

Leica ScanStation 3D laser scanner with total station features

See also
ScanStation
brochure!



Leica Geosystems HDS versatile, user-friendly laser scanner

ScanStation is a new class of scanner

Leica ScanStation is the first instrument to combine four critical total station features into one scanner for as-built and topographic surveys: (1) full field-of-view, (2) survey-grade dual-axis (tilt) compensation, (3) survey-grade accuracy for each measurement, and (4) excellent, useful range. These features, along with a host of others, make Leica ScanStation the industry's most versatile, productive, and user-friendly scanner.

Full field-of-view

ScanStation features a full horizontal and vertical field-of-view, just like that of a total station.

Survey-grade dual-axis compensation

ScanStation employs the same 1" resolution, dual-axis (tilt) compensator as in a Leica total station. Users can set ScanStation up over known points and take advantage of familiar traversing & resectioning workflows. Benefits include lower field & office costs and greater field flexibility.

Survey-grade accuracy for each measurement

Leica ScanStation delivers survey-grade accuracy for each measurement, just like a total station. ScanStation's ultra-fine scanning and small laser spot –even at longer ranges– also let users achieve optimal project control and registration.

Excellent practical, useful range

ScanStation's capture range (up to 300 m for 90% surface reflectivity) combines with its narrow beam and ultra-fine scanning capabilities to handle the vast majority of typical sites for reflectorless instruments.

Get more information or contact Leica Geosystems for a demonstration at: www.leica-geosystems.com/hds

- when it has to be **right**

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Leica ScanStation Product Specifications

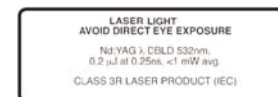
General	
Instrument type	Pulsed, dual-axis compensated, high-speed laser scanner, with survey-grade accuracy, range, and field-of-view
User interface	Notebook or Tablet PC
Scanner drive	Servo motor
Camera	Integrated high-resolution digital camera
System Performance	
Accuracy of single measurement	
Position*	6 mm
Distance*	4 mm
Angle (horizontal/vertical)	60 μ rad/60 μ rad, one sigma
Modeled surface precision**/noise	
Target acquisition***	2 mm std. deviation
Dual-axis compensator	
	Selectable on/off Resolution 1", dynamic range +/- 5'
Data integrity monitoring	
	Periodic self-check during operation and startup
Laser Scanning System	
Type	Pulsed; proprietary microchip
Color	Green
Laser Class	3R (IEC 60825-1)
Range	300 m @ 90%; 134 m @ 18% albedo
Scan rate	Up to 4,000 points/sec, maximum instantaneous rate Average: dependent on specific scan density and field-of-view
Scan resolution	
Spot size	From 0 - 50 m : 4 mm (FWHH - based); 6mm (Gaussian - based)
Selectability	Independently, fully selectable vertical and horizontal point-to-point measurement spacing†
Point spacing	Fully selectable horizontal and vertical; 1.2 mm minimum spacing, through full range†
Maximum sample density	1.2 mm†
Scan row (horizontal)	20,000 points/row, maximum†
Scan column (vertical)	5,000 points/column, maximum†
Field-of-view (per scan)	
Horizontal	360° (maximum)†
Vertical	270° (maximum)†
Aiming/Sighting	Optical sighting using QuickScan™ button
Scanning Optics	
	Single mirror, panoramic, front and upper window design Environmentally protected by housing and two glass shields
Scan motors	
	Direct drive, brushless
Data & power transfer to/from rotating turret	
	Contact-free: optical data link and inductive power transfer
Communications	
	Static Internet Protocol (IP) Address
Integrated color digital imaging	
	User-defined pixel resolution: Low, Medium, High† Single 24° x 24° image: 1024 x 1024 pixels (1 megapixel) @ "High" setting Full 360° x 270° dome: 111 images, approx. 64 megapixels, automatically spatially rectified
Status Indicators	
	3 LEDs (on stationary base) indicate system ready, laser "on", and communications status

