Unità

3DSURVEY GROUP

Attrezzatura

LEICA HDS7000

Strumento per il rilievo di manufatti in ambiente aperto e/o chiuso che irradia gli oggetti, presenti nel proprio campo visivo, con una luce laser descrivendone la forma e dimensioni mediante la creazione di milioni di punti aventi proprie coordinate x,y,z (nuvola di punti di oggetti alla scala architettonica)

Localizzazione

Edificio 15. Piano seminterrato - vano 031f
Campus Bonardi. via Ponzio 31

Contatti

Cristaina Achille - Francesco Fassi
tel. +39 022399 6520 - 6516 - 6532
cristiana.achille@polimi.it - francesco.fassi@polimi.it

HDS7000 Laser Scanner
Ultra-High Speed
with Extended Range

> 1 million points/sec

> 180 m range

Ultra-high speed laser scanner for demanding professionals

Highest overall performance for phase-based scanners
Phase-based scanning is known for ultra-high scan speeds that can fit detailed scene capture into short time windows and increase overall field productivity. The HDS7000 scanner adds key "next level" performance features – important for demanding professionals – to its > 1 million points/second ultra-high speed scanning.

Better quality data over longer ranges
Regardless of scan speed, demanding professionals don't compromise on accuracy. Advances in the HDS7000 laser technology now enable users to achieve high quality data at longer range. The HDS7000's maximum range of 187 m is best-in-class for phase-based scanners.

Ultra-high speed scanning in more environments
Demanding professionals need their tools to work in demanding environments. The HDS7000 delivers an unmatched 55 °C operating temperature range (-10 °C to +45 °C). Same for operating in dusty or wet locations: HDS7000's IP53 rating and a "encapsulated mirror" design provides further reassurance. HDS7000 even lets you scan on sites where only instruments with a Class 1 laser safety rating are allowed – better than any other phase-based scanner.

All-in-one design includes more control & registration options
Users have three scanner control options. A side panel allows touch control and optional wireless control allows "touch-free" operation. For full 3D viewing, scan measurement, and rigorous quality assurance (QA), demanding users can opt for powerful laptop control with Leica Cyclone SCAN, the industry's most popular control software.

- when it has to be **right**

Leica
Geosystems

HDS7000
Product Specifications

General

Instrument type	Compact, phase-based, dual-axis compensated, ultra-high speed laser scanner, with survey-grade accuracy, range, field-of-view and laser plummet
User interface	Onboard control, notebook or tablet PC, PDA
Scanner drive	Servo motor
Data storage	Integrated flash drive or external USB flash drive
Camera	No integrated camera; supports use of external camera

Laser Scanning System

Type	Phase-shift
Wavelength	1.5 µm (Invisible)
Laser Class	1 (in accordance with IEC 60825-1 resp. EN 60825-1)
Range	187 m ambiguity interval 0.3 m minimum range 0.1 mm resolution
Linearity error[1]	≤ 1 mm
Spot size	~ 3.5 mm @ 0.1 m distance (Gaussian-based)
Beam divergence	< 0.3 mrad
Scan rate	Up to 1,016,727 points/sec, maximum instantaneous rate

Range noise

Range	Black 14%	Gray 37%	White 80%
10 m[12]	0.5 mm rms	0.4 mm rms	0.3 mm rms
25 m[12]	1.0 mm rms	0.6 mm rms	0.5 mm rms
50 m[12]	2.7 mm rms	1.2 mm rms	0.8 mm rms
100 m[123]	10 mm rms	3.8 mm rms	2.0 mm rms

Scan resolution

Selectability: 7 pre-set spacings per table

	Pts/360° (vert./horiz.)	Low quality[6]	Normal quality[6]	High quality[6]	Premium quality[6]
preview[4]	1250	0:13 min	0:26 min	0:52 min	1:44 min
low	2500	0:26 min	0:52 min	1:44 min	3:24 min
middle	5000	0:52 min	1:44 min	3:22 min	6:44 min
high	10000	1:44 min	3:22 min	6:44 min	13:28 min
super high	20000	3:28 min	6:44 min	13:28 min	26:56 min
ultra high[5]	40000	---	13:28 min	26:56 min	53:20 min
extremely high[5]	100000	---	1:21 h	2:42 h	3:24 h

