400-1700nm

Mobile Hyperspectral Imager

Product Overview

The NWH6000 Series Mobile Hyperspectral Imager is a hyperspectral imaging system designed for field applications. Its built-in power module eliminates the need for complex external wiring. When used together with a professional outdoor tripod, it offers the advantages of quick setup and rapid data collection.

The NWH6000 Series mobile hyperspectral imager provides a fast and convenient solution for a wide range of applications, including agricultural and forestry research, ecological environment monitoring, urban analysis, industrial inspection, archaeological relics, geological surveys, and military reconnaissance.

Features

High-Performance Hyperspectral Camera: Supports high-cost COMS image sensors and high-performance CCD image sensors for enhanced image quality.

Wide-Angle Quick-Change Mount: Equipped with an outdoor-specific tripod mount, enabling rapid setup and portability.

Advanced Spectral Preprocessing Software: Compatible with Envi and other third-party software for comprehensive data analysis.

Multiple Spectral Range Options: Covering 400–1700nm, including visible, near-infrared, and shortwave infrared regions, suitable for diverse applications.

Precise and Automatic Scan: Models like NWH6000-VNIR-U, NWH6000-NIR-U, and NWH6000-NIR-S feature 360-degree full panoramic rotation with an integrated gimbal adjustment module for automatic speed matching and precise targeting.

High-Accuracy Data Collection: The NWH6000-NIR-S model includes a built-in scan module with automatic calibration and high-precision scanning.

Versatile External Support: Support for fast aerial deployment with mobile tripod frames for field use.

Automatic and Precise Scanning: Equipped with laser measurement modules to assist in automatic alignment and focus, ensuring reliable data collection.

Application

Agriculture and Forestry: Disease detection, early pest prevention, plant species identification, and grassland growth monitoring.

Ecological Environment: Water quality monitoring, atmospheric environment surveillance, and soil nutrient analysis.

Urban Applications: City planning, road damage inspection, environmental assessment, and scenic vegetation monitoring.

Archaeology: Site identification, material differentiation, and artifact analysis.

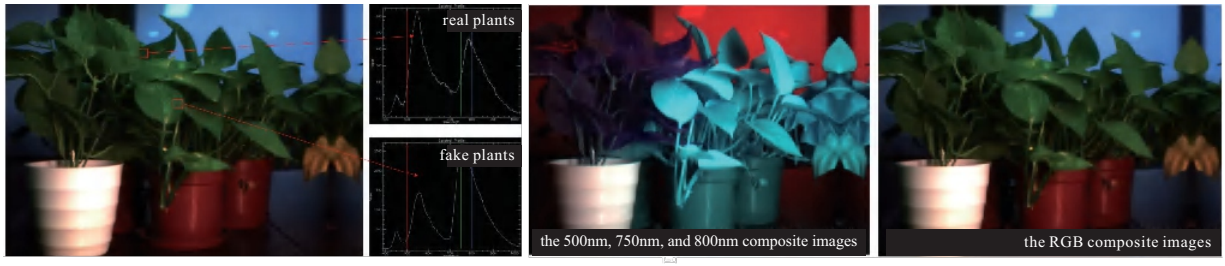
Geological Exploration: Prospecting, mineral detection, and geological mapping.

Military Applications: Target identification and counterfeit detection.

Application: True or False Green Plants Identification

The imagers showcase the ability to distinguish between real and fake plants using near-infrared remote sensing data. By analyzing the spectral curves of true and fake plants, significant differences are evident.

In the composite images, the 500nm, 750nm, and 800nm spectral bands highlight different features, where the RGB composite images reveal distinguishable differences. The fake plant appears purple, while the real plant appears blue, enabling accurate identification of plant authenticity.



