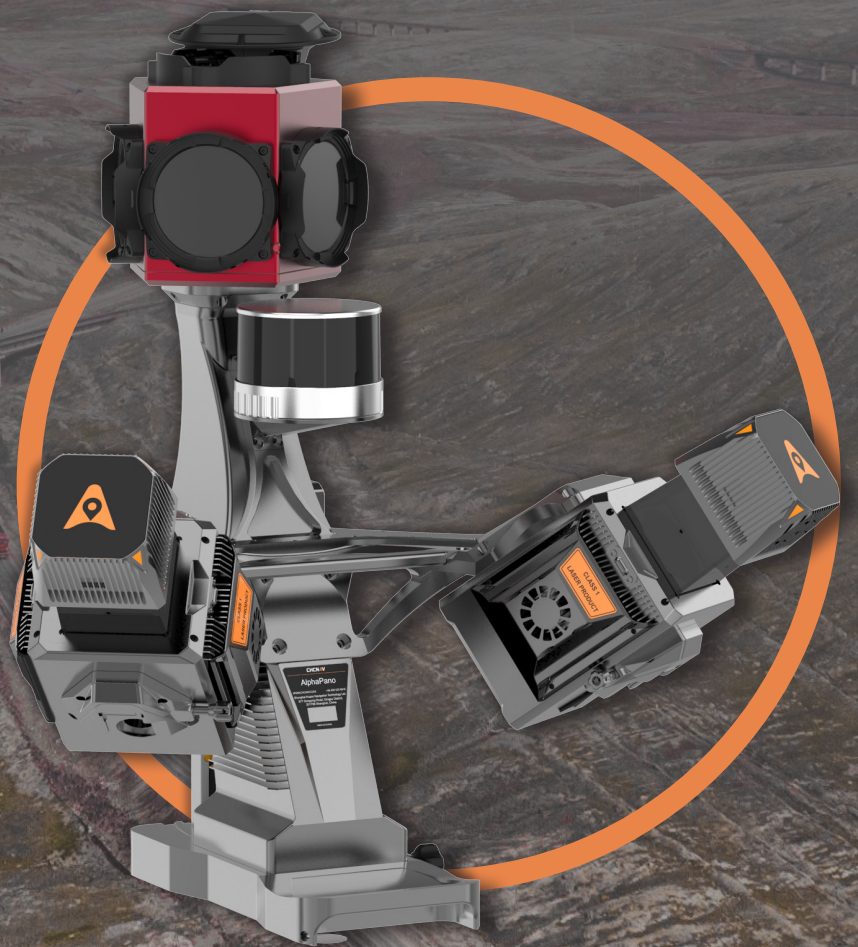


CHCNAV

AU20

MULTI-PLATFORM HIGH-END
LiDAR SOLUTIONS



MAPPING
& GEOSPATIAL

FLEXIBLE AND EFFICIENT LIDAR SOLUTIONS

The AlphaUni 20 is a cost-effective and multi-platform mobile mapping system. It is the result of six years of innovation and product development powered by CHCNAV's state-of-the-art LiDAR technology. In airborne scenarios, the AU20 delivers superior data and improves survey efficiency thanks to its exceptional vegetation penetration capability, extended measurement range, high accuracy, and data density. The AU20's unique, flexible installation design, coupled with CHCNAV's LiDAR technology, ensures the best combination of point cloud density, accuracy, and quality. The system provides accurate point cloud and immersive panoramic imagery optimized for a variety of applications, including road surfaces, highway maintenance, and asset management through vehicle-based surveying. Mobile mapping has never been more flexible with the AU20, democratizing the reality capture industry and making it accessible to all.

OUTSTANDING ACCURACY

The AU20 incorporates CHCNAV's high-precision navigation algorithm, the result of more than two decades of research. Combined with the scanner's remarkable 5 mm repeated ranging accuracy, the system achieves exceptional absolute accuracy of 2 to 5 cm, even in the most difficult and demanding environments.

PREMIUM LASER

The AU20 offers long-range survey capabilities up to 1450 m, high-speed scanning at 2M points per second, and a continuously rotating mirror that enables scan speeds of up to 200 scans per second, providing greater detail for critical tasks.

INDUSTRIAL RELIABILITY

All Alpha family systems offer the highest levels of protection and operational performance in any field environment. Survey missions can face unexpected weather surprises or site conditions, and our solutions are designed to excel in any situation, always ensuring reliable performance.

LIGHT-WEIGHT

The AU20 LiDAR system is incredibly light and compact, weighing only 2.82 kg. Combined with the latest car mount kit, which includes a Ladybug5+, the total weight is only 10.7 kg.

