

GLS-1500 Standard Configuration

- GLS-1500 scanner unit
- Target sheet (medium)
- Magnet target (small)
- Magnet target (medium)
- Adhesive target (small) x 5
- Adhesive target (medium) x 10
- BT-65Q battery x 4
- BC-30D dual-battery charger x 2 (with AD-14 AC adapter x 2)
- Tribrach with optical plummet
- Wireless LAN card
- Head cover
- SD memory card (1GB)
- Tools
- Silicone cloth
- F-25 USB cable
- User manual
- Warranty certificate
- Carrying case

Optional Accessories



Tilting base

Tilts the GLS-1500 unit to scan upper and lower portions of tunnels, buildings and other large structures. Maximum $\pm 90^\circ$ tilting range with 15° steps.

It's time.

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GLS-1500 SPECIFICATIONS

SCANNING UNIT	
Maximum range	
90% reflectivity	330m
18% reflectivity	150m
Minimum range	1m
Single point accuracy	
Distance	4mm at 1 to 150m
Angle (H&V)	6"
Target detection accuracy	3" at 50m (164ft.)
Scan rate (maximum)	30,000 points/second
Scan resolution	
Spot size	<6mm at 1 to 40m
Sample density (maximum)	1mm at 20m
Field of view (per scan)	
Horizontal	360° (maximum)
Vertical	$\pm 35^\circ$ (maximum)
Laser	
Type	Pulsed (time of flight)
Wavelength	1535nm (invisible, eye-safe)
Laser class	Class 1
DIGITAL CAMERA	
Field of view	Approx. 22° (V) x 16.5° (H)
Number of pixels	2 megapixels
TILT COMPENSATOR	
Type	Dual-axis tilt sensor
Compensation range	$\pm 6'$
DISPLAY	
Type	LCD with backlight, 20 characters x 4 lines
INTERFACE	
Memory	SD and SDHC memory cards
Wireless LAN	IEEE 802.11b
USB	Type mini B Rev. 2.0
POWER SUPPLY	
Removable battery (BT-65Q)	5Ah, 7.4V
Operating time	4 hours per 4 removable batteries
Input voltage	12V DC
ENVIRONMENTAL	
Operating temperature	0°C to +40°C
Storage temperature	-10°C to +60°C
Dust and water protection	IP52 (IEC 60529)
PHYSICAL	
Dimensions w/handle	299 (D) x 240 (W) x 566 (H) mm
Instrument height	410mm
Weight	16kg (excluding battery and tribrach)

Class 1

Your local Authorized Topcon Dealer is:

GLS-1500 GEODETIC 3D LASER SCANNER

NEW

GLS-1500

3D Laser Scanner



**High-Speed, High-Precision,
All-in-One 3D Laser Scanner**

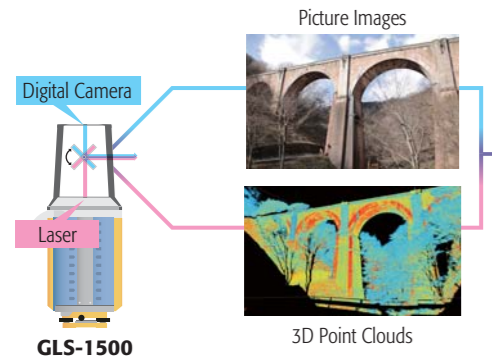
- HIGH-SPEED SCAN WITH 30,000 POINTS/SECOND
- TOPCON PRECISE SCAN TECHNOLOGY PROVIDES CLEAN, ULTRA-LOW-NOISE SCAN DATA
- 4MM DISTANCE ACCURACY AT 150M
- ALL-IN-ONE SOLUTION FOR SUPERIOR MOBILITY
- QUICK SIGHTING WITH JOG DIAL CONTROLS
- BUILT-IN DIGITAL CAMERA
- SCANMASTER SOFTWARE FOR POWERFUL DATA PROCESSING
- PRESENTS PHOTO-REALISTIC POINT CLOUDS
- REMOTE CONTROL VIA WIRELESS LAN



It's time.

