



VISIBLE IMAGING SPECTROSCOPY Using Image Multispectral Sensing IMSS

Pacific Advanced Technology

The VISIMSS instrument is a dispersive type visible imaging spectrometer which uses a new and innovative patented approach invented by Pacific Advance Technology (PAT). This technology provides a very rugged, portable spectral imaging camera with spectral resolutions on the order of 1 nanometer. PAT also offers two infrared models of the IMSS hyper-spectral imaging-systems. The longwave system uses an f/1.8 diffractive lens with a nominal focal length of 75 mm, and the midwave system uses a f/2.5 diffractive lens with a 102mm focal length. These two products are meant to mate to a conventional infrared camera such as those sold by Indigo Engineering.

The visible IMSS imaging spectrometer is a small portable instrument with a standard RS-170 output for analog video or it interfaces to the HyPAT data acquisition and data reduction system for digital data interface. The IMSS is a flexible instrument that provides a number of different spectral imaging modes. A single waveband can be viewed over a long period of time, or a scan can be made over all bands to rapidly collect spectral data of the image. Because the IMSS forms multiple images at different wavelengths in the process of obtaining a spectrum of pixels within the image, the instrument can also be used as a variable narrow band filter.

ABOUT THE TECHNOLOGY

The IMSS exploits advanced technology in diffractive optics and image signal processing. It images a scene and measures the spectral and radiometric content of all objects within the scene. While other spectral imaging devices have complex optics and alignment requirements, the PAT IMSS uses a simple optical design eliminating complex alignment requirements. PAT also has a visible version of the hyperspectral camera system.

VISIBLE IMSS

Spectral Range	400 to 800 nm
Nominal Spectral Resolution	0.18% $\Delta\lambda/\lambda$ (1.1nm @633nm)
F number	f/4 at 633 nm
Focal Length	40 mm at 633nm
Output	RS170
Integration Time	Adjustable

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