HYPER-CAM THERMAL AIRBORNE HYPERSPECTRAL IMAGING

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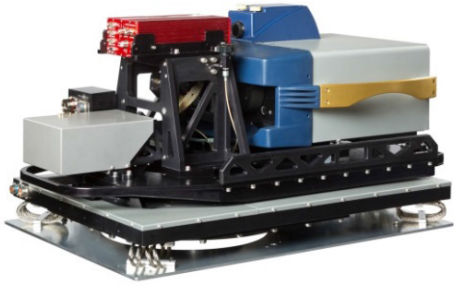
TELOPS

HYPERSPECTRAL IMAGING FROM AN AIRPLANE

The Hyper-Cam, a hyperspectral imaging camera, mounted on the Telops' airborne platform, enables the production of hyperspectral maps of an area surveyed from an airplane.



KEY BENEFITS

Acquiring hyperspectral images from an airplane allows to map vast areas and obtain important spectral information. Applications include:

Target Detection, Identification and Surveillance: The Hyper-Cam Airborne is ideal for wide area mapping, surveillance or target interrogation due to enhanced resolution and sensitivity.

Geology, Mining and Oil & Gas Exploration: Mine face imaging using a Hyper-Cam Airborne allows to map the mineral content of a mine face from a distance and identify mineral concentrations and streaks. Detection of natural gas leaks from the air enables exploration of larger areas.

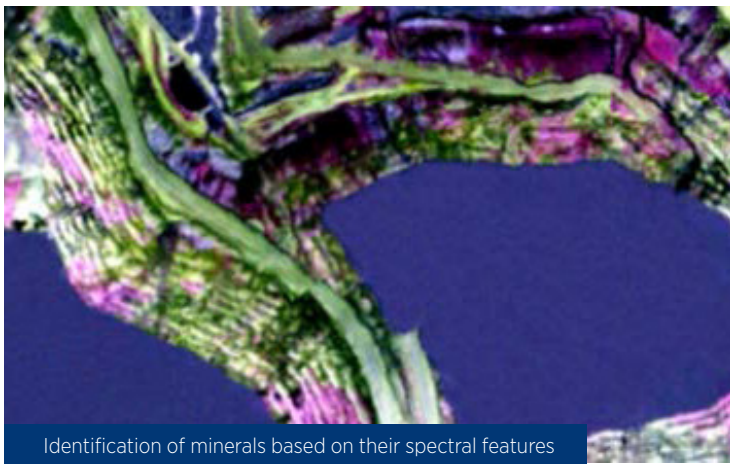
Environmental Monitoring: Hyperspectral data from an airborne configuration allows to detect and identify multiple substances simultaneously. Used to detect pipeline leaks or monitor substances in urban pollution, the Hyper-Cam Airborne is an imperative tool in environmental monitoring.

Agriculture and Vegetation Surveys: Soil and vegetation characterization can be easily performed on large areas.

APPLICATIONS

- High sensitivity: Excellent signal-to-noise ratio (SNR) allowing detection of weak signals
- Spectral resolution is flexible and is user-selected to any value up 1cm^{-1} providing tens to hundreds of spectral bands
- Two (2) acquisition modes: mapping and targeting
- Dual-use for airborne and ground applications (useful for ground truthing)
- Provides georeferenced data
- Visible images acquired simultaneously with IR hyperspectral data
- Compatible with midwave (3-5 µm) and longwave (8-12 µm) Hyper-Cam sensors

Surveillance of urban areas



Identification of minerals based on their spectral features

PARAMETER	DESCRIPTION	UNITS	VALUE
IMAGING CHARACTERISTICS (USING THE HYPER-CAM)			
Spectral range	Midwave (MWIR) and longwave (LWIR)	µm	3-5 and 8-12
Geolocation accuracy	@1000 m altitude with internal GPS	m	5 (2*)
Ground pixel size @1000 m	Standard (6.4° × 5.1°)	m	0,35
	Using the 0.25× telescope (25° × 20°)	m	1.4
Aircraft speed	Typical cruising speed	kn	110
Aircraft altitude from sea level	Maximum operating altitude using unpressurized aircraft	m	3000
			*High accuracy option
TYPICAL PERFORMANCES			
Mass - Airborne sensing module	Airborne sensing module mass, excluding Hyper-Cam sensor	kg	m 77
Dimensions – Airborne sensing module	Airborne sensing module dimensions (length × width × height)	mm × mm × mm (in × in × in)	953 × 584 × 470 (37.5 × 23 × 18.5)
Airborne sensing module footprint	Compatibility with existing aircraft aperture & fixation characteristics of analog airborne visible camera	–	Leica PAV Series
Mass-Electronic equipment rack	Electronic equipment rack mass, including all rack mounted components	kg	68
Dimensions – Equipment rack	Electronic equipment rack dimensions (width × depth × height)	mm × mm × mm (in × in × in)	591 × 566 × 613 (23.2 × 22.3 × 24.2
Operating Temperature Range	Operating temperature range	°C	0 - 40
ELECTRICAL POWER			
Input voltage	Range of input voltages, available from the aircraft under which the Hyper-Cam airborne system can operate	V	21 – 31 VDC
Steady-state power consumption	Typical Airborne module steady-state power consumption, including Hyper-Cam sensor	W	680
Peak power consumption	Airborne module peak power consumption, including Hyper-Cam sensor	W	740

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