Photo-realistic Point Clouds

The GLS-1500 captures point clouds and picture images simultaneously. The combination of point clouds and RGB picture data generates full-color, photo-realistic 3D point clouds.



Full-color, Photo-realistic 3D Point Clouds

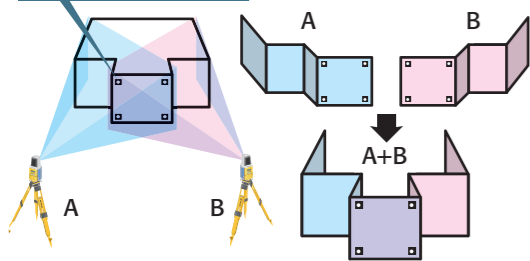
Scanning Procedures

A laser scanner captures object surface with a huge number of points, each one with 3D coordinate values. Scans at multiple positions are needed to capture the entire shape of objects. Multiple scan data can be docked and aligned by using common tie-points which are separately scanned with retro-reflective targets.

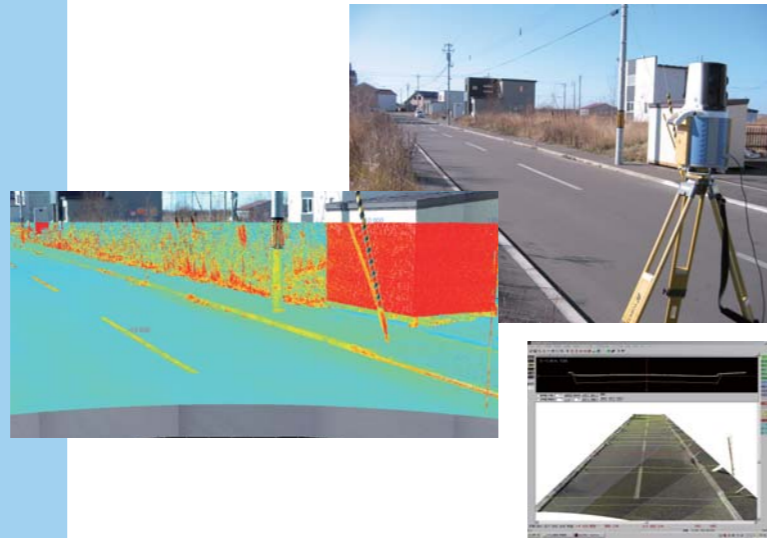
Geo-referenced 3D point clouds and mesh objects created by Topcon ScanMaster software can be exported to users' software, allowing for 3D measurement, 3D modeling, displacement observation, as-built survey, and other applications.

Aligning Point Clouds

Targets for tie-points



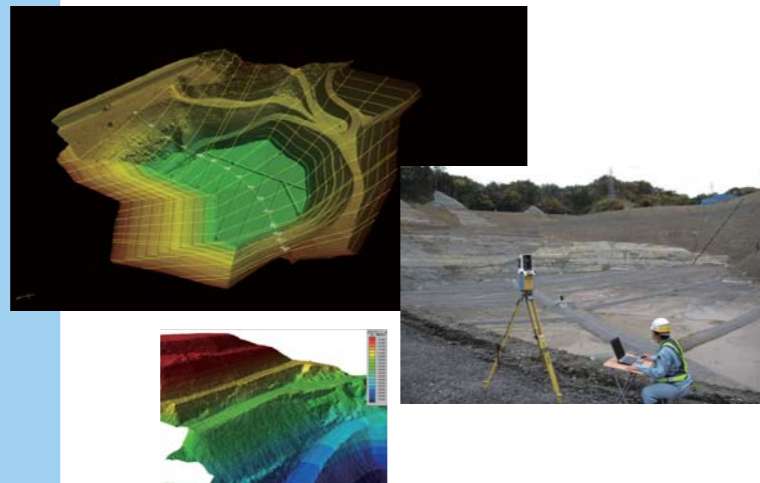
GLS-1500 Stretches the Boundaries of Your Survey Technology



