



EROKSA

2016-2017 COMPANY PROFILE





EROKSA

Foreword

Eroksa is an Indonesian company that was established at education city of Jogjakarta in mid-2012 with a business focus on geospatial systems and monitoring systems in the field of geotechnic and environment.

Supported by smart expertises & capable technicians, EROKSA provides full systems and separate hardwares for 3D laser scanning, mobile mapping, slope monitoring, railway and tunnel plans & monitoring, airborne informatics, geographic information system, GPS/GNSS CORS positioning, high precision surveying, and environment monitoring which all framed in a "Solution" offered to clients. "Your business is our precision" is a major keyword of EROKSA in providing solutions to each client's needs.

Murabet

Director

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Foreword

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Part 3> 3D Laser Mapping

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Part 5> Minds Indo Survey

Part 6> Frasta Education Training Center

Leica ScanStation - SWISS

3D Laser Scanner

High Definition Surveying



Leica's range of terrestrial 3D scanners are used throughout the world on a wide variety of applications. Together, Leica 3D scanners and Leica's suite of Cyclone software packages are ideal for any as-built projects, including civil, plant, BIM, archaeology, architecture, forensics, forestry, etc.

For any project, it makes sense to deploy the right tools. For as-built, topographic, detail, and engineering surveys, Leica High-Definition Surveying (HDS) systems are the way to go. Leica's HDS hardware and software captures, visualizes and processes 3D spatial data through the employment of advanced laser scanning technologies.



HEXAGON

Leica
SURVEYING

Leica Scanstation C10

Product Specifications



General	
Instrument type	Compact, pulsed, dual-axis compensated, very high speed laser scanner, with survey-grade accuracy, range, and field-of-view; integrated camera and laser plummet
User interface	Onboard control, notebook, tablet PC or remote controller
Data storage	Integrated solid-state drive (SSD), external PC or external USB device
Camera	Auto-adjusting, integrated high-resolution digital camera with zoom video

System Performance	
Accuracy of single measurement	
Position*	6 mm
Distance*	4 mm
Angle (horizontal/vertical)	60 μ rad / 60 μ rad (12" / 12")
Modeled surface precision**/noise	2 mm
Target acquisition***	2 mm std. deviation
Dual-axis compensator	Selectable on/off, resolution 1", dynamic range +/- 5', accuracy 1.5"

Laser Scanning System	
Type	Pulsed; proprietary microchip
Color	Green, wavelength = 532 nm visible
Laser Class	3R (IEC 60825-1)
Range	300 m @ 90%; 134 m @ 18% albedo (minimum range 0.1 m)
Scan rate	Up to 50,000 points/sec, maximum instantaneous rate
Scan resolution	
Spot size	From 0 – 50 m: 4.5 mm (FWHM-based); 7 mm (Gaussian-based)
Point spacing	Fully selectable horizontal and vertical; < 1 mm minimum spacing, through full range; single point dwell capacity
Field-of-View	
Horizontal	360° (maximum)
Vertical	270° (maximum)
Aiming/Sighting	Parallax-free, integrated zoom video
Scanning Optics	Vertically rotating mirror on horizontally rotating base; Smart X-Mirror™ automatically spins or oscillates for minimum scan time
Data storage capacity	80 GB onboard solid-state drive (SSD) or external USB device
Communications	Dynamic Internet Protocol (IP) Address, Ethernet or wireless LAN (WLAN) with external adapter
Integrated color digital camera with zoom video	Single 17° x 17° image: 1920 x 1920 pixels (4 megapixels) Full 360° x 270° dome: 260 images; streaming video with zoom; auto-adjusts to ambient lighting
Onboard display	Touchscreen control with stylus, full color graphic display, QVGA (320 x 240 pixels)
Level indicator	External bubble, electronic bubble in onboard control and Cyclone software
Data transfer	Ethernet, WLAN or USB 2.0 device
Laser plummet	Laser class: 2 (IEC 60825-1) Centering accuracy: 1.5 mm @ 1.5 m Laser dot diameter: 2.5 mm @ 1.5 m Selectable ON/OFF

Electrical	
Power supply	15 V DC, 90 – 260 V AC
Power Consumption	< 50 W avg.
Battery Type	Internal: Li-Ion; External: Li-Ion
Power Ports	Internal: 2, External: 1 (simultaneous use, hot swappable)
Duration	Internal: >3.5 h (2 batteries), External: >6 h (room temp)

Environmental	
Operating temp.	0° C to 40° C / 32° F to 104° F
Storage temp.	-25° C to +65° C / -13° F to 149° F
Lighting	Fully operational between bright sunlight and complete darkness
Humidity	Non-condensing
Dust/humidity	IP54 (IEC 60529)

Physical	
Scanner	
Dimensions (D x W x H)	238 mm x 358 mm x 395 mm / 9.4" x 14.1" x 15.6"
Weight	13 kg / 28.7 lbs, nominal (w/o batteries)
Battery (internal)	
Dimensions (D x W x H)	40 mm x 72 mm x 77 mm / 1.6" x 2.8" x 3.0"
Weight	0.4 kg / 0.9 lbs
Battery (external)	
Dimensions (D x W x H)	95 mm x 248 mm x 60 mm / 3.7" x 9.8" x 2.4"
Weight	1.9 kg / 4.2 lbs
AC Power Supply	
Dimensions (D x W x H)	85 mm x 170 mm x 41 mm / 3.4" x 6.7" x 1.6"
Weight	0.9 kg / 1.9 lbs

Standard Accessories Included	
Scanner transport case	
Tribrach (Leica Professional Series)	
4x Internal batteries	
Battery charger/AC power cable, Car adapter, Daisy chain cable	
Data cable	
Height meter and distance holder for height meter	
Cleaning kit	
Cyclone™ SCAN software	
1year CCP Basic support agreement	

Additional Accessories	
HDS scan targets and target accessories	
Service agreement for Leica ScanStation C10	
Extended warranty for Leica ScanStation C10	
External battery with charging station, AC power supply and power cable	
Professional charger for internal batteries	
AC power supply for scanner	
Tripod, tripod star, rolling base, external wireless LAN adapter (third-party)	

Notebook PC for scanning with Cyclone software Δ	
Component	required (minimum)
Processor	1.7 GHz Pentium M or higher
RAM	1 GB (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 color touch screen for onboard scan control	
Leica Cyclone SCAN software for laptop PC (see Leica Cyclone SCAN data sheet for full list of features)	
Remote controller (Leica CS10/15 or any other remote desktop capable device)	

Ordering Information	
Contact Leica Geosystems or authorized representatives	

All specifications are subject to change without notice.

All \pm accuracy specifications are one sigma unless otherwise noted.

* 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

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

Laser plummet: Laser class 2 in accordance with IEC 60825-1 resp. EN 60825-1

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Leica Scanstation P16

Product Specifications



System Accuracy	
Accuracy of single measurement *	
Range accuracy	1.2 mm + 10ppm over full range
Angular accuracy	8" horizontal; 8" vertical
3D position accuracy	3 mm at 40m
Target acquisition **	Up to 40m in post-processing software
Dual-axis compensator	Liquid sensor with real-time onboard compensation, selectable on/off, resolution 1", dynamic range $\pm 5'$, accuracy 1.5"

Distance Measurement System	
Type	Ultra-high speed time-of-flight enhanced by Waveform Digitizing (WFD) technology
Wavelength	1550nm (invisible) / 658nm (visible)
Laser class	1 (in accordance with IEC 60825:2014)
Beam divergence	< 0.23 mrad (FWHM, full angle)
Beam diameter at front window	≤ 3.5 mm (FWHM)
Range and reflectivity	Up to 40m; 18% reflectivity (minimum range 0.4m)
Scan rate	Up to 1'000'000 points per second
Range noise *	0.4mm rms at 10m 0.5 mm rms at 40m
Field-of-View	
Horizontal	360°
Vertical	270°
Data storage capacity	256GB internal solid-state drive (SSD) or external USB device
Communications/ Data transfer	Gigabit Ethernet, integrated Wireless LAN or USB 2.0 device
Onboard display	Touchscreen control with stylus, full color VGA graphic display (640x480 pixels)
Laser plummet	Laser class 1 (IEC 60825:2014) Centering accuracy: 1.5 mm at 1.5 m Laser dot diameter: 2.5 mm at 1.5 m Selectable ON/OFF

Imaging System	
Internal camera	
Resolution	4 megapixels per each 17° x 17° color image; 700 megapixels for panoramic image
Pixel size	2.2 μ m
Video	Streaming video with zoom; auto-adjusts to ambient lighting
White balancing	Sunny, cloudy, warm light, cold light, custom
HDR	Tonemapped / full range
External camera	Canon EOS 60D and 70D supported

Power	
Power supply	24 V DC, 100 – 240 V AC
Battery type	2x Internal: Li-Ion; External: Li-Ion (connect via external port, simultaneous use, hot swappable)
Duration	Internal > 5.5 h (2 batteries) External > 7.5 h (room temp.)

