

Leica HDS3000

Product Specifications

GENERAL

INSTRUMENT TYPE	High-speed, high-accuracy laser radar scanner with 360° x 270° field-of-view
USER INTERFACE	Notebook PC
SCANNER DRIVE	Servo motor
OPTICAL VIEWER	Integrated video camera

SYSTEM PERFORMANCE

SINGLE POINT ACCURACY*

Position	6mm
Distance	4mm
Angle (horizontal)	60 micro-radians
Angle (vertical)	60 micro-radians

MODELED SURFACE PRECISION**

2mm

TARGET ACQUISITION ACCURACY†

1.5mm

DATA INTEGRITY MONITORING Periodic accuracy self-checking during operation and at startup

* All specifications shown @ 1m - 50m range

** Subject to modeling methodology

† Algorithmic fit to planar HDS targets

LASER SCANNING SYSTEM

TYPE Pulsed; proprietary microchip

COLOR Green

LASER CLASS Class 3R (IEC 60825-1)

RANGE

Optimal effective range 1m-100m

To 10% reflectivity targets Up to 100m (typical)

SCAN RATE Up to 1800 points/second*

* Maximum scan rate dependent on scan resolution and selected field-of-view

SCAN DENSITY (RESOLUTION)

Spot size ≤ 6mm from 0-50 meters

Selectability Independently selectable vertical and horizontal point-to-point measurement spacing †

Point Spacing Select by total number of points per unit area or minimum distance between points (at specified range) †

Maximum Sample Density

1.2mm †

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, dual-window design † Environmentally protected by housing and two glass shields

SCAN MOTORS Direct drive, brushless

DATA & POWER TRANSFER TO/FROM TURRET Contact-free: optical data link and inductive power transfer

COMMUNICATIONS Static Internet Protocol (IP) Address

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, spatially rectified

STATUS INDICATORS 3 LED's (on base) indicate system ready, laser on, and comm. status

ELECTRICAL

POWER SUPPLY 12V input, QTY (2) Power Supply units provided with system

POWER CONSUMPTION < 80W average

BATTERY TYPE Sealed lead acid

POWER PORTS 2, simultaneous use, "hot swap" capable

TYPICAL DURATION Up to 6 hours continuous use (nominal temp.)

POWER STATUS INDICATORS 5 LEDs indicate charging status and power levels (low/medium/high)

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 atmosphere

SHOCK 40G's (max. to scanner transport case)

DUST/HUMIDITY IEC Specification IP52

PHYSICAL

	DIMENSIONS	WEIGHT
SCANNER	10.5 D" x 14.5" W x 20" H 285mm D x 370mm W x 510mm H w/o handles, w/o table stand	16 kg (35lbs), nominal
POWER SUPPLY UNIT	6.5" D x 9.25" W x 8.5" H 165mm D x 236mm W x 215mm H w/o handles	12 kg (26lbs), nominal

STANDARD ACCESSORIES

Scanner transport case

Tribrach (Leica Professional Series)

Surveying 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

Cyclone™-SCAN software

HARDWARE OPTIONS

Notebook PC (Standard or Enhanced)

HDS scan targets and target accessories

Service agreement for HDS3000

NOTEBOOK PC FOR SCANNING ^Δ

COMPONENT REQUIRED (minimum)

Processor	1.4 GHz Pentium M or similar
RAM	512MB SDRAM
Network card	Ethernet
Display	SXGA+
Operating system	Windows XP (Professional or Home Edition, SP1 or higher) Windows 2000 (SP2 or higher)

^Δ Minimum requirements for modeling operations are different. Please refer to Cyclone datasheet for specifications.

CYCLONE – SCAN

"Fly-around," pan & zoom, and freely rotate point clouds, true-color intensity mapped clouds, wire meshes, "shrinkwrap" surfaces, and models in 3D

Real-time 3D visualization while scanning †

Point cloud and 3D model Level of Detail (LOD) for fast visualization

Fast "shrinkwrap" rendering of point clouds to meshes

Decimation of point clouds (nth point)

View point clouds with intensity or true-color mapping

Limit box for efficient viewing and interaction of selected regions

Targeted, single-shot pre-scan ranging †

CYCLONE – SCAN (CONT.)

Automatic creation of panoramic digital image mosaic †

Panoramic digital image viewer †

Georeferencing over known or assumed survey point †

Instrument height (H.I.) input during data capture †

Target height input during data capture †

Point-and-scan QuickScan™ feature to interactively set horizontal field-of-view †

Scan filtering to optionally exclude data based on:

Area of interest via rectangular or free form polygonal areas †

Range †

Return intensity †

Pre-set drop-down list or custom settings †

User-defined quality-of-fit checks

Atmospheric correction

Measure & dimension point clouds and models

Slope distances

ΔX, ΔY, ΔZ distances

Create and manage annotations

Create and manage layers

Assign colors & materials to objects

View scanner locations and field-of-view

Environmental lighting

Save/restore views

Save screen image as image file

Undo/redo support

Automated acquisition of HDS targets †

Scanner command scripting †

DIRECT IMPORT FORMATS

ASCII point data (XYZ, SVY, PTS, PTX, TXT)

RIEGL 3DD

Cyclone Object Exchange (COE) format (COE Data Transfer Products)

CGP

BMP, JPEG, TIFF

DIRECT EXPORT FORMATS

ASCII point data (XYZ, SVY, PTS, PTX, TXT)

BMP, JPEG, TIFF

Cyclone Object Exchange (COE) format (COE Data Transfer Products)

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 HDS Division (Cyra Technologies, Inc.) or authorized manufacturer's representatives

All specifications are subject to change without notice.

All ± accuracy specifications at 1 sigma unless indicated otherwise

† SmartScan™ Technology feature



Leica
Geosystems