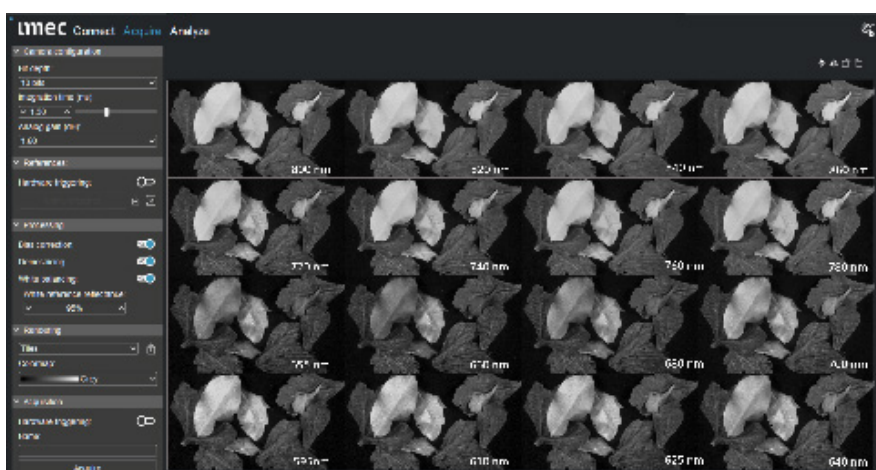# SNAPSHOT VIS / REDNIR / NIR RANGE HYPERSPECTRAL IMAGING EVALUATION KITS

Imec's hyperspectral evaluation kit offers fast and user-friendly solution to new users of hyperspectral imaging that want to analyze sample materials. Our solution is flexible and designed to enable application development, delivering relevant test data already within minutes after initial installation. It includes all required components, from imec image sensor to Ximea camera, lens, cables, lighting, calibration tileand imec software and can be easily rebuilt into different configurations.

HYPERSPECTRAL IMAGING TECHNOLOGY FOR REAL-TIME, VIDEO-RATE APPLICATIONS

Snapshot hyperspectral cameras enable real-time, video-rate output hyperspectral images. This is key for applications where objects are moving (e.g. sorting some food on a conveyor belt), or where the camera is moving (e.g. when carried on a drone UAV) or simply in static mode to prevent any motion artifacts during long time acquisitions (e.g. respiration movements of tissues in medical imaging, or moving target in security & surveillance applications).

KEY BENEFITS

- **Video-rate** acquisition of hyperspectral imaging data cubes with no motion artifacts, perfectly suited for acquisition of moving objects or scenes. Compact and light Ximea camera

- **Easy set-up** with all standard components (USB3, C-mount optics)

- **Easy to use even for new users of spectral imaging**, with full software for image acquisition, cube pre-processing, visualisation and classification

- **API** , for integration in automated systems

Hyperspectral imaging acquisition software of imec. Several green color objects are imaged (fresh leaf, dry leaf, plastic leaf) are shown in 4x4 = 16 spectral band tiled images view. The HSI data-cube is also classified in real-time at 120+ FPS according to NDVI vegetation index (see next page).

HYPERSPECTRAL SNAPSHOT USB3 CAMERA EVALUATION KIT SPECIFICATIONS
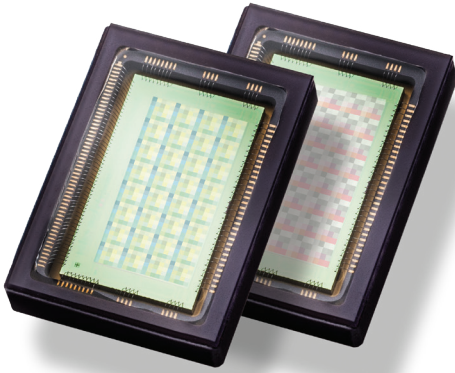
Snapshot mosaic hyperspectral image sensors with 16 and 25 bands channels - conceptual view of the per-pixel filter

Spatial resolution	512 x 272 RAW per band (SNm4x4 VIS version) 512 x 272 RAW per band (SNm4x4 RedNIR version) 409 x 218 RAW per band (SNm5x5 NIR version)
Spectral resolution	16 bands in 460-620 nm range (SNm4x4 VIS version) 16 bands in 595 – 860 nm range (SNm4x4 RedNIR version) 25 bands in 665 – 975 nm range (SNm5x5 NIR version)
Bandwidth per band (FWHM)	~10 - 15 nm (collimated)
Base imager type	CMOS imager, CMOSIS CMV2000 based
Acquisition speed	Up to 120 hyperspectral cubes/second (USB3.0 interface limited)
Pixel pitch	5.5 µm pixels, 2/3" sensor optical format
Bit depth	8 or 10 bits
Optics	16 / 25 / 35 / 50 mm lenses, F2.8, C-mount
Interface	USB3.0 + GPIO + I/O for triggering
SW acquisition modes	HDR modes (dual or multi-exposures for best SNR per band channel) Resolution upscaling
Power Consumption	1.6 Watt
Dimensions (WxHxD)	26 x 26 x 31 mm
Weight	32 g (without optics)

CAMERA EVAUATION KIT INCLUDES:

- Snapshot hyperspectral imaging mosaic image sensor
- USB3.0 camera read-out electronic
- Interface and triggering cables
- Rejection filters
- Gorilla mounts
- Hyperspectral imaging acquisition Software with permanent single user license and SDK / API

APPLICATIONS

- Optical sorting in machine vision
- Chemical analysis of material composition
- Food safety and inspection
- Medical & healthcare
- Pharmaceutical manufacturing
- Semiconductor & photovoltaic
- Waste recycling
- Human machine interface
- Minerology & mining
- Precision agriculture
- Security & surveillance
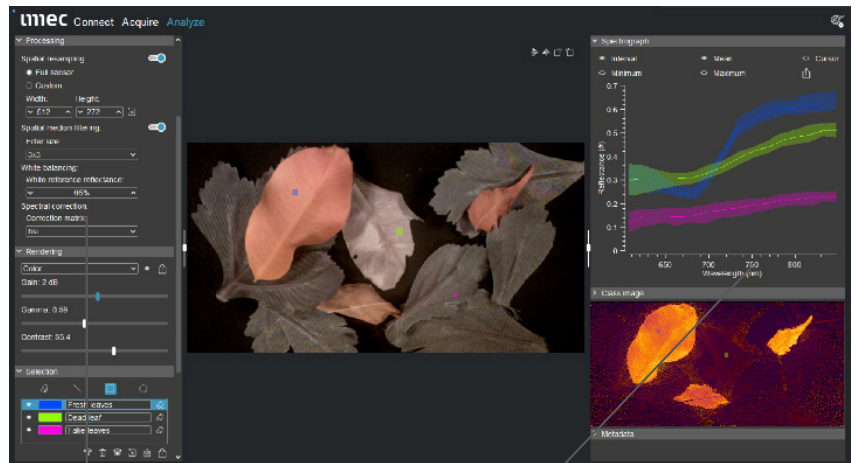
Main control panel

- Camera exposure time, framerate
- Hardware triggering
- Cube / frame export
- Light calibration
- Reflectance calculation
- Superresolution

Visualization panel

- Spectral plot
- Color reconstruction
- False color image
- NDVI
- Live view
- Classification

User interface of imec in house acquisition software, designed for user-friendly hyperspectral imaging operations.

CONTACT US

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