Environmental	
Operating temperature	-20°C to +50°C / -4°F to 122°F
Storage temperature	-40°C to +70°C / -40°F to 158°F
Humidity	95 %, non-condensing
Dust/Humidity	Solid particle/liquid ingress protection IP54 (IEC 60529)

Physical	
Scanner	
Dimensions (DxWxH)	238 mm x 358 mm x 395 mm / 9.4" x 14.1" x 15.6"
Weight	12.25 kg / 27.0 lbs, nominal (w/o batteries)
Battery (internal)	
Dimensions (DxWxH)	40 mm x 72 mm x 77 mm / 1.6" x 2.8" x 3.0"
Weight	0.4 kg / 0.9 lbs
Mounting	Upright or inverted

Control Options	
Full color touchscreen for onboard scan control.	
Remote control: Leica CS10/CS15 controller or any other remote desktop capable device, including iPad, iPhone and other Smartphones; external simulator.	

Functionality	
One button scan control	Scanner operation with one button concept
Scan area definition	Scan area selection from video or scan; batch job scanning

Ordering Information	
Contact your local Leica Geosystems representative or an authorized Leica Geosystems dealer.	

All specifications are subject to change without notice.
All accuracy specifications are one sigma unless otherwise noted.
* At 78% albedo
** Algorithmic fit to planar HDS 4.5" B&W targets

Scanner: Laser class 1 in accordance with IEC 60825:2014
Laser plummet: Laser class 1 in accordance with IEC 60825:2014

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- when it has to be right

Leica
Geosystems

Leica Scanstation P30/40

Product Specifications



System Accuracy	
Accuracy of single measurement *	
Range accuracy	1.2 mm + 10 ppm over full range
Angular accuracy	8" horizontal; 8" vertical
3D position accuracy	3 mm at 50m; 6 mm at 100m
Target acquisition **	2 mm standard deviation at 50 m
Dual-axis compensator	Liquid sensor with real-time onboard compensation, selectable on/off, resolution 1", dynamic range ±5', accuracy 1.5"

Distance Measurement System	
Type	Ultra-high speed time-of-flight enhanced by Waveform Digitising (WFD) technology
Wavelength	1550 nm (invisible) / 658 nm (visible)
Laser class	1 (in accordance with IEC 60825:2014)
Beam divergence	< 0.23 mrad (FWHM, full angle)
Beam diameter at front window	≤ 3.5 mm (FWHM)
Range and reflectivity	Minimum range 0.4 m Maximum range at reflectivity
	120m 180m 270m
P30	18% - -
P40	8% 18% 34%
Scan rate	Up to 1'000'000 points per second
Range noise *	0.4 mm rms at 10 m 0.5 mm rms at 50 m
Field-of-View	
Horizontal	360°
Vertical	290°
Data storage capacity	256 GB internal solid-state drive (SSD) or external USB device
Communications/ Data transfer	Gigabit Ethernet, integrated Wireless LAN or USB 2.0 device
Onboard display	Touchscreen control with stylus, full colour VGA graphic display (640×480 pixels)
Laser plummet	Laser class 1 (IEC 60825:2014) Centring accuracy: 1.5 mm at 1.5 m Laser dot diameter: 2.5 mm at 1.5 m Selectable ON/OFF

Imaging System	
Internal camera	
Resolution	4 megapixels per each 17°×17° colour image; 700 megapixels for panoramic image
Pixel size	2.2 µm
Video	Streaming video with zoom; auto-adjusts to ambient lighting
White balancing	Sunny, cloudy, warm light, cold light, custom
HDR	Tonemapped / full range
External camera	Canon EOS 60D and 70D supported

Power	
Power supply	24 V DC, 100 – 240 V AC
Battery type	2× Internal: Li-Ion; External: Li-Ion (connect via external port, simultaneous use, hot swappable)
Duration	Internal > 5.5 h (2 batteries) External > 7.5 h (room temp.)

Environmental	
Operating temperature	-20°C to +50°C / -4°F to 122°F
Storage temperature	-40°C to +70°C / -40°F to 158°F
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Weight	0.4 kg / 0.9 lbs
Mounting	Upright or inverted

Control Options	
Full colour touchscreen for onboard scan control.	
Remote control: Leica CS10/CS15 controller or any other remote desktop capable device, including iPad, iPhone and other Smartphones; external simulator.	

Functionality	
Survey workflows and onboard registration	Quick orientation, Set azimuth, Known backsight, Resection (4 and 6 parameters), Traverse
Check & Adjust	Field procedure for checking of angular parameters, tilt compensator and range offset
Onboard target acquisition	Target selection from video or scan
Onboard user interface	Switchable from standard to advanced
One button scan control	Scanner operation with one button concept
Scan area definition	Scan area selection from video or scan; batch job scanning

Ordering Information	
Contact your local Leica Geosystems representative or an authorised Leica Geosystems dealer.	

All specifications are subject to change without notice.
All accuracy specifications are one sigma unless otherwise noted.
* At 78% albedo
** Algorithmic fit to planar HDS 4.5" B&W targets

Scanner: Laser class 1 in accordance with IEC 60825:2014
Laser plummet: Laser class 1 in accordance with IEC 60825:2014

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Function, Usability, And Solutions

Leica HDS



Forensics & Public Safety

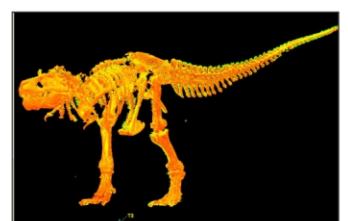
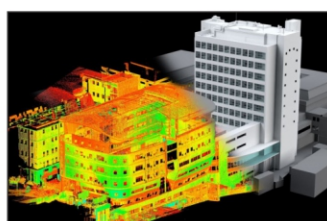
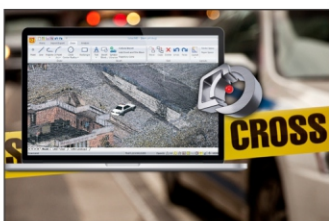
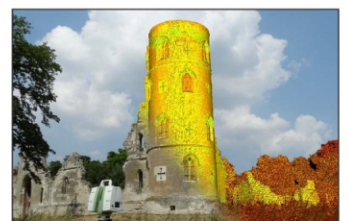
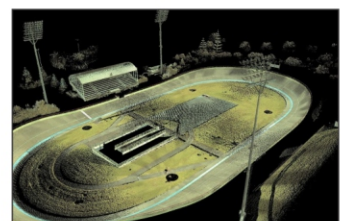
Fast, contact-free documentation of any scene with an easy-to learn, stand-alone system.

- Crime Scene Investigation
- Accident Documentation
- Security
- Officer Involved Shootings
- Vulnerability & Threat Assessment
- Crash Investigations
- Post-Blast Forensics
- Pre-event Planning
- Fire Investigations
- Tactical/SWAT Applications
- Risk Management

Building & Construction

Excellent accuracy-at-range, high-density data, and a wide field-of-view for capturing challenging, taller structures and interiors with fewer setups.

- Architecture
- Building information Modeling
- Asset & Facilities Management
- Supertalls, Superslims and Megatalls
- Archaeology & Heritage
- Building Survey
- Building Trades
- Construction & Excavation
- Gardening & Landscaping





Leica DISTO

Leica DISTO™

Which instrument is the right one for me?



