Introducing the **Polaris** TLS Series of Laser Scanners

**New Compact, Powerful, Scanning Technology from Teledyne Optech**

The Polaris Terrestrial Laser Scanner (TLS) delivers accurate, precise data faster than ever before, bridging the gap between small, light-weight, short-range sensors and large, long-range, pulsed time-of-flight scanners. Built with surveyors in mind, the Polaris TLS has a user-friendly on-board operator interface with menu-driven operations for quickly collecting and referencing data.

With an integrated high-resolution camera, inclinometers, a compass, a GPS receiver, and weather-proof housing, the Polaris can be deployed in many environments and orientations. The Polaris leads the market in price versus performance, starting at a price that rivals short-range scanners while outperforming most long-range scanners. With accelerated performance and all the built-in features surveyors need, a single Polaris TLS executes more applications than ever before. Whether on a tripod, vehicle, or moving platform, the outstanding performance of the Polaris makes it the most versatile terrestrial laser scanner on the market.

**APPLICATIONS**
- Civil Engineering
- Construction
- Transportation
- Heritage
- Mining
- Forensics
- Forestry
- Scientific Research

**FEATURES**
- Long-Range Capability
- High-Speed Data Acquisition
- 100% Scanner Efficiency
- Wide, Selectable Field of View
- Internal Data Storage
- Internal Camera
- External Camera Option
- Weather-Proof Housing
- Automatic Target Recognition
- User-Friendly Workflow
- Project Planner
- Multiple Lidar Returns
- Tilt Compensation
- GPS Receiver
The **Polaris** TLS Family...
Versatile Capability for Diverse Data Capture Applications

**TLS-250** - Single, fast data collection rate
Ideal for short-range (up to 250 m) applications where documentation and verification are required.

<table>
<thead>
<tr>
<th>System Performance</th>
<th>TLS-250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser repetition rate (peak and effective, kHz)</td>
<td>500</td>
</tr>
<tr>
<td>Max range capability @90% reflectivity (m)</td>
<td>250</td>
</tr>
<tr>
<td>Max range capability @20% reflectivity (m)</td>
<td>125</td>
</tr>
</tbody>
</table>

**TLS-750** - 2 data collection rates for more applications
Two programmable data collection rates and a range capability increased to 750 m plus options such as external cameras and GPS.

<table>
<thead>
<tr>
<th>System Performance</th>
<th>TLS-750</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser repetition rate (peak and effective, kHz)</td>
<td>200</td>
</tr>
<tr>
<td>Max range capability @90% reflectivity (m)</td>
<td>750</td>
</tr>
<tr>
<td>Max range capability @20% reflectivity (m)</td>
<td>400</td>
</tr>
</tbody>
</table>

**TLS-1600** - 3 collection rates for longer range capability
The perfect scanner for all applications, with programmable data collection rates that enable ranges over 1600 m.

<table>
<thead>
<tr>
<th>System Performance</th>
<th>TLS-1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser repetition rate (peak and effective, kHz)</td>
<td>50</td>
</tr>
<tr>
<td>Max range capability @90% reflectivity (m)</td>
<td>1600</td>
</tr>
<tr>
<td>Max range capability @20% reflectivity (m)</td>
<td>775</td>
</tr>
</tbody>
</table>

Range vs reflectivity
Polaris... Simplified, Touch Screen, Menu-Driven Operation

The Polaris TLS is a stand-alone terrestrial laser scanner that is typically operated via an on-board, sunlight-visible touchscreen. Scans are performed via easy-to-use menu-driven prompts, with data stored locally on the Polaris. After the scan, data is transferred to a Windows-based computer for further processing. Alternatively, you can operate the Polaris via computer, giving you in-depth control and more visibility into scan parameters. The scan data is then stored on the computer for immediate processing, using project-based software features.

GRAPHICAL USER INTERFACE:

- Sunlight-visible
- Resistive single touch
- 640 x 480 pixels
- Color TFT LCD

Polaris ATLAScan Data Processing and Workflow

The Polaris software suite, ATLAScan, is a field-proven, PC-based workflow platform that enables easy operation.

ATLAScan...

- Manages all data associated with a scan project, including point clouds, imagery, GPS, referencing control files, and coordinate conversions, as well as deliverables such as meshes, models, and line work.
- Minimizes processing steps and optimizes functionality to help you shorten your processing times and improve your productivity. ATLAScan also provides tools to view and inspect data, ensuring that your scan coverage is complete and accurate.

ATLAScan’s MODULES:

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works</td>
<td>Controls the Polaris scanner, processes and generates geo-referenced point clouds</td>
</tr>
<tr>
<td>WorksPro</td>
<td>Provides higher-level deliverables such as feature extraction, meshing, and modeling</td>
</tr>
<tr>
<td>Photo</td>
<td>External camera control and integration of imagery onto point clouds</td>
</tr>
<tr>
<td>Mobile</td>
<td>Integration with INS system</td>
</tr>
</tbody>
</table>
## Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height [mm]</td>
<td>323</td>
</tr>
<tr>
<td>Width (diameter) [mm]</td>
<td>250</td>
</tr>
<tr>
<td>Total weight [kg]</td>
<td>12</td>
</tr>
</tbody>
</table>

### Laser

- Range measurement principle: Pulsed
- Wavelength [nm]: 1535
- Laser safety classification: 1M
- Min. range [m]: 1
- Range resolution [mm]: 1
- Intensity recording [bits]: 12

### Scanning Characteristics

- Max. vertical field of view [deg]: 120
- Max. horizontal field of view [deg]: 360

### Operation Characteristics

- Operating temperature: min. [°C]: -40
- Operating temperature: max. [°C]: +45
- Humidity range [%]: 95
- Internal camera: Yes
- Control panel built in: Yes

### Power

- Battery type: Internal or external
- Scan time per battery [hr]: 2
- Power supply input voltage: 9-32 VDC

### Peripherals

- External camera: Yes
- Export formats of camera image: JPEG, TIFF, RAW
- User interface: Integrated touchscreen, tablet, PC
- Additional sensors: Inclination sensor, GPS, compass, plummet
- Registration/orientation methods: GPS, backsighting, automated target extraction, resection

### Software Functionality

- Automatic detection of tie points: Yes
- Real-time visualization during scanning: Yes
- Geo-referencing: Yes
- Fitting of primitives: Yes