SATLAB GEOSOLUTIONS

CORPORATE BROCHURE

UNLOCK YOUR MOBILITY

SATLAB GEOSOLUTIONS

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In today's ever-changing world of emerging technologies, it's crucial to harness the tools needed to keep up with trends that are impacting the geospatial landscape.

Our commitment to innovation and technology integration is designed to help our partners and customers achieve high mobility both horizontally and vertically, enabling them to grow their businesses.

MOBILITY COUNTS

HIGH MOBILITY HELPS US
EXPAND HORIZONTALLY AND DIG VERTICALLY
TO KEEP US AHEAD OF COMPETITORS

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SatLab at a Glance

SatLab is a global provider of satellite positioning solutions based in Sweden, with 9 regional offices and over 100 reputable dealerships worldwide. We are committed to delivering timely services around the clock.

Our advanced innovations in GNSS, Optical, LiDAR, and Sonar technologies, combined with our expertise in data processing and analysis software development, empower customers across a range of industries including civil engineering, construction, mining, forestry, agriculture, Hydrology etc.

Through ongoing investment in R&D, SatLab aims to enhance productivity while ensuring user satisfaction. We are dedicated to helping our customers expand horizontally and dig vertically, fostering growth and unlocking their mobility.

Offices and Divisions

Gothenburg, Sweden

Ankara, Turkey

Dubai, UAE

New Delhi, India

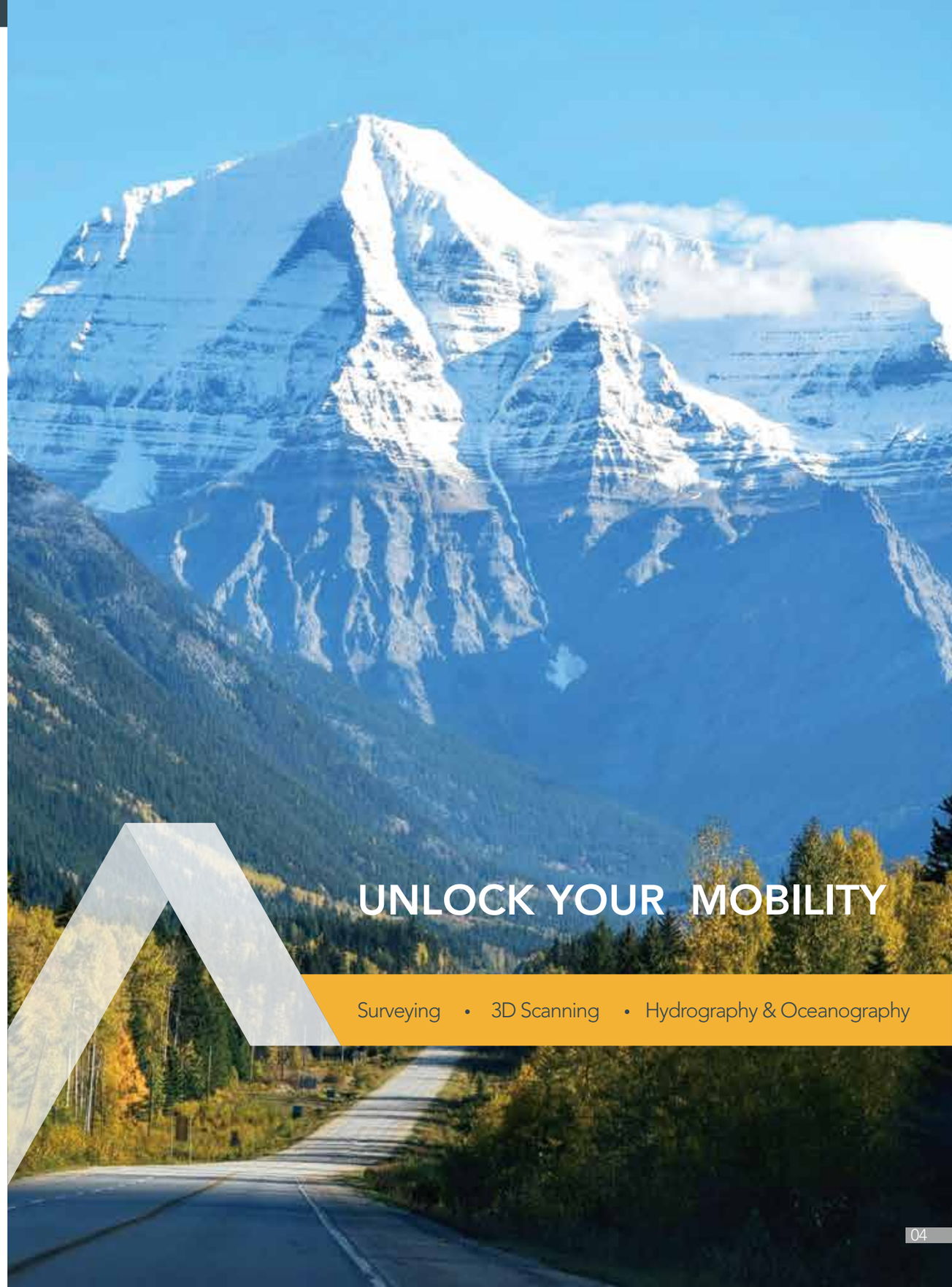
Guangzhou, China

Hong Kong, China

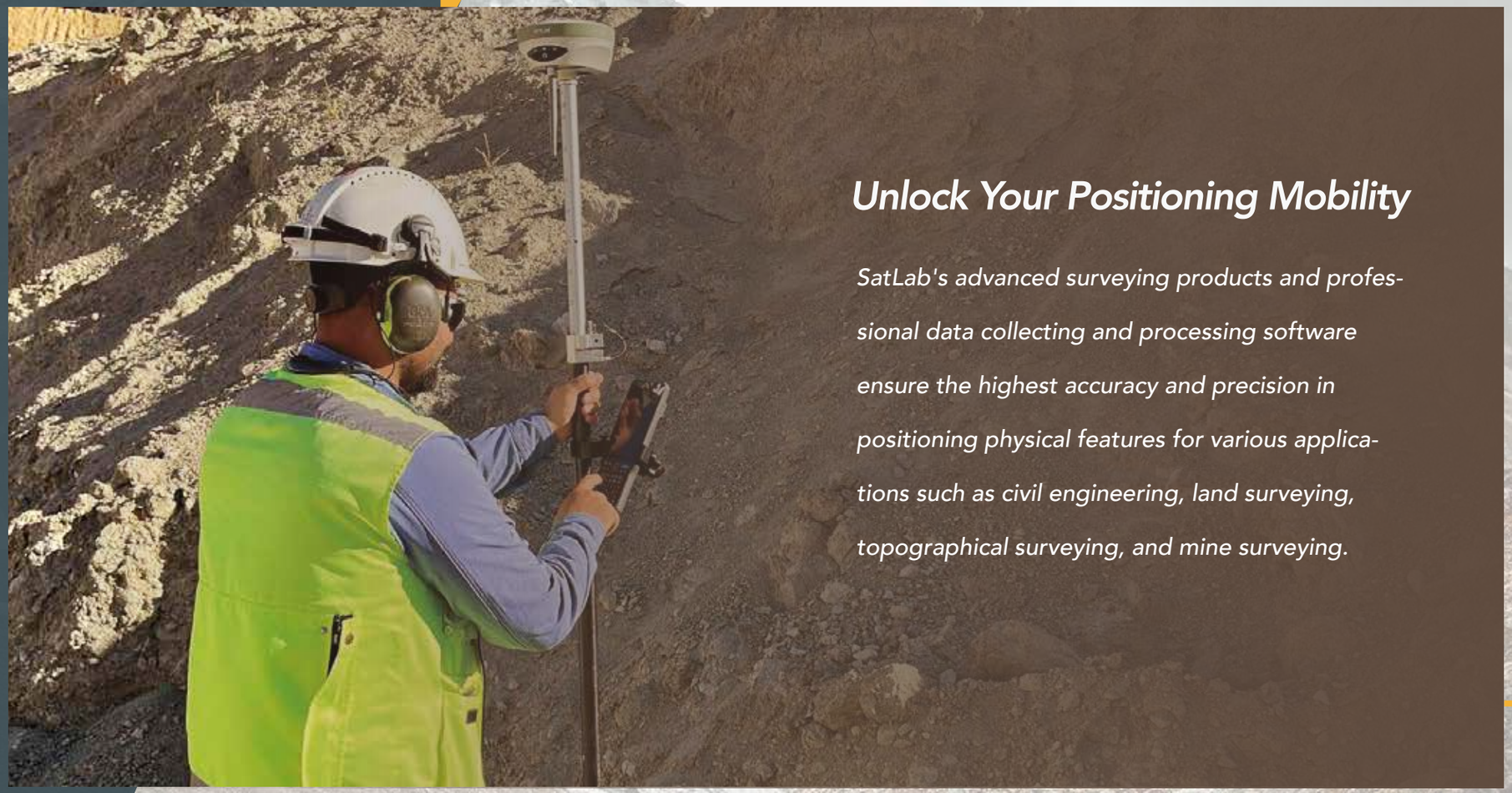
Ho Chi Minh, Vietnam

Kuala Lumpur, Malaysia

Tokyo, Japan



Surveying



Unlock Your Positioning Mobility

SatLab's advanced surveying products and professional data collecting and processing software ensure the highest accuracy and precision in positioning physical features for various applications such as civil engineering, land surveying, topographical surveying, and mine surveying.

Eyr

New Dual-Camera GNSS RTK with Image Positioning Technology

