

UAV Multispectral Lidar Machine

ATHL9606

Features

- 6 multispectral channels
- $48^{\circ} \times 36.8^{\circ}$ field of view
- 4096 x 3000 resolution
- Strip filter structure
- Operating altitude: 50-500m (recommended at 100m)
- Solid-state lidar
- Range: 1-150m
- Height measurement error: $\pm 2\text{cm}$
- Onboard i7 computer (up to 2tb storage)
- 1.5m large multi-rotor uav
- Extended flight time: ~45 minutes

Application

- Phenotypic analysis
- Crop health mapping
- Water stress analysis
- Leak detection
- Fertilizer management
- Regional mapping
- High altitude flight
- Meteorological research
- Disease identification, etc.

Description

The ATHL9606 UAV multispectral LiDAR integrated system, introduced as Optosky Technologies' latest third-generation UAV multispectral imager, incorporates cutting-edge LiDAR technology. This advanced system features a series of compact, lightweight UAV-mounted micro multispectral imagers, including a hexacopter known for its stability and equipped with a stable gimbal. It integrates a hyperspectral imager, LiDAR module, large-capacity storage system, GPS navigation, ground receiving workstation, and ground control system. Expanding its capabilities in multispectral imaging, the ATHL9606 utilizes a line-scanning LiDAR to capture precise surface elevation data, enabling highly accurate orthorectification of images and providing detailed stereoscopic information about objects. Integrated spectral data analysis opens new avenues for research exploration.

Equipped with a high-resolution solid-state scanning LiDAR module, hyperspectral imager, and high-precision inertial navigation, the ATHL9606 system generates real-time true-color point clouds. A single flight mission can swiftly acquire point cloud data exceeding 2 km².

Optosky's series of UAV multispectral LiDAR machines are tailored for real-time measurement of spectral information from vegetation, water bodies, soils, and other land features, capturing spectral images for detailed analysis. This analysis establishes correlations with physicochemical properties of plants, facilitating studies such as plant classification and growth assessment. In the field of UAV multispectral LiDAR machines, current technical trends highlight advancements in spectral resolution and broadening applications in precision agriculture, environmental monitoring, and resource management. These machines are pivotal in advancing research capabilities, offering in-depth insights into natural and agricultural environments.



1、Order guide

Model	Feature
ATHL9606	Standard configuration
Can be customized according to needs	

2、Parameter configuration

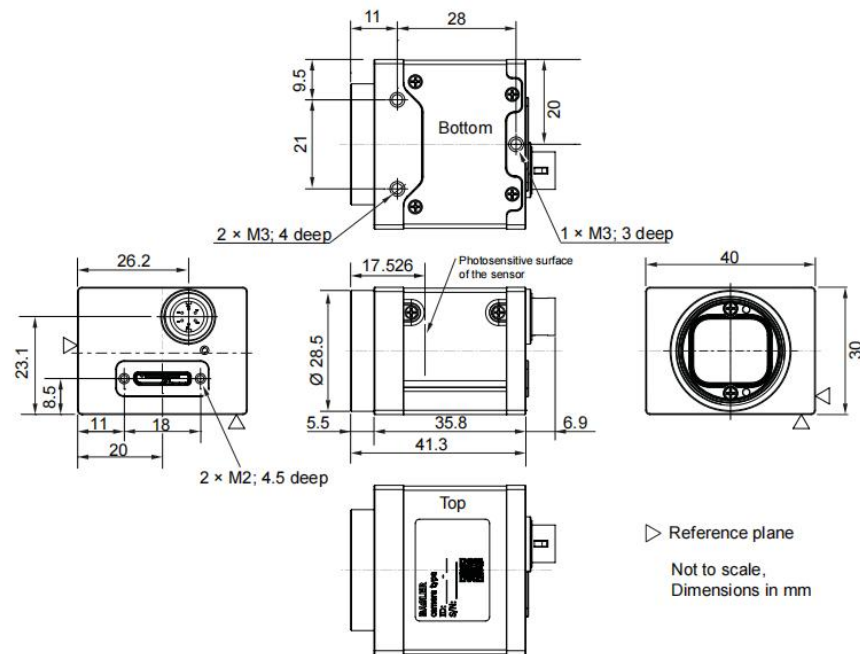
ATHL9606	
Flight System	
Flying platform	Customized version of long-time high-load large 6-rotor UAV
Ptz	Three-axis brushless DC motor high stability gimbal
Number of rotors	6 rotors
Take-off and landing mode	vertical takeoff and landing
Wheelbase	1500 mm
Maximum load	6 Kg
Maximum ceiling	5000 m
Size	1650 X 1410 X 500 mm
Gps	1.5 m
Modify imaging parameters remotely	NO
Endurance flight time	>45 minutes
Ground station working distance	5 Km
6-band multi-band imager	
Aisle	6 channels
Resolution	4096×3000
Detector native resolution	4096 x 3000
Detector original pixel size	3.45 μm x 3.45 μm
Field of view	48°×36.8°
Bit depth	12bit
Center wavelength	Blue: 450nm (bandwidth: 35nm)
	Green: 555nm (bandwidth: 27nm)
	Red: 660nm (bandwidth: 22nm)
	Red: 720nm (bandwidth: 10nm)

	Red: 750nm (bandwidth: 10nm)
	Near infrared: 840nm (bandwidth: 30nm)
Frame rate	31fps
Data output interface	USB 3.0,
Detector power supply	USB powered, 3.6 W
Volume	8.2 x 6.7 x 6.45cm
Weight	<580 g
Operating temperature	-20 ~ 50°C
Storage temperature	-20 ~ 50°C
Lidar	
Radar work	TOF time-of-flight ranging method
Laser wavelength	1550nm, eye safety level 1
Ranging speed	500,000 points/second, up to 1 million points/second (depending on distance)
Number of scan lines	1750 line
Field of view	Horizontal 15°
Angular resolution	Horizontal 0.009°
Scanning frequency	500 Hz
Height measurement range	1~300 m, maximum 600 m
Laser return mode	multiple echoes
Height measurement error	<20mm
Weight	1.5kg
Reliability	
Range of working temperature	-10 ~ 45°C
Storage temperature range	-20 ~ 65°C
Working humidity range	≤85% RH

3、Parts List

NO.	Item	quantity	Optional
1	6-band multispectral imager	1	Standard
2	Lidar module	1	Standard
3	Hexacopter UAV	1	Standard

4	Three-axis brushless DC motor high stability gimbal	1	Standard
5	Airborne data acquisition and large-capacity data storage system	1	Standard
6	Battery Pack and Charger	1	Standard
7	6-band multispectral acquisition software and data preprocessing software	1	Standard
8	95% calibration whiteboard (50cm×50cm)	1	Standard
9	Installation screws and installation tools	1	Standard
10	HD display	1	Standard



ATH9606 structural diagram