DUAL-SENSOR SNAPSHOT MOSAIC HYPERSPECTRAL IMAGING CAMERA

Imec’s hyperspectral evaluation system offers simple, fast and easy application set-up for your hyperspectral imaging data acquisition and analysis of sample materials. Our solution is flexible and designed to enable application development using hyperspectral imaging technology, delivering relevant test data already within a few minutes after initial installation. It includes all required components, from spectral imager to camera, optics, software and can be easily rebuilt into different configurations.

HYPERSPECTRAL TECHNOLOGY FOR REAL-WORLD APPLICATIONS

Hyperspectral cameras, compared to traditional cameras, divide the light spectrum in many small wavelength bands. Therefore, hyperspectral camera captures the spectral fingerprint of any object, a unique spectral curve signature giving very detailed information about its exact constitution.

Combining imec’s hyperspectral filters processing capabilities with its extensive image processing and system design expertise, this dual-sensor snapshot mosaic camera architecture enables extended wavelength range coverage while preserving single lens optical path and HSI cube acquisition at video rates.

HYPERSPECTRAL EVALUATION SYSTEM

The evaluation camera consists of the following elements:

- x2 imec hyperspectral image sensors (to cover VIS + NIR ranges)
- Optical beam splitter inside camera with tight assembly
- Gigabit ethernet interface output and cables
- Programmable interface provided along with hyperspectral image acquisition software
- Standard C-mount and selection of fore-optics available (35mm lens and cut-off/blocking filters)

KEY BENEFITS

- Easy set-up of complete system
- Ready-to-use solution: instantly collect hyperspectral data from your samples and determine spectral band differentiators.
- Customizable design to match filter band selection with your final application requirements
**IMEC HYPERSPECTRAL IMAGER & SOFTWARE**

The specifications of this dual-sensor camera architecture are summarized here below

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Acquisition mode</td>
<td>2x snapshot mosaic VIS + NIR</td>
</tr>
<tr>
<td>Wavelength range</td>
<td>450-875nm (VIS to NIR)</td>
</tr>
<tr>
<td>Number of spectral bands</td>
<td>40+</td>
</tr>
<tr>
<td>Bandwidth per band (FWHM)</td>
<td>&lt;10nm, collimated</td>
</tr>
<tr>
<td>Imager type</td>
<td>x2 CMOS imager, CMOSIS CMV2000 based</td>
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<tr>
<td>Spatial resolution</td>
<td>450x270 pixels per band RAW</td>
</tr>
<tr>
<td>Frame rate</td>
<td>Up to 10 hyperspectral cubes/second. More with ROI</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>Optical input</td>
<td>(near) telecentric</td>
</tr>
<tr>
<td>Dimensions</td>
<td>150x70x50mm</td>
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<tr>
<td>Weight</td>
<td>500g with optics</td>
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User interface of imec’s in-house software is designed for user-friendly hyperspectral imaging operations with integrated camera controls and visualization of captured objects.

**APPLICATIONS**
- Medical guided surgery
- Medical characterization of wounds, burns and skin imaging
- Waste recycling
- Food sorting & quality grading
- Precision agriculture
- Industrial machine vision

**HSI SOFTWARE TO SUPPORT APPLICATION DEVELOPMENT**
- **License** available to all demo-kit customers & partners
- **Support** including installation, training and Q&A (remotely and on-site)
- **Source-code** available for OEM integration for the following blocks:
  - cube registration
  - reflectance calculation
  - spectral corrections

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**HSI SALES**
hsi.sales@imec.be