Polytec

Airborne hyperspectral remote sensing
Complete solutions and integration packages

Hyperspectral cameras

Hyperspectral imagers are imaging spectrometers that deliver spatially and spectrally high-resolution images. They are ideal for the qualitative and quantitative evaluation of objects based on their specific spectral and geometric signatures.

HSI systems are used in laboratories, in the field, in industrial quality assurance and increasingly in remote sensing - from small unmanned drones to satellites in orbit. The systems shown here have been specially developed for airborne applications. Compact, light-weight, thermally and mechanically robust and equipped with onboard data acquisition.

Applications range from precision farming, forest management, environmental damage assessment, basic biological research, open pit mining exploration, remote sensing to archaeology.

VNIR and SWIR drone systems

The ready-to-fly systems comprise the following

- DJI M600 drone with transport case
- Matching hyperspectral camera with lens
- GPS/GNSS/INS position sensors for flight parameter control and image corrections
- Gimbal for image stabilisation (depending on camera size)
- Software package for flight planning, post-processing and orthorectification, spectral classification and analysis, linking of geo and hyperspectral data (Google Maps overlay)
- Radiometric calibration of camera and lens
- Calibrated reference plane (9 m²; white and 2 grey grades)
- 1 year technical support

Options
- Additional LIDAR module
- High-resolution GPS/INS module (recommended for LIDAR imaging)
- Software for calculation of vegetation indices

DJI M600 drone with broadband imager for 400 - 2,500 nm wave length

Hyperspectral camera integration packages

The systems are ready for integration into a drone (UAS) or aircraft for remote sensing. Available systems include:

- Ultralight Nano Hyperspec VNIR airborne system
- High resolution chlorophyll fluorescence airborne system to diagnose photosynthesis of plants (areas) and observe the oxygen absorption bands O_2-A and O_2-B
- Lightweight VNIR & SWIR airborne system (400 - 2,500 nm wave length)
- Micro Hyperspec VNIR, NIR or SWIR (high efficiency variant for great flight heights)

All systems comprise the following

- GPS/GNSS/INS position sensors for flight parameter control and image corrections
- Software package for flight planning, post-processing and orthorectification, spectral classification and analysis, georeferencing of hyperspectral data (Google Maps overlay)
- Radiometric calibration of camera and lens
- Calibrated reference plane (9 m²; white and 2 grey grades)
- 1 year technical support

Compact Nano Hyperspec system weighing under 500 g

Wave length range	Hyperspectral system	Spectral range [nm]	Weight [kg]
Broadband	Hyperspec VNIR-SWIR	400 - 2,500	2.83
VIS/NIR	Mirco Hyperspec VNIR	400 - 1,000	1.4
	High-Effiency Mirco Hyperspec VNIR	400 - 1,000	1.1
	Nano Hyperspec VNIR	400 - 1,000	0.5
NIR/SWIR	Mirco Hyperspec NIR	900 - 1,700	0.9
	Mirco Hyperspec extended VNIR	900 - 1,700	0.9
	High-Effiency Mirco Hyperspec	900 - 1,700	0.9
SWIR/ MWIR	Mirco Hyperspec SWIR	900 - 2,500	1.6 - 2.0
	High-Effiency Mirco Hyperspec SWIR	900 - 2,500	2.0

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