CHCNAV

AlphaUni 10

LIGHTWEIGHT MULTIPLATFORM LIDAR SOLUTIONS

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MAPPING
& GEOSPATIAL

THE LIGHTEST MULTI-PLATFORM LiDAR SOLUTION

AlphaUni 10 is one of the latest compact & lightest multi-platform LiDAR system launched by CHCNAV which can reach 5 cm absolute accuracy. The system integrates high-precision HESAI scanner and advanced GNSS & IMU module. Due to its special designed structure and light weight, AlphaUni 10 is suitable for data collection on various mobile platforms: airborne, vehicle and even backpack. It also supports internal camera module for picture data captured at same time from UAV setup.

LIGHTEST UNIT IN CLASS

The AlphaUni 10 is the lightest LiDAR system with HESAI scanner which is only 1.1 kg. The LiDAR's weight is a constraint for any UAV. The drone needs to lift the entire payload, as otherwise no data acquisition is possible! The lighter the unit, the greater the productivity as the UAV can fly longer. With our BB4 mini UAV AlphaUni 10 can operate up to 45 minutes.

EFFICIENT SCANNING

The AlphaUni 10 supports one-button captured without any complex parameter settings, and point cloud data auto-processing in CoPre software. It means that it addresses not only LiDAR survey experts, but also users who had no access to this technology before, due to high investments and complicated workflow, which is not the case with the AlphaUni 10.

UNIVERSAL INSTALLATION

The AlphaUni's multi-platform structure allows it to be used as a multi-purpose unit in different scenarios. AlphaUni supports both Skyport and Alphaport depends on your choice. It can be mounted on a variety of platforms, including different models of UAV, multi-rotor and fixed-wing VTOL UAS, vehicles, rail trolleys, backpacks, boats, for data collection in the harshest environments.

ADVANCED ACCURACY

The AlphaUni 10 combines industrial grade GNSS and high-precision IMU. The high-accuracy INS is pivotal to collect high quality LiDAR data because without it, your point cloud would be nothing more than an arbitrary collection of points. This allows the AlphaUni 10 to deliver an absolute accuracy of 5 to 10 cm. To further improve accuracy and precision, users can apply adjustment algorithms in the CoPre software.

FLEXIBLE SETUP

DJI Skyport or Alphaport

The AlphaUni 10 supports Skyport for DJI drone direct connection or Alphaport for CHC multi-platform design.
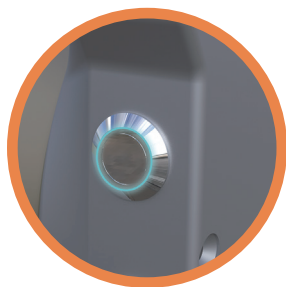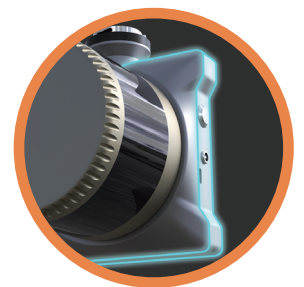
One touch to start

The LEDs and speaker indicate AlphaUni 10's status and there is only one button to operate, no parameter settings are required.

Easy data transfer

The 256 GB memory enough for 10 projects. 160 Mb/s highspeed data transfer via USB Type-C without powering the unit.

Industrial reliability

IP64 protection and temperature work up to -20°C allows to operate in any conditions.

SPECIFICATIONS

General system performance

Absolute accuracy	< 5 cm HZ < 5 cm V
Accuracy conditions	Without control points, @50 m flight altitude AGL
Mounting	Skyport adapter for DJI M300 External power source with the dedicated port for other UAVs (CHCNAV Alphaport interface). Multi-platform, quickly install & release design, easily switch between airborne, vehicle and backpack mode
Weight of instrument [1]	1.1 kg
Dimensions of instrument	12.2 × 12.3 × 14.9 cm 4.72" × 4.72" × 5.51"
Communications	1× port for GNSS antenna Alphaport interface 1× USB Type-C, copy speed up to 160 Mb/s
Data storage	256 Gb (optional upgrade to 1 Tb)
Point density on UAV setup 5 m/s (18 km/h) speed	240 pts/sqm @ 50 m AGL 160 pts/sqm @ 100 m AGL
Covered area	3.5 km² area by 30 min UAV flight
Operation	One-touch acquisition or remote control via DJI M300 Smart controller enterprise or AlphaControl Android App
Remote control	Up to 8 km, wireless control of instrument parameters and data recording in real time
Transport box	1 × protected plastic case

Laser scanner

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Laser class	1 (in accordance with IEC 60825-1:2014)
Max. range, reflectivity >80% [2]	300 m
Max. range, reflectivity >10% [2]	80 m
Max. returns supported	Up to 3
Accuracy [3]	10 mm
Precision [4]	5 mm
Field of view	360° (Horizontal) × 40.3° (Vertical)
Scan rate	640 000 pts/sec (first or strongest return) 1 280 000 pts/sec (dual return) 1 920 000 pts/sec (triple return)
Scan speed (selectable)	Up to 20 Hz

Positioning and orientation system

GNSS system	GPS: L1 C/A, L1C, L2C, L2P GLONASS: L1, L2 BEIDOU: B1, B2 ,B3 GALILEO: E1, E5a, E5b QZSS: L1 C/A, L5 Sampling frequency 5 Hz
IMU update rate	600 Hz
Position accuracy NO GNSS outage	0.010 m RMS horizontal, 0.020 m RMS vertical, 0.01 degrees RMS pitch/roll, 0.04 degrees RMS heading

Imaging system

Camera type	Build-in calibrated camera
Resolution	6252 × 4168
Effective pixels	26 MP, 30 fps
Sensor size	23.5 × 15.7 mm
Pixel size	3.76 um
Min. trigger interval	0.6 sec

Environmental

Operating temperature	-20°C ~ +50°C
Storage temperature	-20°C ~ +65°C
IP rating	IP64
Humidity (operating)	80%, non-condensing

Electrical

Input voltage	DC 12 ~ 14 V
Power consumption	32 W, min. 2 A
Power source	Depending on UAV battery, or by Skyport from DJI M300. External battery in for car setup, also support direct vehicle power source

* Specifications are subject to change without notice.
(1) Weight calculated with integrated camera. (2) Typical values for average conditions. (3) Accuracy is the degree of conformity of a measured quantity to its actual (true) value. (4) Precision is the degree to which further measurements show the same results. Improved by CHCNAV COPre SW.
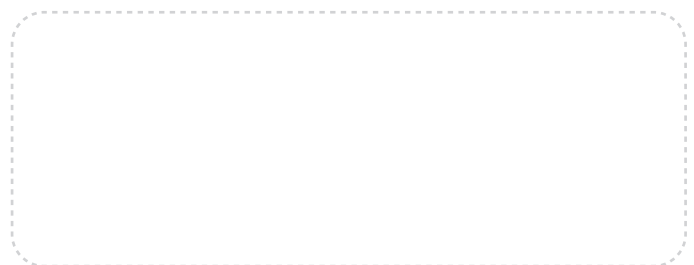
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