OPTOSKY
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Datasheet

Portable Ground Imaging System	ATH6010

Features:

ATH6010 configured tripod can scan full angles.
ATH6011 can scan horizontal 360°
Scan Range: Full angles
Compatibility: Spectral data compatible with ENVI software running and processing.
Easy-to-take suit to field measurement
It's available for customized requirements.

Application:

Monitor Agriculture: plant diseases and insect pest, disaster, categories ID etc.
Forestry: Tree categories identification, Phytomass, nutrient elements, forest health etc.
Water Environment: Water quality parameters, water waste spatial distribution and migration analysis
Soil Pollution: heavy metal waste
Minerals: Mineral mapping, ingredients explore, metallogenic prognosis etc.
City geological substances classification and identification

Description:

ATH6010 is designed spectral imaging system suitable to field operation with a function of auto-scan.
It composes of hyperspectral camera ATH1010 and tripod. The core hyperspectral camera is a complete self-developed, and it employs low cost split light system with a compact size, CMOS image sensor, high frame rate, high-performance-to-price ratio, USB power supply no need extra power, customized high precision scan mirror can sweep target forming image; It employs built-in power supply module, external wire connect is simple can improve integrated and portability.

Datasheet

Items	Specification
Spectral Range	400-1000nm
Spectral Resolution	< 2.8nm
Spatial Resolution	0.7mrad@35mm lens
Max Frame Rate	120
FOV	15.2°
Spectral Channels	270（4×4binning）
Spatial Channels	400（4×4binning） 800/2
Slit Size	25um
Data Quantification Class	12bit
Detector	1920*200
Horizontal scan range	ATH6010：±20° adjustable
	ATH6011:360° adjustable
Vertical adjustable degree	ATH6010：360°
	ATH6011:±45°
Power Supply Type	Built-in/Internal power supply

Parts List

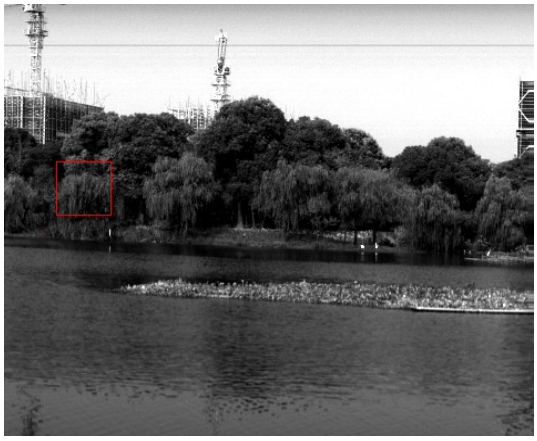
Standard Accessories:	
1	ATH6010 Hyperspectral Camera
2	USB wire
3	12V standard charger
4	Standard board
5	35mm lens
6	PC data acquisition software
7	Tripod
Optional Accessories:	
1	Reflectance Boards(Reflectance10%/20%/30%/40%/50% customized)
2	Lens (Focal Length16mm/25mm/35mm)
3	Controlled PC
4	High stable Halogen Lamp

Case Study by Portable Ground Hyperspectral Imaging System

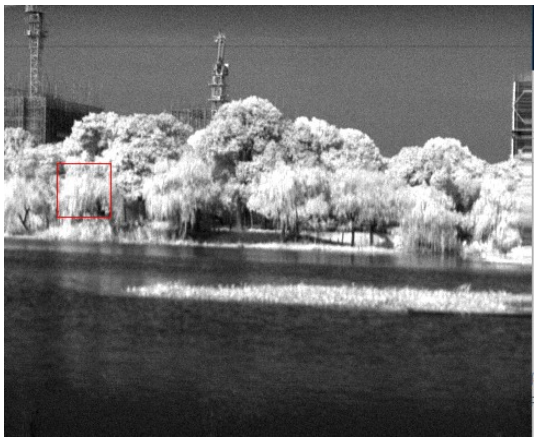
1. Plant Measurement

ATH6010 portable hyperspectral imaging system is used to acquire spectral data of field plants,tower crane,and soil etc. Based on single wave band image and color images to display, compare and analyze spectrum. Seen through single wave band image, different ground materials have obvious differences reflected in the different wave bands to differentiate different materials.