With the functions of live-view stakeout and image survey, the newly upgraded IMU and next-generation integrated SOC platform are sure to overcome the objective limitations of the work.

Key Features

- HD Dual Cameras
- Upgraded IMU for Automatic Installation
- Intelligent Software
- Abundant Industry Data Applications
- 5.5'' Large Screen Controller SHC55
- Built-in Radio
- Multi-Constellation Tracking
- Hi-Fix
- Long Battery Life (over 12 hours in rover mode)

SL7

New Visual GNSS Receiver with IMU & Camera

SatLab SL7, a compact and portable GNSS receiver with visual stakeout function, it's energy-efficient that supercharged by an advanced chip, providing up to 24 hours of operation time.The HD starlight-grade camera at the bottom allows you to perform visual stakeout accurately, and its 750g lightweight body and AR stakeout function make traditional surveying and mapping work easier and simpler.

Key Features

- Multi-Constellation Tracking
- Built-in Radio
- Tilt Compensator
- Advanced RTK Engine
- Web UI
- Long Battery Life (> 24 hours)
- NFC Module
- Stakeout Visualization

Applications

- Monitoring
- Land Survey
- Mapping
- Hydrographic
- Topography and As-built
- Agriculture

Freyja

Compact RTK with Advanced IMU Sensor

Freyja GNSS RTK can perfectly handle the situations encountered in all kinds of surveying work, minimizing the burden from the physicality and extending the functionality of fieldwork.

Key Features

- Advanced RTK Engine
- Multi-Constellation Tracking
- Built-in Radio
- Web UI
- Tilt Compensator
- NFC Module
- Long Battery Life (> 24 hours)
- Compatibility with Third-party Software

SL900

High Precision Tilt Survey

The SL900 is a high-precision GNSS receiver that performs even under the most demanding conditions. With its features, the SL900 is capable of delivering highly accurate data in real-time to any devices via a Bluetooth connection. Compact and lightweight, this GNSS receiver is one of the most flexible solutions that promises positioning reliability.

Key Features

- Tilt Compensator
- Multi-Constellation Tracking
- Bluetooth
- Long Battery Life (> 8 hours)
- Windows Compatibility
- Android Compatibility
- iOS Compatibility
- NFC Module
- Internet RTK Technology
- PPK Mode

