SNAPSHOT MOSAIC SWIR RANGE HYPERSPECTRAL IMAGING CAMERA

Imec snapshot SWIR range hyperspectral imaging camera offers a simple, fast and easy application set-up for your hyperspectral acquisition and analysis of 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 camera, lens, interface cables and software and can be easily rebuilt into different configurations.

FOR REAL-TIME, VIDEO-RATE COMMERCIAL APPLICATIONS

Snapshot mosaic filter based hyperspectral cameras enable real-time, video-rate processing of spectral imaging data. 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** of the complete system
- **Flexible configuration**: quickly modify the set-up once you get more acquainted with the hyperspectral imaging snapshot technology hardware and software

Hyperspectral imaging acquisition software of imec: several objects (dry and wetted cake, plastic PET and PVC, nuts and their shell) are show in the SNm3x3 = 9 spectral colors tiled view. The HSI data-cube can be classified in real-time at 200+ FPS (see next page)
**IMEC HYPERSPECTRAL IMAGER & CAMERA HARDWARE SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Spatial resolution</td>
<td>VGA (640 x 480) total resolution</td>
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<tr>
<td>Spectral resolution</td>
<td>9 bands in 11 - 17 μm range (SNm3x3 SWIR version)</td>
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<tr>
<td></td>
<td>16 bands in 11 - 17 μm range (SNm4x4 SWIR version)</td>
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<tr>
<td>Bandwidth per band (FWHM)</td>
<td>10 - 15 nm</td>
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<tr>
<td>Base imager type</td>
<td>InGaAs based, Cardinal 640 sensor with TEC cooler electronic</td>
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<tr>
<td>Acquisition speed</td>
<td>up to 120 hyperspectral imaging data-cubes per second (USB3.0 interface limited)</td>
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<tr>
<td>Pixel pitch</td>
<td>15 μm pixels</td>
</tr>
<tr>
<td>Bit depth</td>
<td>13 bits</td>
</tr>
<tr>
<td>Optics</td>
<td>16 / 25 / 35 / 50 mm lens, F2.8, C-mount</td>
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<tr>
<td>Interface</td>
<td>USB3.0 + GPIO + I/O for triggering</td>
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<tr>
<td>SW acquisition modes</td>
<td>HDR modes (dual or multi-exposures for best SNR per band channel)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>2 Watts at 60 FPS</td>
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<tr>
<td>Dimensions (W x H x D)</td>
<td>65 x 65 x 130 cm</td>
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<td>Weight</td>
<td>260 g (without lens)</td>
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**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

**Visualization panel**

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

**Main control panel**

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

**User Interface**

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

**CONTACT US**

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