

Galaxy Edge

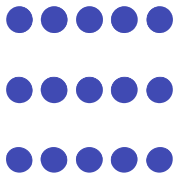
Real-time Lidar with an Edge

The Highest Resolution Airborne Lidar with Edge Computing

Galaxy Edge is the latest generation of the award-winning airborne lidar solution. Galaxy Edge delivers high-resolution data with the most efficient acquisition in steep terrain resulting in both lower carbon footprint and collection costs by 20-50%. Consistently delivering unmatched performance in variable terrain, compatible with fixed-wing, pressurized aircraft, drone or helicopter platforms. Real-time processing powered by Galaxy Onboard delivers lidar point clouds for immediate use upon landing.



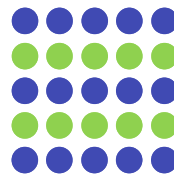
FEATURES & BENEFITS



PARALLEL SCAN LINES

Galaxy Edge now delivers straight and parallel scan lines

Uniform point spacing across the swath streamlines and cost-optimizes flight planning.



ADDITIONAL SCAN LINES

Galaxy Edge delivers more scanlines on the ground

Higher resolution of smaller objects like electric wires, poles, and street signs.



OPTIMIZED RESOLUTION

Galaxy Edge cuts atmospheric noise providing a clearer image

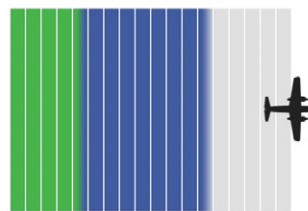
Reduces atmospheric noise and intensive labour delivering cleaner data, faster.



TURBULENCE & TERRAIN COMPENSATION

Galaxy Edge automatically compensates for airplane deviations and terrain changes

Reduces operational costs through ~50% reduction in flight lines and reflight.

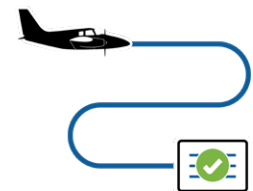


REAL-TIME PROCESSING & QC

Galaxy Onboard processes and quality controls point cloud data instantaneously while in flight

Real-time QC allows issues to be actioned immediately in the air, reducing standby and rework costs.

Full-resolution point cloud available on landing, delivering rapid answers for time-sensitive applications and disaster response.



DIRECT FROM PLANE TO PRODUCTION

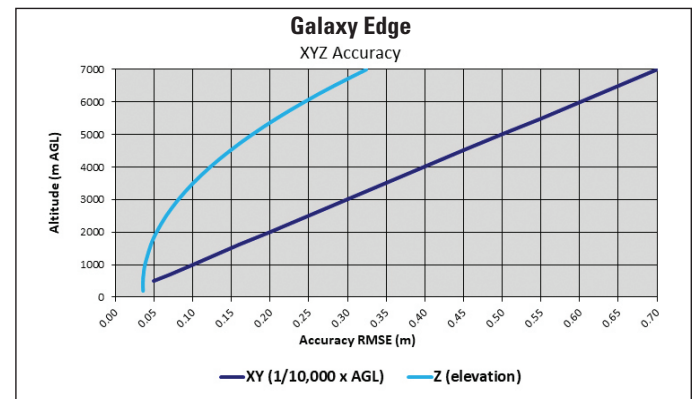
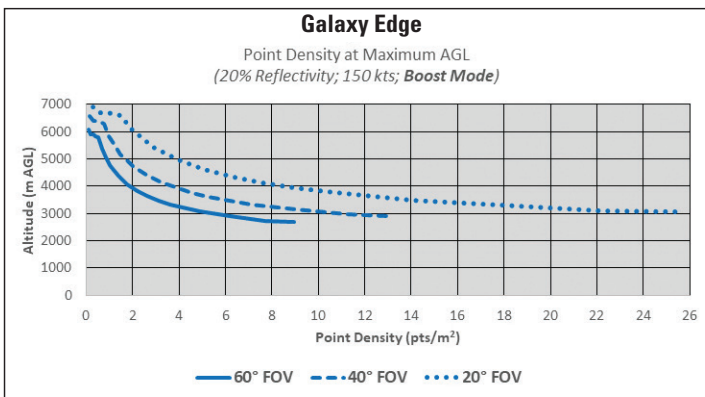
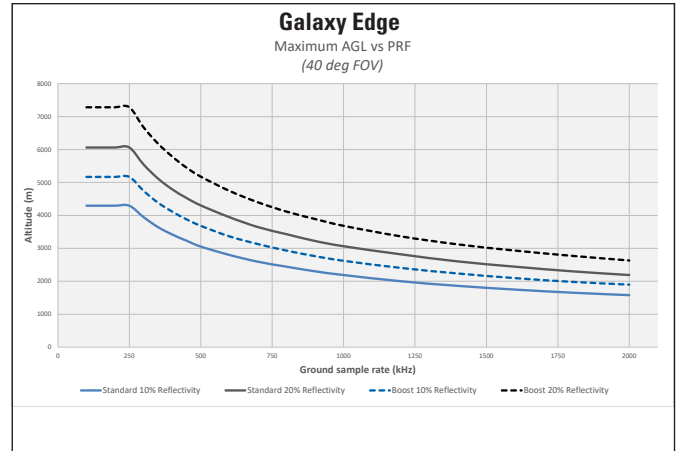
Galaxy Onboard delivers real-time point clouds with <10cm relative and <15cm absolute accuracy.

