TELEDYNE

Teledyne Geospatial
Solutions for Land and Water

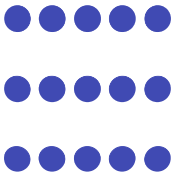
Galaxy Edge+

Universal Mapper for any Application, with a Real-time 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.

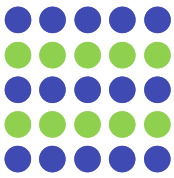
FEATURES & BENEFITS



PARALLEL SCAN LINES

Galaxy Edge+ now delivers straight and parallel scan lines

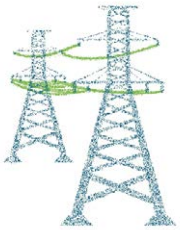
Uniform point spacing across the swath streamlines and cost-optimizes flight planning.



ADDITIONAL SCAN LINES

Galaxy Edge+ delivers more scanlines on the ground

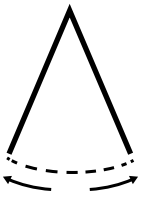
Higher resolution of smaller objects like electric wires, poles, and street signs.



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

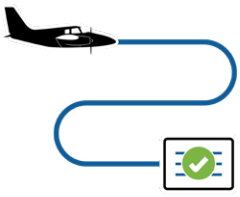
Reduces operational costs through ~50% reduction in flight lines and reflight.

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

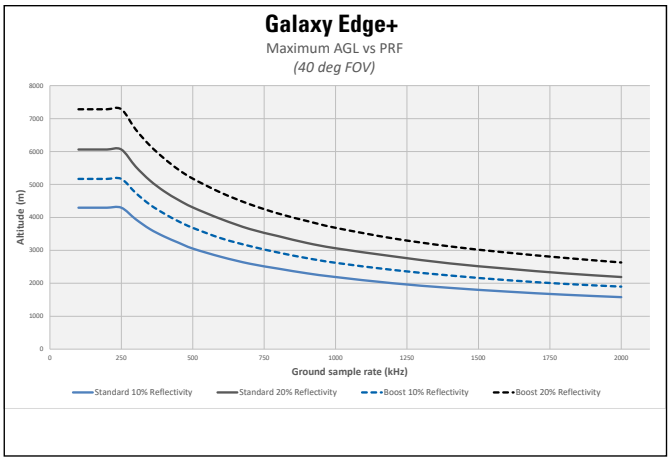
Galaxy Onboard delivers real-time point clouds with <10cm relative and <15cm absolute accuracy.

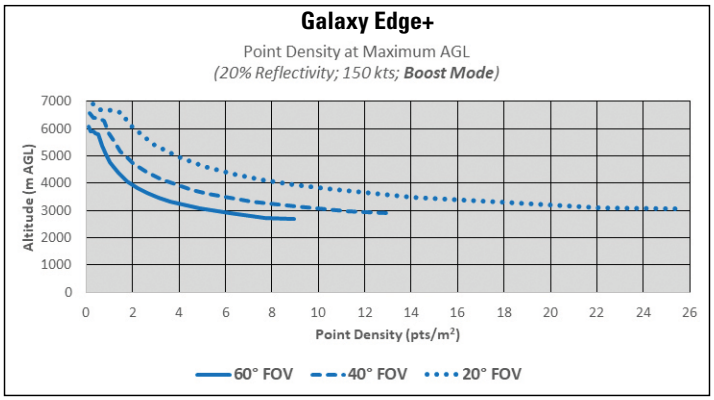
Bypasses processing and logistical delays and enables LAS data to be ingested directly into any production environment for classification, analysis, and same day delivery.

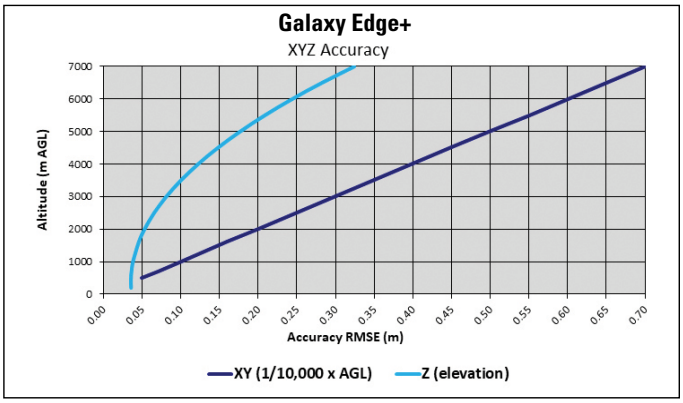
GALAXY EDGE+ PRODUCTIVITY EXAMPLES (FLAT TERRAIN)

Average Point Density	2 pts/m²	8 pts/m²	20 pts/m²	65 pts/m²
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 km²/hr	718 km²/hr	287 km²/hr	89 km²/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.