



# Gemini ALTm

Multipulse - The Science of Precision



**IT'S ALL ABOUT THE SCIENCE**

Optech 

### Airborne Module

Operating altitude 150 to 4,000 m nominal

Horizontal accuracy 1/5,500 x altitude; 1-sigma

Elevation accuracy  $\pm 1$ -sigma

Laser rep rate (kHz)	500 m altitude	1000 m altitude	2000 m altitude	3000 m altitude	4000 m altitude
33	<5 cm	<10 cm	<15 cm	<20 cm	<25 cm
50	<5 cm	<10 cm	<15 cm	<20 cm	N/A
70	<5 cm	<10 cm	<15 cm	N/A	N/A
100	<10 cm	<10 cm	<15 cm	N/A	N/A

Note: Quoted accuracies do not include GPS errors.

Range capture Up to 4 range measurements for each pulse, including last

Intensity capture 12-bit dynamic range for each measurement

Scan frequency Variable 70 Hz  
Optional 100 Hz

Scan angle Variable from 0 to  $\pm 25^\circ$ , in increments of  $\pm 1^\circ$

Scanner product Scan angle x scan frequency  $\leq 1,000$

Roll compensation 5 Hz update rate  
(Scan angle + roll comp. angle =  $30^\circ$ , e.g.,  $\pm 20^\circ$  scan allows  $\pm 10^\circ$  compensation)

Swath width Variable from 0 to 0.93 x altitude (m)

Position orientation system Applanix - POS/AV including internal 12-channel dual-frequency 10 Hz GPS receiver

Spot distribution Sawtooth, uniform spot spacing across 90% of scan

Laser repetition rate 33 kHz (max. altitude (AGL) 4.0 km)  
50 kHz (max. altitude (AGL) 3.0 km)  
70 kHz (max. altitude (AGL) 2.5 km)  
100 kHz (max. altitude (AGL) 2.0 km)

Data storage Ruggedized removable media  
Typical 7 hr. continuous log time @ 100 kHz, freely configurable

Beam divergence nominal (1/e full angle) Dual divergence 0.25 mrad or 0.80 mrad

Laser classification Class IV (FDA 21 CFR)

Power requirements 28 VDC, 35 A (maximum)

Operating temperature (ambient) Control rack:  $+10^\circ\text{C}$  to  $+35^\circ\text{C}$   
Sensor head:  $-10^\circ\text{C}$  to  $+35^\circ\text{C}$

Storage temperature  $-10^\circ\text{C}$  to  $+50^\circ\text{C}$

Humidity 0 to 95% non-condensing

### Control Rack

Vibration-isolated case  
Dimensions 65 cm x 59 cm x 49 cm  
Weight 53.2 kg  
Cables/laptop 7.6 kg/3 kg

### Sensor Head

Fits standard camera mounts or mounts directly to floor  
Dimensions 26 cm x 19 cm x 57 cm  
Weight 23.4 kg  
Minimum opening 19.2 cm x 25.5 cm (flight direction)

### Processing Software

Survey Suite Differential kinematic GPS solution  
Trajectory optimization from multiple base stations  
XYZ point calculations module  
Vegetation classification/extraction feature  
Windows XP compatible

### GPS Ground Support

Multiple base stations Any dual frequency receiver with Rinex output



101006. Supersedes all previous and undated versions.

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