CHCNAV

Geospatial

AlphaAir 6

Flagship Airborne LiDAR System

Highlight

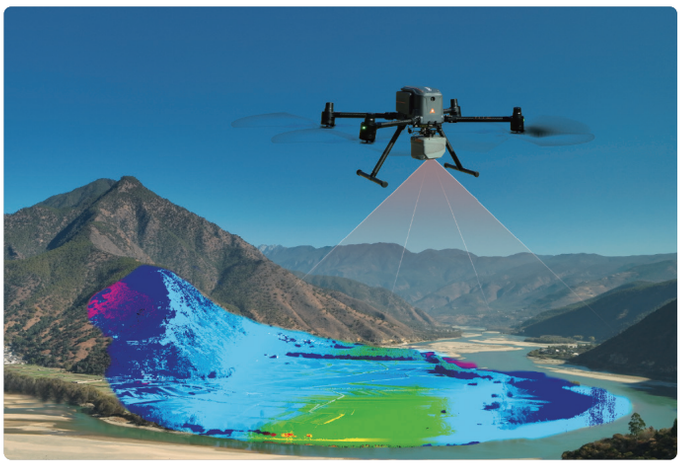
The CHCNAV AlphaAir 6 (AA6) airborne LiDAR system is designed for efficient aerial surveying in complex and high-relief terrain. Combining next-generation prism scanning technology with a high-grade inertial navigation system, the AA6 delivers a maximum ranging capability of up to 2,100 m and supports typical operating altitudes of 100–600 m AGL. Powered by 5th-generation waveform processing, it enhances point cloud density and data completeness. Its lightweight integrated design improves flight endurance, while open interfaces ensure compatibility with multirotor and fixed-wing UAV platforms.

Next Generation Laser + High-Grade IMU, Reliable Accuracy

- Upgraded core laser
- 2100 m Long-range performance
- Typical AGL extended to 100-600m
- High-grade IMU with 0.3°/h bias instability
- Hard power ensures reliable accuracy

5th-Generation Waveform Technology, Point Cloud Density Increased by 100%, Greater penetration

1,000,000 pts/s, 220 pts/m²
@ 120 m AGL



200,000 pts/s, 13 pts/m²
@ 400 m AGL

- 5th-generation RWP real-time waveform processing 7 multi-period capabilities
- Higher Power, Smaller Spot, Greater Penetration
- Innovative real-time multi-period algorithm, real-time point cloud is also supported in 2000k PRR

Single/Dual Camera Options, 100 MP Resolution, 110° Ultra-Wide FOV

AA6 Single-Camera Version

- 4/3-inch CMOS sensor
- 25 MP resolution
- Supports switching up to 100 MP

AA6 Dual-Camera Version

- Dual 1.8-inch APS-C CMOS sensors
- 26 MP resolution
- 110° ultra-wide FOV,only 20% lateral overlap required
- Up to 30% higher Operational efficiency (vs. single-camera version)

1.35kg Ultra-Lightweight Integrated Design, Coverage 15 km² Per Flight

1.35 kg

Ultra-lightweight: only 1.35 kg

50 minutes

Up to 50 minutes of effective flight time (deployed on CHCNAV X500)

15 km² (7)

Coverage up to 15 km² per mission

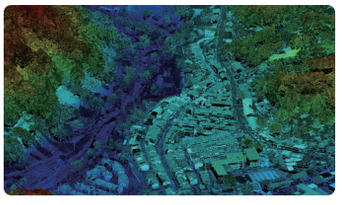
Open Interfaces and Broad UAV Compatibility

X500

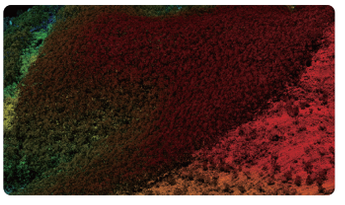
P35

- Open interface protocols
- Seamless integration with mainstream multirotor and fixed-wing UAV platforms

