

# Leica HDS3000

## Versatile, high-accuracy 3D laser scanner



### Leica Geosystems HDS versatile, high-accuracy, long-range 3D laser scanner

#### Leica HDS3000 sets the standard

With a familiar survey instrument feel, including a 360° x 270° field-of-view, the Leica HDS3000 sets the standard for versatile, high-accuracy laser scanners. Since it was introduced, the Leica HDS3000 has become the industry's most popular laser scanner for both demanding and "everyday" as-built and topographic surveys.

#### Mission-critical data

Leica HDS300's high-accuracy, low-noise scan data combined with its narrow beam and ultra-fine scanning have made it the preferred choice for mission-critical projects ... when it has to be right.

#### Versatility and productivity

Leica HDS3000's integration of high accuracy, excellent useful range, full field-of-view, and robotic operation into a single scanner results in significantly reduced as-built survey costs for a wide range of everyday projects.

#### Powerful visualization

With an integrated high-resolution camera and the option to use external digital cameras, the Leica HDS3000's 3D laser scans provide users with powerful site visualization capabilities.

#### The right tool for the job

Fully complementary with traditional surveying methods, the Leica HDS3000 delivers significant benefits for civil, plant, architectural and related projects.

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

- when it has to be **right**

**Leica**  
Geosystems

# Leica HDS3000

## Product Specifications

### General

<b>Instrument type</b>	Pulsed, high-speed laser scanner, with survey-grade accuracy, range, and field-of-view
<b>User interface</b>	Notebook or Tablet PC
<b>Scanner drive</b>	Servo motor
<b>Camera</b>	Integrated high-resolution digital camera

### System Performance

<b>Accuracy of single measurement</b>	
Position*	6 mm
Distance*	4 mm
Angle (horizontal/vertical)	60 microradians/60 microradians, one sigma

### Modeled surface

<b>precision**/noise</b>	2 mm, one sigma
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### Target

<b>acquisition***</b>	2 mm std. deviation
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<b>Data integrity monitoring</b>	Periodic self-check during operation and start-up
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### Laser Scanning System

<b>Type</b>	Pulsed; proprietary microchip
<b>Color</b>	Green
<b>Laser Class</b>	3R (IEC 60825-1)
<b>Range</b>	300 m @ 90%; 134 m @ 18% albedo
<b>Scan rate</b>	Up to 4,000 points/sec, maximum instantaneous rate Average: dependent on specific scan density and field-of-view

### Scan resolution

<b>Spot size</b>	From 0 - 50 m: 4 mm (FWHH - based); 6 mm (Gaussian - based)
<b>Selectability</b>	Independently, fully selectable vertical and horizontal point-to-point measurement spacing†
<b>Point spacing</b>	Fully selectable horizontal and vertical; 1.2 mm minimum spacing, through full range†

<b>Maximum sample density</b>	1.2 mm†
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<b>Scan row (horizontal)</b>	20,000 points/row, maximum†
<b>Scan column (vertical)</b>	5,000 points/column, maximum†

### Field-of-view (per scan)

<b>Horizontal</b>	360° (maximum)†
<b>Vertical</b>	270° (maximum)†

<b>Aiming/Sighting</b>	Optical sighting using QuickScan™ button
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<b>Scanning Optics</b>	Single mirror, panoramic, front and upper window design Environmentally protected by housing and two glass shields
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<b>Scan motors</b>	Direct drive, brushless
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### Data & power transfer to/from rotating turret

	Contact-free: optical data link and inductive power transfer
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<b>Communications</b>	Static Internet Protocol (IP) Address
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<b>Integrated color digital imaging</b>	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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<b>Status Indicators</b>	3 LEDs (on stationary base) indicate system ready, laser "on", and communications status
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<b>Bubble level</b>	External
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### Electrical

<b>Power supply</b>	36 V; AC or DC; hot swappable; two (2) Power Supply units provided with system
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### Power

<b>consumption</b>	<80W avg.
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<b>Battery type</b>	Sealed lead acid
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<b>Power ports</b>	Two (2) simultaneous use, hot swappable
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<b>Typical duration</b>	>6 hours, typical continuous use (room temp.)
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<b>Power status indicators</b>	Five (5) LEDs indicate charging status and power levels
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### Environmental

<b>Operating temp.</b>	0° C to +40° C
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<b>Storage temp.</b>	-25° C to +65° C
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<b>Lighting</b>	Fully operational between bright sunlight and complete darkness
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<b>Humidity</b>	Non-condensing
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<b>Shock</b>	40 G's (max. to scanner transport case)
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<b>Dust/humidity</b>	IEC Specification IP52
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### Physical

#### Scanner

<b>Dimensions</b>	10.5" D x 14.5" W x 20" H 265mm x 370mm x 510mm, w/o handle and table stand
<b>Weight</b>	17 kg, nominal

#### Power Supply Unit

<b>Dimensions</b>	6.5" D x 9.25" W x 8.5" H 165 mm x 236 mm x 215 mm w/o handles
<b>Weight</b>	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 HDS3000
Extended warranty for Leica HDS3000

### Notebook PC for Scanning<sup>Δ</sup>

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

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 COE for AutoCAD 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

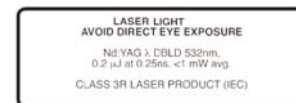
\* At 1 m - 50 m range, one sigma

\*\* 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



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