Field-of-View	max. 360° x 320° (horizontal/vertical)
Scanning Optics	Vertically rotating mirror on horizontally rotating base; User selectable vertical rotation speed (6.25 rps, 12.5 rps, 25 rps or 50 rps); Environmentally protected by shield
Scan motors	Direct drive, brushless
Angular accur.	125 µrad / 125 µrad (horizontal/vertical)
Angular resol.	7 µrad / 7 µrad (horizontal/vertical)

Miscellaneous

Onboard display	Touchscreen control with stylus, full color graphic display, VGA (640 x 320 pixels)
Dual-axis compensator	Selectable on/off, resolution 3.6″, measurement range +/- 30′, accuracy < 25″
Level indicator	Electronic bubble in onboard control and software
Laser plummet	Laser class 2 (in accordance with IEC 60825-1 resp. EN 60825-1) Centering accuracy: 0.5 mm / 1 m Laser dot diameter: < 1.5 mm @ 1.5 m Selectable on/off
Data transfer	Ethernet or USB 2.0 device (two ports)
Data storage	64 GB flash drive (integrated), 2 x 32 GB USB flash drive (external)
Communications	Ethernet or integrated Wireless LAN (WLAN)
Data integry monitoring	Self-check at startup

Electrical

Power supply	24 V DC, 100 -240 V AC
Power Cons.	< 65W (on average)
Battery Type	Internal: Li-Ion
Power ports	Internal: 1, External: 1
Duration	Internal: > 2.5 h , AC power supply: unlimited
Power status	LEDs indicate charging status and capacity level

Environmental

Temperature	Operating -10°C to +45°C/Storage -20°C to +50°C
Lighting	Fully operational between bright sunlight and complete darkness
Humidity	Non-condensing
Dust/humidity	IP53 (IEC 60529)

Physical

Scanner Dim. / Weight	286 mm D x 170 mm W x 395 mm H / 9.8 kg, nominal
Battery (internal) Dim. / Weight	88 mm D x 170 mm W x 61 mm H / 1.2 kg
AC Power Supply Dim./Weight	167 mm D x 67 mm W x 35 mm H / 0.54 kg

Standard Accessories Included

Scanner and accessory transport case
2x 32 GB USB memory stick, 1x USB plug
Additional rechargeable intergrated battery
Charging/power cable, Ethernet cable, A/C cable
Battery charger/AC power supply
Battery charging cradle for internal battery
Cleaning kit
Cyclone™ SCAN software
1 year CCP Basic support agreement

Hardware Options

Notebook PC, Tablet PC, or PDA
HDS scan targets and target accessories
Service agreement for HDS7000
Extended warranty for HDS7000
External camera kit (third party product)
External battery
Tripod, tripod star, rolling base

Notebook PC for scanning with Cyclone software [Δ]

Component	required (minimum)
Processor	1.7 GHz Pentium M or similar
RAM	1 GB or greater (2 GB for Windows Vista)
Network card	Ethernet
Display	SVGA or OpenGL accelerated graphics card (with latest drivers)
Operating system	Windows XP Professional (SP2 or higher) (32 or 64) Windows Vista (32 or 64), Windows 7 (32 or 64)

Control Options

Full colour touch screen for onboard scan control
Leica Cyclone SCAN software (see Cyclone SCAN data sheet for full list of features)
Web browser

Ordering Information

Contact Leica Geosystems or authorized representatives

All specifications are subject to change without notice.
All accuracy specifications are one sigma unless otherwise noted.

[1] Detailed explanation on request
[2] Data rate 127000 pts/sec (equivalent to "high resolution, high quality scan), 1 sigma range noise, unfiltered raw data
[3] All values extrapolated
[4] "Preview" resolution not recommended for exact measurements, only for positioning higher resolution scan selections
[5] Only recommended for scan selections because of enormous amount of data
[6] Doubling ("low quality") and halving ("high quality") the data rate (pixel/sec.) theoretically increases the range noise on each pixel by 40% ("low quality") or decreases it by 40% ("high quality") compared to "normal quality". Depending on the roughness of the surface measured, in reality this difference could be less, especially when scanning objects with a bright surface at short distances, e.g. indoors

[Δ] Minimum requirements for modeling operations are different. Refer to Cyclone data sheet specifications

Windows is a registered trademark of Microsoft Corporation. Other trademarks and trade names are those of their respective owners.

Leica Geosystems AG
Heerbrugg, Switzerland

www.leica-geosystems.com

- when it has to be **right**

Leica Geosystems