



Snapshot VIS / RedNIR / NIR range hyperspectral imaging evaluation kits

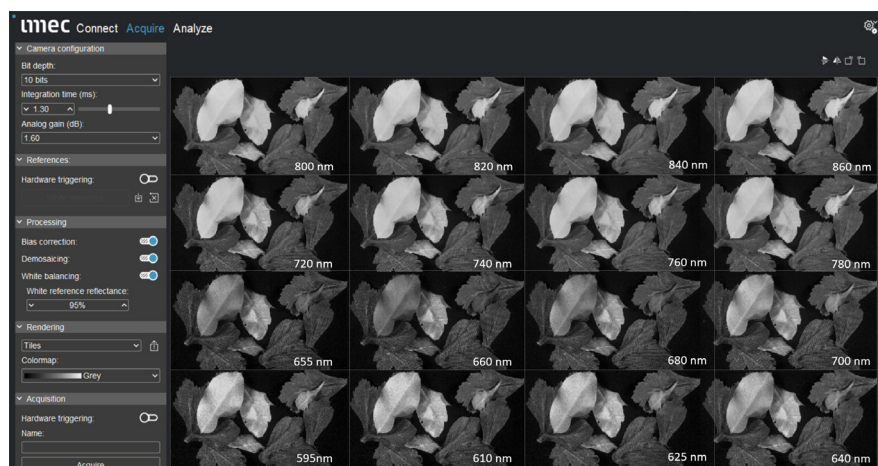
Imec's hyperspectral evaluation kit offers fast and user-friendly solution to new users of hyperspectral imaging that want to analyse sample materials. Our solution is flexible and designed to enable application development, delivering relevant video data already within a few minutes after initial installation. 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)

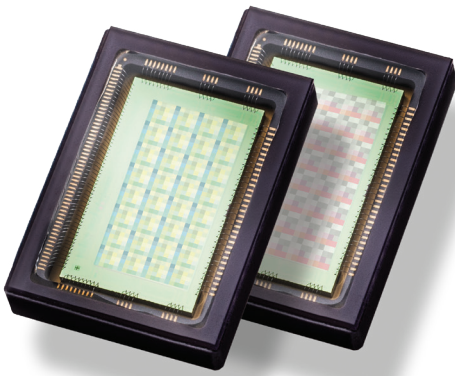
Key benefits

- **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

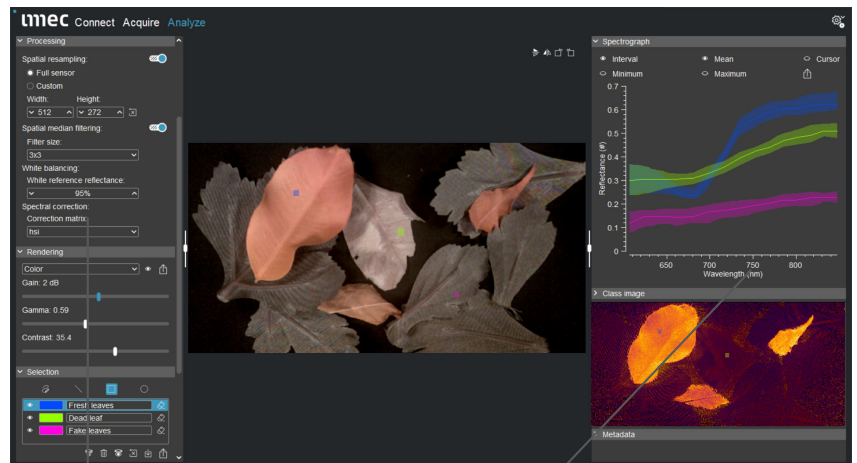


Snapshot mosaic hyperspectral image sensors with 16 and 25 bands channels - conceptual view of the per-pixel filter deposited mosaic.

Spatial resolution	2048x1088 RAW (2MP after reconstruction)
Spectral resolution	16 bands in 450-600 nm range (SSM4x4 VIS) 15 bands in 600 – 780 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	75 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



DISCLAIMER - This information is provided 'AS IS', without any representation or warranty. Imec is a registered trademark for the activities of imec International (IMEC International, a legal entity set up under Belgian law as a "stichting van openbaar nut"), imec Belgium (IMEC vzw supported by the Flemish Government), imec the Netherlands (Stichting IMEC Nederland), imec Taiwan (IMEC Taiwan Co.), imec China (IMEC Microelectronics (Shanghai) Co. Ltd.), imec India (IMEC India Private Limited), imec San Francisco (IMEC Inc.) and imec Florida (IMEC USA Nanoelectronics Design Center Inc.).