Function	D110	D210	D2	X310	D410	D510	D810 touch	S910
Distance measurement	up to 60 m	up to 80 m	up to 100 m	up to 120 m	up to 150 m	up to 200 m	up to 250 m	up to 300 m
Minimum/maximum measurements	○	●	●	●	●	●	●	●
Area/volume measurements	Area measurements	●	●	●	●	●	●	●
Triangle/room angle function	○	○	○	●	○	●	●	●
Painter function	○	●	●	●	●	●	●	●
Trapezium function	○	○	○	○	○	●	●	●
Pythagoras functions	○	●	●	●	●	●	●	●
Tilt measurement	○	○	○	360°	○	360°	360°	360°
Smart Horizontal Mode	○	○	○	●	●	●	●	●
Sloped object measurement	○	○	○	○	○	●	●	●
Height tracking	○	○	○	●	○	●	●	●
Height profile measurements	○	○	○	○	○	●	●	●
Stake-out function	○	a/a	a/a	a/b	a/b	a/b	a/b	a/b
Subtraction/addition	○	●	●	●	●	●	●	●
Pointfinder with 4x zoom	○	○	○	○	●	●	●	●
Camera function	○	○	○	○	○	○	●	●
Measure with the picture	○	○	○	○	○	○	●	●
Timer	○	○	●	●	●	●	●	●
Personalised favourites	○	○	○	○	●	●	●	●
Touch screen	○	○	○	○	○	○	●	●
Compass	○	○	○	○	○	○	●	●
Point-to-Point measurements	○	○	○	○	○	○	○	●
Smart angle measurement	○	○	○	○	○	○	○	●
Smart area measurement	○	○	○	○	○	○	○	●
DXF data capture	○	○	○	○	○	○	○	●
WLAN data transmission	○	○	○	○	○	○	○	●
Bluetooth® SMART	●	○	●	○	○	●	●	●

NAVCOM GPS System - USA

Lifetime StarFire License

5 cm No Base Station Required



STARFIRE
5cm Global Accuracy

LAND - PAK

More
^
Your Complete Survey System

- ★ Rugged, reliable land survey solution
- ★ Easy-to-use NavCom FieldGenius or SurvCE software
- ★ Office CAD & GNSS post process software
- ★ Built-in UHF radio link
- ★ Ultra RTK (GPS+GLONASS)
- ★ GSM 3G Network RTK support
- ★ Lifetime StarFire™ license
 - 5cm standalone operation
 - RTK Extend™ through base station outages
- ★ Removable SD card for static survey
- ★ Three year warranty
- ★ Built-in StarFire receiver with lifetime license
- ★ StarFire five centimeter standalone accuracy
- ★ StarFire Over IP delivery Included
- ★ Dual hot swappable batteries
- ★ SF-3040 can be operated as a base or rover
- ★ Water and shock resistant



LAND-PAK

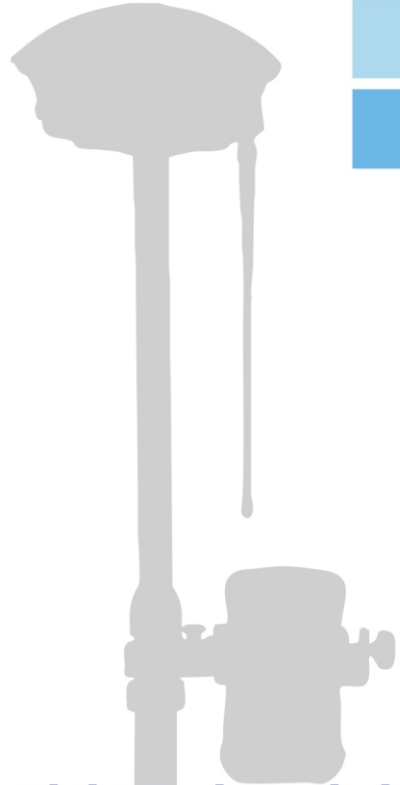
The LAND-PAK system provides an unprecedented level of performance and flexibility by including Ultra RTK, StarFire and RTK Extend capabilities as standard. With Ultra RTK users receive centimeter level performance up to 40 km from the base station while StarFire provides five centimeter accuracy anywhere, anytime without the need for a base station. NavCom's patented RTK-Extend feature allows users to work in challenging environments and maintain RTK level accuracy even during base station radio outages.

LAND-PAK Includes, as standard, a choice in easy to use controller, office and GNSS post processing software, the SF-3040 GNSS receiver along with all the necessary hardware and accessories making it a complete turn-key land survey solution. The rugged, waterproof and shock proof design coupled with hot swappable batteries ensures continuous operation in the harshest of environments.

UHF and GSM communication links with support for multiple RTK formats allows the LAND-PAK rover to work with a variety of base stations and RTK networks.

The Sapphire™ GNSS technology with multi constellation (GPS, GLONASS) support and superior signal sensitivity allows operation even in shaded environments.

Quick setup, ease of user and superb performance allows LAND-PAK to meet the needs of even the most demanding surveyor.



All The Right Tools Included



NAVCOM
A John Deere Company

LAND PAK System And Rover Specification

LAND-PAK System

SF-3040 Receivers (Qty 2) Included

- L1, L2, G1, (G2 or L5) Navigation 5Hz
- StarFire Enabled
- Lifetime StarFire License (Including Over IP delivery)
- RTK including Network RTK
- RTK Extend

Receiver Accessories Included

- USB Configuration Flash Drive
- 1 Watt UHF 403-473Mhz (Qty 2)
- UHF Module Antenna
- Li-Ion Batteries (Qty 4)
- SD Memory Cards (Qty 2)
- USB Device Cable, 6ft
- COM1 Serial Cable, 6ft
- Battery Charger, Dual Bay (Qty 2)

Hardware Accessories Included

- Aluminum Rover Pole
- Clamp & Pole Clamp for Controller
- Wood & Fiberglass Tripod
- Fiberglass Extension Rod
- Tribrach w/ optical plummet
- Fixed Tribrach Adapter
- GPS Pocket Rod/Tape Measure
- Hard Shell Transit Casse
- Canvas Tripod Bag

LAND-PAK Controller and Software Included

- NavCom Nautiz X7 Controller Kit

Software Available

- NavCom FieldGenius or NavCom SurvCE
- NavCom SurveyCAD 2011 or NavCom Survey 2013
- NavCom StartPoint Post Processing Software



LAND-PAK Network Rover

SF-3040 Receivers (Qty 1) Included

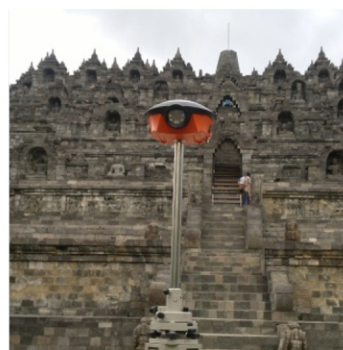
- L1, L2, G1, (G2 or L5) Navigation 5Hz
- StarFire Enabled
- Lifetime StarFire License (Including Over IP delivery)
- RTK including Network RTK
- RTK Extend

Receiver Accessories Included

- USB Configuration Flash Drive
- Li-Ion Batteries (Qty 2)
- SD Memory Cards (Qty 1)
- USB Device Cable, 6ft
- COM1 Serial Cable, 6ft
- Battery Charger, Dual Bay (Qty 1)

Hardware Accessories Included

- Aluminum Rover Pole
- Clamp & Pole Clamp for Controller
- GPS Pocket Rod/Tape Measure
- Hard Shell Transit Case



LAND PAK System and Rover Technical Specification



A John Deere Company

PERFORMANCE

- Multi-constellation Support
Multi-frequency GNSS
SBAS
GPS, GLONASS
StarFire, WAAS, EGNOS, MSAS
& GAGAN
- Accuracy (RMS)
RTK: <40km
RTK Extend (<15min)
StarFire
Static (post processed)
0.5ppm
Velocity
0.01ms
- Position & Raw data rates
1Hz, 5Hz, 10Hz

COMMUNICATIONS

- Integrated UHF radi
1 watt, 403-473MHz
- GSM 3G
Integrated in the controller
- Ports
2 x RS232, USB 2.0
(Host or Device),
Bluetooth
- Data message formats
Differential Correction
RTCM 2.3 and 3.1, SBAS, and
StarFire (proprietary)
- RTK Correction
CMR/CMR+. RTCM, NavCom
Proprietary Ultra RTKTM
- Memory
Removable 2GB SD card