※PPP available such as PPP-B2b for SL900

Product Comparison

		Eyr	SL7	Freyja	SL900
GNSS Specifications	Channels	1408/800+(optional)	1408	1408	1760/1408
	GPS	L1C/A, L1C, L2P(Y), L2C, L5	L1C/A, L1C, L2P(Y), L2C, L5	L1C(A) / L1C / L2P(Y) / L2C / L5	L1C/A, L1C, L1PY, L2C, L2P, L5
	BDS	B1I, B2I, B3I, B1C, B2a, B2b	B1I,B2I,B3I,B1C,B2a,B2b	B1I, B2I, B3I, B1C, B2a, B2b	B1I, B1C, B2a, B2I, B3
	GLONASS	L1, L2, L3	L1, L2, L3	L1, L2, L3	L1CA, L2CA, L2P, L3 CDMA
	GALILEO	E1, E5, AltBOC, E5a, E5b, E6	E1, E5, AltBOC, E5a, E5b, E6	E1, E5A, E5B, E6	E1, E5 AltBOC, E5a, E5b, E6
	QZSS	L1, L2, L5, L6	L1,L2,L5,L6	L1, L2, L5, L6	L1 C/A, L1C, L2C, L5, L6
	SBAS	L1, L2, L5	L1,L2,L5	L1, L2, L5	L1, L5
	IRNSS	L5	L5	L5	L5
	Global Correction Service	L-BAND	-	-	L-BAND
Communication	Cellular Modem	4G LTE	-	N/A	4G LTE
	Internal Radio	SatLab Radio	SatLab Radio	SatLab Radio	SATEL Radio
	I/O Interface	Bluetooth:4.0/2.1+EDR	Bluetooth:4.0/2.1+EDR	Bluetooth: BT 5.2, 2.4GHz	Bluetooth:V2.1+EDR
	NFC	NFC	NFC	NFC	NFC
	WiFi	WiFi 2.4G,802.11 b/g	WiFi 2.4G,802.11 b/g	WiFi 2.4G,802.11 a/b/g/n	WiFi 2.4G,802.11 b/g/n
Handheld	Controller/Tablet	SHC55, TBA, SL86, A8003H	SHC55, TBA, SL86, A8003H	SHC55, TBA, SL86, A8003H	SHC55,SL86
Software	Software	SatSurv	SatSurv	SatSurv	SatSurv,Aplitop TCPGPS,Carlson SurCE
Positioning	Hi-Fix	Support	Support	Support	Support
	Tilt Survey	Yes	Yes	Yes	Yes
	RTK	H: 8 mm + 1 ppm RMS/V: 15 mm + 1 ppm RMS	H: 8 mm + 1 ppm RMS/V: 15 mm + 1 ppm RMS	H: 8 mm + 1 ppm RMS/V: 15 mm + 1 ppm RMS	H: 6 mm + 0.5 ppm RMS/V: 10 mm + 1 ppm RMS
	Network RTK	H: 8 mm + 1 ppm RMS/V: 15 mm + 1 ppm RMS	H: 8 mm + 1 ppm RMS/V: 15 mm + 1 ppm RMS	H: 8 mm + 1 ppm RMS/V: 15 mm + 1 ppm RMS	H: 8 mm + 0.5 ppm RMS/V: 15 mm + 0.5 ppm RMS
	High-precision static	H: 2.5 mm + 0.1 ppm RMS/V: 3.5 mm + 0.4 ppm RMS	H: 2.5 mm + 0.1 ppm RMS/V: 3.5 mm + 0.4 ppm RMS	H: 2.5 mm + 0.1 ppm RMS/V: 3.5 mm + 0.4 ppm RMS	H: 2.5 mm + 0.1 ppm RMS/V: 3.5 mm + 0.4 ppm RMS
	Static and Fast Static	H: 2.5 mm + 0.5 ppm RMS/V: 5 mm + 0.5 ppm RMS	H: 2.5 mm + 0.5 ppm RMS/V: 5 mm + 0.5 ppm RMS	H: 2.5 mm + 0.5 ppm RMS/V: 5 mm + 0.5 ppm RMS	H: 2.5 mm + 0.5 ppm RMS/V: 5 mm + 0.5 ppm RMS
	SBAS	H: 50 cm RMS/V: 85 cm RMS	H: 50 cm RMS/V: 85 cm RMS	H: 50 cm RMS/V: 85 cm RMS	H: 50 cm RMS/V: 85 cm RMS
	DGPS	H: 25 cm RMS/V: 50 cm RMS	H: 25 cm RMS/V: 50 cm RMS	H: 25 cm RMS/V: 50 cm RMS	H: 25 cm RMS/V: 50 cm RMS
	Initializing Time	＜10s	＜10s	＜10 s	2 - 8 s
	Initializing Reliability	99.9 %	99.9 %	99.9 %	99.9 %
Physical	Internal Storage	8 GB Internal Storage	8GB Internal Storage	8 GB Internal Storage	8GB Internal Storage,Support 32GB SD card
	IP Level	IP68	IP68	IP68	IP67
	Anti-drop	Shock resistant body to 2m(6.5ft) pole drop	Shock resistant body to 2m(6.5ft) pole drop	Shock resistant body to 2 m(6.5 ft) pole drop	Shock resistant body to 2m(6.5ft) pole drop
	Operating Temperature	-45℃ to 75℃	-45℃ to 75℃	-45℃~+75℃	-40℃ to 65℃
	Storage Temperature	-55℃ to 85℃	-55℃ to 85℃	-55℃~+85℃	–40℃ to 85℃
	Size	130 mm×79 mm	130 mm×68 mm	132 mm×67 mm	170 mm x 95 mm
	Weight	970 g Including Battery	≤ 750 g (1.65lb)	669g Including Battery	1.2 kg Including Battery
	Battery	6900 mAh High-capacity lithium battery	6900 mAh High-capacity lithium battery	6900 mAh High-capacity lithium battery	5000 mAh Lithium-ion Battery
	Battery Life	12 Hours RTK Rover	24 Hours RTK Rover	24 Hours RTK Rover	10 Hours RTK Rover

SHC55
Handheld Controller

5.5" sunlight readable display capacitive touch screen for fingers or stylus.

Alphanumeric full keyboard designed, convenient for different measurement application scenarios.

Quick charge with internal lithium battery to improve efficiency under long time job.

Android 11 operating system equipped to maintain the productivity of numerous survey projects and data.

Bigger Screen, Wider Vision

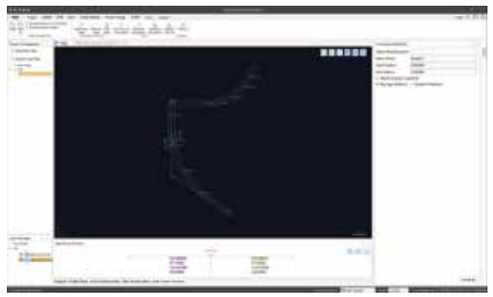
Satsurv
Professional Field Survey Software

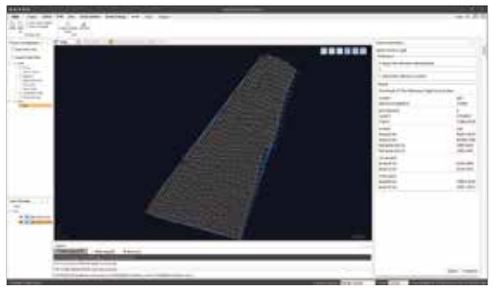
- Integrates surveying technology to achieve reliable positioning accuracy in tough conditions
- Supports WMS/WMTS and Google maps service
- Advance data stakeout function supports AR stakeout and CAD format stakeout
- Professional road design and stakeout functions, DTM surface, etc.
- Multiple popular format support, convenient cross-project operation
- Powerful COGO routines

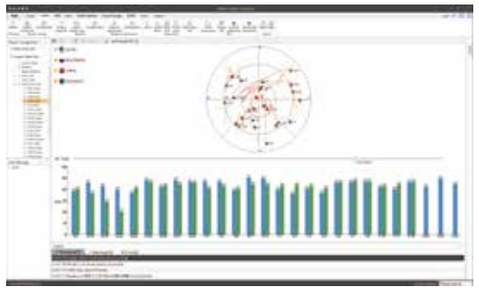
SGS 2.0 (SatLab GeoBiz Solution)

High-precision GNSS Data Post-processing Software

- Advanced solution engine that focuses on GNSS data post-processing.
- Stable and automatized data processing procedure for better solution results.
- Concise and user-friendly operational interface to facilitate work.
- Information visualization and quality control for data management.







A8003H PRO

High-precision Rugged Tablet

- 610g Lightweight
- IP67 Dustproof & Waterproof
- Android 13.0
- 8-inch Display, Touchable Screen

SL11 Pro

GNSS RTK Rugged Tablet

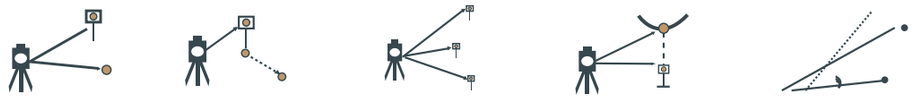
- 820g Lightweight
- IP67 Dustproof & Waterproof
- Android 12.0
- 10.1-inch Display, Touchable Screen

SLT12

An Android Total Station with Real-time Visual Guidance

Boasting an integrated Android operating system and specialized Android software, SLT12 seamlessly integrates cutting-edge technology into every measurement task. The two high-definition displays elevate operational fluidity, while the built-in camera enables AR stakeout for effortless field operations, making SLT12 an indispensable tool for optimizing workflows and achieving exceptional results.

Functions



Key Features

- Android 9.0 Operating System
- 5.5-inch Touch Screen
  Resolution 720*1440
- EDM
  Reflectorless Range 1000 m
  Speed down to 0.3 s
- Support Bluetooth, Wi-Fi,
  Wi-Fi hotspot
- Equipped with 8
  Megapixel Camera
- Type-C port with Integrated
  USB OTG Function
- 1.8 Ghz
  Qualcomm Octa-core:1.8 GHz
- Free Road, Bridge and Tunnel
  Measurement Software

SLT10

High Light Screen and High Reliabiity Total Station

SLT10 adopts a high-definition color screen to provide better human-computer interaction. The new optical design and absolute coding technology contribute to better measurement performance. High-precision compact bead shafting and sealed encoder disk enhance accuracy and stability. A novel measuring experience will be offered by the numerous built-in measurement programs and maintenance procedures.

