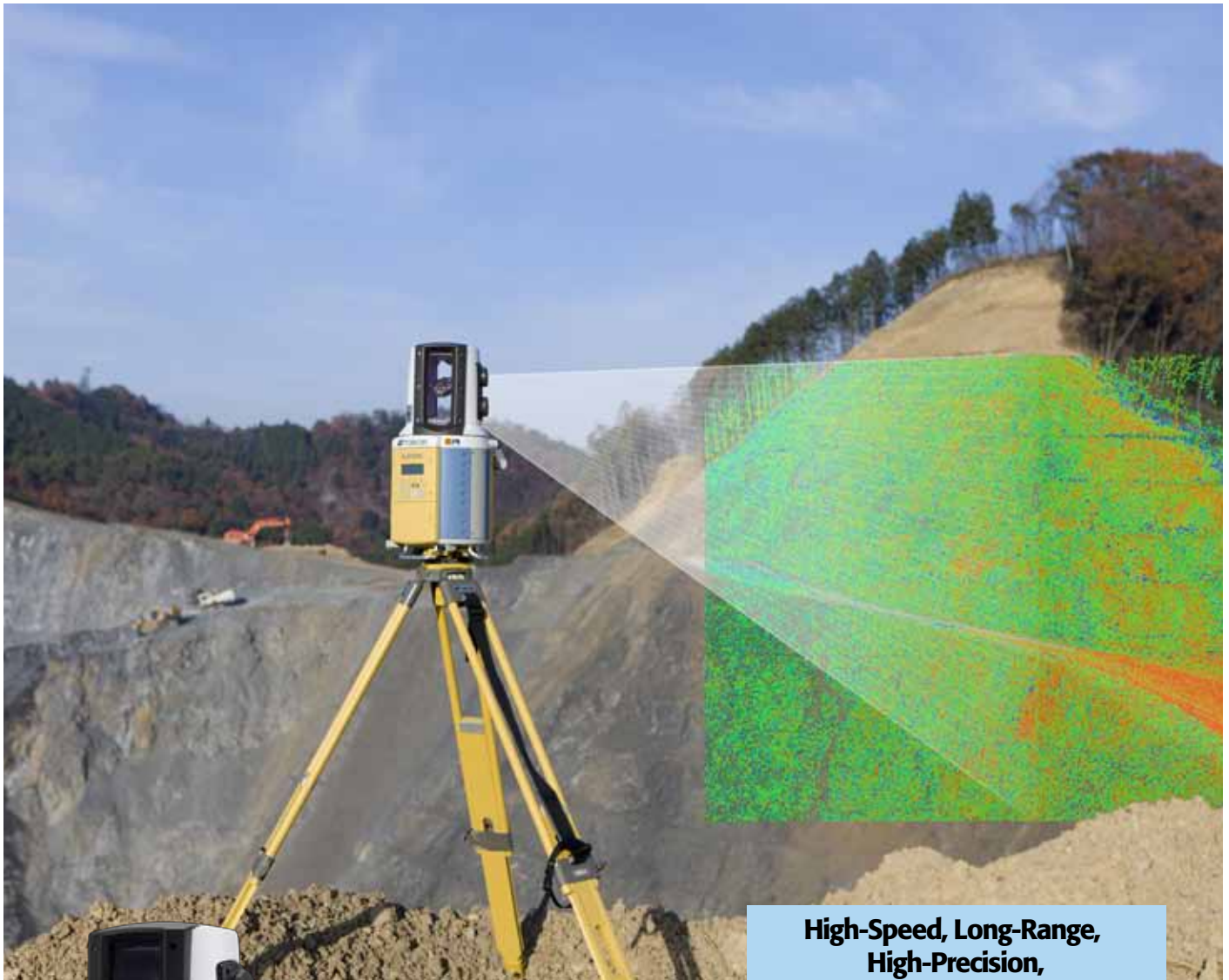


GLS-1500
GEODETTIC 3D LASER SCANNER

 **TOPCON**

GLS-1500

3D Laser Scanner



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

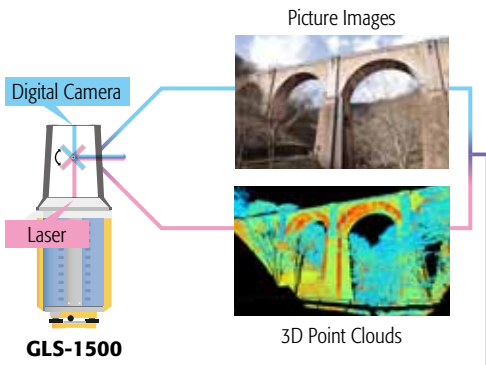


- LONG-RANGE 500M
- HIGH-SPEED SCAN WITH 30,000 POINTS/SECOND
- TOPCON PRECISE SCAN TECHNOLOGY PROVIDES CLEAN, ULTRA-LOW-NOISE SCAN DATA
- 4MM DISTANCE ACCURACY AT 150M
- ALL-IN-ONE SOLUTION FOR SUPERIOR MOBILITY
- QUICK SIGHTING WITH JOG DIAL CONTROLS