Bubble level	External
Electrical	
Power supply	36 V; AC or DC; hot swappable; two (2) Power Supply units provided with system
Power consumption	
	<80W avg.
Battery type	Sealed lead acid
Power ports	Two (2) simultaneous use, hot swappable
Typical duration	>6 hours, typical continuous use (room temp.)
Power status indicators	Five (5) LEDs indicate charging status and power levels
Environmental	
Operating temp.	0° C to +40° C
Storage temp.	-25° C to +65° C
Lighting	Fully operational between bright sunlight and complete darkness
Humidity	Non-condensing
Shock	40 G's (max. to scanner transport case)
Dust/humidity	IEC Specification IP52
Physical	
Scanner	
Dimensions	10.5" D x 14.5" W x 20" H 265 mm x 370 mm x 510 mm w/o handle and table stand
Weight	19.5 kg, nominal
Power Supply Unit	
Dimensions	6.5" D x 9.25" W x 8.5" H 165 mm x 236 mm x 215 mm w/o handles
Weight	12 kg, nominal
Standard Accessories Included	
	Scanner transport case Tribrach (Leica Professional Series) Survey tripod Ethernet cable for connection of scanner to notebook PC Two Power Supply cases. Each includes: Power Supply Cable for battery connection to scanner Power Supply charger User manual Cleaning kit Cyclone™-SCAN software
Hardware Options	
	Notebook PC Tablet PC HDS scan targets and target accessories Service agreement for Leica ScanStation Extended warranty for Leica ScanStation
Notebook PC for Scanning^Δ	
Component	required (minimum)
Processor	1.4 GHz Pentium M or similar
RAM	512 MB SDRAM
Network card	Ethernet
Display	SXGA+
Operating system	Windows XP (SP1 or higher) Windows 2000 (SP2 or higher)
Cyclone-SCAN	
	Independent vertical and horizontal scan density † Scan filters: range, intensity † Selection of scan area via scribed rectangle or pre-sets† Atmospheric correction Customizable longitude/latitude grid lines Targeted, single-shot pre-scan ranging † Script management for auto scan sequencing † View scanner locations and field-of-view

Level of detail (LOD) for fast visualization	
Auto rechecking (re-acquisition) of targets †	
Auto acquisition of HDS targets †	
Target identification	
Traverse †	
Field Setup - Resection †	
Field Setup - Known Backsight †	
Field Setup - Known Azimuth †	
Traverse and resection reports	
Direct coordinate/station entry †	
Dual-axis compensation on/off	
Engage/disengage turret	
Target and instrument height input	
Lighting control for digital images	
Acquire and display digital image	
Set image resolution (high, medium, low)	
Support of external digital images	
Real-time 3D visualization while scanning †	
Fly-around, pan & zoom, rotate clouds, meshes, models in 3D	
View point clouds with intensity or true-color mapping	
Auto creation of panoramic digital image mosaic †	
Global digital image viewer †	
Point-and-scan QuickScan to set horizontal FoV †	
User-defined quality-of-fit checks	
Measure & dimension: slope dist., Δx , Δy , Δz	
Create, manage annotations and layers	
Save/restore views	
Save screen images	
Undo/redo support	
Direct Import Formats	
	Cyclone native IMP object database format, Cyclone Object Exchange (COE) format ASCII point data (XYZ, SVY, PTS, PTX, TXT) Leica's X-Function DBX format, Land XML, ZFS, ZFC, 3DD
Direct Export Formats	
	ASCII point data (XYZ, SVY, PTS, PTX, TXT), DXF Leica's X-Function DBX format, Land XML
Indirect Export Formats	
	AutoCAD (via AutoCAD, COE for MicroStation plug-in) MicroStation (via COE for MicroStation plug-in) PDS (via MicroStation, COE for MicroStation plug-in) AutoPLANT (via AutoCAD, COE for AutoCAD plug-in)
Ordering Information	
	Contact Leica Geosystems or authorized manufacturer's representatives

All specifications are subject to change without notice.
All \pm accuracy specifications are one sigma unless otherwise noted
† SmartScan Technology™ feature

* At 1 m - 50 m range, one sigma
** Subject to modeling methodology for modeled surface
*** Algorithmic fit to planar HDS targets
^Δ Minimum requirements for modeling operations are different. Refer to Cyclone data sheet specifications



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