Bypasses processing and logistical delays and enables LAS data to be ingested directly into any production environment for classification, analysis, and same day delivery.

**GALAXY EDGE PRODUCTIVITY EXAMPLES
(FLAT TERRAIN)**

Average Point Density	2 pts/m ²	8 pts/m ²	20 pts/m ²	65 pts/m ²
Flight Altitude (AGL) ^{1,2}	8858 ft 2700 m	6562 ft 2000 m	4790 ft 1460 m	1476 ft 450 m
Ground Speed	315 kn	210 kn	115 kn	115 kn
Swath Width ³	3118 m	2309 m	1686 m	520 m
Instantaneous Coverage Rate ⁴	1455 km ² /hr	718 km ² /hr	287 km ² /hr	89 km ² /hr
Ground Measurement Rate (kHz)	1,000,000 meas./sec	2,000,000 meas./sec	2,000,000 meas./sec	2,000,000 meas./sec

1. Calculated for 20% reflective targets; 99% detection probability; boost mode
2. Assumes full footprint interception
3. 60° FOV
4. 20% side lap considered



PARAMETER	SPECIFICATION
Sensor Performance	
Performance envelope ^{1,2,3,4}	150-6500 m AGL, nominal
Absolute horizontal accuracy ^{2,3}	1/10,000 × altitude; 1 σ
Absolute elevation accuracy ^{2,3}	< 0.03-0.25 m RMSE from 150-6500 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, 100-2000 kHz
Beam divergence	0.16 mrad (1/e) or 0.23 mrad (1/e ²)
Power Modes	20%, 40%, 70%, 100%
Laser range precision ⁵	< 0.008 m, 1σ
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 Pattern	Parallel scan lines
Scan frequency	Up to 180 Hz (360 scan lines/sec)
Scan Product *	Up to 3000
Flight management system	Optech FMS (Airborne Mission Manager and Nav) with operator console
SwathTRAK™	Dynamic FOV for fixed-width data swaths in variable terrain and correction for position and orientation deviations.
PulseTRAK™	Multipulse tracking algorithm with no density loss across PIA transition zones
Data storage	Removable SSD (primary); internal SSD (spare)
Power requirements	28 V; 400 W
Dimensions and weight	Sensor: 0.34 × 0.34 × 0.25 m, 27 kg — PDU: 0.42 × 0.33 × 0.10 m, 6.5 kg
Operating temperature	0 to +35°C
Optional Peripherals	
External data storage	Ruggedized, removable 2.5" SSD
Real-time Processing	Powered by Galaxy Onboard
Real-time Quality Control	Powered by Galaxy Onboard
Image capture	Compatible with 3rd party medium format cameras (PhaseOne, etc.)
Full waveform capture	16-bit digitization using Teledyne Intelligent Waveform Recorder (IWR-4)
Gyro-stabilization	SOMAG GSM4000 integration kit
Multi-sensor mounts and pods	Machined aluminum sensor mounts; single or dual Galaxy configurations + cameras Carbon-fiber sensor mounts supporting nadir and fore/aft oblique cameras. Heli-pod mount options for Bell 206/407 and AS350 (FAA-approved)

1. Target reflectivity ≥20%; 99% 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

* Described as the ½ FOV x scan frequency.