- BUILT-IN DIGITAL CAMERA
- SCANMASTER SOFTWARE 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

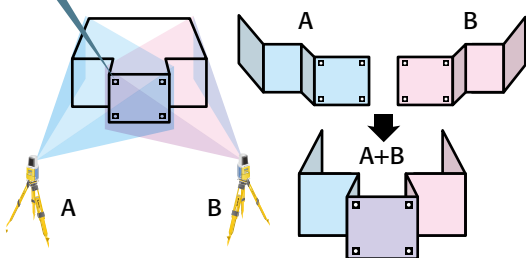
Scanning Procedures

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.

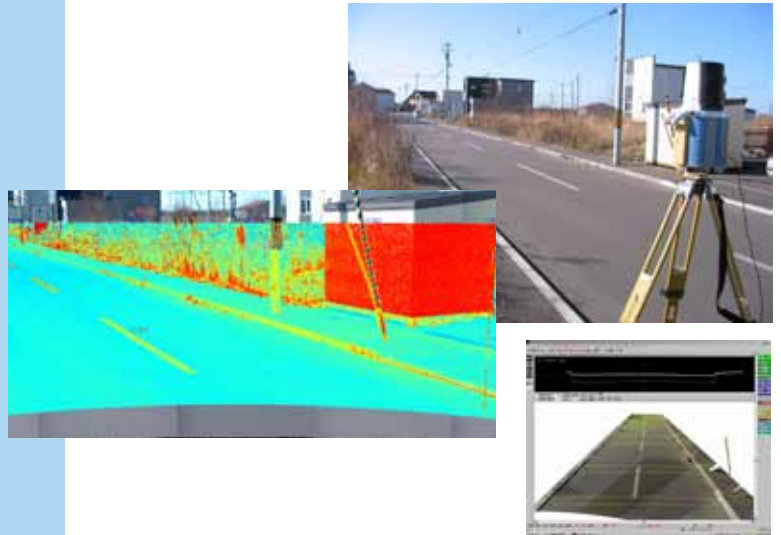
Geo-referenced 3D point clouds and mesh objects created by Topcon ScanMaster software can be exported to users' software, allowing for 3D measurement, 3D modeling, displacement observation, as-built survey, and other applications.

