

Galaxy PRIME

Airborne Lidar Terrain Mapper



The ultimate ultra-compact airborne lidar sensor for wide-area, mountain and corridor survey applications

The new ALTM Galaxy PRIME is the ultimate wide-area lidar sensor, with best-of-class point density performance and collection efficiency.

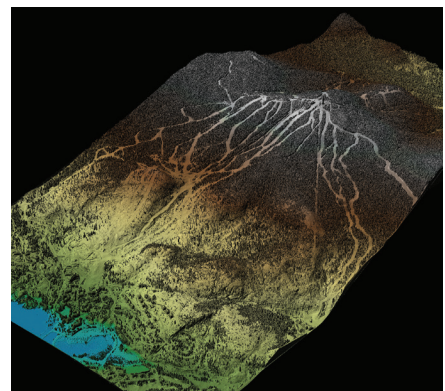
The Galaxy PRIME continues to build on the unique strengths of the Galaxy T1000: PulseTRAK™ for continuous coverage and full point density across PIA transition zones, and SwathTRAK™ with its dynamic FOV that enables “flat terrain-like” topo efficiency and constant point density even in steep mountains.

In addition to these standard features, the Galaxy PRIME now extends range performance by up to 30% for even greater collection efficiency, improved vegetation penetration, and increased low-reflectance target detection. Coupled with a “night mode” for even greater range performance, the Galaxy PRIME is quite simply the most powerful, most versatile, highest-performance sensor on the market with the smallest form factor—in short, the best sensor regardless of your platform and application!

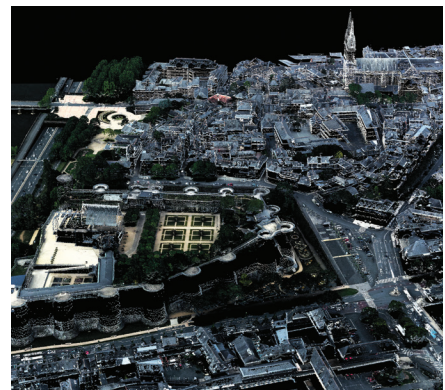
Galaxy PRIME represents a giant leap ahead of its competitors in every way. Whether gyro-stabilized or fixed-mounted, high-altitude or low, one camera or as many as six, full-waveform or discrete, Galaxy PRIME offers incredible collection efficiency and configuration flexibility with the highest data precision and accuracy available.



- » Wide-area mapping
- » Urban mapping
- » Natural resource management
- » Engineering & infrastructure modeling
- » Powerline & transportation corridor



Continuous Operating Envelope



Increased Vertical Density



Seamlessly Integrated Cameras

Galaxy PRIME

Technical Specifications

Parameter	Specification
Sensor Performance	
Performance envelope ^{1, 2, 3, 4}	150-4700 m AGL, nominal
Absolute horizontal accuracy ^{2, 3}	1/10,000 x altitude; 1 σ
Absolute elevation accuracy ^{2, 3}	< 0.03-0.20 m RMSE from 150-4700 m AGL
Laser Configuration	
Topographic laser	1064-nm near-infrared
Laser classification	Class IV (US FDA 21 CFR 1040.10 and 1040.11; IEC/EN 60825-1)
Pulse repetition frequency (effective)	Programmable, 50-1000 kHz
Beam divergence	0.25 mrad (1/e)
Laser range precision ⁵	< 0.008 m, 1 σ
Minimum target separation distance	< 0.7 m (discrete)
Range capture	Up to 8 range measurements, including last
Intensity capture	Up to 8 intensity measurements, including last (12-bit)
Sensor Configuration	
Position and orientation system	POS AV™ AP60 (OEM); 220-channel dual frequency GNSS receiver; GNSS airborne antenna with Iridium filters; high-accuracy AIMU (Type 57); non-ITAR
Scan angle (FOV)	10-60°
Swath width	10-115% of altitude AGL
Scan frequency	0-120 Hz advertised (0-240 scan lines/sec)
Scan product	2000 maximum
Flight management system	Optech FMS (Airborne Mission Manager and Nav) with operator console
SwathTRAK™	Dynamic FOV for fixed-width data swaths in variable terrain
PulseTRAK™	Multipulse tracking algorithm with no density loss across PIA transition zones
Roll compensation	±5° minimum
Data storage	Internal solid-state drive (SSD)
Power requirements	28 V; 300 W
Dimensions and weight	Sensor: 0.34 x 0.34 x 0.25 m, 27 kg — PDU: 0.42 x 0.33 x 0.10 m, 6.5 kg
Operating temperature	0 to +35°C
Optional Peripherals	
External data storage	Ruggedized, removable 2.5" SSD
Image capture	Compatible with all Optech CS-Series and most 3 rd party digital metric cameras
Full waveform capture	12-bit Optech IWR-3 Intelligent Waveform Recorder with removable SSD
Gyro-stabilization	SOMAG GSM 3000/4000 integration kit
Multi-sensor mounts and pods	Machined aluminum sensor mounts (aircraft and/or helicopter) Carbon-fiber sensor mounts supporting nadir and fore/aft oblique cameras Heli-pod mount options for Bell 206/407 (FAA-approved)

1. Target reflectivity ≥20%; 90% detection probability

2. Dependent on selected operational parameters; assumes nominal FOV of up to 40° in standard atmospheric conditions (i.e. 23-km visibility) and use of Optech LMS Professional software suite

3. Angle of incidence ≤20°

4. Target size ≥ laser footprint

5. Under Teledyne Optech test conditions, 1 sigma

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