Model 4400 SWIR

Setting the standard in intelligent hyperspectral imaging

HIGHLIGHTS

- High spatial and spectral resolution
- Real-time imaging and classification
- SWIR (1000 – 1700 nm)
- 108 spectral bands
- 10-45 nm (FWHM)
- Sensor Spatial Resolution 640 x 512 pixel

The HinaLea® 4440 system a high speed band-sequential, full-frame, shortwave infrared hyperspectral imager capable of real-time classification . Based on front-staring Fabry–Pérot technology, the 4400 includes the hardware and software required to support a broad range of inspection and aerospace applications. Whether you are working in a fixed or mobile operating environment, the 4400 sets the standard in performance and portability.

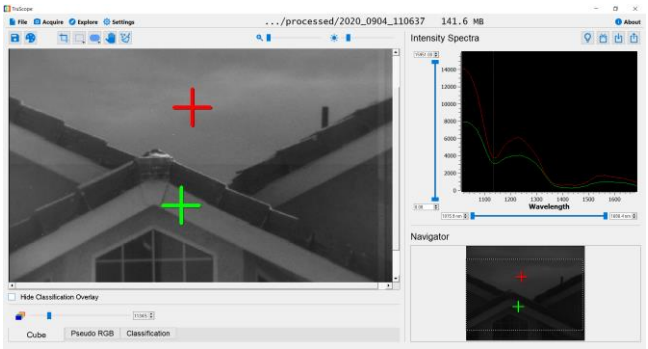
The 4400 model utilizes a front-staring approach to hyperspectral imaging that does not require mechanical scanning. The major features and benefits of the 4400 system over push-broom systems include:

- **Image uniformity:** Line-scanning systems rely on constant conditions for optimum performance and are susceptible to subtle environmental changes that can adversely impact image uniformity. Because the 4200 images the entire area of interest at once, it can capture highly uniform images even in dynamic conditions.
- **Application flexibility:** Front-staring systems offer other advantages over line-scanning technologies for environmental monitoring applications, most notably more versatile viewing geometry options. Such systems can not only be mounted statically, but they can also be used by externally in mounted on airborne platforms.
- **Real-time classification:** One of the unique attributes of the 4400 system is its wavelength selectivity which can be dynamically controlled based on the application and object to be imaged. The system allows a range of operational modes from high spectral resolution static image capture with hundreds of bands to near real-time image capture and classification with a few band-passes of interest in a multi-spectral configuration
- **Cost:** HinaLea's systems are designed with mass manufacturability in mind. As such, our systems typically cost a fraction of competitive solutions with similar levels of performance
- **Complete solution:** At HinaLea, our goal is to develop intelligent imaging solutions to customer problems. As such, our systems include application software for not only acquisition but also image exploration and classification. Easy to use tools allow the easy and intuitive application of sophisticated segmentation algorithms that are presented immediately to the user.

4400 System Technical Specifications

Mechanical	
Dimensions (LxWxH)	354 x 80 x 80 mm
Mass (Weight)	1.6 kg (3.5 lbs.)
Electrical	
Input Voltage	110 VAC at 60Hz / 220 VAC at 50Hz
Data Interfaces	USB, CameraLink
Environmental	
Operating Temperature	20°C ± 5°C
Humidity	65% non-condensing
Scan Performance	
Standard Lens	15° Field of View (FOV) – 150 mm to
Spectral Range	1,000 – 1,700 nm
Spectral Bands	108 nominal
Spectral Resolution	10-45 nm (FWHM)
Spatial Resolution	640 x 512 pixel
Illumination	Optional

Application Software



The 4400 system includes proprietary application software featuring fast and easy hyper-cube capture and intuitive image classification/segmentation as part of a suite of powerful spectral image exploration tools.

HINALEA ADVANTAGES

» **Staring Hyperspectral Imaging**
No mechanical scanning is required, resulting in a lower-cost, reliable system that produces more uniform images.

» **Off-Sensor Spectral Filtering**
Decoupling the spectral filtering from the image sensor means not compromising one for the other and enables both high spatial and spectral 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 partners to optimize camera performance for specific applications and will consider OEM models.

HINALEA IMAGING

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