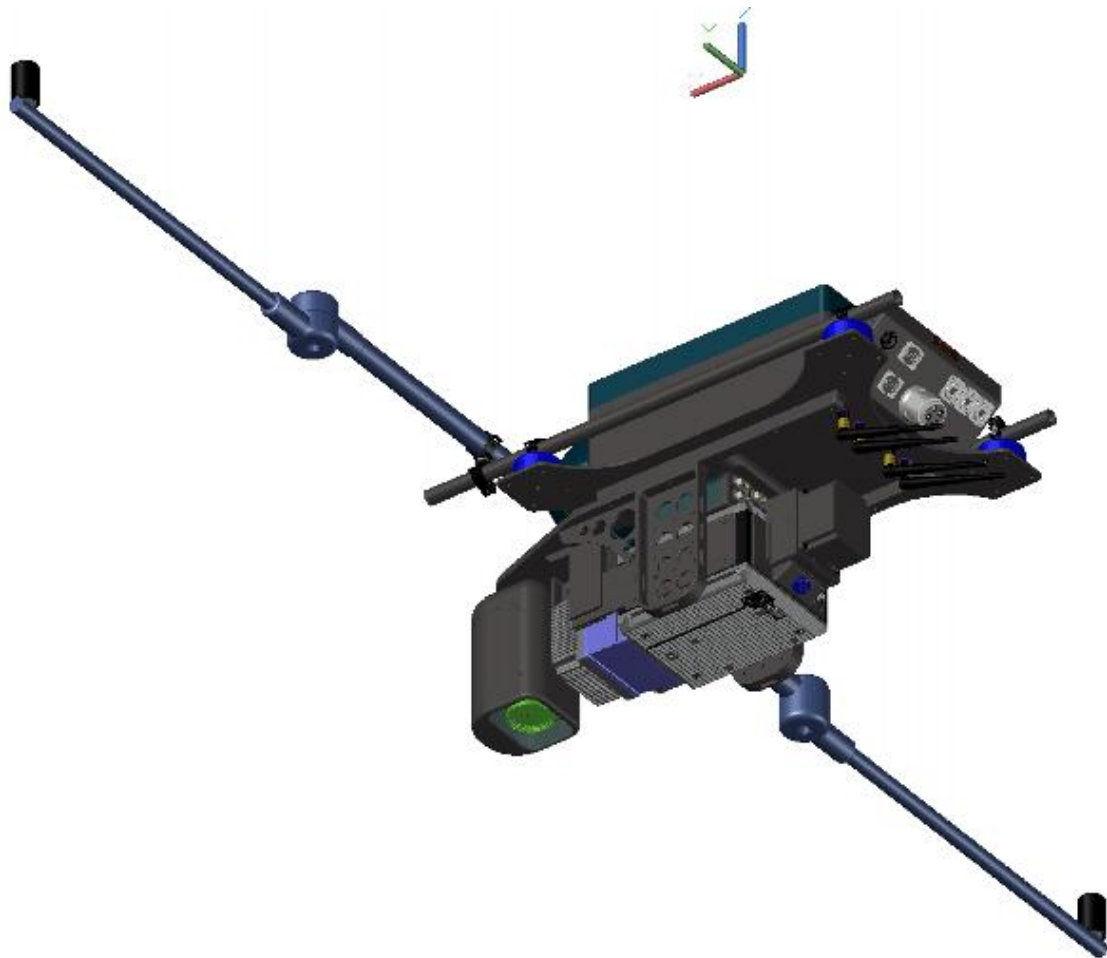# GS-360-UAV

High Speed, Long Range UAV Lidar + RGB

Features

- o Carbon Fiber based molded aerodynamic enclosure.
- o Silicone Elastomer vibration isolation mounts.
- o Integrated fanless industrial grade i7 computer system
- o LAN, 4G and WiFi remote connectivity.
- o Integrated CF Extreme Pro SSD ejectable media.
- o 3D printed mounting system using PEI-CF, FAA-approved for FST applications (Flame/Smoke/Toxicity) and meets FAR 25.853 and OSU 65/65 standards.
- o Integrated 24mp global shutter RGB camera.
- o Dual GNSS antenna on 2m boom for precision real time heading data even while hovering.
- o Integrated tightly coupled IMU for cm grade post processing solution.

