



Snapscan VNIR hyperspectral imaging camera

Imec's snapscan VNIR high resolution hyperspectral camera is major breakthrough for hyperspectral imaging application research. Within a few seconds, high quality hypercube data is created with high signal-to-noise ratio and unmatched spatial and spectral resolution. The snapscan kit enables application research of the highest quality, while still being user friendly by not requiring any external scanning system. It integrates all key components required: the spectral image sensor and the most advanced hyperspectral imaging software: HSI Snapscan.

High resolution hyperspectral imaging in the visible to near infrared spectrum

The user friendliness is the key benefit of the Snapscan VNIR camera. It enables users to quickly generate high-resolution hyperspectral images of stationary objects either in the lab or outside the lab.



SNAPSCAN hyperspectral imaging VNIR with imec LS 150+ bands in 470-900nm range enables robust classification of various different ore oxides minerals with various colors and different chemical composition

Key benefits

- No translating stage/belt required
 with integrated scanning mechanism
 directly inside the camera to generate a
 hyperspectral image in a matter of seconds
- Highest spatial (up to 7Mpx) & spectral (150 bands) resolutions
- Highest SNR ever reached with imec on-chip filter technology thanks to active cooling and advanced software features for cube reconstruction and spectral correction





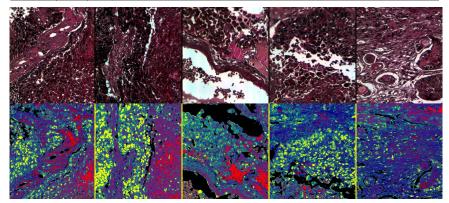
VNIR Linescan hyperspectral image sensors integrated into the Snapscan camera system $\,$

Research applications

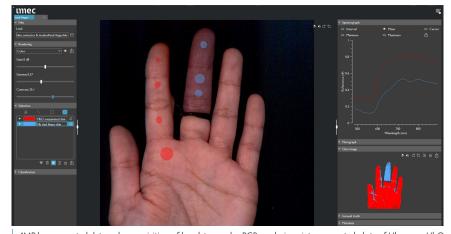
- Digital microscopy for pathology, cytogenetics & research
- Wound healing & diagnostics
- Medical endoscopy
- Medical guided surgery
- Agriculture
- Mineral & material characterization
- General purpose research for Indoor or outdoor environment

Snapscan system product specification

Spatial resolution	up to 3600 x 2048px (7Mpx RAW per band)
Spectral resolution	150 bands (VNIR version)
Spectral range	470 – 900 nm (VNIR)
FWHM	~ 10 – 15 nm (collimated)
Acquisition speed	$\sim 2-20$ seconds, depending on acquisition parameters, lighting and object
SNR	up to 200:1
SW scanning modes	Digital TDI (x5-8 stages max) Multi-exposures Digital binning (2x2, 3x3, 4x4) Spectral ROI - Region of Interest Spatial ROI - Region of Interest
Dynamic range	10 bit
Optics	20/24/35/50 mm lenses C-mount
Smile & keystone	Software corrected
Software	HSI SNAPSCAN software for raw image acquisition, data pre-processing, hypercube visualization and classification; C and Python API for acquisition and data pre-processing in custom software
Interface	USB3.0 + GPIO for triggering
Cooling	Passive & active cooling (fan based + TEC)
Temperature	15°C to 45°C (operation), 5°C to 50°C (transport)
Mechanical	Integrated mechanical shutter for automatic dark-counts, Tripod mount (4° -20) + side mounting M5 holes
Dimensions (LxWxH)	10 x 7 x 6.5 cm
Weight	580 g (without optics)
Hyperspectral soft- ware compatibility	Output in standard ENVI hyperspectral data format



Predictive compositional maps (color RGB & classified images) created using hyperspectral data. Lung cancer tissues are in yellow. Courtesy of university of Innsbruck & Hyperspectral Imaging Intelligence Inc



 $4 MP\ hyperspectral\ data-cube\ acquisition\ of\ hand;\ true\ color\ RGB\ rendering\ picture,\ spectral\ plots\ of\ Hb\ versus\ HbO\ spectra's\ within\ oxygenated\ and\ deoxygenated\ skin\ where\ finger\ blood\ circulation\ is\ tied\ by\ rubber\ band$

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