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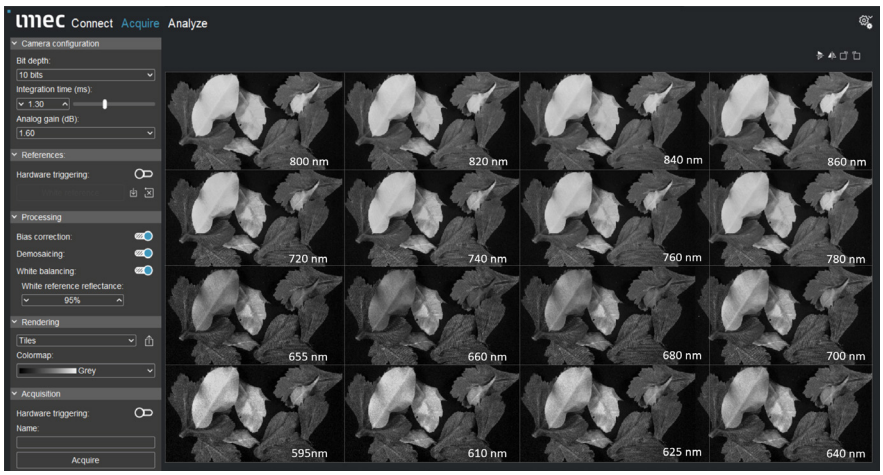
SNAPSHOT MOSAIC VIS / REDNIR / NIR RANGE HYPERSPECTRAL IMAGING EVALUATION KITS

Imec's hyperspectral evaluation kit offers fast and user-friendly solution to new users of hyperspectral imaging that want to analyse sample materials. Our solution is flexible and designed to enable application development, delivering relevant test data already within a few minutes after initial installation. It includes all required components, from imec imager to Photonfocus camera, lens, cables , lighting, calibration tile and 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)

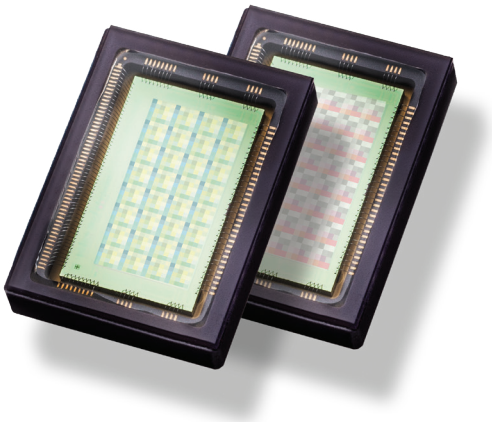


Hyperspectral imaging acquisition software of imec. Several green color objects are imaged (fresh leaf, dry leaf, plastic leaf) are shown in 4x4 = 16 spectral band tiled images view. The HSI data-cube is also classified in real-time at 120+ FPS according to NDVI vegetation index (see next page).

KEY BENEFITS

- **Video-rate** acquisition of hyperspectral imaging data cubes with no motion artifacts, perfectly suited for acquisition of moving objects or scenes
- **Long cable and robust industrial design**, with GigE interface Photonfocus camera
- **Easy set-up**, with all standard components (Ethernet, 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 SNAPSHOT IMAGER & CAMERA GIGE EVALUATION KIT SPECIFICATIONS

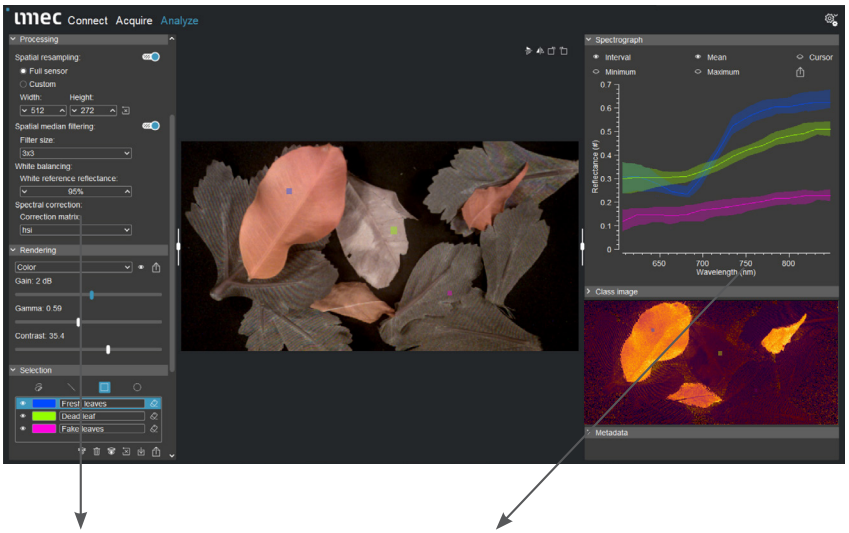


Snapshot mosaic hyperspectral image sensors with 16 and 25 bands channels - conceptual view of the per-pixel filter deposited mosaic.

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 42 hyperspectral cubes/second (GigE vision 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	GigE vision + 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)	55 x 55 x 52 mm
Weight	265 g (without optics)

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

hsi.sales@imec.be