









GEOSOLUTION I GÖTEBORG AB Jarnbrotts Prastvag 2 SE-42147 - Vastra Frolunda Gothenburg, Sweden













## **CONTENTS**

|   | $\mathbf{N}\mathbf{A}\mathbf{C}$ | 701 | $\sim$ | UNTS   |
|---|----------------------------------|-----|--------|--------|
| _ | IVIL                             | лъп |        | $\cup$ |

| SatLab at a Glance        | 02       |
|---------------------------|----------|
| Offices and Divisions     | 02       |
| UNLOCK YOUR MOBILITY      |          |
|                           |          |
| GNSS RTK                  |          |
| Eyr                       | 04       |
| Freyja                    | 05       |
| SL900                     | 06       |
| SL800<br>SL700            | 06       |
| TR7                       | 06<br>07 |
| SHC55                     | 10       |
| Satsury                   | 11       |
| SGS 2.0                   | 12       |
| GIS                       |          |
| TBA                       | 13       |
| Optical                   |          |
| SLT2                      | 14       |
| SLT10                     | 15       |
| TTS2                      | 16       |
| CORS                      | . 0      |
| SLX-1                     | 16       |
|                           | 10       |
| Marine and Water Resource | 4.7      |
| Njord                     | 17       |
| HydroBoat 990             | 17       |
| ES224                     | 18       |
| HydroScan 1400/4900       | 19       |
| HydroFlow 600/1200        | 20       |
| 3D Handheld LiDAR Scanner |          |
| Cygnus                    | 21       |
|                           |          |

#### MOBILITY BOOSTER

# SatLab at a Glance

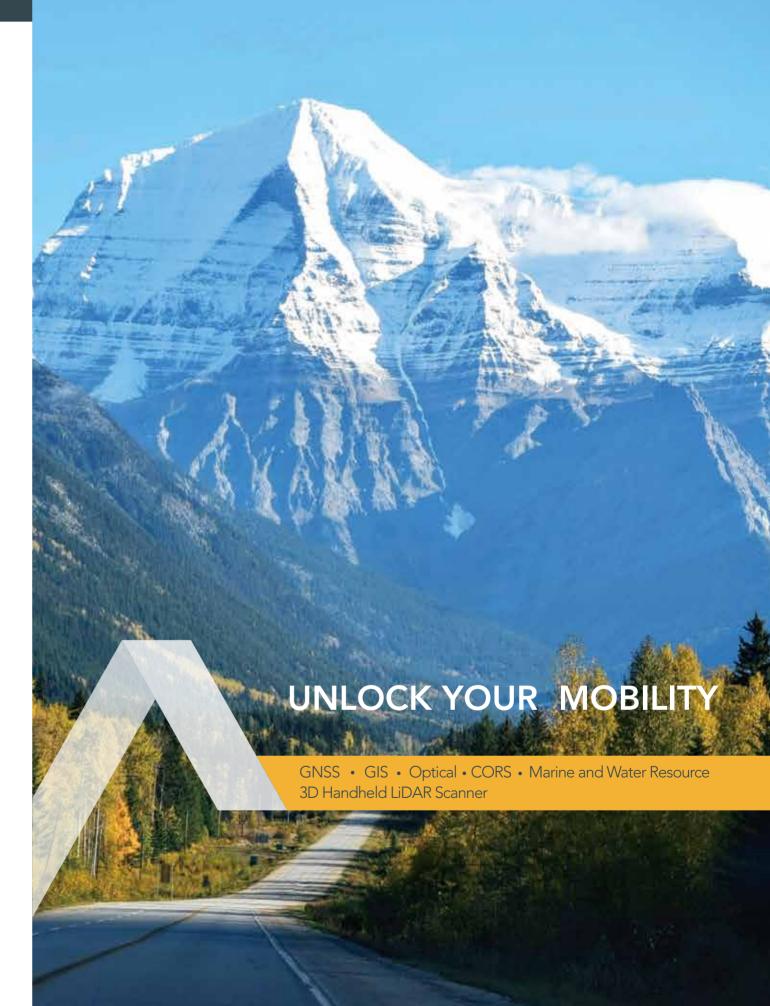
SatLab Geosolutions is a Swedish based satellite positioning solutions company, which was founded by a group of pioneering engineers with more than 40 years of experience in the GNSS industry.

Our research and development team constantly extend the boundaries by using Swedish Science & Technology to bring about innovation and provides unique hardware/software and integrated solutions with an aim to increase productivity on-site for our professional users, while maintaining user satisfaction by enhancing and simplifying our user interface for more intuitive user experience.



