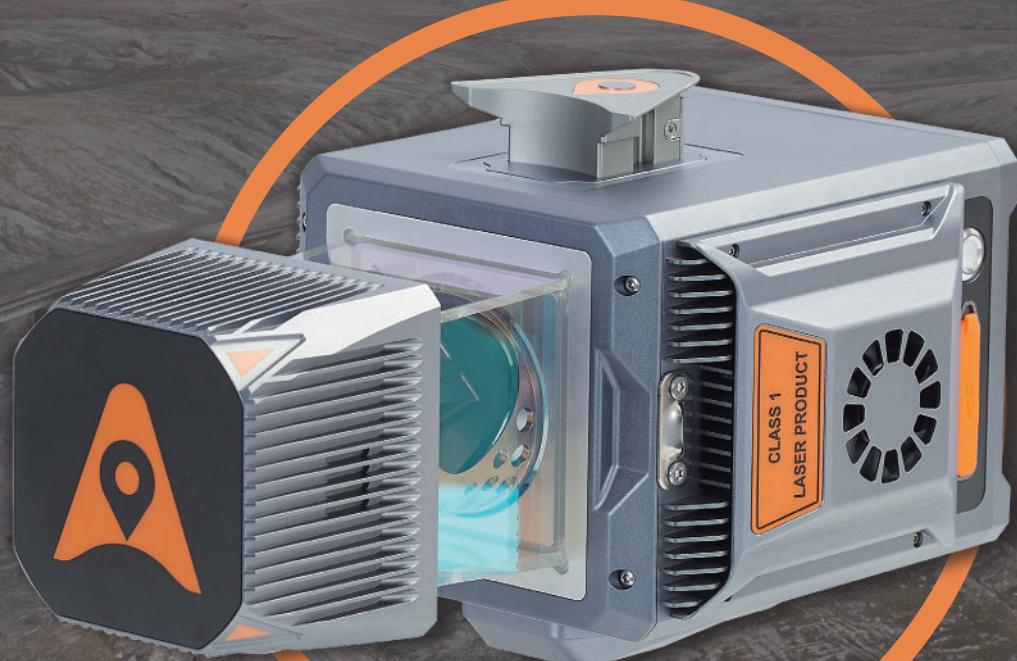


CHCNAV

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 Alphaport'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		Imaging system UAV							
Absolute Hz & V accuracy	< 0.025 m RMS @ 30 m range < 0.050 m RMS @ 150 m range	Resolution	45 MP						
Accuracy conditions	Without control points, UAV survey with 7 m/s speed, car survey without DMI with 9.7 m/s speed	Focal length	21 mm / 35 mm						
Mounting	Multi-platform, quickly install & release design, easily switch between airborne, vehicle and backpack mode	Sensor size	36 mm x 24 mm (8184 x 5460)						
SLAM	AlphaPano vehicle installation platform which include panoramic camera and SLAM scanner integration for optimised position in challenging trajectory environment	Pixel size	4.4 µm						
Weight of instrument ⁽¹⁾	2.82 kg / 3.12 kg (with C5 camera) 10.97 kg AlphaPano vehicle platform	Min photoing interval	1 s						
Dimensions of instrument	262.3 x 141.5 x 161 mm	FOV	81.2°*59.5 / 53.4°*37.8						
Data storage	512 G (Optional for 1 T)	Airborne optional camera setup	Calibrated Sony 7 RIV (7952 x 5304, 61 MP, 10 fps)						
Coping speed	80 Mb/s	AlphaPano Imaging system							
Positioning and orientation system		Camera type	360° Spherical camera, additional adjustable external cameras as option						
GNSS system	Multiple GPS, GLONASS, Galileo, BeiDou, SBAS and QZSS constellation, L-Band	Numbers of camera	6 sensors						
IMU update rate	600 Hz	CCD size	2048 x 2448, 3.45 µm pixel size						
Attitude accuracy after post-processing	0.005° RMS pitch/roll 0.010° RMS heading	Lens	4.4 mm						
Position accuracy after post-processing	0.010 m RMS horizontal 0.020 m RMS vertical	Resolution	30 MP (5 MP x 6 sensors), 10 FPS JPEG compressed						
Environmental		Coverage	90% of full sphere						
Operating temperature	-20 °C to +50 °C	High Dynamic Range (HDR) Cycle 4 gain and exposure presets							
Storage temperature	-20 °C to +65 °C	Dimensions of AlphaPano	530 x 214.5 x 592 mm (With installed AU20)						
Laser scanner		Electrical							
Laser product classification	Class 1 (in accordance with 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
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								
Return numbers	Up to 16								
Angular resolution	0.001°								

* 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.

WWW.CHCNAV.COM | MARKETING@CHCNAV.COM

CHC Navigation Headquarter
Shanghai Huace Navigation Technology Ltd.
577 Songying Road, Qingpu,
201703 Shanghai, China
+86 21 54260273

CHC Navigation Europe
Infopark Building, Sétány 1,
1117 Budapest, Hungary
+36 20 421 6430
Europe_office@chcnav.com

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CHC Navigation USA LLC
6380 S. Valley View Blvd, Suite 246,
Las Vegas, NV 89118, USA
+1 702 405 6578

CHC Navigation India
409 Trade Center, Khokhra Circle,
Maninagar East,
Ahmedabad, Gujarat, India
+91 90 99 98 08 02