GS-360-UAV

High Speed, Long Range UAV Lidar + RGB

Parameters		GS-360-UAV	
LASER PULSE REPETITION FREQUENCY (PRF)		200 kHz	500 kHz
Max Range Capacity[1]			
@ 10% target reflectivity		205 m	130 m
@ 20% target reflectivity		290 m	185 m
@ 50% target reflectivity		490 m	250 m
Typical Operating Altitude[2]			
@ 10% target reflectivity		130 m	85 m
@ 20% target reflectivity		185 m	120 m
@ 50% target reflectivity		315 m	160 m
Range Accuracy, 1sigma[1]		5 mm	5 mm
Range Precision, 1sigma[1]		4 mm	4 mm
LASER			
Wavelength		1550 nm	
Laser Safety Classification		1	
Beam Divergence (1/e²)		0.3 mrad	
Beam Footprint at 1/e²		8.1 mm @ 5 m, 8.5 mm @ 10 m, 11 mm @ 25 m, 17 mm @ 50 m, 31 mm @ 100 m	
RETURNS			
Range Measurement Principle		Time of Flight	
Sample Collection Rate		Up to 2 Mhz	
Intensity Measurement		12bits raw measurement, >16 bits normalized for range	
Minimum Range		1.5 m	
Number of Returns		Up to 4 (first 2 and last 2)	
Range Resolution		2 mm	
Minimum Target Separation		0.7 m (discrete)	
SCANNER			
Field of View		360 degrees possible, typically 80 deg	
Scan Speed		100 to 250 lines/second	
Angular Step Width		0.036 – 1.8 deg	
Angular Measurement Resolution		0.001 deg	
GENERAL			
Input Voltage		11-36 V	
Power (Typical)			
@ 100 Hz Scan Speed		30 W	
@ 150 Hz Scan Speed		35 W	
@ 250 Hz Scan Speed		40 W	
ENVIRONMENTAL			
Operating Temperature[4]		-10°C to +40°C	
Storage Temperature		-20°C to +50°C	
Ingress Protection		IP64	
Vibration		DO-160H Section 8, Category S, Curve M	
Shock		DO-160H Section 7, Category A, Standard Shock	
Weight		7.5g	
Dimensions		500mm x 350mm x 220mm	
INTERFACES			
Connector 1		Power, PPS, NMEA ($GPZDA)	
Connector 2	4G, WiFi,	1 GigE Ethernet for realtime data and control	

GEOSPACE

GS-360-UAV

High Speed, Long Range UAV Lidar + RGB

Long Range digital communications systems of the MAP1600
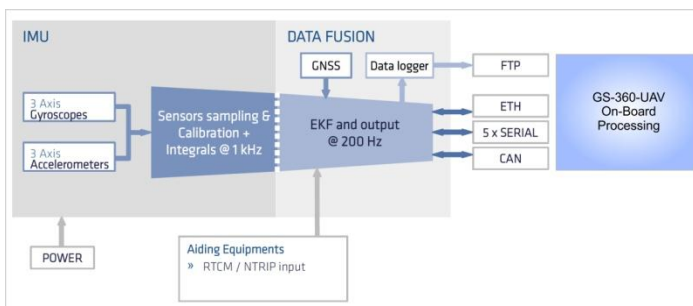support real-time control of the GS-360-UAV Lidar

System Options

Range:
>4km standard
>15km extender
>100km BVLOS Grade

Controller:
Single screen single operator
Dual screen single operator
Dual screen + Lidar manager

Power supplies:
1 x battery set standard
2 x or more battery sets optional
1 x 4-ch charger standard
2 x charger or 8-ch charger opt.

GNSS/IMU-Lite

Positioning Mode	Position Accuracy		Velocity Accuracy		Attitude Accuracy (°)	
	Horizontal	Vertical	Horizontal	Vertical	Roll / Pitch	Heading
SP	1.2 m	1.5 m	0.03 m/s	0.02 m/s	0.05 °	0.5 single ant. / baseline > 0.3m
RTK	0.01 m	0.03 m	0.02 m/s	0.01 m/s	0.03 °	0.2 ° (baseline > 1m)
PPK	0.01 m	0.02 m	0.01 m/s	0.01 m/s	0.025 °	0.08 ° (baseline >2m)

GNSS/IMU-Tactical

Positioning Mode	Position Accuracy		Velocity Accuracy		Attitude Accuracy (°)	
	Horizontal	Vertical	Horizontal	Vertical	Roll / Pitch	Heading
SP	1.0	1.0	0.02	0.01	0.01	0.1 single ant. / baseline > 0.5m
RTK	0.01	0.03	0.01	0.01	0.008	0.06 ° (baseline > 1m)
PPK	0.01	0.02	0.01	0.01	0.005	0.025 (baseline >2m)