Key Features

New EDM
Reflectorless range 1000 m.
Speed down to 0.3 s.

Colorful Screen
2.8-inch 240*320 pixel, clearly visible in sunlight.

Trigger Key
More efficient and accurate.

Auto Senser
Get temperature and pressure automatically. One-click access.

Data Transmission
USB cable and U disk.
Format:(*.csv), (*.txt), (*.dat), (*.dxf), (*.gt7), (*. htf) etc.

Power
3000 mA high-capacity Li-ion battery, LED display, Type-C charging. Battery life exceeds 18 h.

Stable Hardware Design
Dual-axis tilt sensor.
High-precision bead shafting.
Sealed encoder disk.

Software Connection
Support SurvCE and Satsurv connection.
Support secondary development.

SLT2

High Accuracy and Wide Compatibility Total Station

The SLT2 has a fast and powerful reflectorless EDM (0.8 seconds) that is designed to provide advanced accuracy with an efficient workflow in a sleek body. In order to ensure long-term operation in adverse weather conditions, various environmental tests such as vibration, drop, temperature, and humidity were performed to achieve the highest quality.

New EDM

Speed down to 0.3 s.
Reflectorless range 800 m.

Colorful Screen

2.8-inch 240*320 pixel, clearly visible in sunlight.

Power

3000 mAh high-capacity Li-ion battery.
Battery life exceeds 18 h.

Data Transmission

USB cable and U disk.
Format:(*.csv), (*.txt), (*.dat), (*.dxf), (*.gt7), (*. htf) etc.

Trigger Key

More efficient and accurate.

Stable Hardware Design

Dual-axis tilt sensor.
High-precision bead shafting.
Sealed encoder disk.

Software Connection

Support SurvCE and Satsurv connection.
Support secondary development.

Applications

- Road Works
- Topography and As-built
- Foundation and Exterior
- Land Surveying
- Construction Survey and Layout

SLX-1

Multi-Application GNSS Receiver

- Swedish Quality
- Mutiple Transfer Data Transfer
- Linux OS On Board
- Multiple Tasking
- Highly Precise GNSS Data

- Full constellation tracking.
- Position accuracy with 2.5 mm.
- Large capacity storage with 64 GB.
- 12,500 mAh large capacity battery that can work 24 hours continuously.
- Intelligent and secure integrated operation management platform.

Applications

- Land Surveying
- Utilities
- Deformation Monitoring Solutions
- Hydrographic Application
- Topography and As-built
- Infrastructure
- Seismic Monitoring
- Reference Station

3D Scanning

Unlock Your Visualization Potential

SatLab's advanced 3D scanners and software are designed to revolutionize workflows in various industries. It can offer reliable data collection with detailed point cloud and rich image information, ensuring efficiency, accuracy, and simplicity. Its versatile applications span 3D spatial data acquisition for terrain mapping, electricity, forestry, agriculture surveys, emergency response, land planning, and underground space mapping.

Lixel^{X1}

Handheld SLAM Scanner

Lixel ^{X1} real scene 3D reconstruction scanner – a compact, powerful, and precise LiDAR scanner for capturing real-world scenes and generating detailed 3D models instantly without post-processing.

Powered by advanced SLAM technology, this lightweight and integrated device offers real-time data capture and immediate data preview.

Key Features

High-precision IMU
Continuous positon correction

High performance computing module
Real-time reconstruction export and use

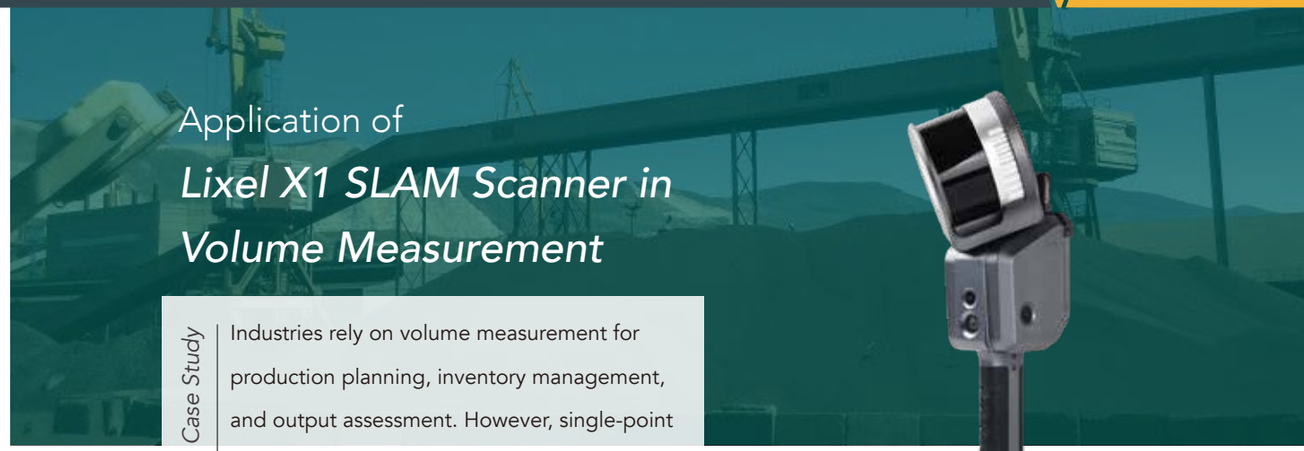
LiDAR unit
320,000 pts/sec 120m range

Visual module
Visual SLAM Panoramic image capture

Clip battery
Fast loading and unloading Power visualization

Applications

- Topographic Mapping
- Agriculture & Forestry Survey
- Engineering Survey
- Emergency Mapping
- Volume Calculation
- Underground Space Mapping



Application of

Lixel X1 SLAM Scanner in Volume Measurement

Case Study

Industries rely on volume measurement for production planning, inventory management, and output assessment. However, single-point measurements often lack accuracy due to surface slope variations, posing challenges for large-area pile management that is both time and labor-intensive.

Challenge Identification

Due to complex shapes, limited measured points, and unobserved elevations, volume is often simulated using contour lines, causing significant errors from the true result. Photogrammetry faces challenges with point pairing and dense image matching accuracy, leading to substantial measurement errors in some pile cases.

Workflow

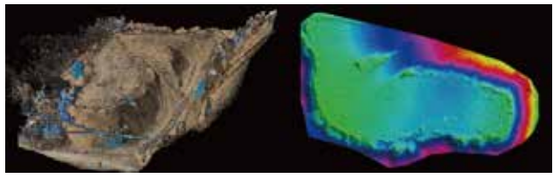
On-site route planning → data acquisition → Point cloud data processing → Pile Volume Measurement

Planning route:

For on-site surveys of the pile area, we'll use a serpentine trajectory with <20m path intervals to ensure dense, high-quality point clouds, overlapping start and end points, and post-processing corrections for point cloud layering.

Data capture:

With a handheld Lixel X1 scanner, the operator conducts planned route scanning of the pile area, achieving seamless onsite scanning without station changes or alignment correction; georeferencing is assisted by control points. LixelGO app offers real-time insights, path view, and laser point cloud assessment, enabling 15-minute onsite scanning.