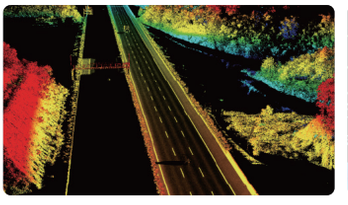
Application



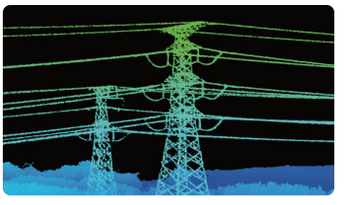
Land Surveying



Forestry Survey



Road / Highway Survey



Power Line Inspection

SPECIFICATIONS

Imaging system

Model	AA6	AA6D
Resolution	25 MP (6144 × 4096) 100 MP (12288 × 8192)	26 MP × 2 (6252 × 4168)
Focal length	12 mm	16 mm
Sensor size	4/3 in	APS-C
Min trigger interval	0.5 s @25 MP 1 s @100 MP	1 s
FOV	74°	110°

Laser scanner

Laser Product Classification	3R (in accordance with IEC 60825-1:2014)						
Wavelength	1535 nm						
Laser Pulse Repetition Rate PRR	100 kHz	200 kHz	300 kHz	500 kHz	1000 kHz	2000 kHz	1000 kHz(Low)
Max. range,@ρ > 80%(1)	2100 m	1800 m	1700 m	1450 m	1000 m	525 m	700 m
Max. range,@ρ > 10%(1)	960 m	870 m	750 m	640 m	460 m	320 m	300 m
Max. range(2), reflectivity > 80%	2100 m						
Minimum range(2)	10 m						
Accuracy(3)	±15 mm						
Precision(4)	5 mm 1σ						
Multi-period	Up to 7 zones						
Field of view	90°						
Maximum scan rate(5)	Up to 2,000,000 pts/sec						
Scan speed (selectable)	400 lines/s						
Return numbers(6)	Up to 16						

General system performance

Weight of instrument	1.35 kg	1.85 kg
Dimensions of instrument	155 mm × 120 mm × 129 mm	223.5 mm × 127.6mm × 129 mm
Data storage	512 GB	
Coping speed	200 MB/s	
Platform compatibility	multirotor and fixed-wing UAV platforms	

Positioning and orientation system

GNSS system	GPS:L1,L2,L5 GLONASS:L1,L2 BEIDOU:B1,B2,B3 GALILEO:E1,E5a,E5b
IMU update rate	500 Hz
Attitude accuracy after post-processing	0.006° RMS pitch/roll (post-processing, 1σ) 0.015° RMS heading (post-processing, 1σ)
Position accuracy after post-processing	1 cm + 1 ppm (horizontal) 1.5 cm + 1 ppm (vertical)

Environmental

Operating temperature	-20 °C to + 50 °C
IP rating	IP64

Electrical

Input voltage	24 V (voltage range 17~ 30 V)	
Typical power consumption	40 W @300kHz, 200l/s	50 W @300kHz, 200l/s
Max. power consumption	46W	60W

Communications

WiFi	WIFI 2.4G IEEE 802.11n; WIFI 5G IEEE 802.11ac, U- NII-1/3

Optional software

CoPre pre-processing software	POS solve, Adjust & Refine, Generate point cloud
CoProcess point cloud processing software	Terrain module, CAD module, Earthwork module

*** Specifications are subject to change without notice.**

(1) Typical values for average conditions.
(2) Range definition: Defined as the distance where 50% of emitted laser pulses are detectable. When multiple targets are illuminated, pulse energy dispersion may result in reduced range.
Test conditions: Conducted under 100 klx ambient light, central field of view, 23 km visibility, using a planar target larger than the laser beam diameter and perpendicular laser incidence. Maximum range verification requires consultation with technical support or authorized partners.
(3) Accuracy is the degree of conformity of a measured quantity to its actual (true) value.The above specifications were achieved under specific test conditions, including ambient temperature of 25 °C, LiDAR point rate of 300 kHz, target reflectivity of 80%, and test distances of 150 m and 400 m. Performance may vary with environmental and operating conditions. All specifications are provided for reference only.
(4) Precision is the degree to which further measurements show the same results.The above specifications were achieved under specific test conditions, including ambient temperature of 25 °C, LiDAR point rate of 300 kHz, target reflectivity of 80%, and test distances of 150 m and 400m. Performance may vary with environmental and operating conditions. All specifications are provided for reference only.
(5) Maximum scan rate: up to 2 million points per second; configurable settings include 2M, 1M, 500k, 300k, 200k, and 100k points per second.
(6) The actual number of echoes depends on the operating environment, with up to 16 echoes supported.Calculation must be performed using CHCNAV CoPre software.
(7) It is obtained with the flight altitude set at 400 meters, the lateral overlap rate set to 20%, the flight speed set at 20 meters per second, and the flight time calculated as 50 minutes.

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