NavCom Survey 2013 Key Features

- The most popular office survey solution in the U.S and is now translated into 5 different major languages
- Built on IntelliCAD 7.2
- Project Setup : Flexible data storage methods
- Drawing Cleanup : Fix common drafting errors.
- Data Compatibility : Supports industry standard LandXML and scores of specific data conversions

LAND-PAK GNSS POST PROCESSING SOFTWARE

NavCom StarPoint Key Features

- Base Station data
 - ✦ Utilize data from a dedicated or nearby base station
 - ✦ Automatic internet search & download data from a nearby base station(s)
- Coordinate System
 - ✦ 62 standard datums and 22 standard ellipsoids predefined
 - ✦ 12 map projection templates including US State-Plane
- Rigorous Automated Processing Engine
 - ✦ Static/Rapid static
 - ✦ Stop and go
 - ✦ Kinematic/Semi-kinematic
 - ✦ OTF (for single and dual frequency receivers)
- Quality Control
 - ✦ Editing GNSS data file properties
 - ✦ Graphical tools to help analyze
 - ✦ Common vector analysis
 - ✦ Least Squares Adjustment to adjust network of baselines

ENVIRONMENTAL

- Power
Batteries
External Power
Li-Ion 2.2 Ah 7.4v
Nominal 12v DC, 0.5A (9-32v range)
- Temperature (ambient)
Operating
Storage
-20o to +45o C (-4o to +113o F)
-40o to +85o C (-40o to +185o F)
- Enclosure
IP66 (water resistant/dustproof)
Shock resistant (2m pole drop)
- Certifications
FCC / CE

CONTROLLER

- Type
Nautiz X7
 - Display
Sunlight readable, Color LED / Touch screen, VGA resolution (480x640)
Windows® Mobile 6.1
 - Operating System
Windows® Mobile 6.1
 - Communication
PAN : Bluetooth 2.0 + EDR
WLAN : Integrated 802.11 b/g supports AES, TKIP, WEP, WPA and WPA2.
GSM/UMTS (HSDPA/EDGE)
Integrated speaker & microphone with noise cancellation
 - Connections
1 x USB host and client
(Mini AB USB OTG, 1.2 host, 2.0 client)
Power jack, 1 x SDIO slot,
9-pin serial RS-232 connector
5600 mAh Li-ion battery pack
4GB iNAND Flash
Integrated 3 megapixel camera with autofocus and LED Flash
 - Battery
5600 mAh Li-ion battery pack
 - Storage
4GB iNAND Flash
 - Camera
Integrated 3 megapixel camera with autofocus and LED Flash
 - Temperature
-30 to +60 C
 - Enclosure
Waterproof (IP67), Shock/vibration resistant (MIL-STD-810G)
 - Certifications
FCC/CE
- ❖ Performance dependent on location, satellite geometry atmospheric conditions and GNSS corrections.
- ❖ LAND-PAK comes with 5Hz Standard, Contact your dealer for other options.

LAND-PAK DATA COLLECTOR SOFTWARE

NavCom FieldGenius Key Features

- Windows Interface with Smart Objects, Incredible Graphics
- Real-Time Drawing Generation with Automatic Linework
- Enter, edit and stake Points
- Built in COGO – Intersections, Inversing, Traversing
- DXF Import of Background and lines, arcs, polylines & points
- 3D Data View with Dynamic Zoom, Pan, Scroll
- Import/Export DXF, ASCII or FBK for painless Autodesk import
- RTK network support via GSM
- StarFire support
- Support for total stations

NavCom SurvCE Key Features

- Easy to use Tab-based Menu Interface with Enhanced Graphics
- Enter, edit and stake points
 - Supports LandXML points, DTM, graphics, alignments, profiles & sections
 - Hot List lets user jump to the SurvCE 2 routines that previously had shortcuts without having to memorize key strokes.
 - Supports several GPS network protocols NTRIP, TCP & UDP
 - Allows the user to code in numerous coding styles that may be defined by their office package.
 - Automatic Geodetic Transformations
 - RTK network support via GSM
 - Support for total stations

LAND-PAK DESKTOP SOFTWARE

NavCom SurveyCAD 2011 Key Features

- Integrated Survey, Design and CAD Functions – Download, calculate, design, draft, check and print.
- Powerful Survey Calculations – CAGO, coordinate transformations, Multi-point averaging, cluster analysis, right of ways areas, fixed areas, mass intersections, multiple perpendicular ties and stake computations.
- Complete Traverse or Network Adjustments – Angle Balance, Transit, Compass, Crandall's Classical Methods, Vertical Balance, Full 3D Least Squares Adjustment and Reprocessing & pre-analysis.
- Active Drawing Technology



Indonesia Authorized Distributor NavCom GPS Systems
PT. EROKSA Graha Teknika
Jl. Diponegoro No. 61, Yogyakarta 55232, INDONESIA
Tel : + 62 274 556605
Email : info@eroksa.com
www.eroksa.com



3D Laser Mapping - UK

Laser Measurement Systems





Stockpile Monitoring Solutions

Automated Monitoring Solutions

Stock control at your fingertips SiteMonitorSV is a fully automated inventory management system. With rapidly communicating sensors working together to display information via automated reports in both graphical and Excel formats, decision making is made easy with the use of SiteMonitorSV.

The system provides georeferenced datasets to the Chief Engineer to obtain a better understanding of historical behaviours and deformation of large scale areas. Why? – To allow you to make informed decisions regarding the

The self-contained, lightweight system works totally independently of GPS and is designed to be hand-carried by an operator who is free to capture data simply by walking around mining tunnels, around commodity stock piles or remote operation via a ZEBRA device for mapping dangerous environments.

Underground Mining Solutions

StreetMapperIV

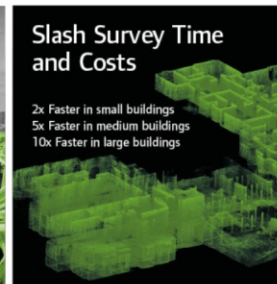
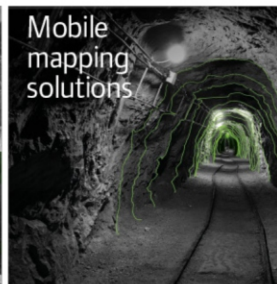
3D Laser Mapping is proud to announce their next generation Mobile Mapping System, 'StreetMapperIV'. Survey grade accuracy and supreme reliability that has come to be expected from StreetMapper is now presented in an even more compact, customisable and easy to use system.

Many discover the benefits of 3D measurement technology

In addition to the product launch, there was an array of RIEGL products on display and being demonstrated by RIEGL technicians: The VZ-2000, VZ-4000, the VMZ Hybrid Mobile Mapping System and the RiCOPTER with VUX-SYS for UAV-based surveying applications.

Forensics

3D Laser Mapping has been invited to demonstrate the benefits of laser scanning for collision investigation by the Institute of Traffic Accident Investigators (ITAI) | 3D Laser Mapping use of SiteMonitorSV.



