



HDSS Scanstation laser scanner specification

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	2 mm, one sigma
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); 6 mm (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
Level indicator	External bubble and via laptop
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	IP52 (IEC 60529)
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	
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	
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	
Laser class 3R in accordance with IEC 60825-1 resp. EN 60825-1	
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