Data verification:

Verified with on-site coordinates of five points, the point cloud data exhibited a 0.029m mean square error for plane accuracy and 0.004m for elevation, meeting the <3cm accuracy criteria for pile measurement.

	A	B	C	D	E	F	G	H	I	J	K
1	#id	label	truth_x	truth_y	truth_z	optimized_x	optimized_y	optimized_z	error_xy	error_z	error_xyz
2	1	1_1	458404.519	3865651.532	76.993	458404.491	3865651.499	76.991	0.057	0.002	0.058
3	2	2_2	458401.484	3865668.155	77.128	458401.433	3865668.177	77.136	0.036	0.010	0.038
4	3	3_3	458326.972	3865694.263	82.653	458326.958	3865694.237	82.650	0.030	0.003	0.030
5	4	4_4	458326.353	3865666.274	81.091	458326.348	3865666.280	81.084	0.008	0.007	0.008
6	5	5_5	458367.867	3865675.105	81.740	458367.864	3865675.120	81.740	0.012	0.000	0.012
7	average error: error_xy: 0.029 error_z: 0.004 error_xyz: 0.029										

Summary

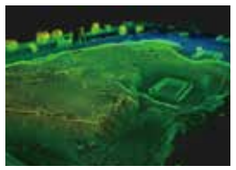
Lixel^{X1} scanning yields accurate point cloud data of the pile's structure, aligned by LixelStudio for 3D modeling or direct volume calculations, enhancing 3D laser scanning efficiency and reducing operator involvement compared to traditional methods.

Cygnus

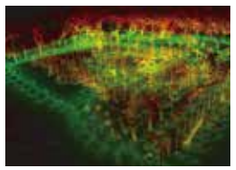
Handheld SLAM Scanner

- Speedy and Accurate 16-channel LiDAR
- Hybrid Solving Technique for Rapid Data Processing
- Powerful Mobile Software
- Light-weight, Durable and Versatile

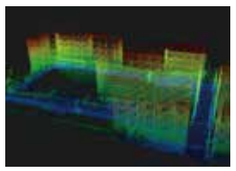
Applications



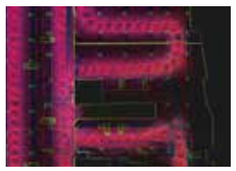
Stockpile Volumes Measurement



Natural Resources & Environment Investigation



Building Information Collection



Underground Space Digitalization

Optional Accessories

UAV Platform Adaptor

RTK Backpack

Vehicular Bracket

Panoramic Camera

Range	120 m	Carrier	Handheld / Backpack / UAV
Laser Class	Class 1, Eye Safe	Scanner Weight	1.5 kg, 227×98×98 mm
FOV	360 × 285°	Data Logger Weight	0.8 kg, 158×70x145 mm
Accuracy	0.5-2 cm	Channels	16
Points/s	320,000	Battery Life	4 hrs
Processing	Hybrid solving	Ingress Protection	IP65
Display	Real-time preview using mobile terminal	Internal Storage	512 GB Extendable to 1TB by SD card

Application of

Cygnus SLAM Scanner in Urban Topographic Surveys

Case Study

Urban topographic mapping faces flight permission challenges in certain areas, making ground mobile surveying advantageous due to flexibility and fewer restrictions.

Challenge Identification

We possess ALS data for the expressway and its vicinity but lack comprehensive details on roads, bridges, and tunnels. Photogrammetry and airborne LiDAR for urban topographic mapping are widely used for urban reconstruction but fail to obtain complete 3D information about the city owing to occlusion.

Workflow

We employ multi-platform Cygnus SLAM for 3D urban data collection, supplementing ALS data. Adaptable for handheld, backpack, vehicle, and airborne use. Cygnus SLAM laser scanners enhance mapping of urban structures like viaducts, bridges, roads, and tunnels.

Starting with bridge area survey, two scanning methods (vehicle-mounted and backpack) were selected based on field validation. Backpack scanning captures overpasses and under-bridge areas, while vehicle-based scanning gathers road and tunnel information.

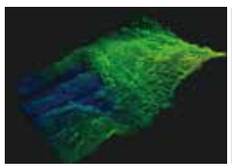


Figure 1
The origin ALS point cloud data

Figure 2
Backpack mobile laser scanning system

Utilizing the Cygnus backpack mobile laser system with RTK, we capture the bridge area.

Figure 3
Backpack scanning point cloud data

Figure 4
The local point cloud data of bridge pier

Cygnus car-mounted SLAM scanning system

Figure 5 Car kit of the Cygnus SLAM scanner

Mounted on a car with RTK, Cygnus SLAM scanners yield enhanced results. Control points are placed for GNSS signal loss, and round-trip scanning ensures a closed-loop trajectory for reliable data. On-board scanning data is depicted in Fig. 6-a, while tunnel entrance point cloud is displayed in Fig. 6-b.

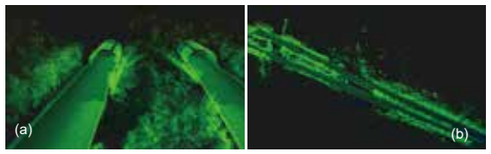


Figure 6 On-board scanning point cloud by Cygnus

Multi-source point cloud data

Both data types are automatically integrated using Cygnus's SLAM Manager app, minimizing manual efforts and saving time in production. Point cloud data fusion harmonizes vehicular, backpack, and airborne data into a single coordinate system, exporting as *.las format. This ensures bridge and environment integrity, preventing data gaps. Complete data is illustrated in Fig. 7.

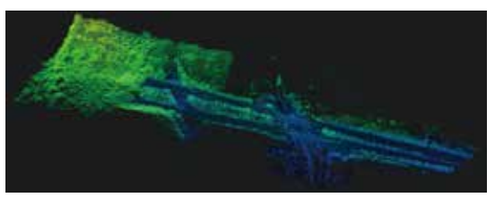


Figure 7 Multiple point cloud data

Summary

We leverage SLAM Laser scanner versatility (backpack, vehicle-mounted) for enhanced data collection. Integrating SLAM with aerial remote sensing technologies yields comprehensive urban 3D data.

Apus

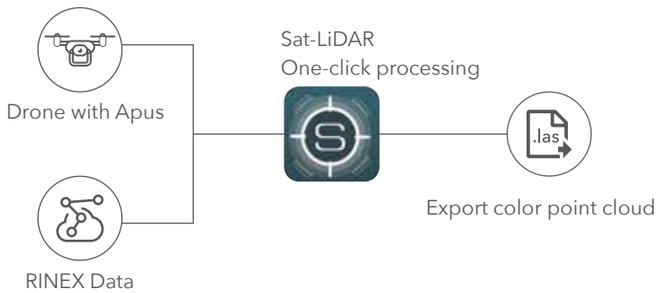
UAV LiDAR Solution

The Apus represents the evolution of SatLab's LiDAR solutions. This light compact and superior system integrates an advanced laser scanner with an industrial grade camera and a sophisticated inertial navigation system, is able to collect reliable and great detailed point cloud and rich image information.

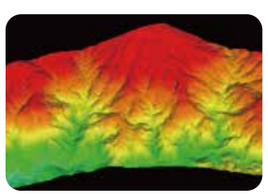
Its versatile applications span across 3D spatial data acquisition for terrain mapping, electricity, forestry and agriculture surveys, emergency response, and land planning.