Stockpile volume management solutions

Automated slope stability monitoring

Mobile mapping solutions

Next Generation Mobile Mapping

Slash Survey Time and Costs

2x Faster in small buildings
5x Faster in medium buildings
10x Faster in large buildings

Specialist Providers of Laser Scanning Technology



RIEGL VZ-6000

RIEGL VZ-4000



Key Fact	RIEGL VZ-6000	RIEGL VZ-4000
	<ul style="list-style-type: none"> • Time-of-flight measurement principle • Online waveform processing • Echo digitization • Multiple target capability • Multiple-Time-Around processing • Integrated HMI interface • Internal storage capability • Inclination sensors, laser plummet, and GPS-receiver integrated • Interface for optional external GNSS receiver • Built-in calibrated digital camera • Advanced camera options 	<ul style="list-style-type: none"> • Time-of-flight measurement principle • Online waveform processing • Echo digitization • Multiple target capability • Multiple-Time-Around processing • Integrated HMI interface • Internal storage capability • Inclination sensors, laser plummet, and GPS-receiver integrated • Interface for optional external GNSS receiver • Built-in calibrated digital camera • Advanced camera options
Laser Class	Laser Class 3B	Laser Class 1
Max range @target reflectivity 90%	6000 m	4000 m
Max range @target reflectivity 20%	3600 m	2300 m
Min range for natural targets	5 m	5 m
Accuracy	15 mm	15 mm
Precision	10 mm	10 mm
Effective measurement rate	up to 222,000 meas./sec	up to 222,000 meas./sec
Vertical line scan - max scan angle range/min angle stepwidth	60° (+30° /-30°)/0.002°	60° (+30° /-30°)/0.002°
Horizontal line scan - max scan angle range/min angle stepwidth	360°/0.002°	360°/0.002°
Glacier & Snowfield Mapping	***	**
Topography & Mining	**	***
Monitoring	***	***
Civil Engineering	**	**
Archaeology & Cultural Heritage	*	*
City Modeling	X	**
Agriculture & Forestry	*	**
As-Built Surveying	X	X
Architecture & Facade Measurements	X	*
Tunnel Surveying	X	X



RIEGL VZ-2000

RIEGL VZ-1000 / 400

RIEGL VZ-400i



- Time-of-flight measurement principle
- Online waveform processing
- Echo digitization
- Multiple target capability
- Multiple-Time-Around processing
- Integrated HMI interface
- Internal storage capability
- Inclinometer sensors, laser plummet, and GPS-receiver integrated
- Interface for optional external GNSS receiver
- Mounting pads for optional digital camera
- Advanced camera options

- Time-of-flight measurement principle
- Online waveform processing
- Echo digitization
- Multiple target capability
- Multiple-Time-Around processing
- Integrated HMI interface
- Internal storage capability
- Inclinometer sensors, laser plummet, and GPS-receiver integrated
- Interface for optional external GNSS receiver
- Mounting pads for optional digital camera
- Advanced camera options

- New innovative processing architecture for data acquisition and simultaneous geo-referencing, filtering and analysis in real-time
- Cloud connectivity via Wi-Fi and 4G LTE
- Echo digitization, online waveform processing, and multiple-time-around processing
- Suite of MEMS sensors
- Integrated gyroscope, accelerometer, compass and barometer
- Internal storage capability
- Advanced camera options

Laser Class 1	Laser Class 1	Laser Class 1
2050 m	1400 m / 600 m	800 m
1050 m	700 m / 280 m	400 m
2.5 m	2.5 m / 1.5 m	1.5 m
8 mm	8 mm / 5 mm	5 mm
5 mm	5 mm / 3 mm	3 mm
up to 396,000 meas./sec	up to 122,000 meas./sec	up to 500,000 meas./sec
100° (+60° /-40°)/0.0015°	100° (+60° /-40°)/0.0024°	100° (+60° /-40°)/0.0007°
360°/0.0005°	360°/0.0024°	360°/0.0015°
*	*	*
***	***	**
***	**	**
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***	***	***
***	***	***
***	***	***
**	**	**

Designed to capture the world in 3D and deliver information for making decisions.



ROBIN

3Dlaser
mapping

3-IN-1 MOBILE MAPPING SYSTEM

READY TO
GO IN UNDER
5 MINUTES

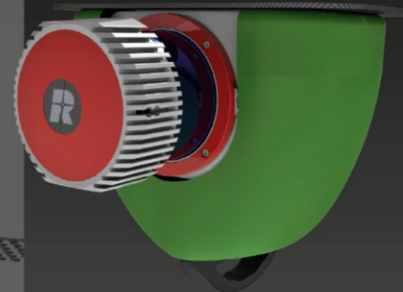
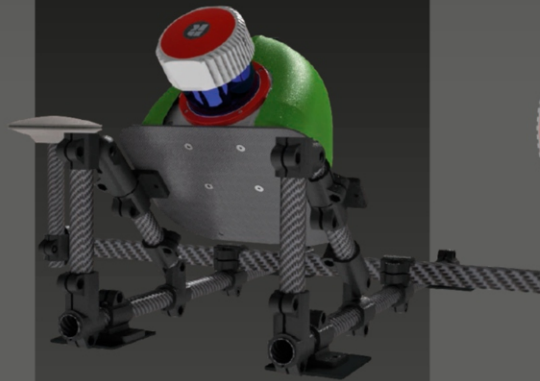




WALK

DRIVE

FLY



ROBIN

A multi-platform mobile mapping system that can:



Improve the quality of your measurements



Open up new business opportunities



Increase the safety of your staff



Save your business money



Make you stand out from the competition



ROBIN

Multi-purpose, all-round system

WEIGHT
WALK/DRIVE
<10Kg
FLY
<6Kg

LASER SCANNER	
Scanner Max. Range (For Reflectivity 60%)	920m
Scanner Precision (Relative Accuracy)	5 mm
Scanning Speed	200 lines/second
Field of View	330 degrees
Max. Effective Measurement Rate	500,000 meas./sec

CAMERA	
Camera Resolution (Walk/Drive)	4240 x 2824 (12MP)
Frame Rate (Walk/Drive)	5 frames per second
Camera Resolution (Fly)	5232 x 3488 (18MP)
Frame Rate (Fly)	1 frame per second

NAVIGATION SYSTEM	
IMU	0.015 deg
INS Positional Error	0.02 m
Antenna	2 x GNSS Antennas

System add-ons

ROBIN-WINGS

Long range laser scanner optimised for airborne applications

ROBIN-PRECISION

High accuracy laser scanner optimised for shorter range, more detailed data capture

LASER SCANNER		
Scanner Max. Range (For Reflectivity 60%)	1350m	350m
Scanner Precision (Relative Accuracy)	10 mm	3 mm
Scanning Speed	200 lines/second	250 lines/second
Field of View	330 degrees	360 degrees
Max. Effective Measurement Rate	750,000 meas./sec	1,000,000 meas./sec

- **ROBIN-SLAM**
– for indoor use
- **ROBIN-HELIPOD**
– mounting solution for helicopter use
- **Application software:**
– Terrasolid software suite
– OrbitGT mobile mapping software

Why choose a Mobile Mapping System from 3D Laser Mapping?

3D Laser Mapping is an independent systems integrator and supplier of mobile mapping hardware and software.

We pride ourselves on using the best of breed technology and annually test and review different sensors and software to ensure we continue to offer the best.

We launched the first commercially available mobile mapping system back in 2004 and continue to offer mobile mapping systems that meet the needs of our customers.

Our aim is for our customers to be successful. We don't believe in 'aftersales' – we believe in constant, industry-leading technical support whenever you need it.

- Over 16 years experience with over 30 staff
- Advanced technical knowledge
- Innovative bespoke solutions
- Global technical support
- Hardware independent solutions provider
- 25% of our profit goes back into research and development



INTERESTED? Contact one of our offices to find out more or arrange a demo.

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1277 Mike Crawford Avenue
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Perth
WA 6000
Australia
+61 (0) 8 9261 7703



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info@3dlasermapping.com





Elevate your business.

3DR collaborates with Autodesk and Sony® to create Site Scan™, the aerial analytics platform used to survey, scan and inspect your work site.



Smarter & safer construction.

Get actionable data, minimize costs, and make smarter business decisions using the Site Scan™ construction drone platform.

Designed for Autodesk tools.

The Site Scan™ app automatically imports aerial data into your favorite tools: Autodesk ReCap, Autodesk 360, Autodesk Revit, Autodesk BIM360, and Autodesk Civil3D.

Near real time information.

Improve your bottom line with daily aerial inspections, surveys, and scans. Understand your assets and allocate resources accordingly.

Digitize your world.

The Site Scan™ app powers the Solo® drone to create accurate maps and digital elevations models and imports them into your Autodesk tools.

The easiest way to generate georeferenced maps

Autonomously create high-resolution maps for monitoring sites, overseeing forestal changes, or measuring stockpiles, all using the Site Scan mobile app.

Easily create georeferenced maps

Just outline the area you want to survey with your fingertip and the Solo drone automatically executes the flight, capturing the images you need to create 2D maps and digital elevations models. Images are automatically processed in Autodesk ReCap to create orthorectified, georeferenced mosaics.

Informed agriculture.

Get actionable data, minimize costs, and make smarter business decisions using the Solo drone powered by the Site Scan app.