Geospace NZ Ltd
29G Peters Way, Silverdale, Auckland 0932,
New Zealand

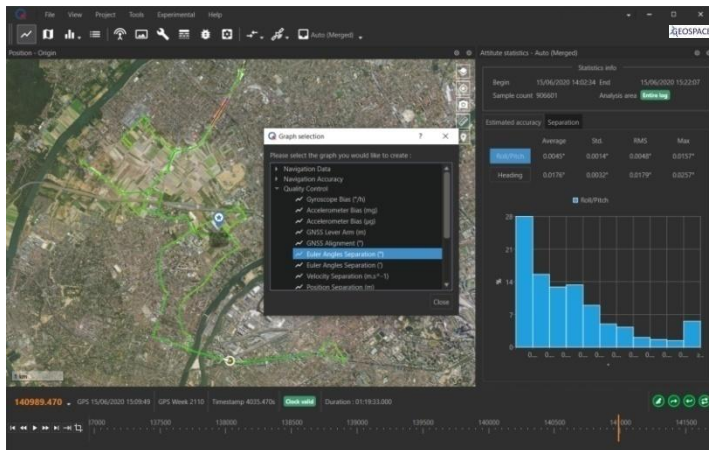Ph. +64-(0) 21-2135518
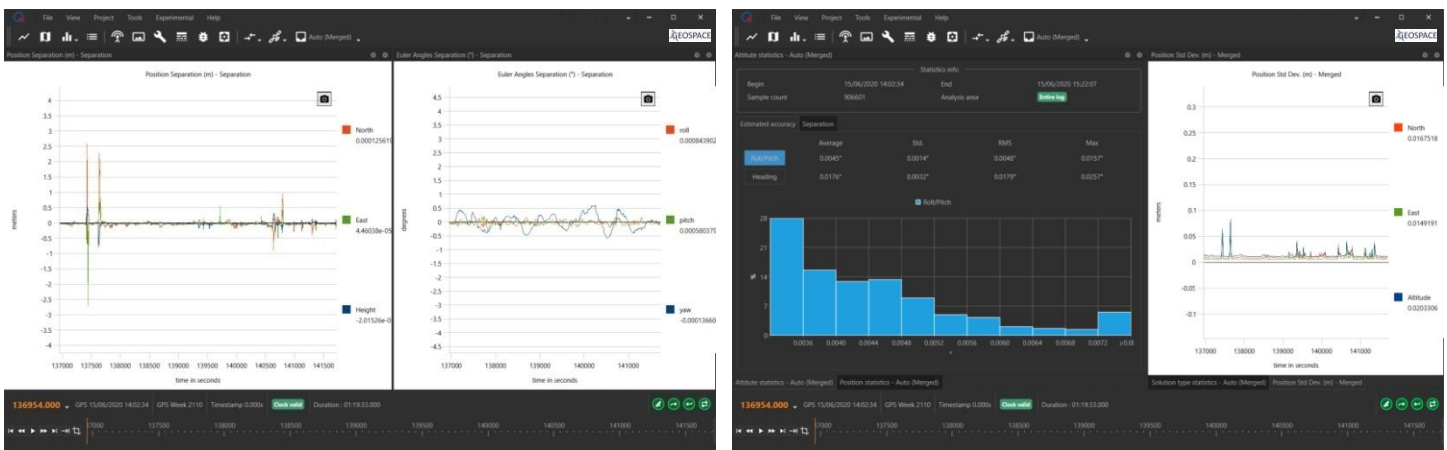www.geospace.co.nz
sales@geospace.co.nz

GS-360-UAV

High Speed, Long Range UAV Lidar + RGB

Sophisticated Post processing software solution

Precision data alignment from post processing of the IMU trajectory, GNSS recordings and data from associated GNSS Base stations, with multiple Base references able to be drawn into a single process in order to allow for extremely long or remote scan runs where required.

Detailed Dynamic data analysis to provide assurance of data quality

GS-360-UAV

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Forestry Application

High density points when the scanner is mounted at +15 degrees forward inclination, combined with cross path scan angles provide a superior points density on the surfaces all standing timber and branching.

The points are distributed the full height of each trunk and typically on up to 50% of the circumference, providing exceptional detail for post process analysis of diameter, sweep and branching.

Geospace Tree Attribute Profiler

Proprietary 3D stem processing software enabled by the GS-360-UAV data point density and accuracy