Road Surface Profile

Measures Ruts and Bumps for Maintenance Purposes

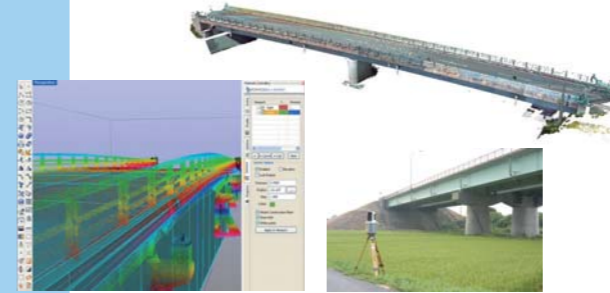
GLS-1500 captures 3D road surface shapes with exceptional ease and speed. From roadside or other convenient locations, GLS-1500 quickly scans the road surface without an assistant on the road. Highly accurate 3D road surface model facilitates determination of repair locations as well as volume calculation of pavement materials. GLS-1500 dramatically increases work efficiency and safety, and saves material costs. Traffic congestion by blocking a lane is also eliminated.



Volume Measurement

Increases Safety, Efficiency and Accuracy

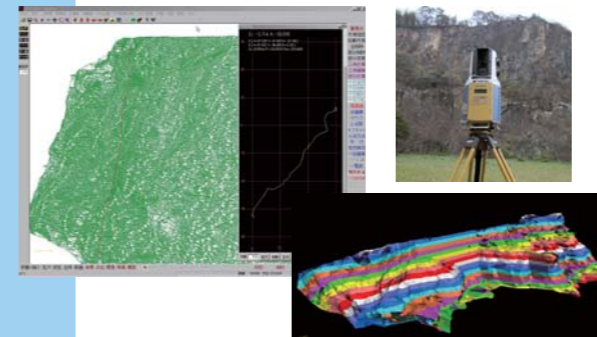
Volume measurement is indispensable for land preparation, open-pit and underground mining, waste landfills and sediment control facilities. GLS-1500 allows the operators to take measurements with an incomparable safety by eliminating the need for working in the midst of heavy machines. High density point clouds allow for accurate calculations of volume and geometry that no other technology can offer.



Large Structure

Monitoring of Critical Infrastructures such as Bridges, Towers, and Dams

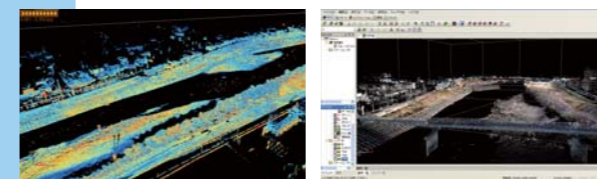
Scan data of large structures allow for early detection of deteriorated areas to be maintained or reinforced. 3D data can be utilized for measurements of size and geometry, as well as volume calculations of necessary materials. Periodic monitoring is one of the most effective methods to prevent collapse of structures.



Disaster and Accident

Detailed Survey with the Fastest Speed

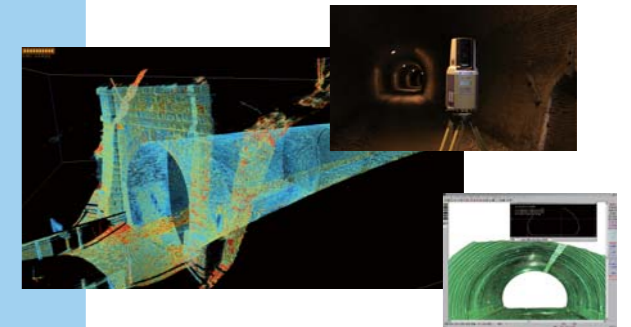
3D terrain models can be easily created with scan data. GLS-1500 acquires accurate and detailed terrain data with exceptional speed and safety. GLS-1500 quickly scans disaster areas or accident scenes. 3D models allows for computer simulations of disasters and accidents.



Flood Control

Rivers, Dams, and Embankments

High density 3D point clouds can be utilized for creating contour maps and profile drawings, and for volume calculations. Simulation of water flow paths greatly facilitates flood control and disaster prevention planning.



