

# HinaLea 4100H Hyperspectral Camera



## HIGHLIGHTS

- » Fully autonomous high-resolution handheld hyperspectral camera
- » Down to 2 second acquisition
- » Visible to NIR (400 - 1000 nm)
- » Up to 550 spectral bands
- » 4 nm (FWHM)
- » Dynamically configurable spectral bands
- » Option for active illumination for ambient-independent spectra
- » Configurable real-time object identification
- » 160mm<sup>2</sup> field of view
- » Ergonomic design
- » 3.5" color touchscreen with simple user interface
- » Wi-Fi and GigE / USB 3.0 interface
- » 4 rechargeable Li-ion batteries

**HinaLea Imaging** has developed the world's first autonomous high-resolution handheld hyperspectral camera. The award-winning device delivers 2.3 Mpixel data cubes at up to 550 spectral bands in the visible and near-infrared wavelength ranges with as little as 2 seconds acquisition. The device's embedded processor enables real-time object identification based on a priori information on objects of interest. It's built-in light source allows acquisition of repeatable, absolute reflectance spectra.

## Simple Usage Flow

To use, just turn on the device and it is ready to use. Hyperspectral cubes are captured by simply making contact with the object and pressing the trigger. Once an acquisition is complete, the user can view a video of the hyperspectral cube or scroll to a specific spectral band. Touching any pixel in the image displays the spectrum of this pixel. The camera's lamp spectrum can be subtracted in case of active illumination.

## Powered by HinaLea's HySi Engine Technology

The Model 4100H Hyperspectral Camera is powered by HinaLea's Hyperspectral Engine Technology. At its center is a tunable Fabry-Perot Interferometer, assembled at HinaLea's manufacturing facility using a proprietary process. The device achieves nano-meter range mechanical tolerances with zero defects, in a robust and cost-effective system. HinaLea's proprietary algorithms enable high-speed, low-power operation. Its active illumination option enables repeatable, absolute spectra to be acquired by novices and amateurs alike.

## Intuitive Graphical User Interface (GUI)

The imager provides an effortless imaging experience. Guided by an intuitive graphical interface and powered by HinaLea's advanced acquisition and processing engine, the handheld imager can capture millions of spectra in just a few seconds. The scanned spectral range as well as the sensitivity of the camera can be software configured. The acquired data cube can be transferred to an external computer via a wireless or GigE / USB 3.0 connection.

## Collaboration and Configurability Options

While the Model 4100 offers unprecedented performance for users in academia, industry, and the clinic, the camera has been designed in a modular fashion to allow for customization for specific applications. Spatial resolution, acquisition times, field of view, working distance and spectral range can be designed to customers' specifications.

# Model 4100H Technical Specifications

## HINALEA ADVANTAGES

### » Staring Hyperspectral Imaging

No mechanical scanning is required, resulting in a lower-cost, reliable system.

### » Off-Sensor Spectral Filtering

Decoupling the spectral filtering from the image sensor enables high spatial resolution.

### » True Hyperspectral Imaging

Unlike color-filter arrays, with the HinaLea solution, there is no tradeoff between number of spectral bands and effective spatial resolution.

### » Customizable

HinaLea will work with strategic partner to optimize camera performance for specific application and will consider OEM models.

## Mechanical

<b>Dimensions (LxWxH)</b>	230 mm x 260 mm x 105 mm (9.0" x 10.2" x 4.1")
<b>Weight</b>	1.6 kg (3.5 lb)

## Electrical

<b>Input Voltage</b>	19 V $\pm$ 5%
<b>Operating Power</b>	15 W
<b>Batteries</b>	4 rechargeable Li-ion
<b>Battery-Run Operating Time</b>	3.5 hours
<b>Acquisitions per Battery Charge</b>	>120
<b>Data Interfaces</b>	GigE or USB 3.0

## Environmental

<b>Operating Temperature</b>	0°C to 40°C (32°F to 104°F) (Non-condensing)
<b>Humidity</b>	5% to 95% relative humidity, non-condensing
<b>Ambient Light Levels</b>	0-75,000 Lux (direct sunlight)

## Scan Performance

<b>Field of View</b>	160mm <sup>2</sup> area acquisition
<b>Spatial Resolution</b>	2.3 MP
<b>Spectral Range</b>	400 – 1,000 nm
<b>Max Number of Spectral Bands</b>	550
<b>Spectral Resolution</b>	4 nm (FWHM)
<b>Illumination</b>	Active (built-in) or Passive
<b>Working Distance</b>	Contact
<b>Scan Angle</b>	Perpendicular to object

## HINALEA IMAGING

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