MULTI-PLATFORM DESIGN

The AU20 follows CHCNAV's proven flexible multi-platform LiDAR design concept. It can be mounted on manned and unmanned aircraft for airborne scanning and on a variety of land vehicles such as cars, boats and trains for mobile mapping. It can also be conveniently mounted on a backpack for narrow area mapping.

EFFICIENT WORKFLOW

CHCNAV offers a complete solution for adding LiDAR surveying to users' geomatics services. Fully automated reality capture and real-time mission monitoring is provided by SmartGo software and intelligent point cloud processing by CoPre desktop software.

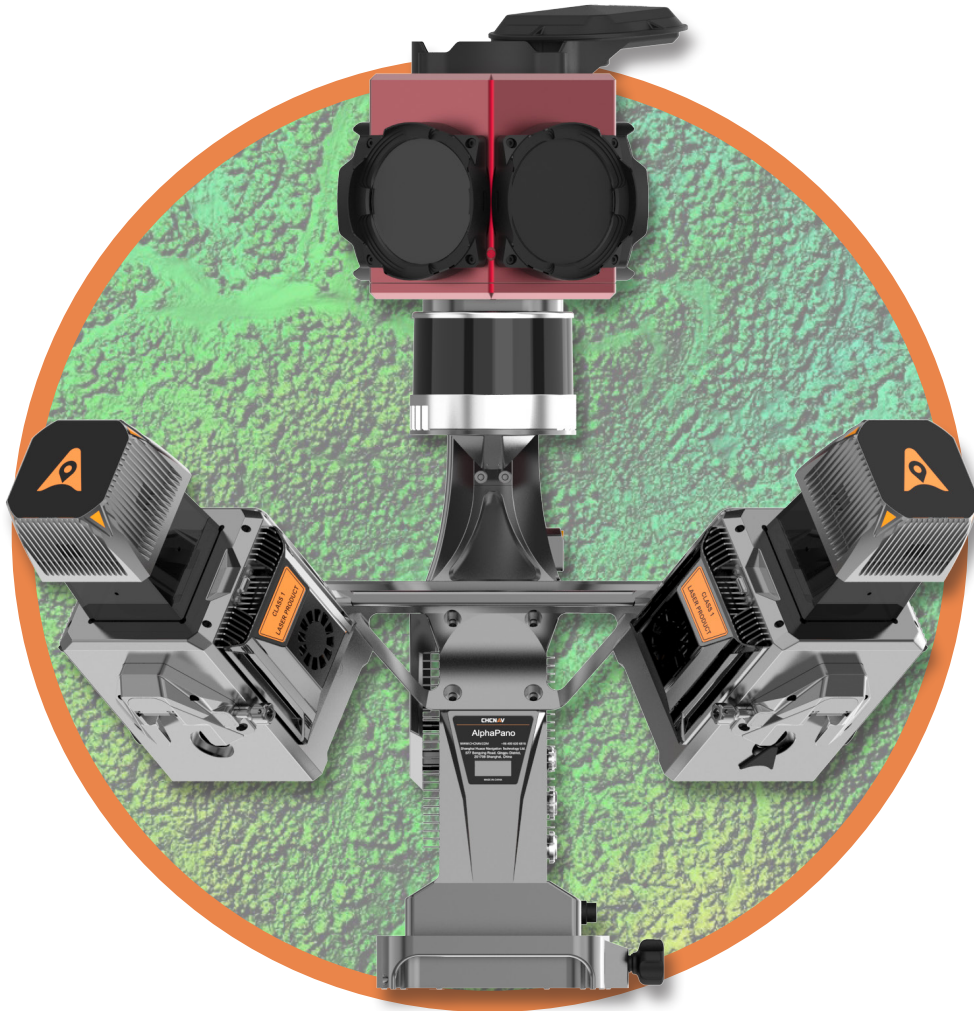
STRONG PENETRATION

With its advanced multi-target capability, the AU20 supports up to 16 target echoes for superior vegetation penetration ability. Capturing ground surfaces and generating accurate Digital Elevation Models (DEMs) and Digital Surface Models (DSMs) is made easy, even in difficult environments with dense vegetation.

HIGHLY INTEGRATED

Installation of the AU20 is quick and easy thanks to Alphasport's one-click connection to the power source and camera.

 **MOST FLEXIBLE
INSTALLATION**



Airborne setup

AU20 can be easily installed on any aerial platform (drone, helicopter, or airplane) with payload capacity of up to 2.6 kg.



Simple vehicle setup

For road measurements and special tasks, switching to vehicle mode takes just 5 minutes, regardless of car type.



Advanced car kit

Practical mobile mapping system combining accurate LiDAR data with immersive panoramic imagery and SLAM.



Backpack survey

The backpack setup enables survey in narrow streets or on steep slopes, where cars cannot go, and drones cannot fly.