Tunnel

Profile Measurement and Convergence Monitoring

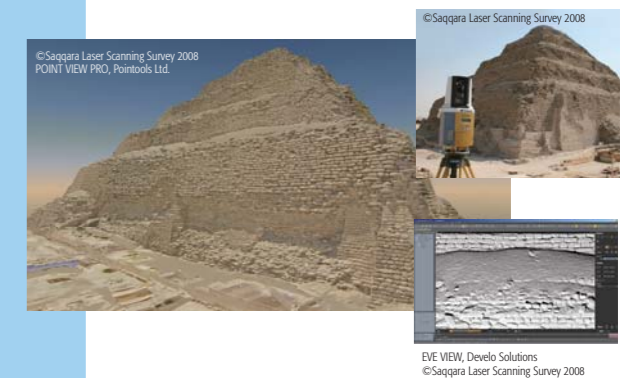
GLS-1500 captures 3D data of tunnel wall surfaces in a short period of time. Even the most complex surface profile can be modeled without difficulty. Monitoring of wall convergence is an essential measure to prevent collapse of tunnels both under construction and in operation.



Historical Architecture

Creation and Preservation of As-built Data

Full color, photorealistic 3D model will be the most valuable record of historical architectures. 2D floor plans and cross-sectional drawings can be easily created from 3D point clouds.



Archaeology

Photorealistic 3D Models of Ruins

Cutting-edge laser scanning technology realizes preservation of valuable ruins in detailed 3D models. GLS-1500 provides archaeologists with full color, high resolution pictures that have precise 3D coordinate values.

Topcon Precise Scan Technology Quickly Acquires Ultra-Low-Noise, High-Precision 3D Data!



Increased Scanning Speed! 30,000 points per second

GLS-1500 incorporates newly developed laser diode that constantly emits laser beam at 30,000 times per second, 10 times faster than the previous model. Higher-density point clouds can be captured in a shorter time, increasing productivity and the quality of laser scanning.



Topcon Precise Scan Technology! Ultra-Low-Noise, High-Precision, High-Quality Scanning

Distance accuracy: 4mm@150m
Angle accuracy (H&V): 6 arc-seconds
Topcon Precise Scan Technology maximizes the accuracy and the data quality by minimizing noise and measurement deviation.

On-site Verification of Increased Scan Speed

Rock
Square object

MAX 470% Speed-up
GLS-1500

Previous model

Bridge
Horizontally long object

MAX 250% Speed-up
GLS-1500

Previous model

Tower
Vertically long object

MAX 220% Speed-up
GLS-1500

Previous model

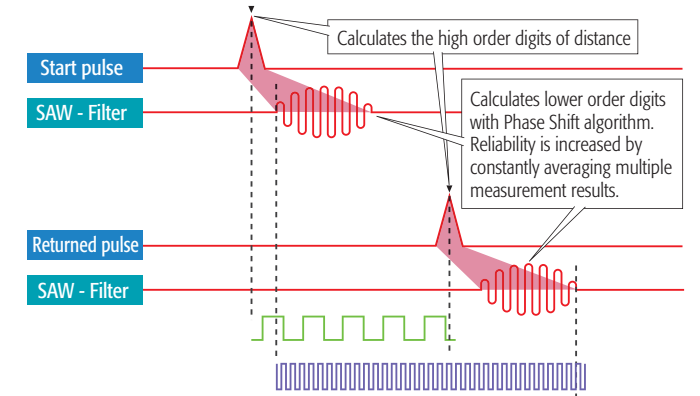
* Scanning speed varies according to scan area and density settings.



