TOPCON

3D Laser Scanner GLS-1500

GLS-1500
3D Laser Scanner

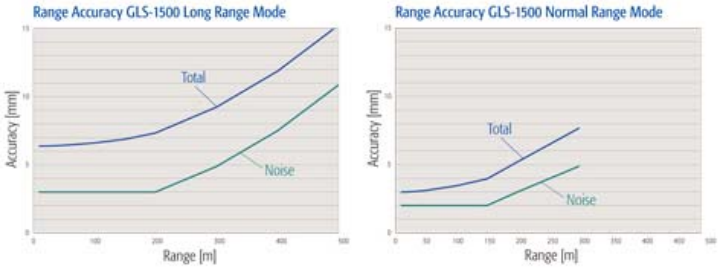
- Long-Range 500m
- High-speed Scan with 30,000 points/second
- Topcon Precise Scan Technology provides Clean, Ultra-Low-Noise Scan Data
- 4mm Distance Accuracy at 150m
- All-in-one Solution for Superior Mobility
- Quick Sighting with Jog Dial Controls
- Built-in Digital Camera
- ScanMaster Software for Powerful Data Processing
- Presents Photo-realistic Point Clouds
- Remote Control via Wireless LAN

ScanMaster CAD Link

A new feature of ScanMaster - “ScanMaster CAD Link”

500m Long-Range scanning and High-Precision 3D data!

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



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.

Topcon Precise Scan Technology

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.

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

Easy Operation and Superior Portability

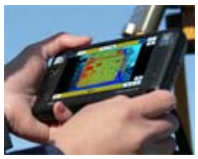
GLS-1500 can be operated in a similar manner to total stations. A tripod is the only external device needed.

Dual-axis Tilt Sensor
GLS-1500 automatically compensates the instrument tilt within ±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.

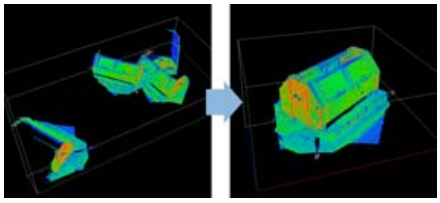
* Tablet PC needs to be prepared separately.
* For the details, please contact nearest dealers.

Tilting Base (optional)

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

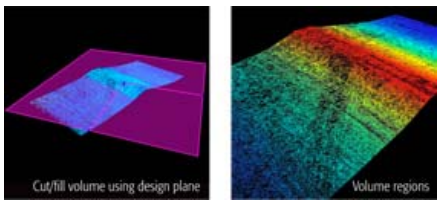
ScanMaster Office Software Bridging Scan Data and CAD

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.



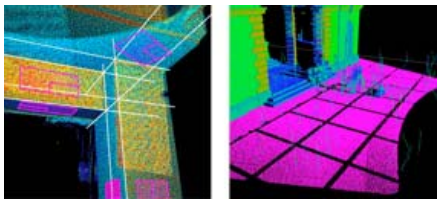
Automated Tie-Point Registration

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.



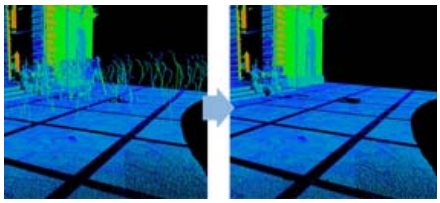
Volume Computation

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.

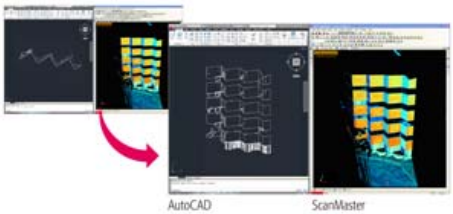
ScanMaster Viewer

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.

A new feature of ScanMaster - “ScanMaster CAD Link”

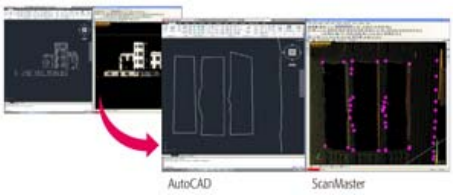
Perfect combination:AutoCAD® and ScanMaster provides tool for efficient, dynamic drawing

A new optional feature on ScanMaster - “ScanMaster CAD Link” - that facilitate the ability to “draw” objects from scan data is now available. With the ScanMaster CAD Link, ScanMaster and AutoCAD screens are displayed side-by-side for seamless operation, allowing an operator to easily draw objects efficiently from data collected by Topcon’s GLS-1500.



