



# SNAPSHOT SWIR RANGE HYPERSPPECTRAL IMAGING CAMERA

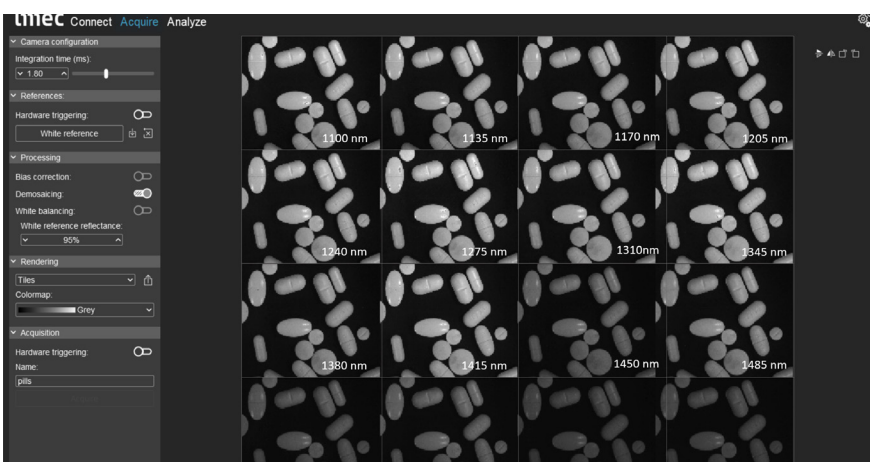
Imec snapshot SWIR range hyperspectral imaging camera offers a fast and user-friendly solution to new users of hyperspectral imaging that want to analyze sample materials. Our solution is flexible and designed to enable application development using hyperspectral imaging technology, delivering relevant test data within a few minutes after initial installation. It includes all required components, from imager to imec camera, lens, cables, lighting, calibration tile, and imec proprietary software and can be easily rebuilt into different configurations.

## FOR REAL-TIME, VIDEO-RATE COMMERCIAL APPLICATIONS

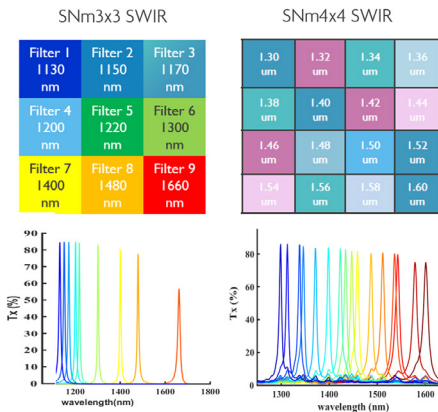
Snapshot hyperspectral cameras enable real-time, video-rate output hyperspectral images. This is key for applications where objects are moving (e.g. sorting some food on a conveyor belt), or where the camera is moving (e.g. when carried on a drone UAV) or simply in static mode to prevent any motion artifacts 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
- **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 objects (dry and wetted cake, plastic PET and PVC, nuts and their shell) are shown in the SNm3x3 = 9 spectral colors tiled view. The HSI data-cube can be classified in real-time at 200+ FPS (see next page)



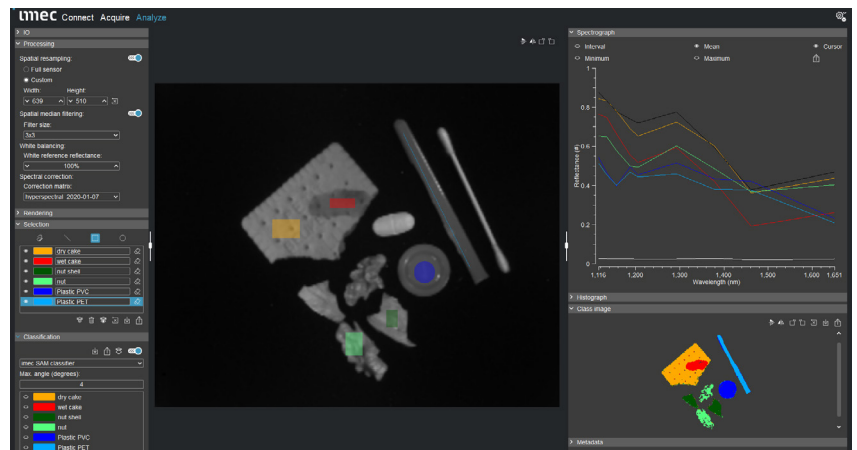
Snapshot mosaic hyperspectral image sensors with 3x3 = 9 colors and 4x4 = 16 spectral bands. Each filter is patterned at pixel level and integrated into the Cardinal 640 InGaAs image sensor from SCD

## IMEC SNAPSHOT SWIR HYPERSPECTRAL CAMERA SPECIFICATIONS

Spatial resolution	VGA ( 640 x 480 ) total resolution
Spectral resolution	Two standard models: 9 bands in 1.1 - 1.7 $\mu\text{m}$ range (SNm3x3 SWIR version) 16 bands in 1.1 - 1.7 $\mu\text{m}$ range (SNm4x4 SWIR version)
Bandwidth per band (FWHM)	-10 - 15 nm
Base imager type	InGaAs based, Cardinal 640 sensor with TEC cooler electronic
Acquisition speed	up to 120 hyperspectral imaging data-cubes per second (USB3.0 interface limited)
Pixel pitch	15 $\mu\text{m}$ pixels
Bit depth	13 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 Radiometric correction pipeline [upcoming]
Power Consumption	2 Watts at 60 FPS
Dimensions (W x H x D)	65 x 65 x 130 cm
Weight	260 g (without lens)

## 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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