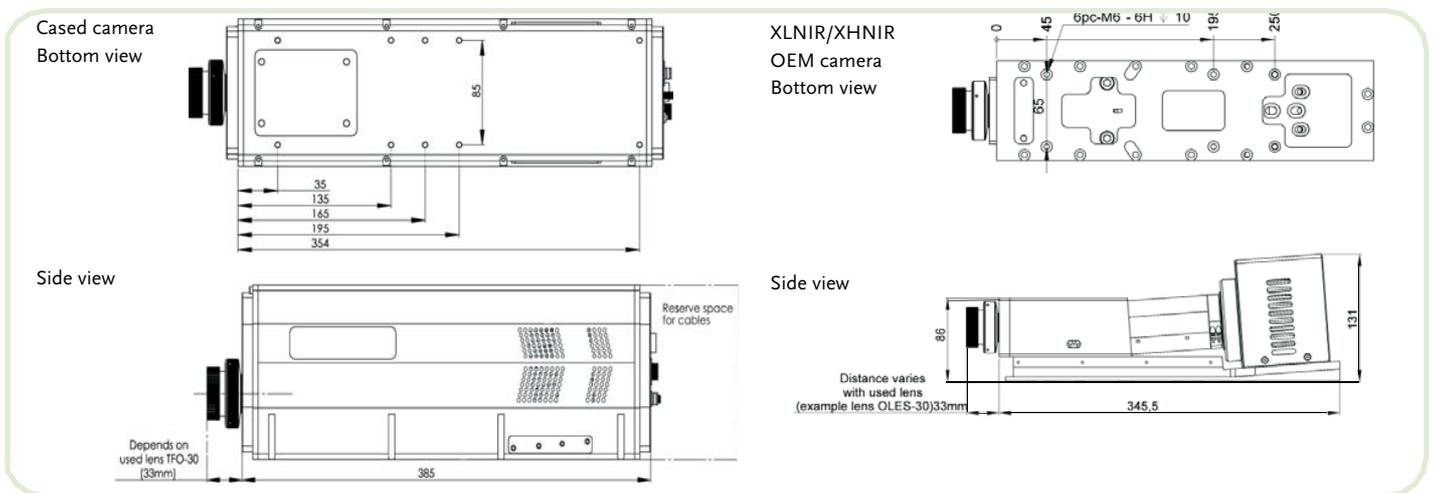
ACCESSORIES

Gilden photonics provides 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.
- In addition to standard lenses, also a 900- 2500nm corrected 1:1 imaging macro lens, OLESMacro, is available for NIR and SWIR Spectral Cameras
- 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.



Spectral Camera NIR



SPECTRAL CAMERA NIR				
OPTICAL CHARACTERISTICS	XLNIR	XHNIR	VLNIR	UNIT
Spectrograph	ImSpector N17E			
Spectral Range	900- 1700 ±10			nm
Spectral Resolution	5 (30 µm slit)			nm
Spectral Sampling/ Pixel	4	2.6	4	nm
Spatial Resolution	rms spot radius < 15			µm
Aberrations	Insignificant astigmatism, smile or keystone			-
Numerical Aperture	F/2.0			-
Slit Width Options	30 µm (18, 50, 80 µm optional)			µm
Effective Slit Length	9.6	12.8	9.6	nm
Total Efficiency (typical)	> 50%, independent of polarization			-
Stray Light	< 0.5% (halogen lamp, 1400 nm notch filter)			-
ELECTRICAL CHARACTERISTICS				
Sensor	TE-cooled InGaAs photodiode array			-
Pixels in Image Frame	320 × 256	640 × 512	320 × 256	-
Active Pixels	320 (spatial) × 240 (Spectral)	640 (spatial) × 360 (spectral)	320 (spatial) × 240 (spectral)	

SPECTRAL CAMERA NIR				
ELECTRICAL CHARACTERISTICS	XLNIR	XHNIR	VLNIR	UNIT
Pixel Size	30 × 30	20 × 20	30 × 30	µm
Cooling	Forced convection cooling			-
Camera Output	12-bit, USB2.0 or CameraLink	14-bit, USB2.0, LVDS, or Camera Link	12-bit, CameraLink	-
Frame Rate	100 fps/ 350	15 (USB ₂)/ 60/ 90	50	fps
Exposure Time Range	1µs– 500 ms			-
Power Consumption	< 4, Cooler ~ 30		< 30	W
Input Voltage	12			V
ENVIRONMENTAL CHARACTERISTICS				
Storage	-20 ...+ 85			°C
Operating	+5 ... +40, non-condensing			°C

MECHANICAL CHARACTERISTICS					
MODEL	XLNIR , XHNIR		VLNIR		UNIT
	OEM	CASED	OEM	CASED	
Size (L × W × H)	350 × 100 × 130	385 × 120 × 135	350 × 100 × 115	385 × 120 × 135	mm ³
Weight	4.5	5.38	4.4	5.28	kg
Body	Anodized aluminium with mounting screw holes				-
Lens Mount	standard C-mount				-
User Adjustments	None				-
Shutter	Optional	Yes, with USB control	Optional	Yes, with USB control	-

Custom hyper-spectral scanning, illumination and enclosure systems are available for your application.
Contact Gilden Photonics or our official distributors for more information.