GLS-1500
3D Laser Scanner

Outline of Topcon Precise Scan Technology

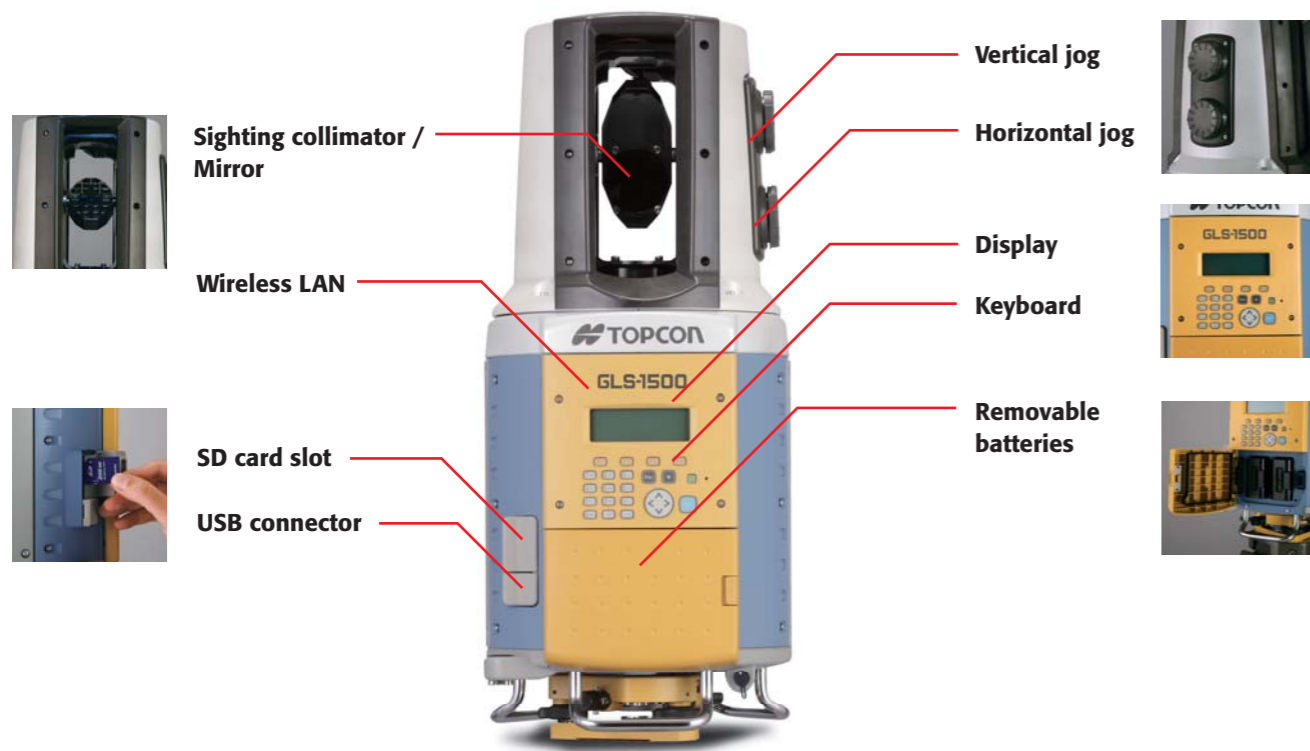
Topcon Precise Scan Technology integrates two distance measurement methods, the Time of Flight and the Phase Shift. Time of Flight technology utilizes an instantaneous emission of pulse laser. Measurement accuracy tends to be affected by a slight fluctuation of the waveform. Topcon Precise Scan Technology resolves the pulse waveform and processes the filtered signals with a Phase Shift algorithm to achieve the highest possible accuracy and data quality.



Ultra-Low-Noise Data!

The most crucial technological challenge in scanning technology is how to minimize the noise included in the captured data. Topcon Precise Scan Technology achieves dramatic noise reduction that makes it possible to present the finest texture of scanned objects.

3D Laser Scanner Best Suited for Surveying, Civil Engineering, and Construction Applications



All-in-One, Stand-alone Scanner Unit Provides Easy Operation and Superior Portability, Similar to the Total Stations



GLS-1500 can be operated in a similar manner to total stations. A tripod is the only external device needed.

Level & center ▶ Collimate ▶ Scan backsight ▶ Scan object ▶ Store data ▶ Shift position

Level & center: Set the scanner unit right above the instrument point using a tripod, then level. Instrument tilt is automatically compensated within $\pm 6'$ range.

Collimate: Using sighting collimator and jog dials, specify the scan area or sight the targets.

Scan Backsight: GLS-1500 can set the geographical coordinate system using instrument point and backsight data just as total stations do.

Store data: Scanned data are stored in the SD cards for easy transfer to computers.

Shift position: Simple system configuration allows for easy shifting of instrument positions.

GLS-1500 can be fully operated by all users who are familiar with total stations.



Dual-axis Tilt Sensor!

