SPEKLED
SPEKTRALE TECHNOLOGIEN

HSI camera VIS / VNIR

» High Performance Hyper Spectral Imaging

Continuous real-time VIS/NIR Hyper Spectral Camera

» Data sheet

HSI camera VIS / VNIR

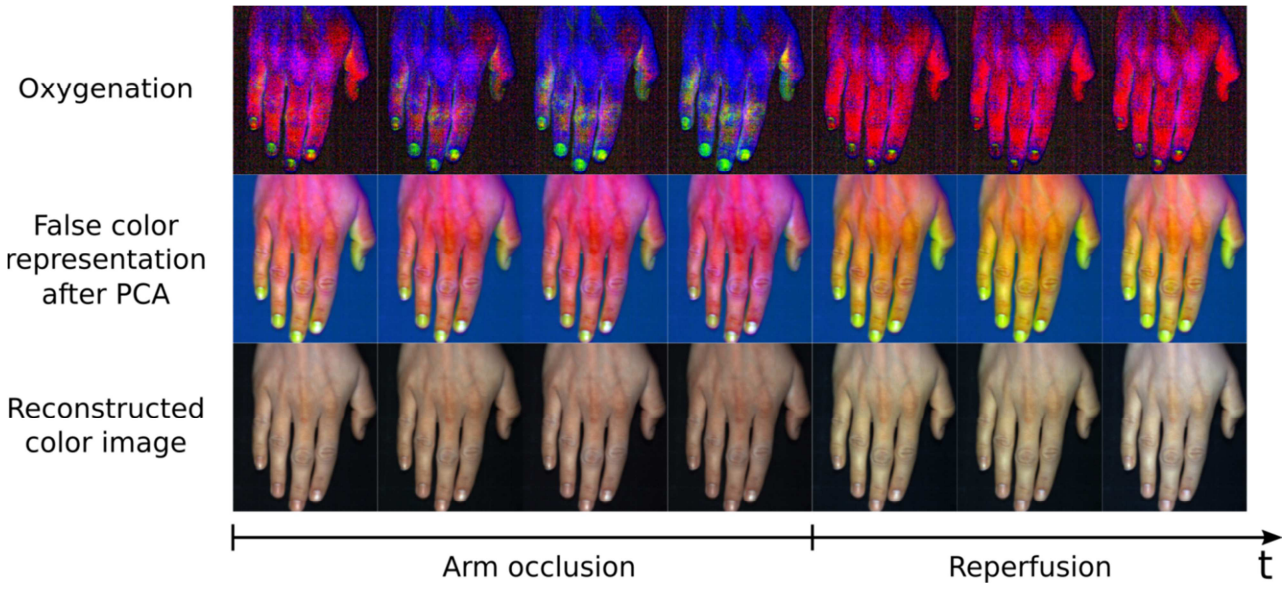
Continuous real-time VIS/NIR Hyper Spectral Camera

The HSI VIS / VNIR camera system is an integrated laboratory device for the combined color and chemical analysis. The system employs the Chemical Color Imaging Technology from Perception Park for data acquisition, calculation and display.

The visible (VIS) and near infrared (NIR) spectral range is detected by the imaging system (HSI camera).

Both spectral regions (VIS + VNIR) are required for the complete color and chemical information extraction. The visible range is used for the color image extraction and for detecting information on melanin and hemoglobin in the vicinity of the tissue surface.

The VNIR range contains information about the chemical components in tissue such as hemoglobin, water, fat and other tissue constituents. The VNIR light penetrates the tissue more deeply.



The HSI VIS / VNIR camera system is based on a scanning imaging spectrometer unit (patent pending) and not on the basis of a photometric multispectral filter camera. The use of this technology enables a complete chemometric data extraction on the basis of the first or second spectral derivative.