Dramatically faster than walking the field.

Quickly identify and assess issues with high-resolution aerial imagery, make informed decisions and precisely target actions in the field.

Better returns.

The Solo drone with the Site Scan application helps farmers and agronomists make informed business decisions and precisely target action in the field, resulting in lower costs and better returns.



3DR
SOLO

SPECS

Cameras: Compatible with GoPro® HERO3, 3+ and 4; optimized for HERO3+ and 4

Streaming video quality: 720p

Flight time: 25 minutes; 20 minutes with payload*

Range: .5 miles** (.8 km)

Max speed: 55 mph (89 km/h)

Max ascent speed: 10 m/s in stabilize mode; 5 m/s in "fly" mode

Max descent speed: ditto

Max payload: 420 g

Max altitude: 400 ft per FAA regulation, user adjustable (122 m)

Motors: 880 kV

Propellers: 10" diameter 4.5" pitch self-tightening (24 cm diameter 144 cm pitch); glass-reinforced nylon

Autopilot: Pixhawk 2

Software: APM:Copter

Communication: 3DR Link secure WiFi network

Frequency: 2.4 GHz

Weight: 3.3 lbs. (1.5 kg) / 3.9 lbs. (1.8 kg) with GoPro® and Solo Gimbal

Dimensions: 10 in. tall (25 cm), 18 in. (46 cm) motor-to-motor

Flight battery: Lithium polymer 5200 mAh 14.8 Vdc

Battery charge time: ~1.5 hours

Controller battery: 2600 mAh 7.2 Vdc rechargeable lithium ion

App requirements: iOS 8.0 or later / Android 4.3 or later

***Flight time varies with payload, wind conditions, elevation, temperature, humidity, flying style and pilot skill. Listed flight time applies to elevations less than 2,000 ft above sea level.**

****Depending on environmental conditions; controller is expandable, allowing us or third parties to amp up the range in the future.**

Solo Smart Battery:

Rechargeable lithium polymer (Li-Po)

5200 mAh

14.8 Vdc

Weight: 1 lb. (.5 kg)

Solo Gimbal:

Three-axis stabilization

Fully compatible with 3DR Solo and GoPro HERO3+ and HERO4; camera charging and stabilization only with HERO3

HDMI video output

Wireless software upgrade through Solo

Controllable range: 0° to -90° pitch

top plate

30 mm bolts

hollow spacers

metal nuts

thumb nuts

top: nylon nuts

bottom: metal nuts

hollow spacers

metal nuts

25 mm bolts

30 mm bolts

for more

Efficient Surveying

Customizeable remote surveillance equipment with complete solutions for surveying applications.



QUAD-COPTER
STABLE, HIGH ACCURACY, EFFICIENT



FIXED-WING
FOR MORE MAPPING SOLUTIONS

Divisi fotogrametri EROKSA mengembangkan produk wahana tanpa awak untuk aplikasi fotogrametri format kecil dan inspeksi, dengan label **Nusatech**. Kualitas internasional yang teruji dipadukan sentuhan kearifan lokal tenaga ahli menjadikan **Nusatech** sebagai sistem UAV yang lengkap dan memberikan solusi terbaik.

Produk **Nusatech** ditawarkan bersama dengan perangkat lunak pengolahan data fotogrametri open source e-foto, dan pelatihan komplit mengenai pengenalan fotogrametri, aerodinamika, perencanaan proyek fotogrametri dan pengolahan data foto udara.

Hubungi EROKSA Graha Teknika:
Jl. Diponegoro No. 61 Yogyakarta
Telepon: (0274) 556605, email: info@eroksa.com
<http://new.eroksa.com>



Kendali navigasi

- 3 sensor magnetik
- 1 sensor tekanan barometris
- 1 antena penerima GPS

Baling-baling karbon eksklusif

- Faktor safety
- Anti-pecah

Motor dengan desain khusus

- Dengan penggerak langsung
- Lebih efisien



Kendali terbang

- 3 gimbal penyeimbang
- 3 sumbu akselerometer

Kamera denganudukan anti-goyang

- Terbuat dari serat karbon atau fiber
- Anti-goyang, anti-air
- Kamera resolusi tinggi



Spesifikasi wahana (Nusatech QC-15)

Dimensi:

- Panjang/lebar: 90 cm
- Diameter dengan baling-baling: 99 cm
- Tinggi: 29 cm

Berat dan daya angkut:

- Berat total wahana (tanpa kamera): 1.350 gr
- Daya angkut: 415 gr
- Berat lepas landas maksimum: 1.765 gr
- Lama terbang maksimum: 25 menit
- Jangkauan jelajah (sekali terbang): 20 km

Karakter terbang:

- Laju naik maksimum: 2 m/detik
- Laju turun maksimum: 2 m/detik
- Laju belok maksimum: 90 derajat/detik
- Kecepatan maksimum di udara: 50 km/jam
- Kecepatan minimum di udara: 0 km/jam
- Tipe peluncuran: VTOL
- Ketinggian maksimum: 2.500 mdpl

Kendali terbang:

- Sensor magnetik: 3-axis magnetic field sensor
- Sensor tekanan: barometric pressure sensor
- Sensor penyeimbang: 3-axis gyroscope
- Akselerometer: 3-axis acceleration sensor
- Navigasi: GPS receiver L1

Spesifikasi kamera (Nikon AW100 Geotag)

- Resolusi piksel: 16 MP
- Dimensi kamera: 110 mm x 65 mm x 23 mm
- Berat (dengan baterai): 190 gr
- Tipe sensor: CMOS
- Panjang fokus lensa: 5 - 25 mm
- Autofokus: Ya, dengan detektor kontras TTL-AF
- Anti-vibrasi: Ya, dengan tipe lens-shift VR
- GPS geotagging: Ya, built-in
- Anti-air: Ya, dengan suhu kerja -10 s/d 40 derajat C

Spesifikasi GPS (Naza M-Lite)

- Berat GPS & kompas: 21.3 gr
- Dimensi GPS & kompas: 46 mm x 9 mm
- Berat MC & VU: 45 gr
- Dukungan multi-rotor: Quad-rotor I4, X4
- Frekuensi refresh: 400 MHz
- Suhu kerja: -10 s/d 50 derajat C
- Kecepatan sudut yaw maksimum: 200 derajat per detik
- Sudut kemiringan maksimum: 45 derajat
- Laju turun/naik maksimum: 6 m/detik
- Support mode autopilot: Ya, 3 mode

Nusatech QC-15

- Ringan, simpel, akurasi tinggi
- Vertical take-off/landing (VTOL)
- Stabil dengan 11 sensor pengendali
- Mode auto-pilot dan/atau manual
- Navigasi dengan GPS L1

- Pelatihan meliputi (5 hari):
- Dasar-dasar fotogrametri
- Dasar-dasar aerodinamika
- Perencanaan proyek fotogrametri
- Pelatihan pilot wahana
- Pengolahan data fotogrametri



Informasi lebih lanjut hubungi:

EROKSA Graha Teknika Divisi Fotogrametri

Jl. Diponegoro No. 61 Yogyakarta 55232, telepon: (0274) 556605

CP: Tutus Kusuma (tutus.kusuma@eroksa.com), Ali Usman (ali@eroksa.com)