Aligning Point Clouds

Targets for tie-points



GLS-1500 Stretches the



Road Surface Profile

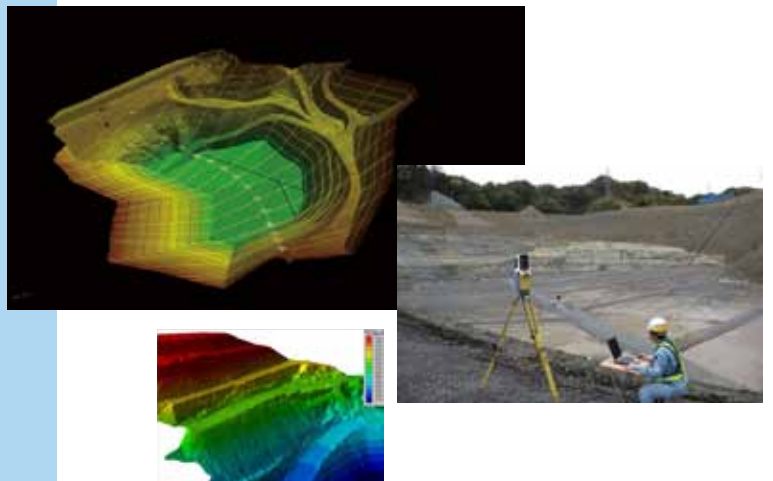
Measures Ruts and Bumps for Maintenance Purposes

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

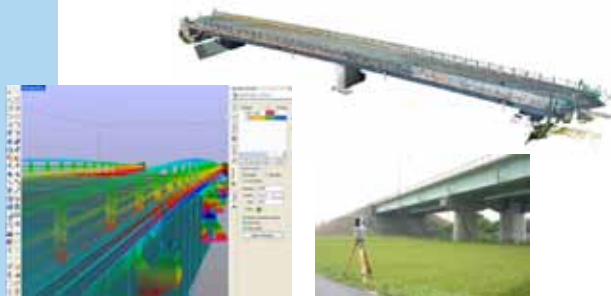
Increases Safety, Efficiency and Accuracy

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.

Boundaries of Your Survey Technology

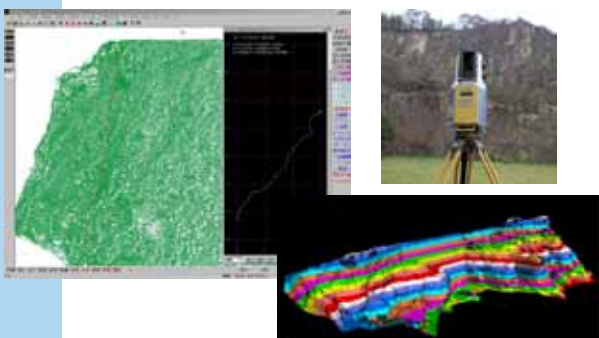


Large Structure

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.

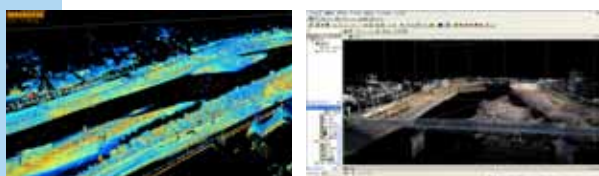


Disaster and Accident

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.

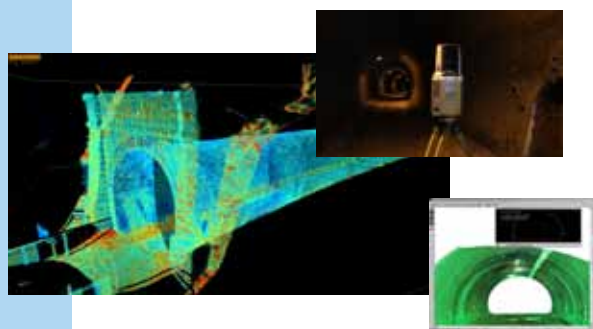
GLS-1500 quickly scans disaster areas or accident scenes. 3D models allow for computer simulations of disasters and accidents.



