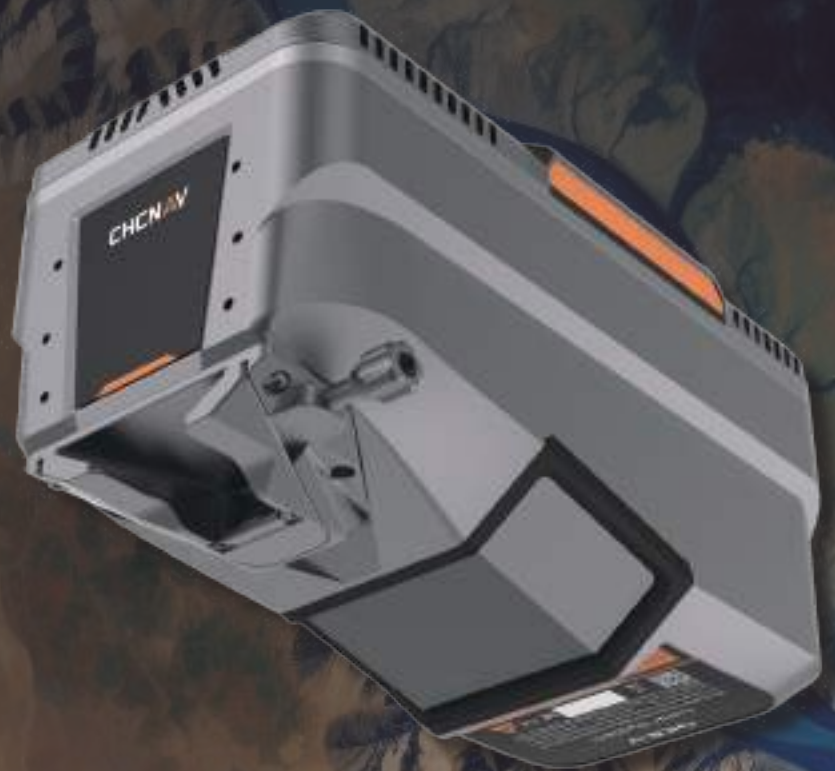


CHCNAV

AA15L

**PREMIUM AIRBORNE
LiDAR SOLUTION**



**MAPPING
& GEOSPATIAL**

EFFICIENT AND POWERFUL CORRIDOR MAPPING SENSOR

The AlphaAir 15L (AA15L) is a lightweight airborne LiDAR system developed by CHCNAV. It combines long-range scanning capability and high accuracy with an extremely fast data acquisition rate, all in a compact design. The AA15L is ideal for scenarios where high density data is required to accurately extract building and road information from point clouds. For large-scale operations, especially in mountainous areas with significant elevation changes, the AA15L accurately detects ground features even at the bottom of valleys. Equipped with a variety of cameras to meet diverse needs, the system can be mounted on light aircraft, helicopters or UAV platforms.

HIGHEST DATA QUALITY

Utilizing CHCNAV's patented tilted-prism technology, the AA15L delivers 15 mm linear accuracy on long-range scans up to 150 meters. This innovative technology supports echo digitization and online waveform processing. With a continuously rotating polygon mirror, the AA15L achieves scan speeds of up to 600 lines per second, combined with 2 million pulses per second, resulting in high-density point clouds that recreate the world with remarkable precision.

STRONG VEGETATION PENETRATION

The AA15L excels in vegetation penetration thanks to its advanced multi-target capability that supports up to 16 returns per laser pulse and 7 multi-period zone processing. With a high point frequency of 2 million pulses per second, the AA15L increases the probability of laser penetration through vegetation, making it easier to obtain more ground points.

PRODUCTIVE SURVEY

Capturing 2 million points per second and with a maximum range of 1800 meters, the AA15L can be mounted on a variety of platforms. With a flying height of up to 700 meters, it provides minimal point loss over large areas, making it ideal for high point density corridor mapping applications such as power lines, highways, railroads and pipeline inspections. It is also well suited for urban mapping projects.

IMAGING QUALITY

For high-resolution imaging needs, the AA15L supports several external camera accessories, including CHCNAV's 45 or 61 MP full-frame calibrated cameras and a 130 MP half-frame oblique camera. Users can also integrate cameras from third-party oblique or ortho-camera manufacturers. The combination of high-density point clouds and high-resolution imagery facilitates rapid mesh model construction and provides detailed texture information.

