Multi-Mode Hyperspectral/ Multispectral Imager

MM-HS/MS SWIR Sensor is a multi-mode hyperspectral/ multispectral imager with user selectable spectral resolutions in the short wave infrared (SWIR) band from 950nm to 1650nm.

Key Benefits

- Switchable between hyperspectral (HS) and multispectral (MS) operations
- Flexible spectral range & resolution for scanning
- Balance between the spectral image scanning speed and the data storage/processing flow rate
- Lightweight, compact size, low cost

Multispectral imaging deals with discrete, broadband objects. It is generally used to classify the objects into extended categories. Hyperspectral imaging, on the other hand, utilizes narrow band and continuous spectral measurements. It uses extensive data to retrieve the fine spectral details of objects with a cost of data processing time and transmission bandwidth. KOI's MM-HS/MS offers large flexibility in choosing either MS or HS measurement in a single instrument to reach the best balance between the spectrum details and data acquisition time.

A single *MM-HS/MS* SWIR Sensor enables three spectral resolutions for user to choose from, i.e., high, medium and low. The user can take single image frames at any wavelength between 950nm and 1650nm with a choice of a suitable spectral resolution from the three enabled bandwidths. The User can also select one of the three bandwidths according to specific target and acquisition time requirements to conduct full spectral scan and acquisition from 950nm to 1650nm. Furthermore, the user can specify the spectral range of interest to conduct partial spectral scan with the selected spectrum resolution.

MM-HS/MS SWIR Sensors come with three components, the optical head, the controller and the software to run the sensor. A PC with a 54mm ExpressCard slot is required to operate the sensor. All products are offered at a competitive price.

HS mode with high spectral resolution

MS mode with medium spectral resolution

MS mode with low spectral resolution

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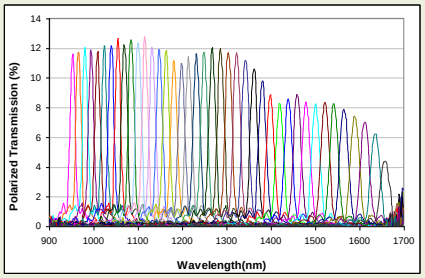
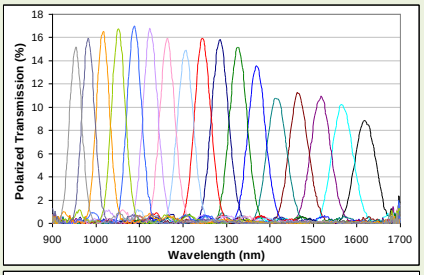
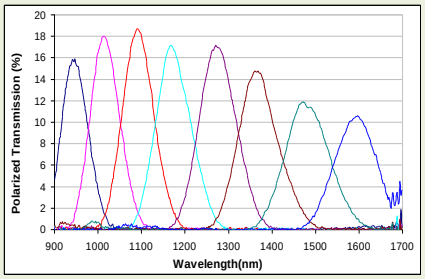
KentOptronics

MM-HS/MS SWIR Sensor

The MM-HS/MS SWIR Sensor is equipped with a tunable filter with selectable full width half maximum (FWHM). The filter tunes from 950nm to 1650nm with a choice of three different bandwidths at each wavelength: wide, medium and narrow. By using such filters, the MM-HS/MS SWIR Sensor has the flexibility to switch from multispectral imaging to hyperspectral imaging to balance acquisition speed, data volume and data transmission bandwidth.







Potential Applications:

- Food safety and quality: agriculture research, crop management
- Life science and biotechnology: fluorescence, laboratory R&D, non-invasive diagnostic imaging, tissue inspection
- Forensics: crime scene investigation, counterfeit detection, document testing & verification etc.
- Mining exploration
- Mineral mapping
- Military and defense: reconnaissance and surveillance

MM-HS/MS SWIR Sensor Specifications

Item	Specs	Item	Specs
Spectral range	950~1650nm	**Frame rate**	Up to 4 fps
Spectral resolution at 950nm	Narrow: 13nm Medium: 33nm Broad: 70nm	**Full HS cube acquisition time**	Up to 24 seconds
Spectral Bands	8~41	**Dynamic range**	12 bits
Spatial resolution	320×256, 25μm	**Field of View**	30º or customized
Exposure time	0.13~16.6ms	**F# of Optics**	4.6 or customized
Size	<1 cub ft	**Weight**	10 lbs
Storage temperature	-20° C to 70° C	**Operation temperature**	10° C to 50° C
Power supply	110VAc	**Power consumption**	33 Watt
Minimum System Requirements	– PC with 54mm ExpressCard slot – Windows™ 98/ME/2000/XP/Vista – CD ROM drive – USB port – 32M RAM – 20MB hard drive space		