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

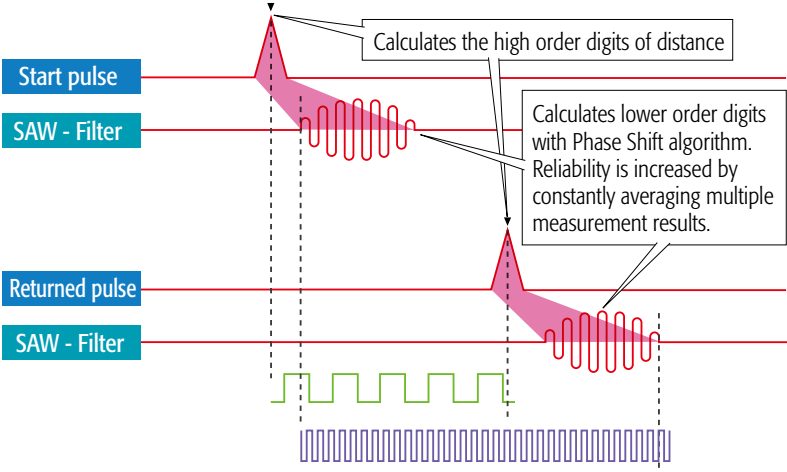
Cutting-edge laser scanning technology realizes preservation of valuable ruins in detailed 3D models.

GLS-1500 provides archaeologists with full color, high resolution pictures that have precise 3D coordinate values.

Topcon Precise Scan Technology Q High-Precision 3D Data and

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!

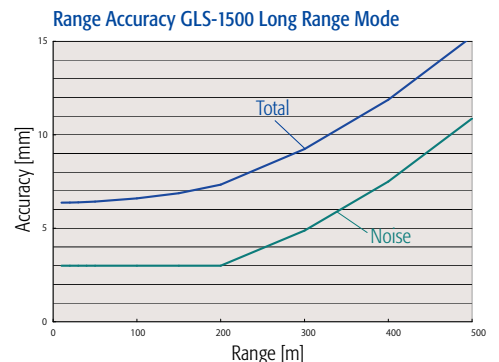
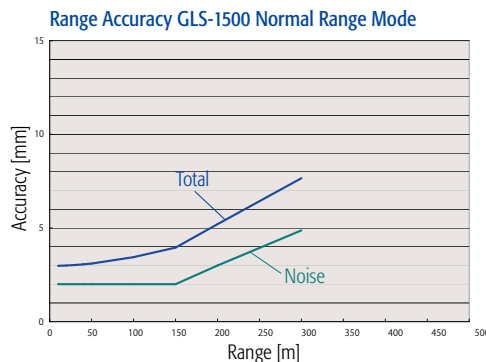
The most crucial technological challenge in scanning technology is how to minimize the noise included in the captured data. Topcon Precise Scan Technology achieves dramatic noise reduction that makes it possible to present the finest texture of scanned objects.



Quickly Acquires Ultra-Low-Noise, 500m Long-Range scanning!

Selectable two-range mode

Enable to select from 2 range mode, maximum 500m range mode is prepared in addition to existing 330m high-accuracy scanning.



Various scanning mode

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. All-in-One, stand-alone scanner unit provides easy operation and superior portability, similar to the total stations. GLS-1500L has palm-of-your-hand operations via compact tablet PC.