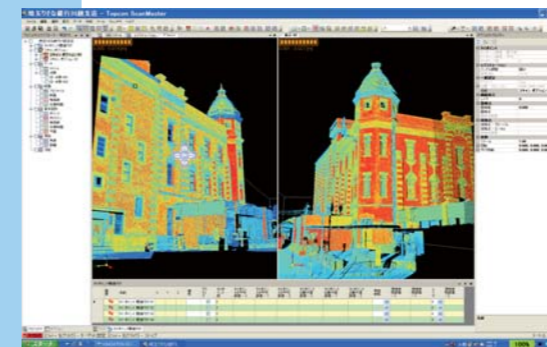
GLS-1500 automatically compensates the instrument tilt within $\pm 6'$ using a built-in dual-axis tilt sensor. This capability increases accuracy of station setting using instrument point and backsight data.



Station Setting with Backsight Coordinates!

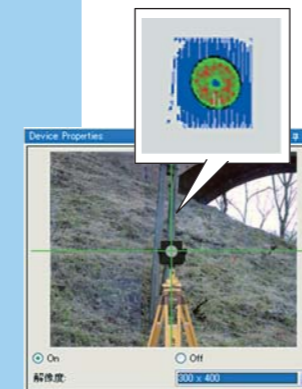
In addition to orientation using geo-referenced tie-point targets, GLS-1500 can determine the coordinate system using instrument point and backsight data, thanks to the high accuracies in distance, angles and tilt compensation. This capability increases work efficiency by minimizing number of targets needed for orientation.

Powerful! User-friendly! ScanMaster Office Software



Rich Functions with Intuitive User-interface! Multiple Viewer Window for Easy Data Alignment

Scan data captured from multiple positions can be easily integrated into one 3D data. Two or more point clouds are shown on the computer screen at the same time, facilitating data docking and aligning procedures. Supports most major data formats.



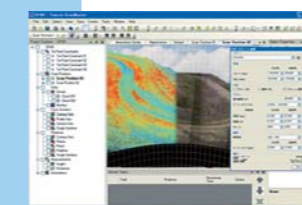
Easy Target Scan! Automatically determines target center

Target scan is initiated either by manual aiming or by clicking an image on a PC screen. The ScanMaster automatically identifies the target shape and calculates the target center coordinates.



Remote Control Using Video Images

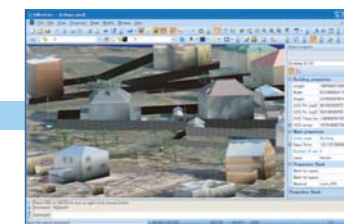
ScanMaster controls the GLS-1500 scanner unit via wireless LAN. Scan area can be easily specified on video or picture images on a computer screen. The built-in digital camera takes a picture of scan area on which scanned points are shown in real-time, allowing you to check the status. Pre-programming capability allows for automatic multiple scans at one instrument position.



Various Software Solutions from Topcon Partners



POINTTOOLS
POINTTOOLS VIEW PRO
 A point clouds viewer software
POINTTOOLS EDIT
 Filtering software
POINTTOOLS 4 RHINO
 3D modeling software operating on Rhinoceros
POINTTOOLS MODEL
 3D modeling software operating on AutoCAD



GEOKOSMOS
3D Modeler
 Terrain data processing software with a style similar to AutoCAD. Provides filtering capability and creates topo-mesh, contour, cross section, DTM, DSM, 3D model with photos, and structural object.



PointCloud
 Adds point cloud management and post-processing capability to AutoCAD.



XOR/Redesign
 3D reverse engineering software that creates CAD models from 3D scan data.
XOS
 Post-processing software for 3D scan data, ideal for reverse engineering. Handles point clouds, mesh, color texture, curve, and surface.



EdgeWise
 Automatically creates 3D CAD models using patented computer vision algorithm that automatically identifies the surfaces in point clouds. Processes huge data in a few hours while ordinary software takes several days to process.

Export Format

- Topcon point cloud file CL3 (Topcon)
- ASCII (XYZ, Intensity, RGB)
- PTS • PTX • LAS • VRML • OBJ • DXF • DWG