SPECIFICATIONS

General System Performance

Absolute Hz & V accuracy	< 0.025 m RMS @ 30 m range < 0.050 m RMS @ 150 m range
Absolute Hz & V accuracy (vehicle-mounted)	Hz 20 mm, V 10 mm in normal GNSS tracking environment (no outage)
Line spacing & point cloud density(vehicle-mounted)	Dual head, line spacing 4 cm, point cloud density 6000 pts/m ² at 60 km/h Single head, line spacing 8 cm, point cloud density 4000 pts/m ² at 60 km/h
Accuracy conditions	Without control points, UAV survey with 7 m/s speed, car survey without DMI with 9.7 m/s speed
Multi-platform	Support vehicle-mounted, airborne, backpack and other carriers; Supports LD5+, LD6, Basler, and other cameras,enable data capture from up to 8 cameras simultaneously
Weight of instrument ⁽¹⁾	2.82 kg / 3.12 kg (with C5 camera) 15.5 kg AlphaPano vehicle platform(single head, with Ladybug6) 16.8 kg AlphaPano vehicle platform(dual head, with Ladybug5+)
Dimensions of instrument	262.3mm × 141.5mm × 161mm
Data storage	512G (Optional for 1T)
Coping speed	80 Mb/s

Positioning and Orientation System

GNSS system	GPS:L1,L2,L5, GLONASS:L1,L2 BEIDOU:B1,B2,B3, GALILEO:E1,E5a,E5b
IMU update rate	600 Hz
Attitude accuracy after post-processing	0.005° RMS pitch/roll 0.010° RMS heading
Position accuracy after post-processing	0.010 m RMS horizontal 0.020 m RMS vertical

Laser Scanner

Laser product classification	0.032°
Minimum range	1.5 m
Accuracy ⁽⁴⁾	15 mm (1σ,@ 150 m range) 5 mm (1σ,@ 30 m range)
Precision ⁽⁵⁾	5 mm (1σ,@ 150 m)
Multi-Period capability	Up to 7 zones
Field of view	360°, selectable
Scanning mechanism	rotating mirror
Max. effective measurement rate	2 000 000 meas./sec (depending on the mode)
Scan speed (selectable)	10 - 200 scans/sec
Max. Number of return pulses	Up to 16
Waveform	Full waveform

Laser Scanner

Laser product classification	Class 1 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	1 MHz	1.5 MHz	2 MHz
Max. range, @p >80% ⁽²⁾	1450 m	1320 m	1220 m	1120 m	1000 m	790 m	706 m	576 m	500 m
Max. range, @p >20% ⁽²⁾	750 m	660 m	610 m	560 m	500 m	395 m	353 m	288 m	250 m
Max.Operating Flight Altitude AGL, @p >20% ⁽³⁾	530 m	467 m	431 m	396 m	354 m	354 m	279 m	204 m	177 m
Max. Number of return pulses up to	16	16	16	16	16	16	16	10	8

* Specifications are subject to change without notice.

(1) Weight calculated with & without camera. (2) Typical values for average conditions.(3) Flat terrain assumed, scan angle ±45° FOV. (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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Ladybug5 + Imaging System

Camera type	360° Spherical camera, additional adjustable external cameras as option
Dimensions/Mass	160 mm (height) x 197 mm (diameter) /3.0 kg
CCD size	2048 × 2448, 3.45 μm pixel size
Lens	4.4 mm
Resolution	30 MP (5 MP × 6 sensors), 10 FPS JPEG compressed
Coverage	90% of full sphere
High Dynamic Range (HDR)	Cycle 4 gain and exposure presets
Dimensions of AlphaPano	505 x 604 x 609 mm (Dual head,with installed AU20)

Ladybug6 Imaging System

Camera type	360° Spherical camera, additional adjustable external cameras as option
Dimensions/Mass	198 mm (height) x 269 mm (diameter) /5.2 kg
CCD size	12,288 × 6144
Lens	6.94 mm
Resolution	72 MP (12 MP × 6 sensors), 15 FPS JPEG compressed
Coverage	90% of full sphere
High Dynamic Range (HDR)	Cycle 4 gain and exposure presets
Dimensions of AlphaPano	528 x 301 x 638 mm (With installed AU20)

Environmental

Operating temperature	-20 °C to +50 °C
Storage temperature	-20 °C to +60 °C
IP rating	IP64
Humidity (operating)	80%, non-condensing

Equipped Software

CoPre Intelligent Processing SW	Data copy, POS solve, point cloud and images creation, strip adjustment & GCP refine, noise optimization, DOM and 3D model generation
CoProcess Efficient Feature Extraction SW	Terrain module, Road module, Volume module, Road Extractions module, Building Extractions module

Electrical

Input voltage	24 V (Range 15 - 27 V)
Power consumption	60W/70W (with camera)
Power source	Depending on UAV battery. External battery in for car setup, also support direct vehicle power source

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