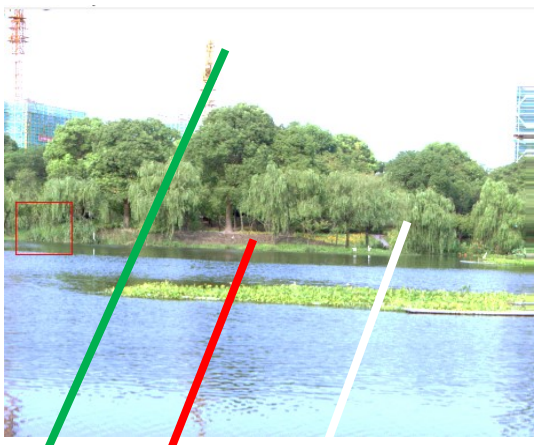
The 50th Wave Band



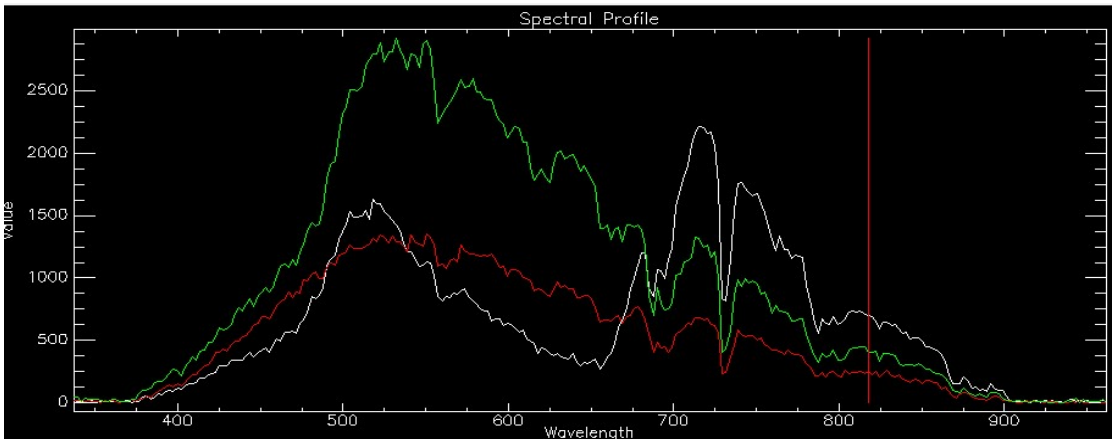
The 100th Wave Band



The 200th Wave Band



RGB composit image

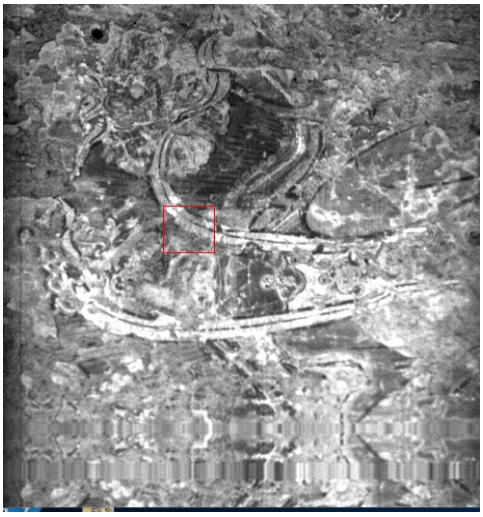


Spectral Curve Comparison

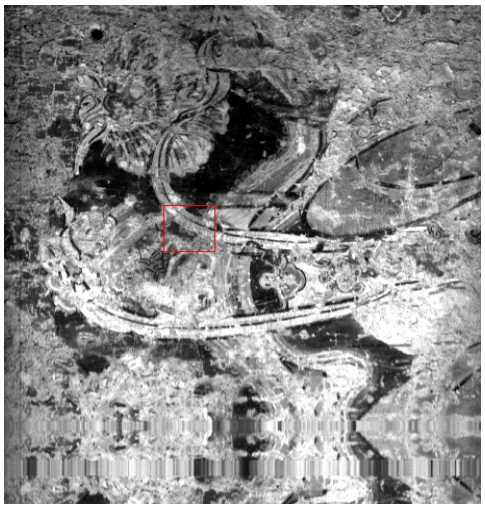
2. Archeological Mural Measurement

At present, hyperspectral camera has a unique feature of obtaining materials of "fingerprint spectra", especially fit for archeology, mural, oil painting, and archaeological site spectral image data. Here exhibiting a temple mural measurement spectral image data, we depends on spectral image analysis can vividly restore color and mural condition, provide a solution to solve fades, covered places, damages. Hyperspectral technology is confirmed to provide new clues to analyze cultural relic repairs, identification and protection.