Remote Control Using Video Images



Stand-alone



Tablet PC



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

Distance accuracy: 4mm@150m

Angle accuracy (H&V): 6 arc-seconds

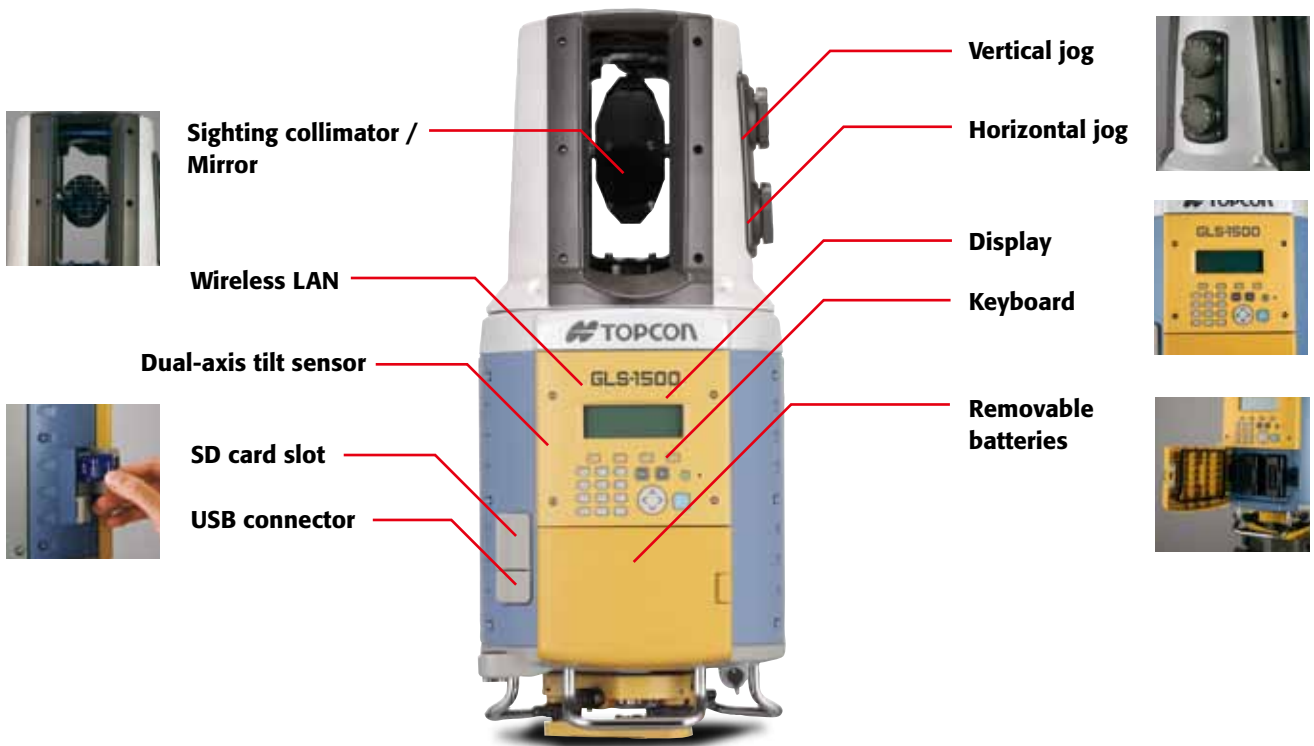
Topcon Precise Scan Technology maximizes the accuracy and the data quality by minimizing noise and measurement deviation.

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.

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.



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.



ScanMaster Field Free Controller Software

"ScanMaster Field", a free tablet PC software, controls Topcon GLS series laser scanners. Operations are made simple with a compact tablet PC in the palm of your hand.

Rich Functions, Easy Operation

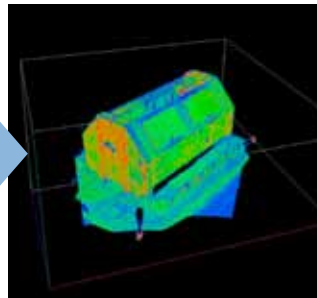
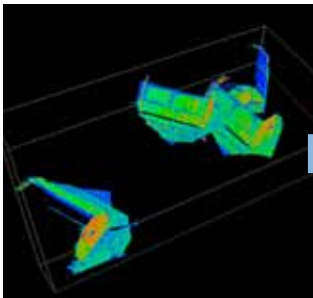
ScanMaster Field allows you to use live video images when you specify scan area, check scanning progress, and perform target scan. Tablet PC can be connected with the GLS scanner using a USB cable or Wireless LAN.



* Tablet PC needs to be prepared separately.
* For the details, please contact nearest dealers.

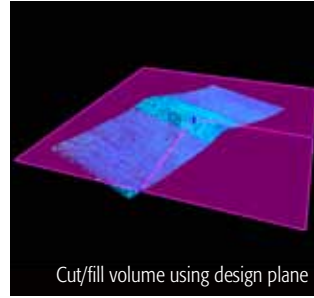
ScanMaster Office Software Bridging Scan Data and CAD

ScanMaster software provides exceptional processing power to prepare 3D data for CAD applications. Featuring an array of automated functions and instrument control capability, ScanMaster dramatically increases both office and field work efficiency.

