The Optech 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 has a user-friendly on-board operator interface with menu-driven operations for quickly collecting and georeferencing point cloud data.

With a powerful quad-core processor, an integrated high-resolution camera, a digital compass and inclinometer, an L1 GNSS receiver and weather-proof housing, the Polaris can be deployed in various environments for a wide range of applications, using different workflows and setups. The Polaris leads the market in price versus performance, starting at a price that rivals short-range scanners while outperforming long-range scanners. With accelerated performance and all the built-in features surveyors need, the Polaris offers more flexibility than ever before. Whether on a tripod, vehicle, or moving platform, the outstanding performance of the Polaris makes it the most versatile and efficient terrestrial laser scanner on the market.

www.teledyneoptech.com
Specifications

Laser
Range measurement principle Pulsed
Wavelength 1550 nm (invisible)
Laser safety classification 1
Sample collection rate Up to 2 MHz
Intensity recording 12 bits
Minimum range 1.5 m
Waveform digitizing technology (WFD) Yes
Number of returns recorded Up to 4 (first 2 and last 2)

Scanning Resolution
Angular measurement resolution up to 12 µrad
Max. sample density [point to point spacing] 2 mm @ 100 m

Accuracy and Repeatability
Range accuracy (1 sigma) 5 mm @ 100 m
Range resolution 2 mm²
Precision, single shot (1 sigma) 4 mm @ 100 m
Angular accuracy 80 µrad

Scanning Characteristics
Max. field of view (vertical) 120° (-45 to +70°)
Max. field of view (horizontal) 360°
Min. angular step size (vertical) 12 µrad
Min. angular step size (horizontal) 20 µrad

Additional sensors and features
Dual-axis inclinometer (accuracy) Up to 0.01°
GNSS receiver L1+GLONASS
External GNSS support Yes, incl. antenna mount
Compass Digital
Registration/orientation method GNSS and compass, backsighting, resection
On-board registration data Yes¹
On-board target acquisition RetroID Yes
Pause while scanning Yes
Multiple scan area selection Yes, multiple ROIs²
On-board planning mode Yes
Mobile operation Yes

System Peripherals
Data storage capacity 250 GB internal SSD

Communications / Data transfer
Wireless LAN Yes
USB connector Yes
Ethernet port Yes
Communications/data transfer Gbit Ethernet, WLAN, USB

Imaging system
Internal camera Yes
Internal camera resolution 80-Mpix panoramic image
Export format of internal camera JPEG
External camera DSLR Yes with auto trigger
White-balancing DSLR Yes
Export format of ext. camera JPEG, NEF

Power
Power supply input voltage 9 to 32-V DC
Battery type Internal, hot swappable Li-ion batteries
Battery power 2.5 hours
Power consumption 60 W

Operation Characteristics
Operating temperature (min.) -20°C (-4°F)
Operating temperature (max.) +50°C (122°F)
Protection Class IP64
Storage temperature -40°C to +80°C (-4°F to +176°F)

Physical Characteristics
Height 323 mm (12.7")
Width 217 mm (8.5”)
Total weight 11.2 kg (24.6 lbs.)

Control Options
On-board display Touchscreen control, sunlight visible, 640x480, color
External user interfaces Tablet, PC

ATLAScan software
Remote scanner control Yes
Geo-referencing Automatic
Target-free automatic alignment Yes³
Feature / primitive extraction Yes
Terrain mesh Yes
3D meshing Yes
Measurements and calculations Yes
Monitoring Yes
Automatic line features extraction Yes⁴
Vegetation removal Yes⁵

Ordering information
Contact your local Teledyne Optech representative or an authorized Teledyne Optech dealer

All specifications are subject to change without notice.

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