- Triple Returns
- Plug and Play
- One Button Operation

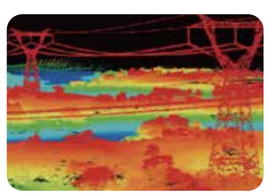
Workflow



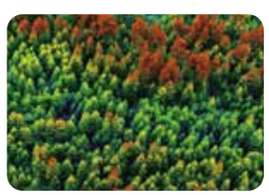
Applications



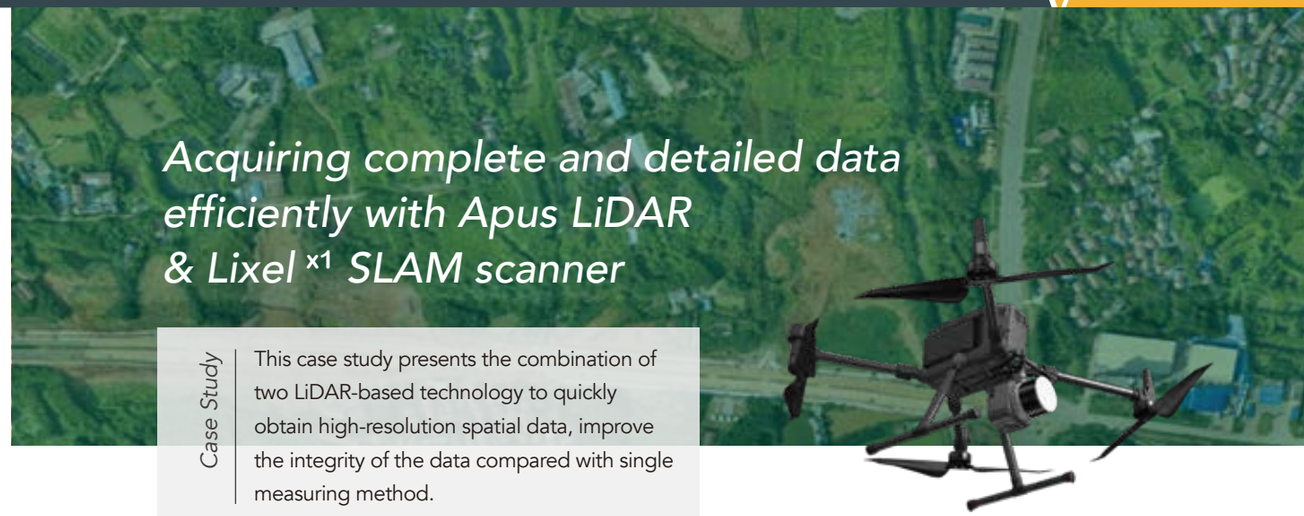
Topographic Mapping



Power Line Inspection



Forestry Survey



Acquiring complete and detailed data efficiently with Apus LiDAR & Lixel x1 SLAM scanner

Case Study

This case study presents the combination of two LiDAR-based technology to quickly obtain high-resolution spatial data, improve the integrity of the data compared with single measuring method.

Challenge Identification

The survey area is about 1.5 square kilometers, with height difference of 30 meters, about 60% vegetation cover, and villages with rows of houses connected by side walls, and cluttered village facilities with a large number of tin shacks. The mapping results require an error in elevation of less than 5 cm, and no voids in the data of sheltered areas such as tin shacks and eaves. It is difficult to get accurate and detailed ground topography data in dense vegetation area with photogrammetry method.

Figure 2 Houses and forests in the survey area

Solution

In order to addressing the encountered challenging features such as densely forested areas and rugged landscapes during the data capture, this mission used the APUS LiDAR system integrated with DJI M350RTK to scan the overall large area. Some parts of the structure blocked by shacks or roof, were augmented with LixelX1 SLAM scanner. Serval RTK check points were collected on surveying area for verification of the fusion point cloud.

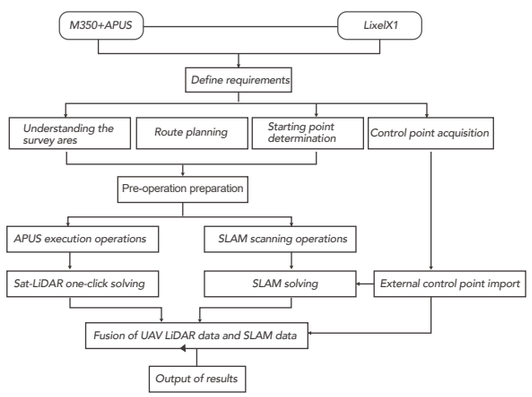
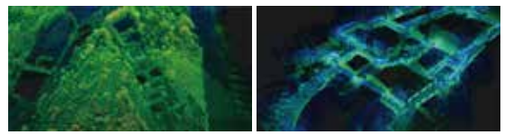


Figure 2 Technical Route

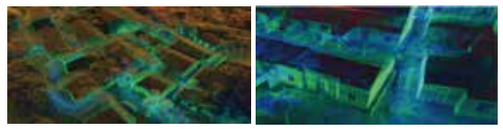
Results

High density and qualified data

1.APUS UAV LiDAR point cloud. 2. Lixelx1 SLAM point cloud.