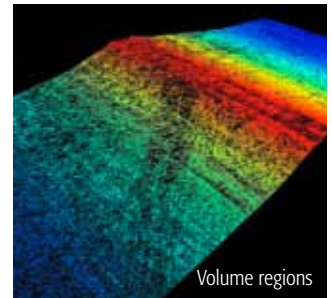


Automated Tie-Point Registration

Multiple scan data taken from different instrument positions can be merged with unmatched speed and ease by automatic tie-point recognition. Geo-referencing can also be automated when the project includes control points.



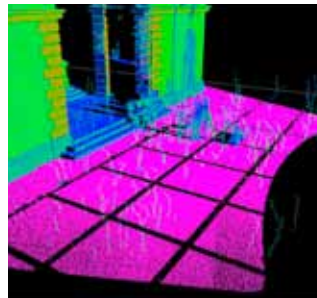
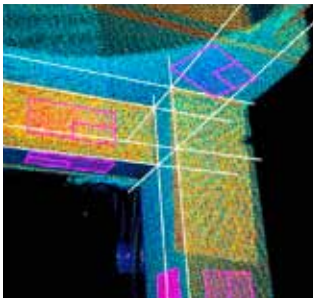
Cut/fill volume using design plane



Volume regions

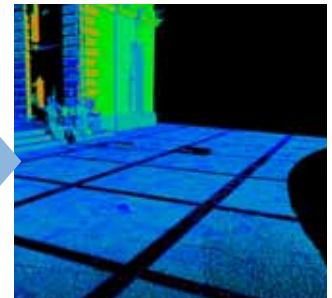
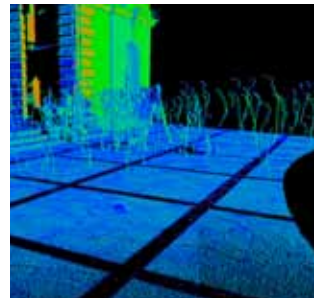
Volume Computation

Creating volume meshes allows for cut/fill and total volume calculations. Cut and fill regions can be visually checked with different colors, and the boundaries of each region can be automatically extracted.



Variable post-processing functions

Specialized post-processing software enables adjustments to be made quickly and accurately ex) Volume Calculation, Region Extraction and Edge Extraction. These functions are designed to reduce your office work. In particular, Edge Extraction function has been significantly enhanced from previous version.



Quick and Easy Noise Cleaning

Automated region extraction quickly separates the region and noise, dramatically increasing noise cleaning efficiency.

ScanMaster Viewer

This free PC software enables not only data viewing, but also data capturing with the GLS series scanners. It allows you to efficiently present scan data to your clients. You can also take it to the field with the GLS scanner while keeping the complete software in the office.

Software Solutions from Topcon Partners



GEOKOSMOS

Geokosmos offers highly reputed expertise in laser-scanning and 3D modeling services.



kubit

kubit software enables the laser scan data to be directly used within AutoCAD software.



Rapidform

Rapidform® software allows for creating 3D models from scan data for redesign, reverse engineering and inspection purposes.



POINTTOOLS

Pointools provides complete point cloud processing and data management solutions as well as various plug-in for popular application software.

*Availability of products and services vary depending on country. For more details, please consult Topcon dealer or representative in your region.

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
- 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.

GLS-1500 SPECIFICATIONS

SCANNING UNIT

Maximum range	
90% reflectivity	Normal mode: 330m Long mode: 500m
18% reflectivity	Normal mode: 150m Long mode: 230m
Minimum range	
1m	
Single point accuracy	
Distance (at 1 to 150m)	Normal mode: 4mm Long mode: 7mm
Angle (H&V)	6"
Surface accuracy (at 1 to 150m)	Normal mode: 2mm Long mode: 3mm
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
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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	240 (D) x 240 (W) x 566 (H) mm
Instrument height	410mm
Weight	16kg (excluding battery and tribrach)



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Class 1

Your local Authorized Topcon Dealer is:

Specifications subject to change without notice

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