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ProSpecTIR VS

VNIR – SWIR Hyperspectral Instrument

SpecTIR presents the **ProSpecTIR-VS** as part of our full line of pushbroom-imaging instruments for spectral remote sensing. The rugged high-performance instruments have superior spectral imaging capability and are built with components for maximum performance and utility - great performing dispersive optics, high dynamic range imaging devices, an integrated GPS/INS sensor, a durable housing, all integrated with flight operations and recording hardware.

Mounted sensor system dimensions
25 x 19 x 16 inches (HWD)

The **ProSpecTIR-VS** instrument has dual sensors individually covering visible/near-infrared (VNIR) wavelengths of 400-1000nm and short-wave infrared (SWIR) in the 1000-2500nm wavelength range. The dual sensors are co-boresighted and include all hardware, acquisition and processing software for flight operations and spectral mapping with a choice of navigation packages.

The **ProSpecTIR-VS** can be installed in almost any light aircraft with aerial camera capability. The imagery is navigated with the integrated DGPS/IMU and, when processed with the included Cali-Geo software, provides geo-referenced radiance and reflectance files readily imported into ENVI or other spectral analysis programs.

Total Turnkey Spectral Remote Sensing

All ProSpecTIR systems provide an integrated turnkey solution, ready for installation and operation.

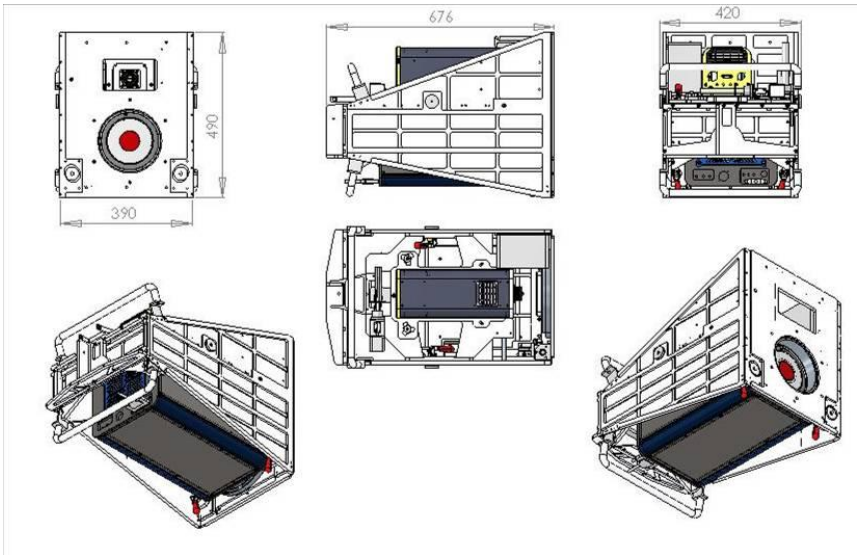
The ProSpecTIR-VS instrument consists of:

- VNIR + SWIR hyperspectral sensors with all cables and connections
- Real time acquisition computer with user-friendly flight operations software
- GPS/INS navigation and flight solution
- Power supplies
- Caligeo post-processing software

ProSpecTIR dual system is ideal for geological applications.
Sample data of Buddingtonite Outcrops, Cuprite, NV USA

ProSpecTIR VS Instrument

TYPICAL SPECIFICATIONS								
SPECTRAL RANGE	VNIR 400-970 nm				SWIR 970-2500 nm			
	Total 400-2500 nm							
SPECTRAL RESOLUTION (OPTICAL)	VNIR 2.9 nm				SWIR 8.5 nm			
SPECTRAL CHANNELS	376 typical operation, 500 at highest resolution							
SPECTRAL BINNING CONFIGURATION	VNIR	1x	2x	4x	SWIR	1x	2x	4x
SPECTRAL CHANNELS		244	122	60		254	127	63
SPECTRAL SAMPLING (nm)		2.3	4.6	9.2		5.8	11.6	23.2
TERRAIN COVERAGE & FIELDS OF VIEW								
SPATIAL PIXELS	320							
FOV	24 degrees							
IFOV	1m GSD @ 2500' 0.075 degrees (1.3mrad)							
SWATH 0.43 x altitude	1km @ 7600'							
OPERATIONAL CHARACTERISTICS								
CAMERA A/D	VNIR	Si CCD 12 bits			SWIR	MCT 14 bits		
SNR	500:1 typical, 750:1 peak				650:1 typical, 1100:1 peak			
INTEGRATION PERIODS	adjustable at each sensor for optimum exposure levels							
IMAGE RATE	Up to 100 images/s							
MECHANICAL & POWER								
DIMENSIONS	25 x 19 x 16 inches (HWD)							
WEIGHT	40kg sensor 25kg for flight computer, power supplies							
POWER	INSTRUMENT - 200W OPERATIONAL, 500W AT COOLDOWN FLIGHT OPERATIONS COMPUTER - 600W							

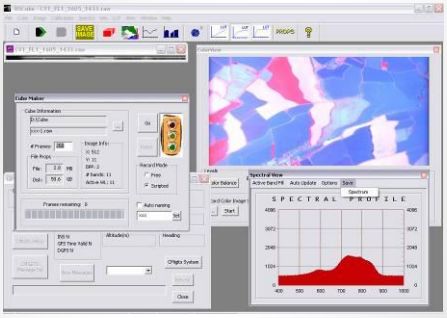


OPERATIONS AND DATA COLLECTION

The VNIR and SWIR data are combined and saved as a single image covering the spectral range of 400 to 2500 nm.

A single flight operations computer is used for data acquisition, collecting both the VNIR and SWIR data with 320 pixels over an aligned and coincident swath width on terrain or surface.

RSCube Remote Sensing Software provides images and information to the flight operator, controlling flight experiments and data recording.



Images from VNIR and SWIR sensors are acquired synchronously and time stamped and tagged with GPS and line-of-sight information from the Inertial Navigation System.

See more details and example applications at www.spectir.com