

ALTM Intelligent Waveform Digitizer

Summary Specification Sheet

Applications

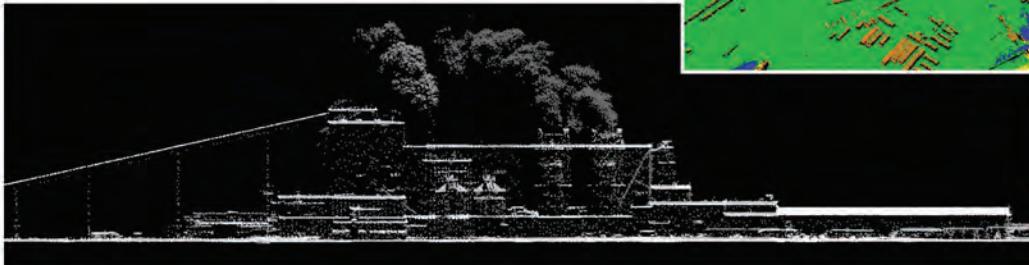
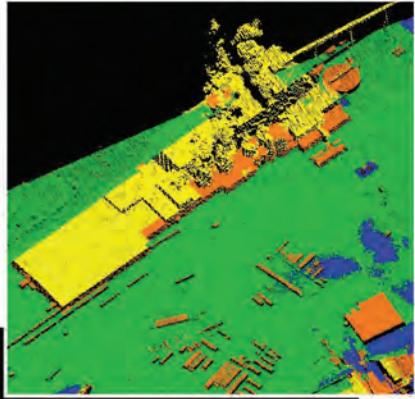
- **Urban Planning/Surveying:** Reflectance surfacing for improved point classification

- **Forestry and Biomass Estimation:** Detailed structural information for vertical density and structural analysis

- **Bare Earth Modeling:** True last-return pulse measurement for accurate ground detection and target discrimination from complex returns

Complete Waveform Capture

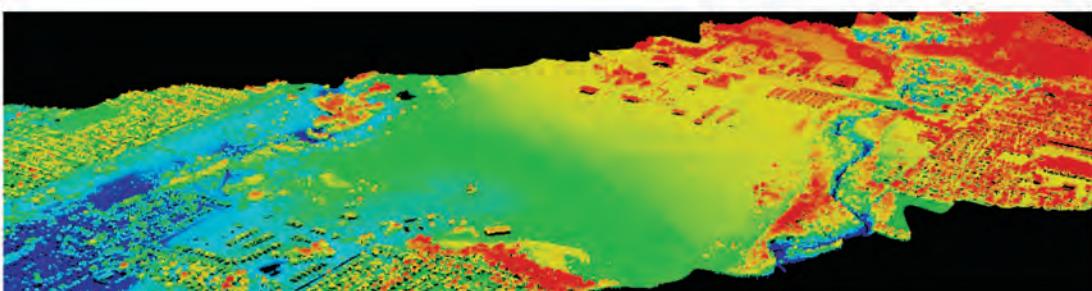
The IWD-2 Intelligent Waveform Digitizer records and analyzes complex return waveforms from all current ALTM models. Whether your client requires complete structural information for biomass estimates, the ability to identify ground returns from extremely low-lying vegetation, or an improved point classification capability, the ALTM IWD-2 delivers high-quality waveform data and extracted information.



The IWD-2 provides 12-bit amplitude sample resolution, detecting and discriminating target reflections from even the most complex waveform. Its built-in intelligence automatically records only useful information. The result: more information-dense waveform files and significantly less storage space. It also allows 1:1 recording rates up to 125 kHz—and automatic sub-sampling at higher rates. Coupled with ruggedized solid state disk storage, the IWD-2 now offers unrestricted flight altitudes.

The digitizer's strength lies in matching advanced receiver and timing electronics and improved digitizer technology with Optech's powerful, sensitive digitizer algorithms. These algorithms are based on decades of field experience in lidar waveform analysis for complex terrain and bathymetric applications, including radiometric calibration. Only from this wealth of experience can complex, robust algorithms be successfully developed to facilitate the precise extraction of all meaningful information from collected waveforms, regardless of terrain or target complexity.

ALTM Digitizer



XYZ Point Cloud



ALTM Intelligent Waveform Digitizer

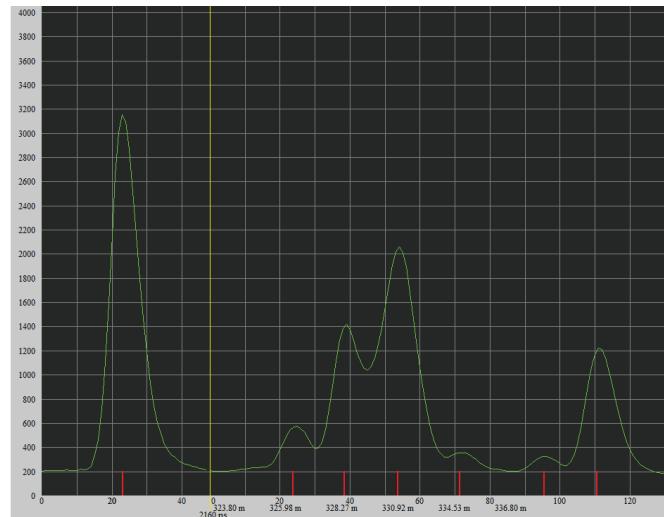
Features

- Sophisticated processing algorithms, based on Optech's algorithm expertise, provide accurate and precise data sets in LAS 1.3 formats
- Solid state disk storage enables unrestricted flight altitudes
- High recording speeds provide data capture rates up to 125 kHz
- Intelligent digitizer automatically sub-samples collection rates above 125 kHz
- Efficient data storage
- Real-time display enables in-air quality feedback
- Digitizer captures the complete return waveform and calculates XYZI positions of the detected reflections
- Waveforms are timestamped with GPS time for synchronization with other ALTM data

Benefits

- True ground detection
- Increased vertical density from more returns
- Improved target separation distance
- Extremely detailed pulse amplitude and cross-section
- Reflectance information

Available as a strap-on system peripheral to the ALTM, the IWD-2 can be shipped and installed in the field directly by users in a matter of minutes. This standalone configuration also enables the IWD-2 to be moved from system to system as the need arises. Such portability, combined with the fact that the IWD-2 works with all current ALTM models, provides great flexibility and on-demand capability to surveyors.



Digitized waveform, showing TO pulse and multiple peaks in the return waveform

Parameter	Specification
Amplitude resolution	12 bits
Sample interval	1 ns
Maximum acquisition and recording rate	Variable, up to 125 kHz At higher laser PRF, automatically sub-samples 1:2, 1:3, as required
Record length: TO Return	40 ns 440 ns (total)
Full-scale input range	0-1 V
Data storage	Removable solid state disk SSD
Power	<200 W
Operating temperature	0-35°C
Relative humidity	0 - 95% non-condensing

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