imec

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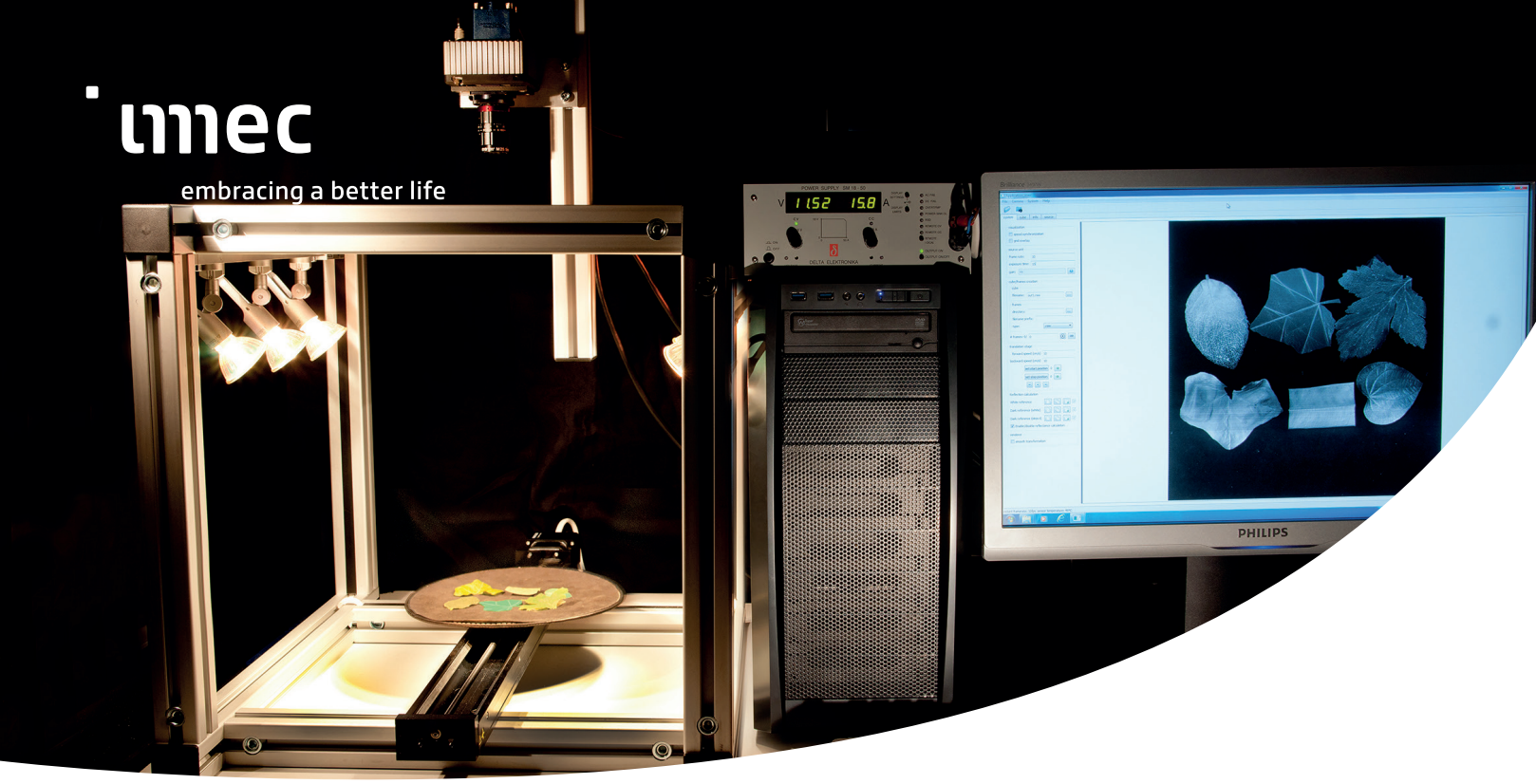


LINESCAN HYPERSPECTRAL EVALUATION SYSTEM

Imec's hyperspectral evaluation system offers simple, fast, and easy application set-up for your hyperspectral scanning 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 days after initial installation. It includes all required components, from imager to host pc, 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, a hyperspectral camera captures the spectral fingerprint of an object, a unique spectral curve giving very detailed information about its exact constitution.

