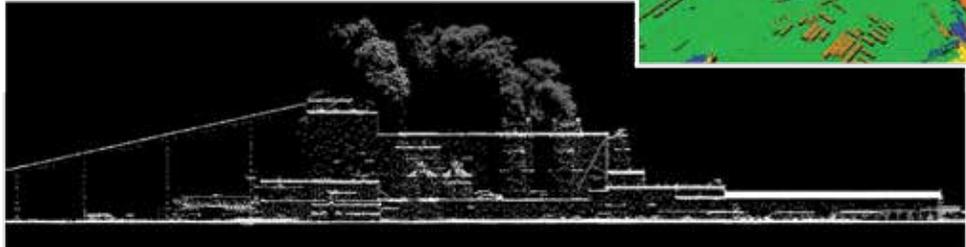
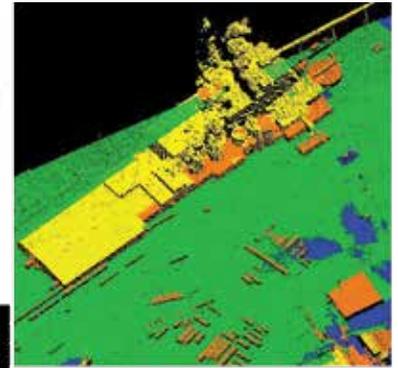


Summary Specification Sheet

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

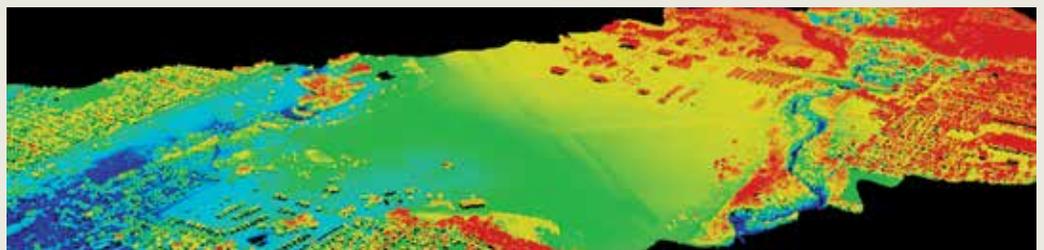


Complete Lidar Waveform Capture

The Optech IWR-3 Intelligent Waveform Recorder 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 IWR-3 delivers high-quality waveform data and extracted information.

The IWR-3 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 full sample lengths up to 150 kHz—and automatic sub-sampling at higher rates up to 550 kHz.

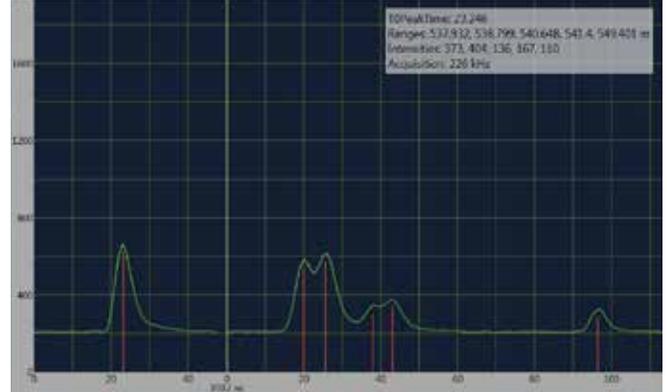
The IWR-3's strength lies in matching advanced receiver and timing electronics and improved digitizer technology with Teledyne Optech's powerful, sensitive algorithms. These algorithms are based on decades of field experience in lidar waveform analysis for complex terrain and bathymetric applications, 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.



 XYZ Point Cloud

Features

- Sophisticated processing algorithms, based on Teledyne Optech's algorithm expertise, provide accurate and precise data sets in all LAS formats
- Two modes of operation: Truncating and decimating
- High recording speeds provide full data capture at rates up to 150 kHz
- Automatically sub-samples collection rates above 150 kHz
- Efficient data storage
- Real-time display enables in-air data quality feedback
- 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
- New Waveform Viewer software shows the calculated ranges and intensities



Digitized waveform, showing T0 pulse and multiple peaks in the return waveform

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 for the ALTM, the IWR-3 can be shipped and installed in the field directly by users in a matter of minutes. This standalone configuration also enables the IWR-3 to be moved from system to system as the need arises. Such portability, combined with the fact that the IWR-3 works with all current ALTM models, provides great flexibility and on-demand capability to surveyors.

Parameter	Specification
Amplitude resolution	12 bits
Sample interval	1 ns
Maximum acquisition and recording rate	Up to 550 kHz (150 kHz at full record length)
Recording modes	Truncating: Every laser shot is recorded, with ever-decreasing record length above 150 kHz, OR Decimating: Every second or third shot is recorded above 150 kHz, for full record length
Record length (T0)	~50 ns
Record length (return)	Variable, up to 430 ns (maximum)
Full-scale input range	0 – 1 V
Data storage	Removable solid state disk, 1 TB SSD
Power	< 100 W
Operating temperature	0 – 35°C
Relative humidity	0 – 95% non-condensing