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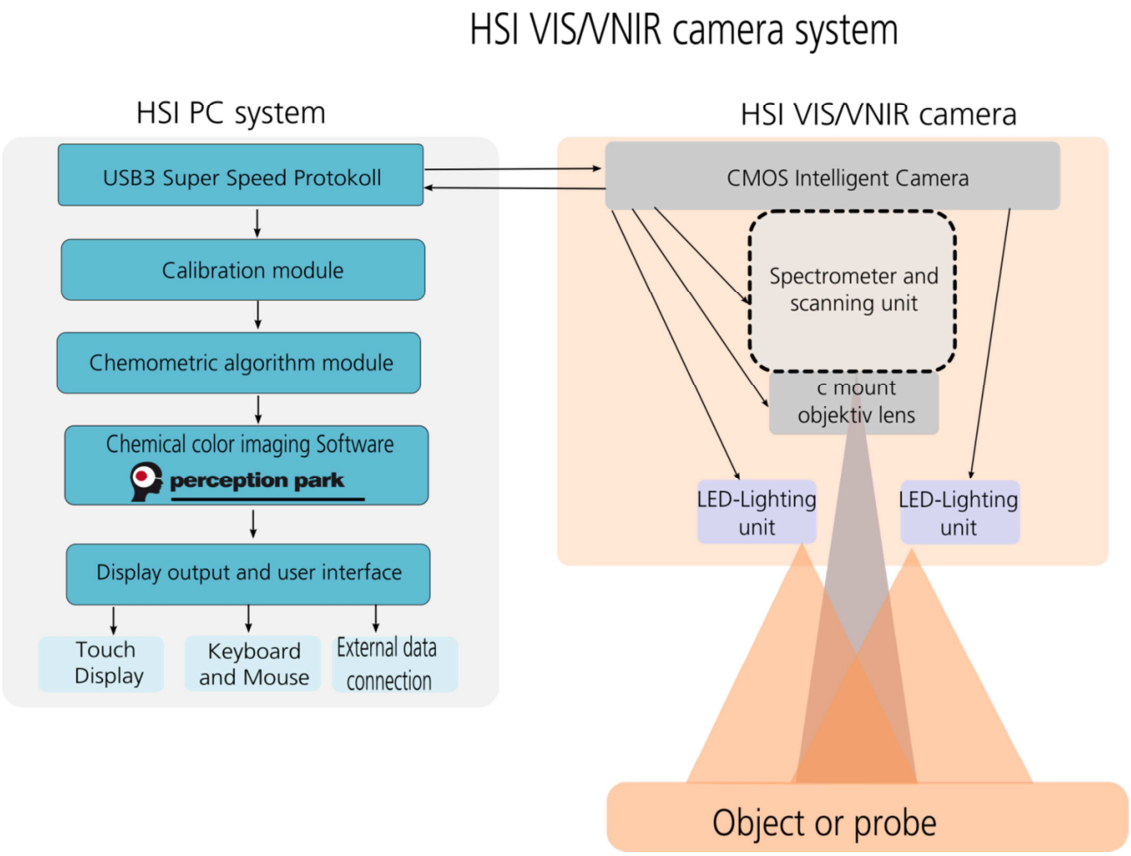
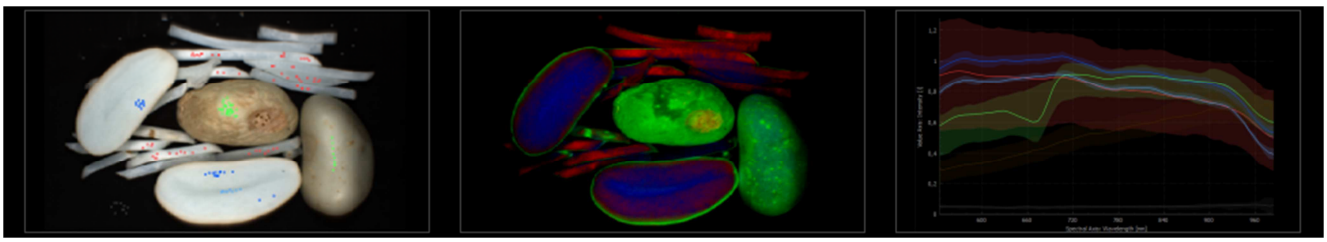
The spectral sequences (3 D data cubes) are acquired in a few seconds, depending on the camera parameter settings, and chemical results can be displayed directly after scanning. The system takes the 3D data cube with no external moving parts.