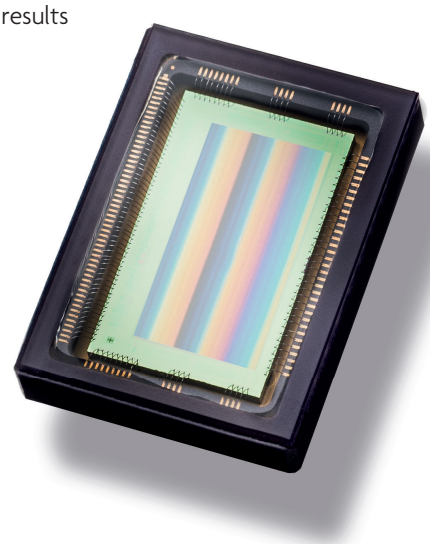
By combining imec's hyperspectral filters processing capabilities with its extensive image processing and systems design expertise, our engineers have developed a unique hyperspectral imaging evaluation system that matches with industrial end-application requirements.

HYPERSPECTRAL EVALUATION SYSTEM

Our hyperspectral evaluation system enables efficient use and evaluation of imec's unique hyperspectral imagers. In order to evaluate the line-scan hyperspectral imagers and scan hyper-cubes, a translational movement is required, provided by a translation stage with matching software controls.

KEY BENEFITS

- **Easy set-up** of the complete system
- **Ready-to-use** solution: instantly collect hyperspsectral data from your samples and determine spectral band differentiators
- **Flexible configuration:** quickly modify the set-up once you get more acquainted with the hyperspectral imaging technology
- **Overall reduced time and cost** to obtain hyperspectral results



Packaged hyperspectral linescan imager with 100 bands spectral filter structures

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

THE EVALUATION SYSTEM CONSISTS OF THE FOLLOWING ELEMENTS:

- imec hyperspectral imager
- 35mm objective lens
- camera (cameralink)
- reconfigurabble mounting frame
- wideband halogen illumination
- stabilized power supply
- calibration tile
- host PC with frame grabber
- control software for data acquisition and cables

IMEC LINESCAN IMAGER SPECIFICATIONS

Wavelength range	600-1000nm (VIR) or 470-900nm (VNIR)
Number of spectral bands	100+ bands (NIR) or 150+ bands (VNIR)
Bandwidth per band (FWHM)	<10nm collimated
Base imager type	CMOS imager, CMOSIS CMV2000 based
Spatial lines/spectral bands	x8 (NIR) or x6 (VNIR)
Spatial pixels/line	2048
Scanned hyperspectral lines/second	2720 or limited by (camera) interface
Pixel pitch	5.5µm
Bit depth	10 bit
Optical input	(near) telecentric 35mm lens

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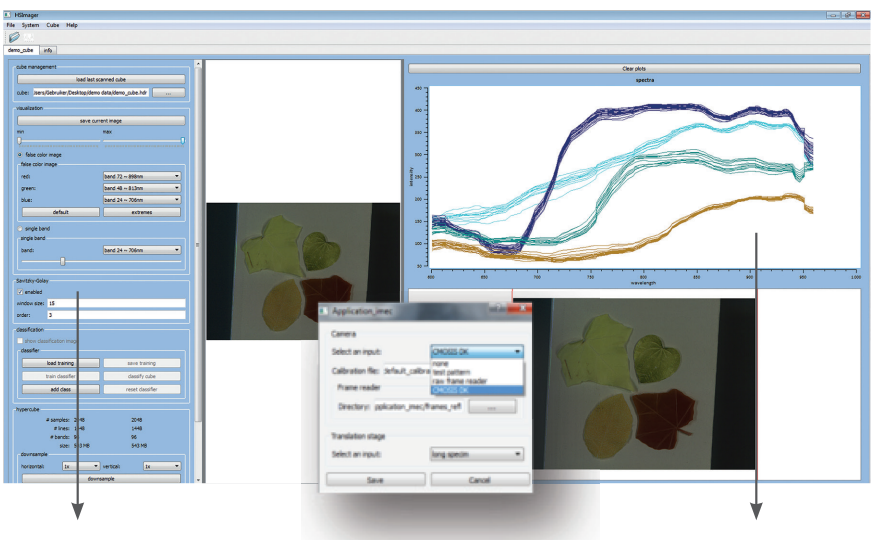

Main control pane

- Camera (fps, t)
- Cube/frame dump
- Translation stage
- Refectance calculation

Pipeline configuration dialogs

Visualization panel

- Speed synchronization
- Saturated pixels
- False color image
- Spectral plotting

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