



## **GS1200-Map/Lidar**

### **Professional Mapping Drone System for cm grade survey**



The Geospace GS1200-Map is a complete integrated drone mapping system that provides extended operational air-time with 5 x the efficiency in aerial image capture than a single camera system, capturing 5 x 24Mp images in each shot, total 120Mp per shot.

For UAV based photogrammetry this increased productivity means that a project normally requiring 5 flight sessions of 20 minutes each, requiring multiple battery sets and a full day on site, can be achieved in a single flight of just 20 minutes on a single battery charge.

In addition each single shot acquires 5 different views, Nadir plus 45 degree obliques in forward, reverse, left and right views, all registered to each other, on a single memory card and with cm precision based on the Emlid RTK/PPK system which minimizes the need for pre-surveyed Ground Control Points.

The included lens calibration files allow easy migration for post processing in Pix4D or other 3<sup>rd</sup> party systems.

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# GEOSPACE

The Geospace GS1200 airframe is lightweight Carbon Fiber construction providing the best possible power to weight ratio and includes two 22000mAh 6S batteries for extended airtime operation.

The package is conveniently housed in a robust wheeled flight case for transportation and includes a complete extra set of 2 x 22000mAh batteries and charger unit in a separate flight case.

The triple redundant IMU flight controller provides professional grade robust operation and supports live FPV video streaming to the provided daylight viewable 10" display.

The system can be flown directly by manual controller provided, or on pre-programmed flight path using the provided Ground Control system software, the Pro version UGCS platform which can run on any Win OS laptop.

The UGCS-Pro GCS also provides for downloadable maps for remote operation and supports "terrain follow" mode which maintains constant flying height above the map terrain.

GS1200 Airframe



Lightbridge 2 FPV



Dual Battery Charger



1000 Nits Rugged Laptop



GS1200 5-camera unit



Emlid RTK/PPK



UGCS Pro



10" DV tablet



A3-Pro Flight Controller



GS1200 Flight case



## Key system features

- 120mp images per single frame shot
- Up to 40 minutes flight time
- Survey grade cm level precision with PPK
- Triple redundant flight control systems
- Complete integrated package
- Manual LOS control or programmed BVLOS mapping



## GS1200-Lidar Option

### Integration sample data analysis with Riegl MiniVUX-1UAV Lidar

**(MiniVUX-2UAV Lidar doubles the scan data rate)**

### Data Capture Analysis in typical scenario 10 minute data capture flight time



This data for the MiniVUX-1UAV Lidar on a Geospace MAP-1200 airframe (Sub- 25KG total mass configuration)  
 When upgrading to the MiniVUX-2UAV Lidar unit the data rate is doubled so 32 points/M<sup>2</sup> avg. can be achieved over the same area at the same speed  
 On the basis of a 10 minute data capture the net area coverage is 75Ha (however the MAP-1200 can provide 25 minutes endurance with this payload and so cover up to 187Ha in one flight)

RIPARAMETER
RIEGL

INPUT/OUTPUT
SETTINGS

**Scanner Type**

miniVUX-1UAV

**Project Requirements**

Project Type: Wide Area Mapping

Uniform Point Pattern: ON

Point Density: Avg. 16.00 pts/m<sup>2</sup>

Stripe Overlap: 20.0 %

**Terrain**

Min. Altitude (AMSL): 33 ft 10 m

Terrain Variation: 66 ft 20 m

**Flight Height Constraints**

Min. Height (AGL): 98 ft 30 m

Max. Height (AGL): 1640 ft 500 m

Max. Altitude (AMSL): 1969 ft 600 m

Laser Safety: Observe NOHD

**Surface / Target / Atmosphere**

Min. Reflectance: 20.0 %

Target Type: Topography

Object Diameter: 0.1 m

Visibility: 23km Standard Clear

FOV: 90.00 °

**Aircraft**

Select Aircraft: Geospace GS1200-Lidar

Min. Speed: 0 km 0 km/h

Max. Speed: 16 km 30 km/h

Max. Altitude (AMSL): 1640 ft 500 m

**Result Qualifier**

**Scanner Settings**

PRR: 100 kHz

Laser Power: 100 %

Scan Rate: 33.3 lps Angular Step Width: 0.120 °

FOV: 90.0 °

**Flight Parameters**

Flying Height AGL: 308 ft 93.8 m

Flying Height AMSL: 341 ft 104 m

Aircraft Speed: 16.2 kn 30.0 km/h 8.33 m/s

**Scan Pattern**

Line Distance: 0.250 m

Point Distance: Min. 0.196 m Avg. 0.250 m Max. 0.393 m

Point Density: 10.2 pts/m<sup>2</sup> 16.0 pts/m<sup>2</sup> 20.4 pts/m<sup>2</sup>

Swath Width: 188 m

**MTA Details**

MTA Zone Width: 1499 m

MTA Zones Used: 1 1

**Productivity**

Net Area Rate: 1250 m<sup>2</sup>/s

Typ. Data Rate: 1.62 GB/h

Max. Data Rate: 3.33 GB/h

**Laser Safety Information**

NOHD: 0 m 0%

ENOHd: 0 m 0%

**Auxiliary Limits**

Max. Meas. Range: 146 m 95%

Scan Rate-Range-Prod.: 4862 m<sup>3</sup>/lps 22%

**Visualization**

Flight Height= 94m AGL

Min. Flight Height= 30m

Terrain Variation= 20m

Terrain Altitude= 10m Swath Width= 188m

Overview, subsampled by a factor of 37

Zoom to section of min. point density

Zoom to section of max. point density

Zoom to section of avg. point density