



Snapshot VIS / RedNIR / NIR range hyperspectral imaging evaluation kits

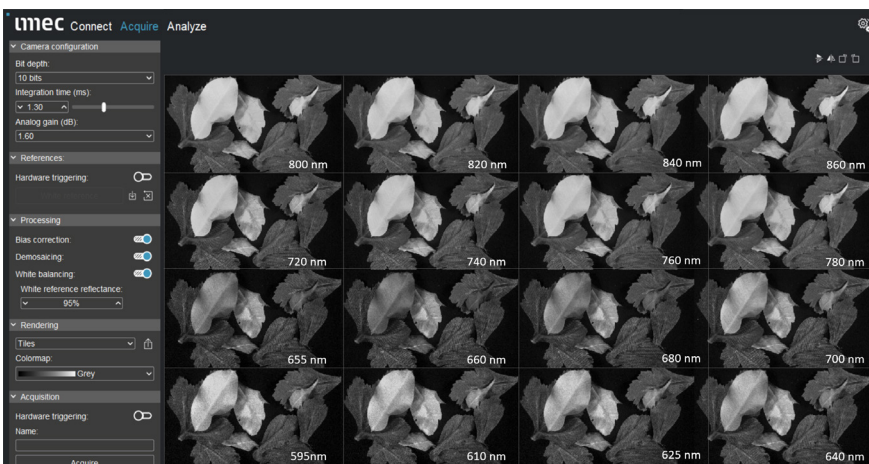
Imec's hyperspectral evaluation kit offers fast and user-friendly solution to new users of hyperspectral imaging that want to analyse sample materials. Our solution is flexible and designed to enable application development, delivering relevant video data already within a few minutes after initial installation.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

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)

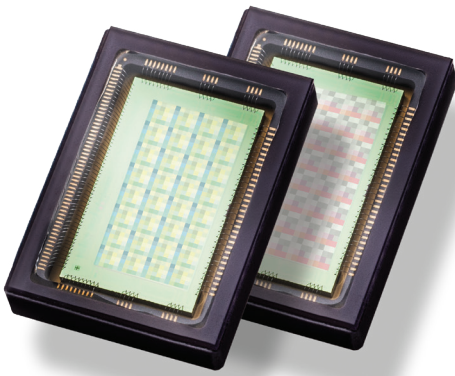
Key benefits

- **Video-rate** acquisition of hyperspectral imaging data cubes with no motion artifacts, perfectly suited for acquisition of moving objects or scenes
- **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 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 imager & camera GIGE evaluation kit specifications

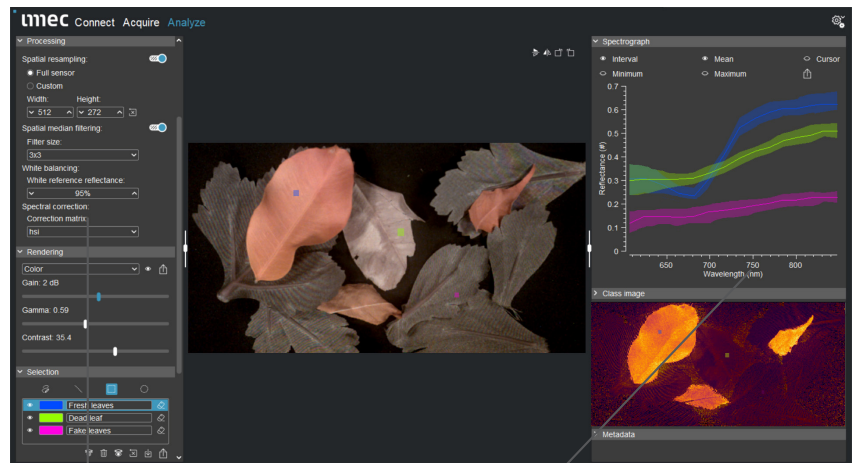


Snapshot mosaic hyperspectral image sensors with 16 and 25 bands channels - conceptual view of the per-pixel filter deposited mosaic.

Spatial resolution	2048x1080 RAW (2MP after reconstruction)
Spectral resolution	16 bands in 460-600 nm range (SSM4x4 VIS) 15 bands in 600 – 870 nm range (SSM4x4 RedNIR) 24 bands in 660 – 960 nm range (SSM5x5 NIR)
Bandwidth per band (FWHM)	-10 - 15 nm (collimated)
Base imager type	AMS CMV2000 CMOS detector
Acquisition speed	Up to 120 hyperspectral cubes/second
Pixel pitch	5.5 µm pixels
Bit depth	10 bits
Optics	16 / 25 / 35 / 50 mm lenses C-mount
Interface	Gigabit Ethernet + GPIO for triggering
Software	HSI Mosaic 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
Power Consumption	< 5.1 Watt
Dimensions (WxHxD)	55 x 55 x 52mm
Weight	265 g (without optics)
Software	HSI MOSAIC software for raw image acquisition, data pre-produced hypercube visualization and classification, includes API
included accessories	Power supply and ethernet cable

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.

HSI SALES
hsi.sales@imec.be

