CHCNAV

# AlphaUni 300/900/1300
# LiDAR SOLUTIONS

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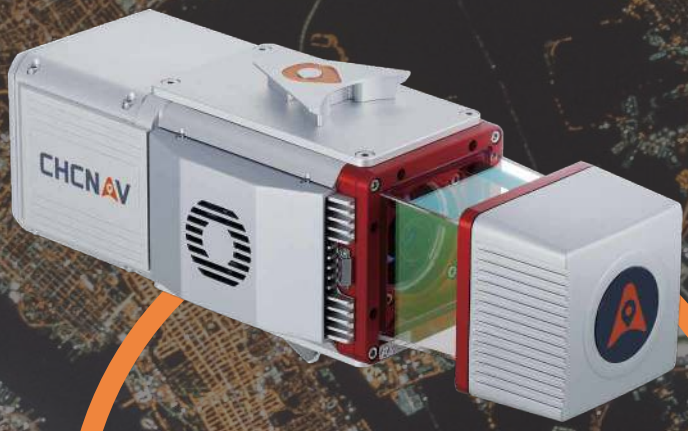
## MAPPING
## & GEOSPATIAL

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# MOST FLEXIBLE AND ACCURATE HIGH-END LiDAR SOLUTIONS

AlphaUni 300/900/1300, belonging to our Alpha Mobile Mapping series, are high-end multi-platform LiDAR systems that have been designed and improved by CHCNAV based on many years of research and data capture experience. AlphaUni series is a fully integrated system with a high-precision laser scanner featuring Riegl's unique Waveform-LiDAR technology and a high-accuracy inertial navigation system, ready for demanding surveying missions in the air and on the ground, requiring the highest data quality. The AlphaUni series fulfils our goal to provide the most innovative solutions to professionals in the geospatial sector and help them to save time, reduce costs and complete their projects more easily.

## LIGHTEST UNITS IN THEIR CLASS

The AlphaUni range is one of the lightest multi-platform long-range laser scanner systems available on the market. The weight of the LiDAR is a constraint for any UAV. The UAV must lift the entire payload, if not, no data acquisition is possible! The lighter the unit, the higher the productivity, as your UAV can fly longer.

## MOST UNIVERSAL INSTALLATION

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

## HIGHEST DATA QUALITY

With long-range Riegl scanners and industry leading GNSS and IMU sensors on board, the AlphaUni LiDAR is the best combination of point cloud density, accuracy and precision to provide optimized data sets for any daily challenges faced by measurement professionals.

## EXTREME PRODUCTIVITY

Equipped with a unique 8 km UHF data transmission, AlphaUni's parameters can be set remotely. The operating status of the system can be monitored wirelessly in real time, reducing mission preparation time and improving operational efficiency.

## INDUSTRIAL RELIABILITY

Users can expect the same level of protection and operational performance in any field environment from all the Alpha family solutions. One never knows what the weather surprise or site condition will be while on a survey mission at any given day.

## EFFICIENT WORKFLOW

CHCNAV offers a complete package to add LiDAR solution to users' geomatics services. Fully automated reality capture and real-time mission tracking are achieved using the CoCapture field software and the semi-automated point cloud processing using the CoPre desktop software.

# UNIVERSAL INSTALLATION


## UAV setup

AlphaUni LiDAR series easily installs on any airborne platform (UAV) suitable to their weight.

## Simple vehicle setup

For road measurements and special tasks, you can switch to vehicle mode in 5 minutes with any car.

## Advanced car kit

User can capture dense point cloud and add additional 360° camera to capture extra information for their application needs.

## Backpack survey

Narrow streets or steep slopes where a car cannot go, or UAV will not fly is not a limit to the survey with our backpack setup.

# SPECIFICATIONS

## General system performance

| Product |  AlphaUni 300 |  AlphaUni 900 |  AlphaUni 1300 |
|---|---|---|---|
| Absolute Hz & V accuracy | < 0.050 m RMS | | |
| Accuracy conditions | Without control points, @100 m flight altitude AGL | | |
| Mounting | Vehicle independent solution, quickly install & release design, easily switch between airborne, vehicle and backpad mode | | |
| Weight of instrument [1] | 2.1 kg | | 4.5 kg |
| Dimensions of instrument | 31.86 × 11.0 × 11.0 cm<br>12.2" × 4.33" × 4.33" | | 31.6 × 20.9 ×15.6 cm<br>12.2" × 7.87" × 5.9" |
| Communications | 1 x synchronization port for 2nd GNSS antenna | | 1 x synchronization port for 2nd GNSS antenna<br>1 x RS232 synchronization ports (NMEA support) |
| Remote control | Up to 8 km, wireless control of instrument parameters and data recording in real time | | |
| Point density on UAV setup<br>4 m/s (14.4 km/h) speed | 40 pts/sqm @ 100 m AGL<br>80 pts/sqm (optional upgrade) | 450 pts/sqm @ 100 m AGL | 620 pts/sqm @ 100 m AGL |

## Laser scanner

| | | | |
|---|---|---|---|
| Laser class | 1 (in accordance with IEC 60825-1:2014) | | |
| Max. range, reflectivity >80% [2] | 330 m | 1415 m | 1845 m |
| Max. range, reflectivity >20% [2] | 170 m | 755 m | 1000 m |
| Minimum range | 3 m | | |
| Accuracy [3] | 15 mm | 10 mm | 15 mm |
| Precision [4] | 10 mm | 5 mm | 10 mm |
| Field of view | 360° | | |
| Maximum scan rate | 100 000 pts/sec<br>upgrade to 200 000 pts/sec | 1 200 000 pts/sec | 1 500 000 pts/sec |
| Scan speed(selectable) | Up to 100 scans/sec | Up to 200 scans/sec | |

## Positioning and orientation system

| | |
|---|---|
| GNSS system | Multiple GPS, GLONASS, Galileo, BeiDou, SBAS and QZSS constellation, L-Band, single and dual antenna support |
| IMU update rate | Standard 200 Hz (user selectable up to 600 Hz) |
| Position accuracy<br>NO GNSS outage | 0.010 m RMS horizontal, 0.010 m RMS vertical,<br>0.005 degrees RMS pitch/roll, 0.010 degrees RMS heading |
| Wheel sensor (DMI) | Yes, optional |

## Imaging system

| | |
|---|---|
| Camera type | Modular upgrade options: DSLR, thermal, multispectral, LB5+ 360° spherical camera for vehicle mount |
| Airborne default camera setup | CHC AS-C420 (calibrated Sony A7 RII) |
| Resolution | 7952 x 5304, 42.4 MP, 5 fps |

## Environmental

| | | |
|---|---|---|
| Operating temperature | -10 °C to +40 °C | -20 °C to +40 °C |
| Storage temperature | -20 °C to +50 °C | |
| IP rating | IP64 | |
| Humidity (operating) | 80%, non-condensing | |

## Electrical

| | | |
|---|---|---|
| Input voltage | 24 V | |
| Power consumption | 32 W | 65 W |
| Power source | Depending on UAV battery. External battery in for car setup, also support direct vehicle power source | |

*Specifications are subject to change without notice.
(1) Weight calculated without 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.



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