AIRBORNE PLATFORM COMPATIBILITY

Featuring CHCNAV's unified Alphasport interface, the AA15L allows quick and easy connection to power sources and cameras with a single click. Its compact design and light weight of only 2.5 kg ensures seamless integration into various UAS, UAV, RPAS, small manned aircraft and helicopters.

COMPLETE ECOSYSTEM

CHCNAV offers a comprehensive package for integrating LiDAR solutions into your geospatial services. The SmartGo App enables fully automated reality capture and real-time mission monitoring, while the CoPre and CoProcess software suite streamlines post-processing and feature extraction, providing an efficient and user-friendly data workflow.



**PREMIUM
AIRBORNE DATA**



Lightest in Class

The AA15L weighs only 2.5 kg, making it the lightest LiDAR in its class and allowing it to be mounted on DJI drones.



Various Cameras

Using various camera options, the AA15L can produce multiple results in a single flight, including RGB point clouds, DOM, DEM and 3D models.



Data Fusion

The AA15L's dense point cloud helps to quickly build mesh models, and with image mapping texture, it can achieve efficient reconstruction of realistic 3D models in CoPre.



Automatic Extraction

Using CHCNAV CoProcess software, users can automatically detect railroads, roads, and buildings based on high-density AA15L data.

SPECIFICATIONS

General system performance		Imaging system							
Absolute Hz accuracy	2 cm ~ 5 cm RMS ⁽¹⁾	Resolution	45 MP						
Absolute V accuracy	2 cm ~ 5 cm RMS ⁽¹⁾	Focal length	21 mm/35 mm						
Mounting	Quickly install & release design, easily switch between various UAV platforms, RPAS, small manned aircraft and helicopters	Sensor size	36 mm x 24 mm (8184 x 5460)						
Weight of instrument	2.5 kg	Pixel size	4.4 μm						
Dimensions of instrument	247 mm x 126 mm x 156 mm	Min photoing interval	1 s						
Data storage	512 G (Optional for 1 T)	FOV	81.2*59.5 / 53.4*37.8						
Coping speed	80 Mb/s	Environmental							
Imaging system	External camera C5/C30 (Optional for third-party oblique or orthho cameras such as ixm100)	Operating temperature	-20°C to +50°C						
		Storage temperature	-20°C to +60°C						
		IP rating	IP64						
		Humidity (operating)	80%, non-condensing						
Positioning and orientation system		Electrical							
GNSS system	Multiple GPS, GLONASS, Galileo BeiDou, SBAS and QZSS constellation, L-Band	Input voltage	DC 24 V (15 ~ 27 V)						
IMU update rate	450 Hz	Power consumption	60 W						
Attitude accuracy after post-processing	0.005° RMS pitch/roll 0.010° RMS heading	Equipped software							
Position accuracy after post-processing	0.015 m RMS horizontal 0.025m RMS vertical	CoPre intelligent processing Software	Data copy, POS process, Adjust & Refine, Generate point cloud						
		CoPre intelligent processing Software	Terrain module, Road module, Volume module						
Laser scanner									
Laser product classification	Class 3R Laser Product according to IEC 60825-1:2014								
Laser pulse repetition rate PRR	100 kHz	200 kHz	300 kHz	400 kHz	500 kHz	800 kHz	1M Hz	1.5M Hz	2M Hz
Max. range, @p >20% ⁽²⁾	900 m	720 m	700 m	610 m	545 m	430 m	385 m	315 m	272 m
Max. range, @p >80% ⁽²⁾	1800 m	1440 m	1400 m	1220 m	1090 m	860 m	770 m	630 m	500 m
Max.Operating Flight Altitude AGL, @p >20% ⁽³⁾	700 m	570 m	550 m	480 m	430 m	340 m	300 m	250 m	200 m
Max. Number of return pulses up to	16	16	16	16	16	16	16	10	8
Laser divergence angle	0.032°								
Minimum range									
Accuracy ⁽⁴⁾									
Precision ⁽⁵⁾									
Multi-Period capability	Up to 7 zones								
Field of view									
Scanning mechanism	Rotating mirror								
Max. measurement rate									
Scan speed (selectable)	50 ~ 450 scans/sec								
Angular resolution	0.001°								

*Specifications are subject to change without notice.
 (1) According to CHCNAV test condition :150 m AGL with 8 m/s speed. (2) Typical values for average conditions. (3) Flat terrain assumed. (4) Accuracy is the degree of conformity of a measured quantity to its actual (true) value. (5) Precision is the degree to which further measurements show the same results.



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