Viewing angle of ScanMaster and AutoCAD can be aligned

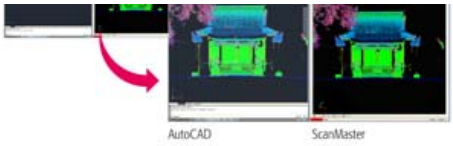
The viewing angle of ScanMaster and AutoCAD can be aligned in the same directions.
Comparison between drawing and the original point-cloud data is instant and effortless.



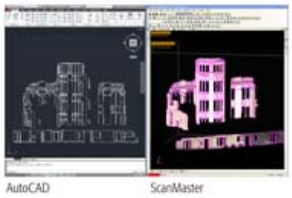
Synchronizing Views of ScanMaster and AutoCAD

Enlargement, reduction or and moving of the created objects on the ScanMaster screen are synchronized with once drawn on AutoCAD screen, allowing for real-time checking.

Sending Ortho-images as a background
UCS(User Coordinate System) will be set automatically



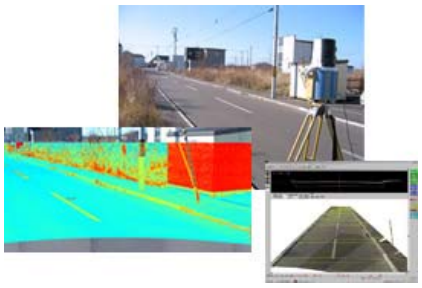
Ortho-image of scan data in current view can be sent to AutoCAD to use as a background image.
The "Send Ortho-image" function sets UCS (User Coordinate System) so that new X-Y plane for drawing is parallel to the ortho-image plane.



Sending Existing Objects

Drawing data of object created by the rich function of ScanMaster can be sent to AutoCAD.
Drawing / Editing function of ScanMaster
• Points • Sections • Contours • Meshes • Scans
• Polylines • Edge sets • Tie points (as points)
• Planes • Scan positions (as points) • Clouds

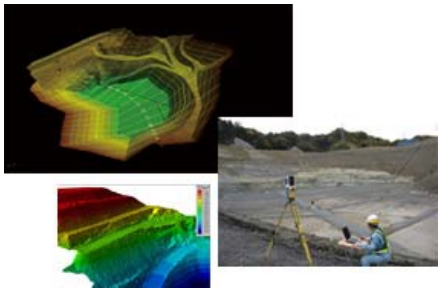
Stretching the Boundary of Your Survey Technology



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.

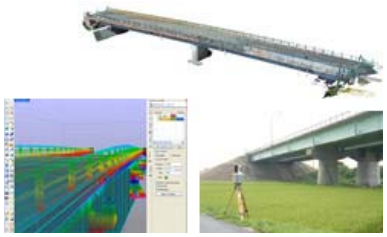


Volume Measurement

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.

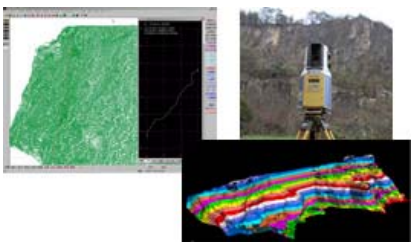
Example in detail (Topcon At Work)



Large Structure

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

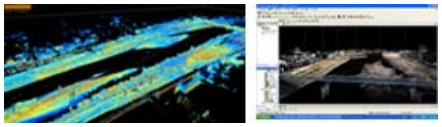
Scan data of large structures allow for early detection of deteriorated areas to be maintained or reinforced. 3D data can be utilized for measurements of size and geometry, as well as volume calculations of necessary materials.
Periodic monitoring is one of the most effective methods to prevent collapse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



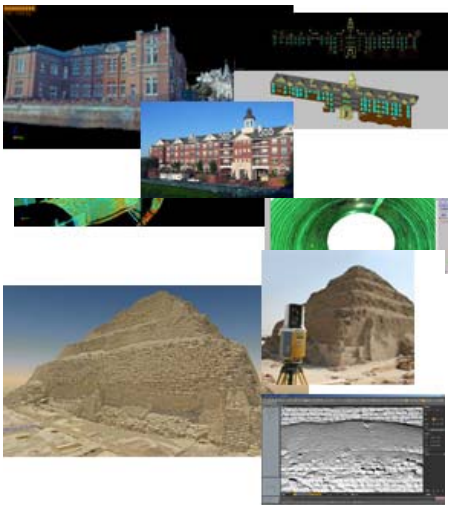
Flood Control

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



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.

Example in detail (Topcon At Work)

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	±35° (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	±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℃ to +40℃
Storage temperature	-10℃ to +60℃
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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