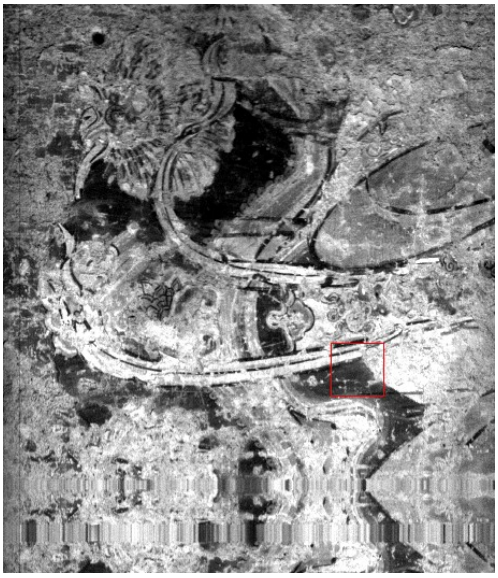
On site picture



The 50th Wave Band

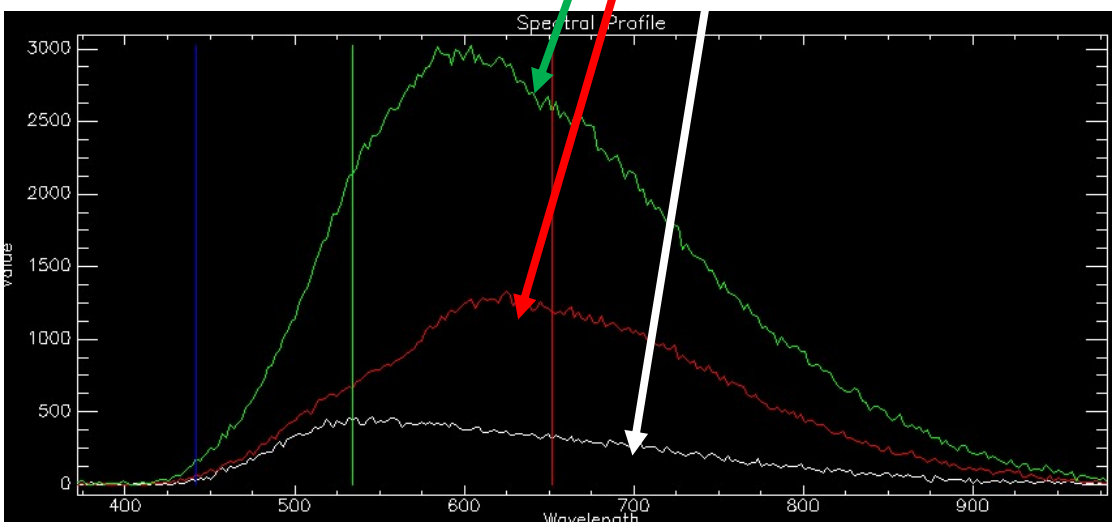


The 150th Wave Band



The 200th Wave Band

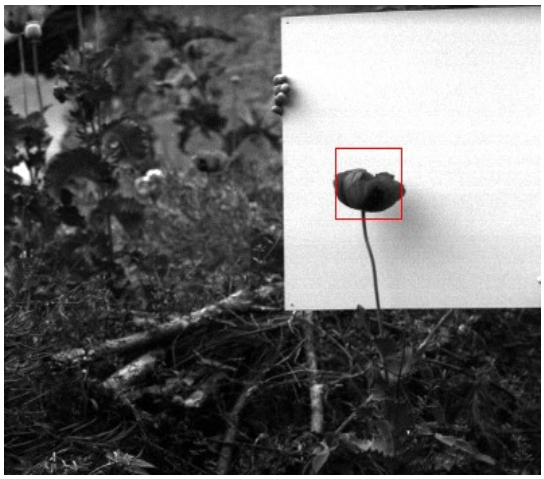
R GB Composite Image



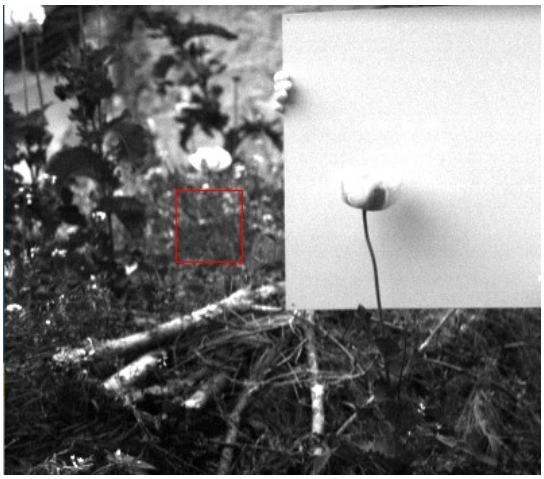
Spectral Curves Comparison

3. Opium Poppy Measurement

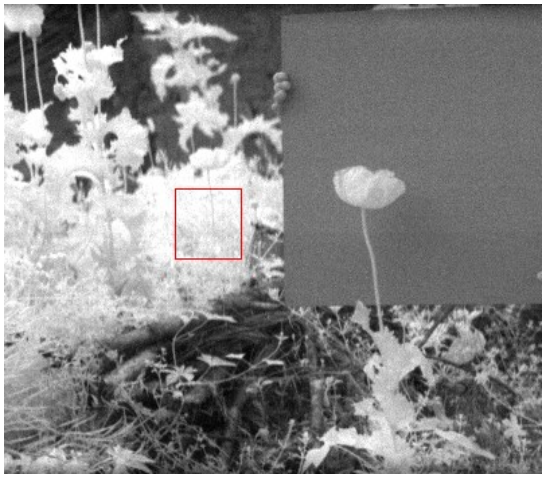
Papaver Somniferum, the Opium Poppy has certain medicinal value,but they are also raw materials to produce drugs. China has strict law to prohibit any person or community from planting opium poppy plant, but there are still a large number of illegal opium poppy garden distributing in mountain & forest areas, and even hided in crop land, which bring difficulties to positioning and monitoring illegal plantation. Many countries take advantage of satellite imagery reflecting spectrum and eye seeing explaining suspect area, but plant spectral signal has a high similarity, so that hyperspectral imaging possessing higher identification. After cooperation with relative departments, Optosky performed a field measurement on opium poppy by hyperspectral imaging system, and it provide a fast and efficient solution to investigate illegal plantation and result a positive result. You can refer to opium poppy spectral image as shown below:



The 50th Wave Band

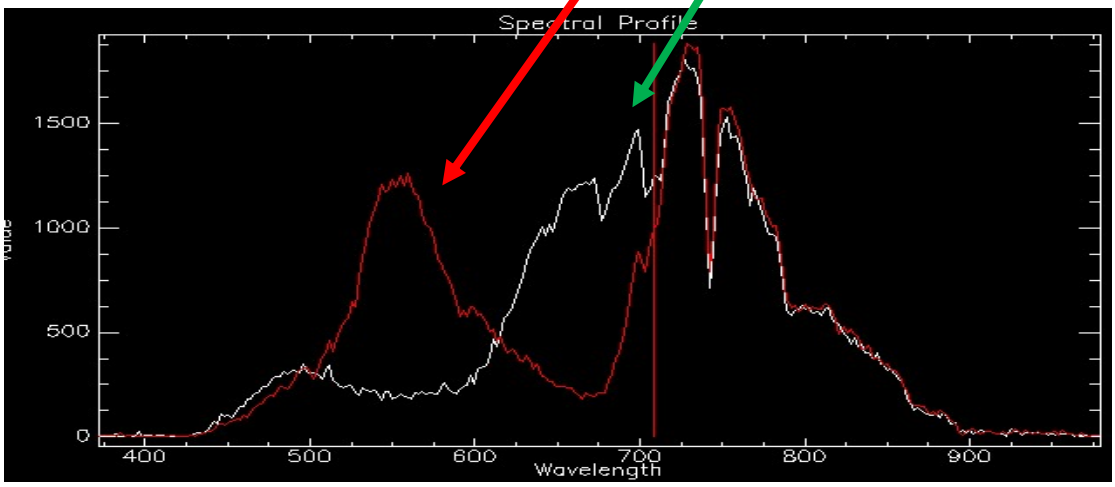


The 130th Wave Band



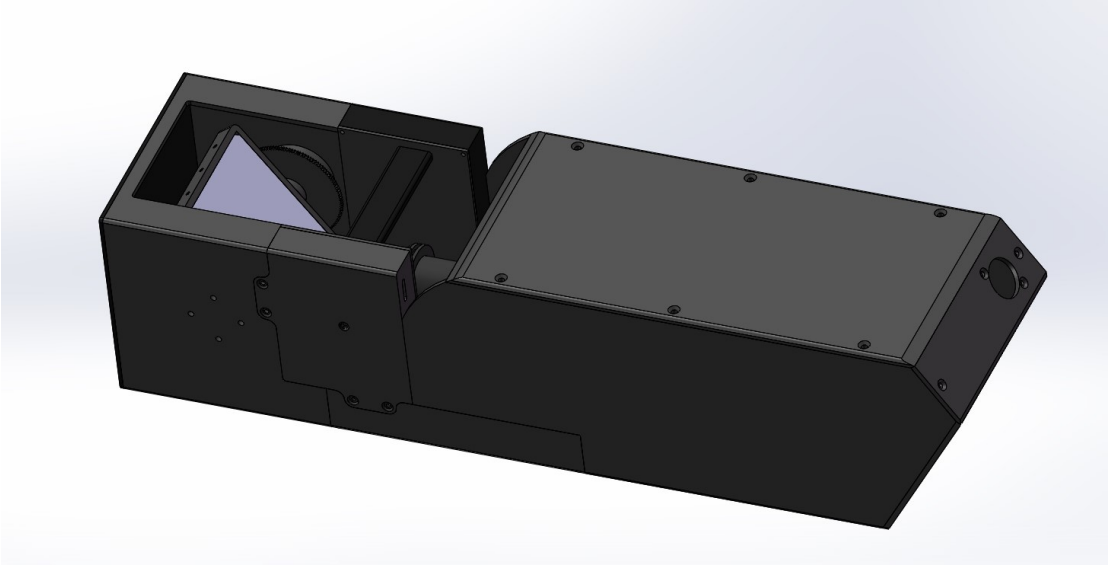
The 200th Wave Band

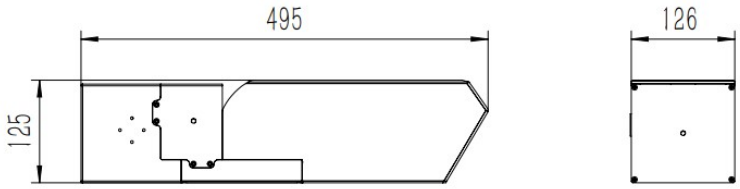
RGB Composite Image



Opium poppy spectral curve

Outlook dimension, 3D drawing:





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