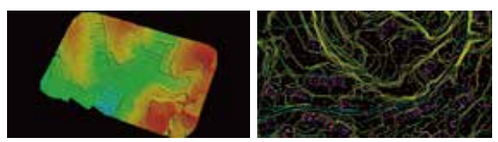


3. Data fusion effect.



4. Digital elevation model (DEM) and topographic mapping result.

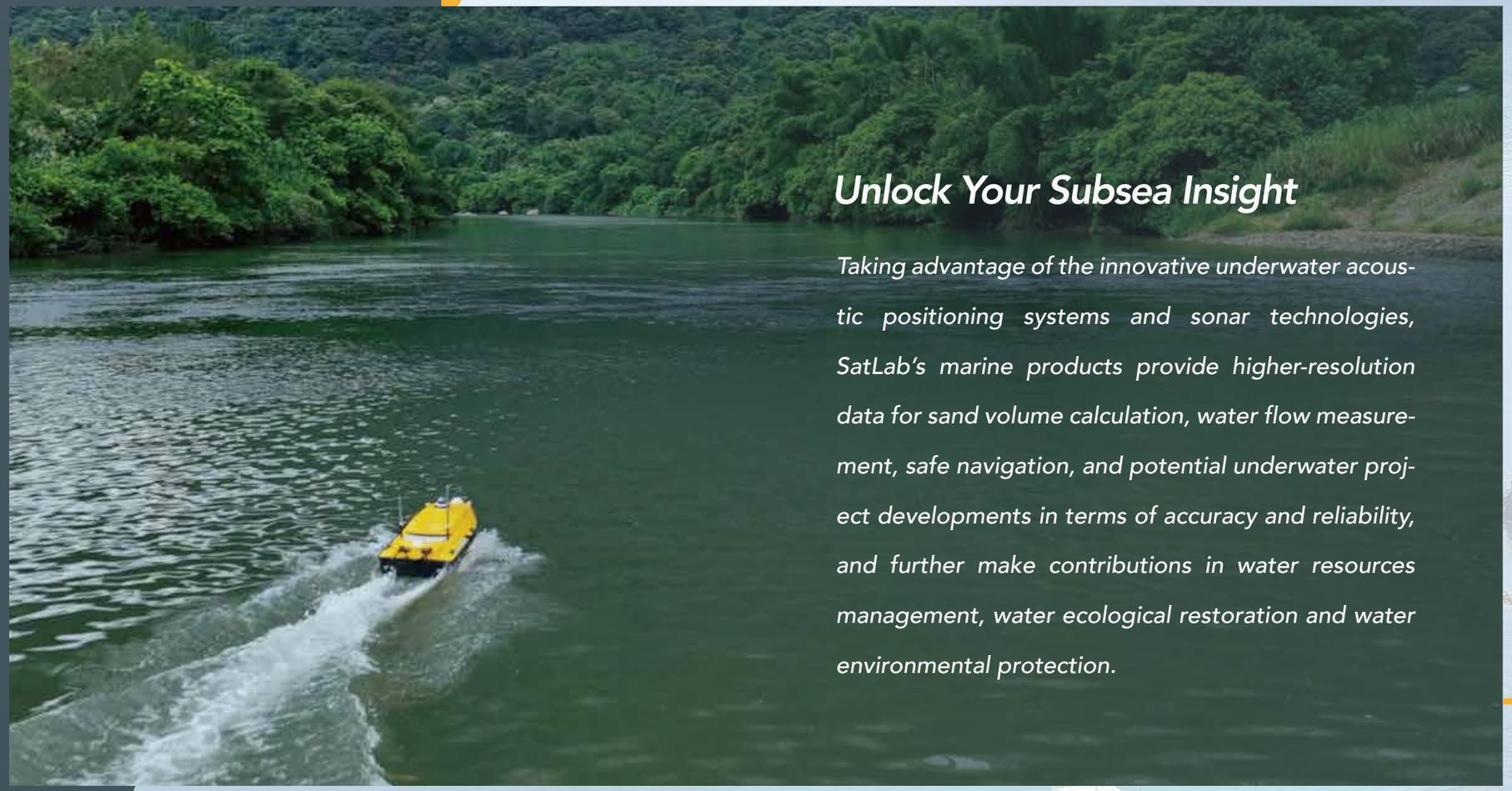
The high-integrity and centimetric resolution point cloud was then classified for ground points through Sat-LiDAR software processing. recovering the clear ground information under the sheltered area, resulting in accurate digital elevation model (DEM) and digital line graphic (DLG) as well.



Conclusion

The combination of the two techniques can benefit from each other's strength.
it ensures the integrity and accuracy of the survey data, providing reliable data support for various application.

Hydrography & Oceanography



Unlock Your Subsea Insight

Taking advantage of the innovative underwater acoustic positioning systems and sonar technologies, SatLab's marine products provide higher-resolution data for sand volume calculation, water flow measurement, safe navigation, and potential underwater project developments in terms of accuracy and reliability, and further make contributions in water resources management, water ecological restoration and water environmental protection.

HydroBoat 1500

Multi-Beam Echo Sounder USV

The HydroBoat 1500 is a versatile bathymetric survey and monitoring platform that can carry a multi-beam echo sounder, making it a powerful solution for experts who need precise underwater topographic information.

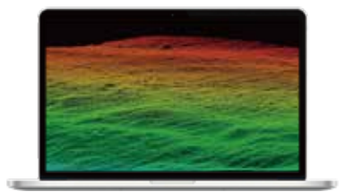
Key Features

Exceptional Payload Capacity
Accommodates up to 65 kg of payloads with a through-hull design to adapt to various surveying tasks.

Unlimited Range Transmission
Experiences 4G and 2.4G dual-channel control and communication for limitless reach and real-time data collection, even from the office.

Intuitive Android Control
Simplify operations with the user-friendly SLHydro USV software, featuring route planning, boat control, and status monitoring features.

Uncompromising Safety
Navigate with confidence thanks to a 360° omnidirectional camera, millimeter wave radar, double-layer anti-sink hull, and shallow water hovering capabilities.


Riverbed Morphology Survey


Underwater Slope Inspection


Dam Deformation Monitoring


Channel Topography Survey

HydroBoat 1200

Multi-Purpose USV

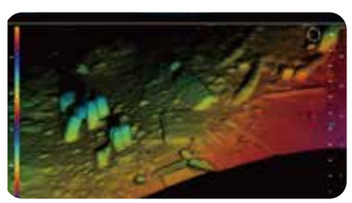
HydroBoat 1200 melded with high-precision single-beam echo sounder, GNSS directional positioning receiver, and an advanced intelligent boat-control system, it deftly serves varied water operational demands.

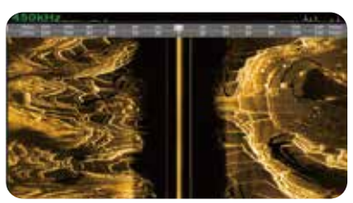
Portability
- 10 kg lightweight hull
- 1200 mm small size hull
- Multi-function Android boat control software

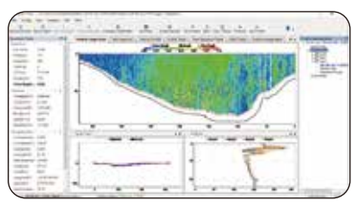
Versatility
- 240 mm large moon pool
- Supporting transparent data transmission
- Reaching maximum boat speed of 6 m/s for efficient movement

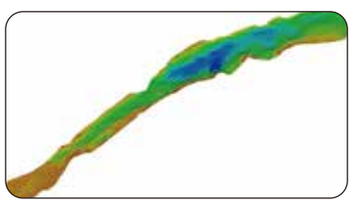
Safety
- 360° PTZ camera
- Millimetre wave obstacle avoidance radar
- Smart battery management platform

Industry Applications







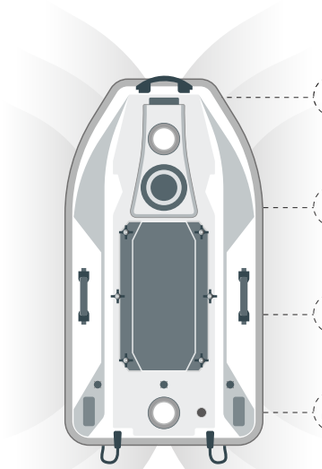


HydroBoat 990

Bathymetry USV

HydroBoat 990 USV integrates the GNSS system, bathymetry system, communication system and autonomous navigation system, enabling it to achieve efficient and accurate underwater topographic survey.

Key Features



1. Supported by auto and manual mode in the pilot system, safeguarded by radar's obstacle avoidance and hovering system.
2. Stable hull design for standing waves, IP67 waterproof, and rugged body with collision protection.
3. One-click connection with a powerful controller makes the USV a direct-to-go system, operating at ranges of 2km.
4. The pioneering Android app for hydrography and pilot control, makes surveying easier and faster with one intelligent controller.

