

Leica ScanStation

A new level of versatility in laser scanners

now up to
80% faster



Advanced features include dual-axis compensation and faster scanning for highest versatility, plus excellent productivity and ease-of-use

ScanStation: new class of scanner sets a new standard

The integration of survey-grade, dual-axis (tilt) compensation into the industry's most popular laser scanner platform has created Leica ScanStation – a new class of laser scanner and a new level of scanner versatility for as-built and topographic surveys. It's the first instrument to combine four fundamental total station features into one scanner: (1) full field-of-view, (2) survey-grade, dual-axis (tilt) compensation, (3) survey-grade accuracy for each measurement, and (4) excellent, useful range.

Full field-of-view

ScanStation features a full field-of-view, like that of a total station, providing users with optimum versatility and productivity.

Survey-grade dual-axis (tilt) compensation

ScanStation employs the same 1" resolution, dual-axis (tilt) compensator as in a Leica total station. Users can set up over known points, take advantage of familiar traverse and resection workflows, and even stakeout. 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 long range – also let users achieve optimal project control and registration.

Excellent practical, useful range

ScanStation's pulse-based capture range (up to 300m for 90% surface reflectivity) combine 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

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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 μrad/60 μrad, one sigma

Modeled surface

precision**/noise	2 mm, one sigma
Target acquisition***	2 mm std. deviation

Dual-axis

compensator	Selectable on/off Resolution 1", dynamic range +/- 5'
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Data integrity monitoring	Periodic self-check during operation and startup
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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†
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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
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Scan motors

	Direct drive, brushless
Data & power transfer to/from rotating turret	Contact-free: optical data link and inductive power transfer

Communications

Integrated color digital imaging	Static Internet Protocol (IP) Address 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
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Status Indicators

	3 LEDs (on stationary base) indicate system ready, laser "on", and communications status
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Leica Geosystems AG

Heerbrugg, Switzerland

www.leica-geosystems.com/hds

Level indicator	External bubble and via laptop
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Electrical

Power supply	36 V; AC or DC; hot swappable; two (2) Power Supply units provided with system
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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
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Environmental

Operating temp.	0° C to +40° C
Storage temp.	-25° C to +65° C

Lighting	Fully operational between bright sunlight and complete darkness
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Humidity	Non-condensing
Shock	40 G's (max. to scanner transport case)

Dust/humidity	IP52 (IEC 60529)
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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
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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
	Stakeout and id-point
	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, PTZ

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
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All specifications are subject to change without notice.
All ± 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

Laser class 3R in accordance with IEC 60825-1 resp. EN 60825-1

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