



# Polaris TLS

## for Transportation Engineering

The Polaris Terrestrial Laser Scanner (TLS) meets the needs of transportation engineering by delivering dense lidar data at high speed without sacrificing accuracy. With highly automated georeferencing, platform compatibility and a long range, Polaris is clearly the go-to tool for managing transportation infrastructure.



High-quality data with survey-grade accuracy is the core value that Polaris offers to transportation engineers. The system's tight angular resolution creates dense point clouds even at long range, while its sub-centimeter accuracy ensures quality data and detects deformations for structural monitoring and inspection applications.

When planning new roads in virgin terrain or surveying existing infrastructure, the sensor's 1600-m maximum range makes it easy to capture inaccessible regions and its 360x120° field of view can cover large swaths from a single location. Because geospatial information is crucial, the Polaris also contains an internal GPS receiver, compass, optical plummet and backsighting tools to make geo-referencing fast, easy, and highly automated.



This rapid georeferencing ability combines with the sensor's fast acquisition rate to maximize efficiency when the Polaris is installed on a vehicle for stop-and-go surveys. When you need to survey an entire roadway or railway, the optional INS integration lets the Polaris operate from a moving vehicle to cover the entire corridor rapidly.

The Polaris software workflow is designed to reduce the time engineers must spend in the field. Instead of arranging and performing surveys themselves, the engineers create survey plans in the office that the field crew can easily execute on site. If the field crew needs to make extra collections, the Polaris uses a simple interface similar to a total station's that does not need extensive training.

Back at the office, the Polaris delivers data in several common formats directly into third-party software, such as 2D line work for CAD. Teledyne Optech also provides tailored workflows that fit the specific needs of transportation engineering, reducing the time spent producing data products.

## CRITICAL FEATURES FOR TRANSPORTATION ENGINEERING

- Sub-centimeter accuracy
- 1.5 to >1600 m range
- Rapid setup and geo-referencing
- Fast acquisition rate
- INS integration for mobile surveying
- Output directly to CAD

TLS customers expect a complete solution – survey planning, setup, scanner operation, registration (alignment), and seamless processing (parsing) in one software package.

The Polaris is intended to be the tripod-mounted static scanner that will be the easiest to operate for surveyors familiar with total stations. While it will have the look and feel of a total station, it will generate 3D point clouds with corresponding camera images. In addition to a competitive price point for mid-market users, our focus will be on implementing market-specific workflows and minimizing setup time and complexity so as to reduce the skill and training requirements for field operators.

## PRODUCT OBJECTIVES

- One-button scanning
- Project planner
- Back-sighting/resection
- Multiple returns
- Optical plummet
- Tilt compensation
- GPS receiver
- Data quality
- API to facilitate 3rd-party application development



## FEATURES

SUNLIGHT-VISIBLE OPERATOR INTERFACE  
SINGLE-CHANNEL INTENSITY

BACK-SIGHTING  
GPS RECEIVER  
SURVEY REFERENCE POINT

1" TILT COMPENSATOR  
LEVELING ADJUSTMENTS  
OPTICAL PLUMMET

INTEGRATED COMPASS

MULTIPLE RETURNS

IN-OFFICE SURVEY PLANNING



## BENEFITS

ENHANCED OPERATOR EXPERIENCE

GEO-REFERENCING SUPPORT  
EASY USER ADOPTION

SUPERIOR LEVELING CAPABILITY  
ENHANCED OPERATOR EXPERIENCE

REGISTRATION AID

DATA IMPROVEMENT

EASY FIELD DEPLOYMENT