SLHydro USV android software

Safety

- Adaptive water flow
- Position hovering
- Low battery return
- Shallow Water Protection
- Video surveillance
- Intelligent obstacle avoidance

Functionality

- Usability mission layout
- Multi-differential settings
- Multiple basemap displays
- Bathymetric Data Acquisition
- Coordinate Conversion
- Project Management

HydroBeam M4

Portable Multi-beam Echo Sounder

- Highly Integrated IMU & Sound Velocity Sensor
- High Ping Rate for Fast Measurement Speed & High Precision

Key Features

Volume: φ228mm*175mm

Real-time roll stabilization

Built-in SVS, INS

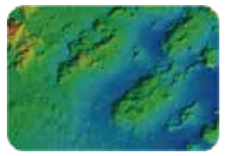
Weight: 5.9kg

8-150° Swath coverage

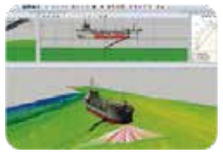
Up to 1024 beams

Rounded design for use on various vessels

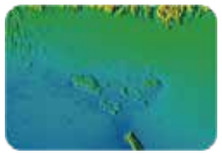
Applications



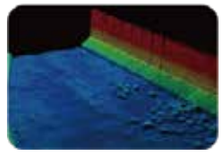
Underwater Terrian Surveying



Dredging



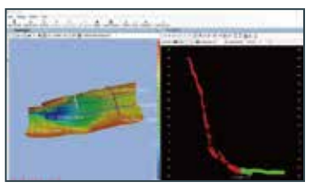
Emergency Rescue

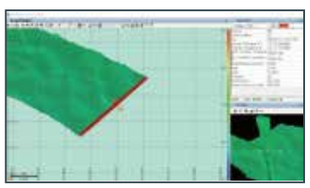


Hydrographic Surveying

Software

Echo and Parameters





Njord

High Precision Position and Heading Receiver

- 1408-channel signal tracking: GPS L1/L2/L5, GLONASS L1/L2, BDS B1/B2/B3, Galileo E1/E5 and L-Band capability
- Convenient front panel display and configuration
- Multiple I/O ports for different signals and purposes including NMEA-0183 and pps
- Radio, cellular internet and cable and other kinds of communication
- Benchmark PPP Service technology provides seamless RTK performance during connection outage

Specifications

System	CPU & OS	Cortex-A8, AM3358, Linux
	Storage	8 GB Internal Storage, Support External SD Card
GNSS Performance	Channel	1408
	Signal Tracking	BDS: B1/B2/B3 GPS: L1/L2/L5 GLONASS: L1/L2 GALILEO: E1/E5 QZSS: L1/L2/L5 Support L-Band
	RTK Accuracy	H:± 8 mm + 1 ppm V:± 15 mm + 1 ppm
	Static Accuracy	H:± 2.5 mm + 0.5 ppm V:± 5 mm + 0.5 ppm
	Autonomous	H:±1.5m（RMS） V: ± 3 m（RMS）
	SBAS	H:±0.5 m（RMS） V: ± 0.85 m（RMS）
	PPP	H:±5 cm（RMS） V: ± 10 cm（RMS）
	Heading Accuracy	0.05° @ 4.0 m Antenna Separation
	Positioning Rate	20 Hz Max
	Message Type	RTCM2.x, RTCM3.x
Internal Cellular	Operation Frequencies	LTE:900/1800/1900/2100/2300/2500/2600 MHz WCDMA:850/900/1900/2100 MHz; GSM:900/1800 MHz
Radio UHF	Protocols	TRIMTALK450S, TRIMMARKⅢ, TRANSEOT, SOUTH
	Frequency	410-470 MHz, -116 dBm
	Channels Power	116, Editable from 100 to 115 2 W, 1 W, 0.5 W
Interface	Bluetooth	2.4 GHz, 4.0/2.1+EDR
	WIFI	2.4 GHz，802.11 b/g/n
	Display	1.3 inch LED Display, 128*64
	Buttons	Power and FN (Function)
	Indicators	LED for Satellites, Data, and Power
	Web UI	LAN IP: 192.168.20.1

ES-224

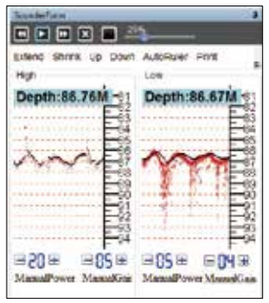
Dual-frequency Echo Sounder

- 24 kHz & 200 kHz operation frequencies
- 0.15 to 300 meters and 0.8 to 2000 meters depth range
- Accuracies meet the IHO standards
- The full-featured software for reliable data collection and processing
- 17-inch large tempered glass screen shortcut buttons
- Windows Operating System with 128 GB internal data storage
- Support 3rd party transducer with different frequencies
- CE and EN 60945 certified

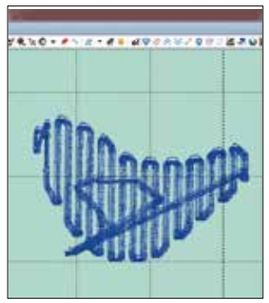
Applications

- Tracking of the Seabed
- Sediment Measurement for Dredging
- Turbid Water with High Sand Content
- Measurement at High Speed

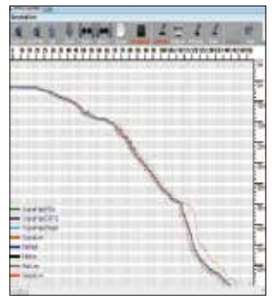
Working Process



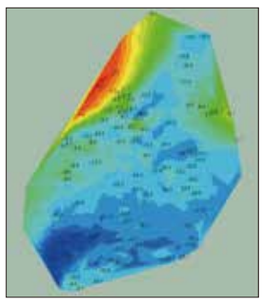
Surveying



Track



Process



Result Preview

User-defined Export

External Sensor

HydroScan 1400/4900

Dual-frequency Side Scan Sonar System

Multiple Frequency Available

There are multiple frequencies available to use according to required applications. 100/400kHz, 400/900kHz and 400kHz, users can always find a suitable mode.

Real-time CW & CHIRP

Real-time switching provides an adaptive solution for users, while the anti-noise performance is improved, the resolution higher and the range longer.

Multiple Internal Sensors

By integrating the sensor for heading, pitch, roll, depth and pressure, images are corrected in real time and related reference information can be acquired to ensure operational safety.

Ultra Small Beam Angle

Beam angle can be up to 0.2°, providing resolution up to 1.25cm, so it is easy to recognize smaller objects.

Strong and Robust Towsh

Adopting a fluid mechanics design, the 316 stainless steel housing can help the tow fish endure even 1000m depths.

Meets IHO & NOAA Survey Standard

Applications

- Hydrographic Surveys
- Geological Surveys and Mappings
- Search & Rescue & Found
- Channel/Clearance Surveys
- Water Construction Inspections
- Environmental Habitat Surveys
- Cable Route & Pipeline Surveys

HydroFlow 600/1200

Acoustic Doppler Current Profiler

Multiple Built-in Sensors

Integrating the gyro, temperature, pressure and tilting sensor, HydroFlow 600/1200 offers mutipule source of infomation for the operation reference.

Long Profiling Range Multiple Cells

600Hz working frequency extends the current measurement range up to 75 meter (HydroFLow1200 up to 25m) with maximum 256 cells.

High Precision Discharge Measurement

Supported by broadband signal processing technology, the anti-noise level has been improved while the Discharge measurement accuracy can be up to 0.25%±0.25cm/s.

Easy to Use Software

Clear software working flow and UI lower the learning curve, making it easy to use.

Applications

- Hydrology Monitoring
- Irrigation Monitoring
- Fisheries Studies
- Flood Warning
- Environmental Studies

Monitoring and Collecting Software

MOBILITY BOOSTER

Strategic Partnership Alliances • Geosocial Networking Forum

Global Reach Service and Support • Sat-Live Day

Strategic Partnership Alliances

Global Reach Service & Support

- Local support for different time zones
- Reliable spare parts service
- Partner programme to share experience
- Marketing support to grow your business

SatLab Geosocial Networking Forum

Connect and share ideas within the geospatial industry

Sat-Live Day

Join us for an exciting Live Demo and experience a Pilot Project