Specification

Configuration	Specification	NWH6000-VNIR		NWH6000-NIR	
		NWH6000-VNIR-U	NWH6000-VNIR-S	NWH6000-NIR-U	NWH6000-NIR-S
System Function	Imaging Mode	External Sweep	Internal Push-broom	External Sweep	Internal Push-broom
Hyperspectral Camera	Spectral Range	400-1000nm		900-1700nm	
	Spectral Resolution	≤2.8nm		≤6nm	
	Sampling Interval	0.5nm		1.7nm	
	F-number	F/2.6		F/2.0	
	Detector	CMOS		InGaAs (TE Cooled)	
	Detector Interface	GigE / USB 3.0		GigE	
	Detector Power Supply	External (12-24 VDC) 3W		12V DC 8.4W (TEC OFF) / 16W (TEC ON)	
	Detector Sensor Size	1/1.2" 11.3mm x 7.1mm		9.6mm x 7.68mm	
	Detector Native Resolution	1920 x 1200		640 x 512	
	Detector Pixel Size	5.86 μm x 5.86 μm		15μm x 15μm	
	Effective Pixel Depth	12bits	12bits	10bit / 12bit	
	Slit Width	25μm	25μm	30μm	
	Recommended Pixel Binning	4x4	4x4	1x1	
	Effective Pixel Count (Spatial)	480	480	640	640
	Spectral Bands	300	300	512	512
	Field of View (FOV)	15.6°@f=35mm	14.6°@f=35mm	15.6°@f=35mm	
	Instantaneous Field of View (IFOV)	0.71mrad@f=35mm		0.43mrad@f=35mm	
	Frame Rate	50fps/128fps		175fps	
Lens	Focusing Method	Manual Focus	Automatic Focus	Manual Focus	
	Focal Length	Standard 35mm		Standard 35mm	
Field of View	Vertical Field of View	15.6°@f=35mm (±20° adjustable)	15.6°@f=35mm	15.6°@f=35mm (±20° adjustable)	15.6°@f=35 mm
Scanning Range	Horizontal Scan Range	360°	≥45°	360°	≥30°
	Vertical Scan Range	±20°	/	±20°	/
Power Supply	Power Supply Mode	12V DC	12V DC	12V DC	

Specification

NWH6000-VNIR-X					
FunctionConfiguration	**Specification**	**HY-6010-X**	**Function Configuration**	**Specification**	**HY-6010-X**
System Function	Imaging Mode	Internal Push-broom	Screen	Screen Size	7 inch
	Spectral Resolution	≤2.8nm		Screen Opening Angle	0-60°
	Sampling Interval	*2.2nmScreen		Resolution	1920*1080
	Single Frame Spatial Points	480		Screen Type	IPS, Capacitive 10-point Touch
	Spectral Bands	300		Brightness	2000nit
	VFOV	15.6°		Viewing Angle	170°/170°
	HFOV	*50° (max)	Computer	Processor	i7, 1.80GHz
	IFOV	0.71mrad		System	Windows 10 (64bit)
	Data Bit Depth	12bit		Memory	16GB
	F-number	F/2.4		Hard Drive	1TB
	Detector Type	CMOS	Others	Shutter	Built-in Mechanical Shutter
	Slit Width	25μm		Speaker	3W
DepthCamera	Environment	Indoor & Outdoor		Button Functions	Power, Focus+, Focus-
	Depth Technology	Stereo Vision		Attitude Sensor	Supported
	Working Range	0.3-20m+		Built-in Battery	4*3.7V, Replaceable
	Recommended Working Distance	0.3-3m		Power Interface	DC 24V
	Spatial Relative Accuracy	≤1.5%		Remote Control	Supports Serial Communication Protocol
	HFOV	90° ±3° @2m		Data Interface	USB 3.0 *2 (Type C)
	VFOV	65° ±3° @2m		Synchronized Trigger Function	Supported
Visible LightCamera	Sensor Size	35.9*23.9mm		Operating Temperature	0~40℃
	Sensor Type	Back-illuminated CMOS		Storage Temperature	0~50℃
	Color Filter Method	RGB Primary Color Filter		Operating Humidity	5%~90% RH , Non-condensing
	Color Modes	16 types		Storage Humidity	5%~90% RH , Non-condensing
Lens	Focal Length	35mm		Weight	≤3kg
	Minimum Focusing Distance	0.3m		Dimensions	207*215*114mm
	Focusing Method	Auto Focus / Button-Controlled Electric Focus			