for more

Efficient Surveying

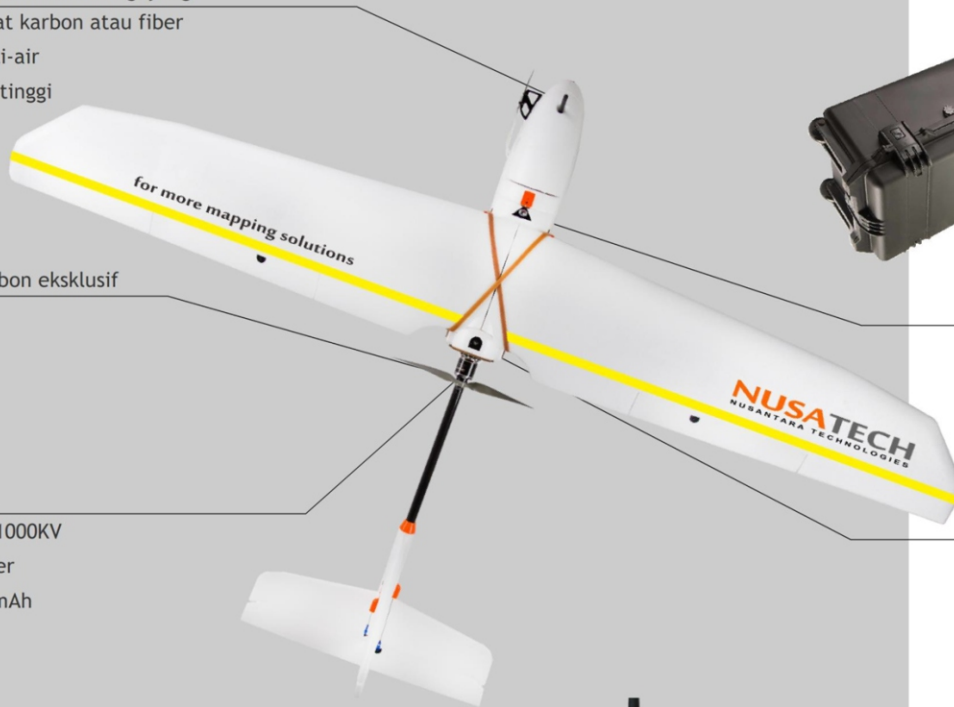
Customizeable remote surveillance equipment with complete solutions for surveying applications.



Kamera dengan dukungan anti-goyang
Terbuat dari serat karbon atau fiber
Anti-goyang, anti-air
Kamera resolusi tinggi

Baling-baling karbon eksklusif
Faktor safety
Anti-pecah

Motor penggerak
Brushless 2814-8 1000KV
ESC 60A-controller
Baterai 4S 5000 mAh



Kendali terbang
3 gimbal penyeimbang
3 sumbu akselerometer

Kendali navigasi
3 sensor magnetik
1 sensor tekanan barometris
1 antena penerima GPS



Spesifikasi wahana (Nusatech FW-15)

Dimensi:

Lebar bentang sayap: 188 cm
Panjang badan: 130 cm
Perimeter sayap: 45 dm²

Berat dan daya angkut:

Berat total wahana (tanpa kamera): 2.450 gr
Daya angkut: 1.680 gr
Berat lepas landas maksimum: 4.130 gr
Lama terbang maksimum: 45 menit
Jangkauan jelajah (sekali terbang): 20 km

Karakter terbang:

Kecepatan terbang konstan: 40 km/jam
Kecepatan maksimum: 120 km/jam
Tipe peluncuran: Hand launch/with launcher
Ketinggian maksimum: 500 magl
Kapasitas ukur (sekali terbang): 1000 ha

Kendali terbang:

Sensor magnetik: 3-axis magnetic field sensor
Sensor tekanan: barometric pressure sensor
Sensor penyeimbang: 3-axis gyroscope
Akselerometer: 3-axis acceleration sensor
Navigasi: GPS receiver L1

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Laju turun/naik maksimum: 6 m/detik
Support mode autopilot: Ya, 3 mode

Nusatech FW-15

Produktivitas tinggi
Hand launch/with launcher take-off
Stabil dengan 11 sensor pengendali
Mode auto-pilot dan/atau manual
Navigasi dengan GPS L1

Pelatihan meliputi (5 hari):
Dasar-dasar fotogrametri
Dasar-dasar aerodinamika
Perencanaan proyek fotogrametri
Pelatihan pilot wahana
Pengolahan data fotogrametri



Informasi lebih lanjut hubungi:


EROKSA Graha Teknika Divisi Fotogrametri

Jl. Diponegoro No. 61 Yogyakarta 55232, telepon: (0274) 556605


CP: Tutus Kusuma (tutus.kusuma@eroksa.com), Ali Usman (ali@eroksa.com)

EROKSA

PHOTOGRAMMETRY



REMOTE SENSING
HIGH RESOLUTION IMAGES FOR DETAILED MAPPING



OIL, GAS & MINERALS
EXPLORATION, PRODUCTION AND REHABILITATION SUPPORTS



CONSTRUCTION INSPECTIONS
BUILDING AND CIVIL CONSTRUCTION MAINTENANCES AND INSPECTIONS

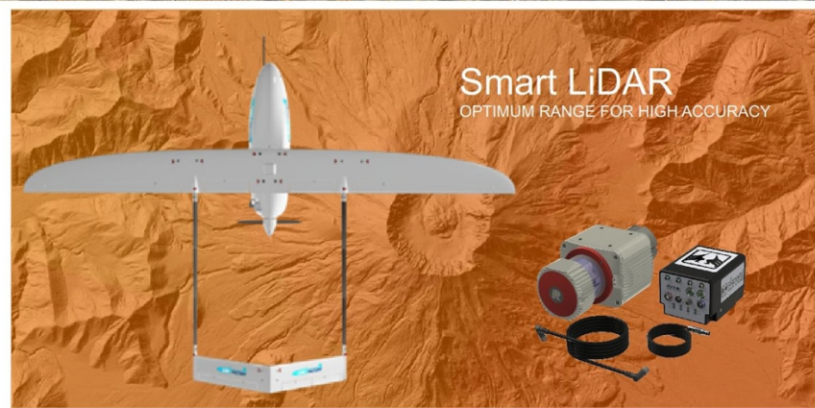
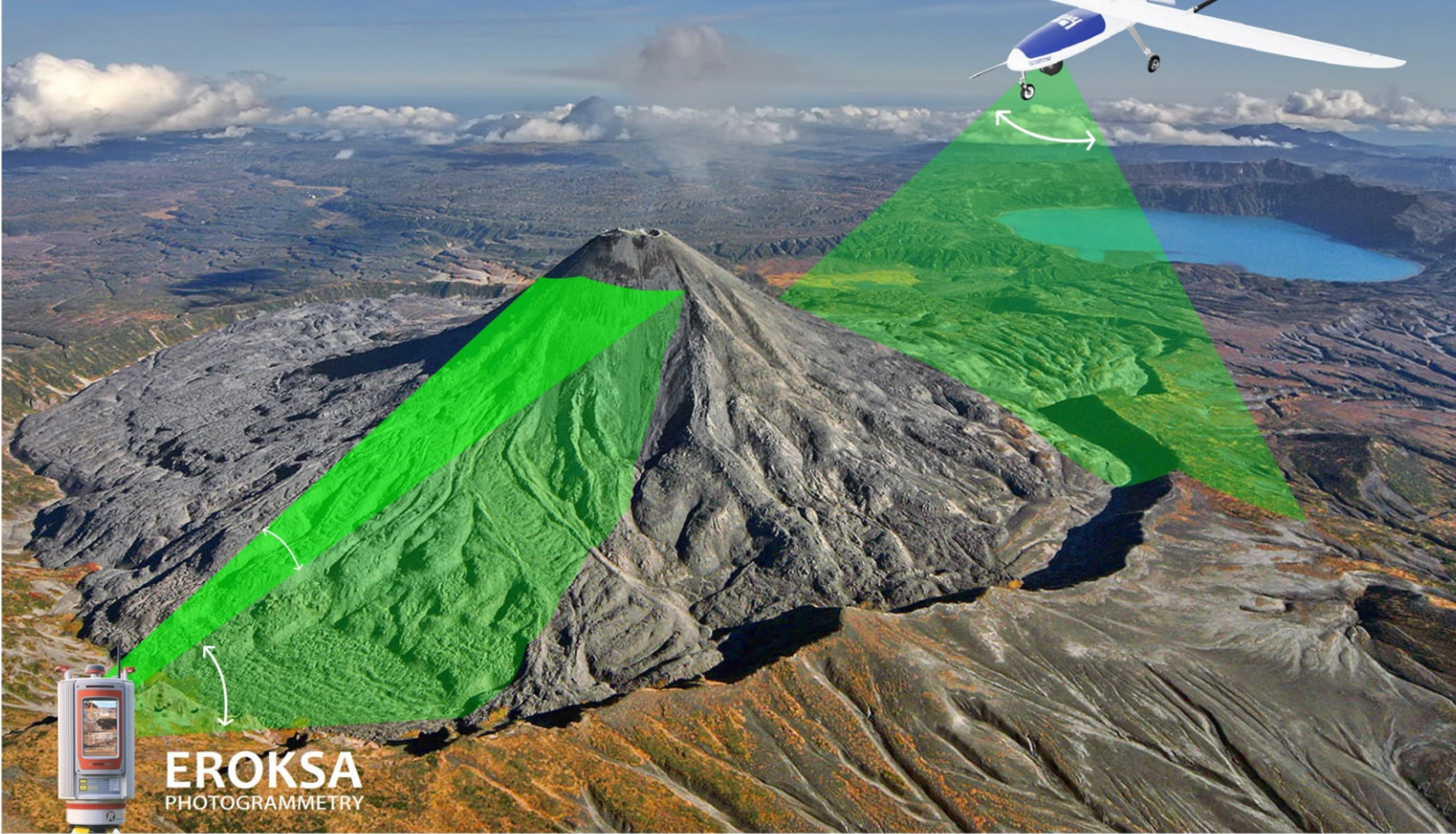


