Are you looking for a hyperspectral evaluation camera? With a simple, fast and easy set-up for your hyperspectral data acquisition and analysis of sample materials? Imec’s solution is explicitly designed to enable fast application development, delivering relevant test data within minutes after initial installation. It includes all required components, from spectral imager to camera, optics, software and can be easily rebuilt into various configurations.

**SNAPSHOT TILED HYPERSPECTRAL IMAGING CAMERA**

Hyperspectral cameras, unlike traditional cameras, divide the light spectrum in many small wavelength bands. That way, they can capture the spectral fingerprint of any object, a unique spectral curve signature giving very detailed information about its exact constitution.

This latest generation of snapshot tiled sensor to camera architecture enables the highest possible spectral signal quality and HSI cube acquisition at video rates. It is a result of imec’s expertise at processing hyperspectral filters and designing high-quality optical systems.

The evaluation camera includes:
- imec snapshot 32 tiles hyperspectral image sensor
- USB3.0 camera electronics based on XIMEA xIQ
- Optical duplicator lens array GEN2
- Standard C-mount lens (35mm) with mountable cut-off/blocking filters
- Reflectance tile
- Cable interface and storage box
- Hyperspectral image acquisition software to generate highest quality HSI data-cubes which are spatially registered and corrected as well as reflectance calculated

**HYPERSPECTRAL TECHNOLOGY FOR REAL-WORLD APPLICATIONS**

In contrast to linescan systems, which need a translational movement to capture and register hyperspectral bands of an object, our camera requires no scanning movement. A snapshot tiled design, it captures HSI cubes at video-rates with the highest possible spectral signal quality compared to snapshot mosaic designs where pixel to pixel level cross-talk needs to be corrected in software.
imec’s in-house HSI software is designed for user-friendly hyperspectral imaging operations with integrated camera controls and visualization of captured objects.

### Key Benefits
- **Easy set-up** of system
- **Ready-to-use** solution: instantly collect hyperspectral data from your samples and determine spectral band differentiators
- **Flexible configuration**: quickly modify the set-up once you have a better understanding of the technology
- **Video-rate speed** acquisition of hyperspectral imaging data cubes

### Potential Applications
- Optical sorting in machine vision
- Chemical analysis of material composition
- Food safety & inspection
- Medical & healthcare
- Pharmaceutical manufacturing
- Semiconductor & photovoltaic
- Security & Surveillance
- Waste recycling
- Human-machine interface
- Mineralogy & mining
- and more...

### Hyperspectral Hardware Specification

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition mode</td>
<td>Snapshot tiled sensor with its optical duplicator</td>
</tr>
<tr>
<td>Wavelength range</td>
<td>600-875nm or 675-975nm</td>
</tr>
<tr>
<td>Number of spectral bands</td>
<td>32</td>
</tr>
<tr>
<td>Bandwidth per band (FWHM)</td>
<td>&lt; 10 nm, collimated</td>
</tr>
<tr>
<td>Imager type</td>
<td>CMOS imager, CMOSIS CMV2000 based</td>
</tr>
<tr>
<td>Imager size</td>
<td>2.2 MPixel</td>
</tr>
<tr>
<td>Spatial resolution</td>
<td>256x256pixels per band</td>
</tr>
<tr>
<td>Frame rate</td>
<td>Up to 120 hyperspectral cubes per second</td>
</tr>
<tr>
<td>Pixel pitch</td>
<td>5.5 µm</td>
</tr>
<tr>
<td>Bit depth</td>
<td>8 and 10 bit</td>
</tr>
<tr>
<td>Dimensions</td>
<td>40x40x150mm</td>
</tr>
<tr>
<td>Weight</td>
<td>150g with duplicator &amp; lens</td>
</tr>
</tbody>
</table>

### Hyperspectral Software Features

- **License available** to demo-kit customers and partners
- **Support** including installation, training and Q&A (remotely and on-site)
- **Source-code** available for OEM integration of cube registration, reflectance calculation and spatial/spectral corrections

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