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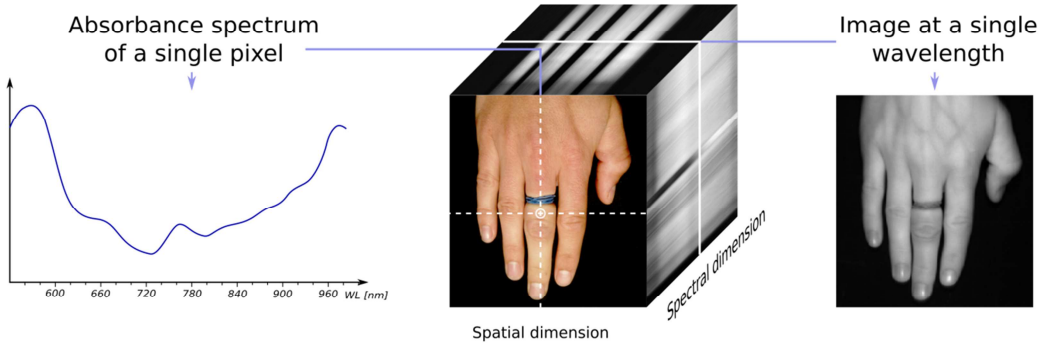
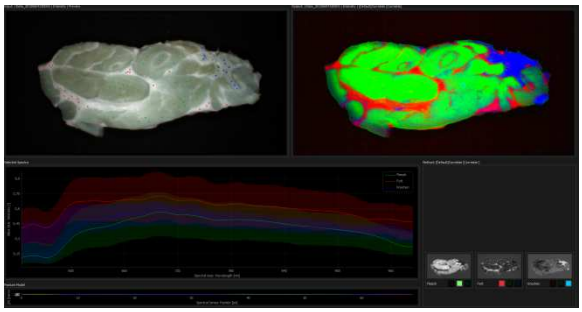


In Hyper Spectral Imaging (HSI) Technology three dimensional (X [spatial], Y [spatial], λ [spectral]) data cubes are generated. Based on the data cubes different images and chemical information can be extracted.



The basic Chemical Color Imaging Software from Perception Park is included in the system, so you can immediately start your Chemical Imaging work.
The system offers a direct path to expand your VIS / VNIR chemical analysis to a VIS / VNIR **chemical image analysis** with spatial resolution and to transmit the results in a further step directly on automated control systems.

Applications

- >> Chemical Tissue Analysis
- >> Tissue Oximetry
- >> Tumor research
- >> Food inspection
- >> Forensic
- >> General Chemical Analysis

HSI camera VIS / VNIR

System components

Spectrograph

Spectral range	500 nm – 980nm
Dispersion	115 nm/mm
Grating	Transmission, holographic
Pixel resolution	0,5 nm/pixel
Smile	Software correction
Keystone	Software correction
F-number	2.9
Slit width	30µm (optional 50µm, 80µm)
Efficiency	>50% independent of polarization

Camera

Sensor	CMOS/CMOSIS CMV2000
Pixel (full frame)	2048 x 1088
Pixel size (µm)	5,5 x 5,5
Bit depth	10 bit
Frame Rate (sensor full frame)	up to 170 fps
Data interface	USB3 Super Speed
Dynamik Sensor	60 dB
Responsibility (550nm)	5.5 V / lux-sec

Objective lens

Lens mount	Standard C-mount
Focal length	4~12 mm
F-number	F 1,2-C
Iris type	Manual iris
Working distance	0.3 m – 1.5 m
Filter:	Longpass 500 nm

Lighting unit

LED unit

Technology	LED broadband
Spectral range	450 nm – 1100 nm
Operating modes	Continuous, on/off
Lens type	Wide +/- 19°

Halogen unit

Technology	Halogen Strahler
Spectral range	thermal radiation
Operating modes	continuous, on /off

Electric

Power supply	24 V / xx A DC
USB3 connector	Typ A

Mechanic

Dimensions (mm)	200 x 150 x 130
Housing	Aluminum /Steel
Weight	ca. 2.5 kg
Adapter	VESA mount or adapter plate

Operating conditions

Temperature (operating) / °C	0 – 30
Temperature (transport) / °C	-10 – 45

HSI Kamera VIS/VNIR

Highlights

- Megapixel Image Cube resolution
- Digital CMOS Sensor array (Region of Interest and Skipping/Binning possible)
- 500nm-980nm spectral range based on a high performance imaging spectrometer unit
- Full spectroscopic image acquisition (no multispectral photometry)
- Integrated LED based lighting unit optimized for physiological imaging (no thermal lighting)
- USB3 SuperSpeed communication
- 24 V power supply
- Typical size (mm): 200 x 150 x 130 (without handles)
- Weight less than 3 kg mostly depending on chosen objective lens system
- Simultaneous color and chemical image acquisition
- Image cube export to MATLAB, ENVI and ASCII format included

Kontakt

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