ARCHAEOLOGY
PRESERVES HERITAGE AND CULTURAL SITES

Produk **Nusatech** EROKSA dirancang berdasarkan riset dan uji coba tim gabungan, yang terdiri dari ahli geodesi-geoinformatika, ahli aerodinamika dan ahli telematika dan instrumen elektronika yang tergabung dalam divisi fotogrametri, sehingga sesuai dan fleksibel digunakan untuk berbagai disiplin ilmu dan bidang kerja: pemetaan penginderaan jauh, pendukung eksplorasi dan produksi minyak, gas bumi dan mineral, pengawasan bangunan dan konstruksi besar, perlindungan cagar budaya dan arkeologi, dan lain-lain.

VOLCANO DEFORMATION Rapid Monitoring Systems

Sistem pemantauan perubahan bentuk gunung api yang cepat dan aktual



Divisi fotogrametri EROKSA mengembangkan produk wahana tanpa awak untuk aplikasi fotogrametri format kecil dan inspeksi, dengan label **Nusatech**. Kualitas internasional yang teruji dipadukan sentuhan kearifan lokal tenaga ahli menjadikan **Nusatech** sebagai sistem UAV yang lengkap dan memberikan solusi terbaik.

Produk terbaru **Nusatech** adalah solusi untuk pemantauan perubahan bentuk (deformasi) gunung api secara real-time, cepat dan akurat **Nusatech** VDRMS (Volcano Deformation Rapid Monitoring Systems), yang memadukan produk UAV dengan sensor mini-LiDAR dan sistem SiteMonitor--konfigurasi apik dari laser scanner long range Riegl yang handal dengan software SiteMonitor4D yang mampu menggabungkan berbagai sensor secara optimal.



Smart LiDAR OPTIMUM RANGE FOR HIGH ACCURACY

Laser scanner: VUX-1

Kekuatan laser	: Kelas 1 (eye safety)
Panjang gelombang	: near infra-red
Multiple echoes	: supported
Multiple time around (MTA)	: supported
Jangkauan	: 3 - 920 m
Akurasi jarak	: <10 mm
Resolusi spasial	: 2 cm
Spin rate	: hingga 200 Hz
Scan rate	: hingga 500 ribu titik/detik
FOV horisontal	: 330 derajat
Konsumsi daya	: ~ 60 W
Ukuran	: 227 x 180 x 125
Berat	: 3,6 kg



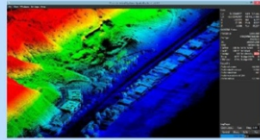
Sistem navigasi

Dual-antena/heading	: Opsional
Support konstelasi	: GPS, GLONASS, Galileo, Beidou, frekuensi ganda
Sistem liniasi	: statik, kinematik, antena ganda
Mode operasi	: real-time, postprosesing
Akurasi posisi	: 1 cm + 1 ppm RMS hors.
Akurasi pitch/roll	: 0,015 derajat RMS
Akurasi heading	: 0,035 derajat RMS



Phoenix Aerial Systems Software Suite

Format pointcloud ekspor	: LAS/LAZ 1.2 (UTM WGS '84)
Sistem koordinat ekspor	: Geodetik, geosentrik, UTM
Postprosesing trajectory dg. NovAtel/waypoint I.E.	: support
Pengaturan densitas data real-time/postprosesing	: support
N titik visualisasi real-time	: 20 juta titik
Visualisasi real-time modul	: support



SiteMonitor LASER SCANNING MONITORING SYSTEM

Laser scanner: VZ-4000

Kekuatan laser	: Kelas 1 (eye safety)
Panjang gelombang	: near infra-red
Multiple echoes	: supported
Multiple time around (MTA)	: supported
Jarak	: 8000 m
Akurasi jarak	: 15 mm
Resolusi spasial	: 18 - 300 mm
Spin rate	: hingga 20 Hz
Scan rate	: 200 ribu measurement/detik
FOV horisontal	: 360 derajat
Konsumsi daya	: 75 - 90 W
Ukuran	: 248 x 226 x 450 mm
Berat	: 14,5 kg



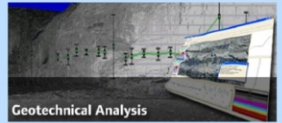
Sistem registrasi dan fitur tambahan

Sistem GPS	: GPS L1 dengan antena
Sistem kompas	: akurasi 1 derajat (on-board)
Sistem inklinasi on-board	: support, akurasi 0,008 derajat
Registrasi dg. control points	: support
Internal kamera	: built-in 5 MP
Eksternal kamera	: 36 MP
Display	: 800 x 480 color 7" WVGA
Kapasitas penyimpanan	: Internal SSD 80 GB
	: Eksternal storage via USB2.0



SiteMonitor4D

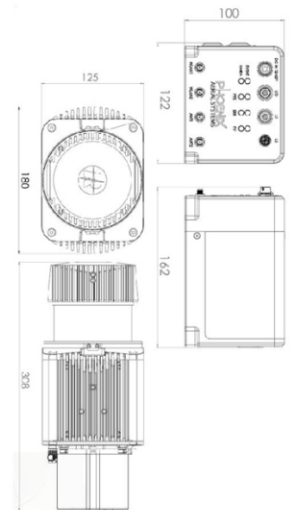
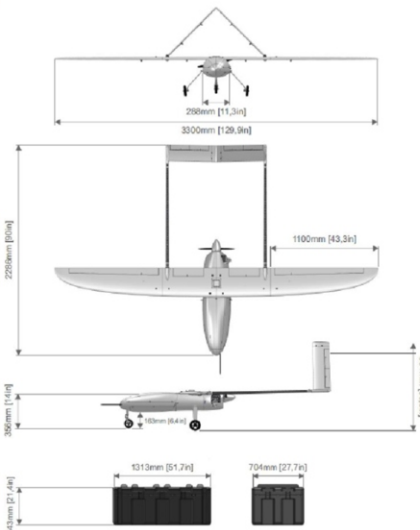
Mode operasi	: otomatis atau periodik
Modul pengukuran	: via remote link (wi-fi atau 5G)
Modul analisis	: - analisis geoteknis on-screen - prediksi longsor - analisis pergerakan lereng - analisis runtuh material
Early warning system	: support alarm, email atau SMS



Penguin B fixed-wing

Bersayap tetap (fixed-wing)	: 3.300 mm
	: 10 kg
	: 21,5 kg
Catapult atau runway	: 20 jam (8 jam untuk LiDAR)
	: 80 km/jam
	: 130 km/jam
	: 2.600 km
	: 7.500 mL
KVH 1750 gimbal fiber optis	: GPS/GNSS triple frequency
GPS/GNSS RTK	

Tipe wahana	: Mono-copter
Wingspan	: 630 mm
Kapasitas angkut	: 6 kg
Berat angkut maksimum	: 16 kg
Metode take-off	: Vertical take-off landing (VTOL)
Waktu terbang maksimum	: 60 menit
Kecepatan jalan	: 60 km/jam
Kecepatan maksimum	: 120 km/jam
Daya jelajah maksimum	: 120 km
Kapasitas tanki/baterai	
IMU	: KVH 1750 gimbal fiber optis
Kendali terbang	: GPS/GNSS dual frequency
Tipe GPS/GNSS	: GPS/GNSS RTK



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