14 Offices / Service Centers

2 R&D CENTERS



## 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.



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)



2

## Freyja

### The 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 (> 12 hours)



Compatibility with third-party software







## **GNSS RTK Receivers**

Agile and Precise Positioning

SL900 and SL800 are powered by advanced GNSS engine. The SatLab GNSS receiver range offers precise positioning even in the most remote or challenging environments.



Multi-constellation tracking



NFC quick connection with your preferred device



Multiple controllers and field software compatibility



Smart system for auto-self-inspection



XPPP available such as TerraStar and Hi-RTP for SL900 and SL700

## TR7

New High-Quality GNSS Receiver

### -^─Key Features







display & control connection











Quick charge

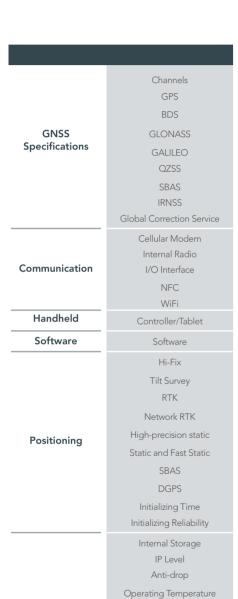
### ackslash Specifications

(optional)

|                            | GNSS  |
|----------------------------|---|
| Signal Tracking            | GPS: L1, L2, L5<br>GLONASS: L1, L2<br>BDS: B1, B2, B3<br>Galileo: E1, E5A, E5B<br>QZSS: L1, L2, L5<br>SBAS: L1<br>IRNSS:L5                |
| No. of Channels            | 800+  |
| MEASUREN                   | MENT PERFORMANCE  |
| Initializing Time          | Less than 10 Seconds  |
| Real-time Kinematic        | Hz8mm+1ppm/15mm+1ppmRMS   |
| Static and Fast Static     | Hz 2.5mm+0.5ppm/V5mm+0.5ppm RMS   |
| DGPS                       | Hz 0.25m+1ppm/V 0.5m + 1ppm RMS   |
| Initialization Reliability | 99.9%   |
| Static Data Format         | GNS and Rinex   |
| I                          | Hi-Fix <sup>1</sup>   |
| Horizontal                 | RTK + 10 mm/minute RMS  |
| Vertical                   | RTK + 20 mm/minute RMS  |
| Tilt Survey(optional)      | Electronic Bubble / tilt survey 2.0   |
| Tilt Survey<br>Performance | 5cm accuracy in the inclination of 30   |
| COM                        | MUNICATIONS   |
| Communication Ports        | USB, TNC antenna port and<br>Nano SIM card slot 4G LTE<br>Bluetooth 4.0, Wi-Fi and NFC<br>DC External power input<br>LED indicator panels |

| Internal UHF<br>Transceiver | Frequency: 403-473MHz<br>Channel: 116 (16 configurable)<br>Transmitting power: IW/2W/4W<br>Protocols: HI-TARGET, TRIMTALK450S,<br>TRIMMARK III, TRANSEOT, SATEL-3AS, etc<br>Working range: 5-6km typical, 6-7km optimal |
|-----------------------------|---|
|                             | SYSTEM  |
| Start-up Time               | 3 Seconds   |
| Data Storage                | 16GB internal storage   |
| Sensor                      | Electronic bubble and tilt survey   |
| DATA                        | MANAGEMENT  |
| Positioning Output          | 1Hz - 20Hz  |
| Message Type                | CMR, RTCM2.X, RTCM3.0, RTCM3.2  |
| Network Mode                | VRS, supports NTRIP protocol  |
| Output Format               | ASCII: NMEA-0183, binary data   |
| Application Function        | OTG, NFC, WebUI, USB firmware<br>upgrade, network repeater station<br>Intelligent voice, self-test function,<br>smart battery, battery quick change   |
|                             | GENERAL   |
| Environmental<br>Protection | IP67 environmental protection<br>Humidity 100% condensing<br>Shock resistant body to 2m (6.5ft) pole drop<br>Temperature -40° to 75°C Operating<br>-55° to 85°C Storage   |
| Physical Properties         | OLED Screen: 1.54in Resolution: 128 x 64 Size: 137mm x 131mm Weight: 1.35kg including battery Power: 6 - 28V DC Input Battery: 6800 mAh Li-lon Battery Operation Time: 10 hours (Network/ Cellular - RTK Royer)         |

## Product Comparison



Storage Temperature

Size

Weight

Battery

Battery Life

Physical





6900mAh High-capacity lithium battery

12 Hours RTK Rover



|   | Freyja                                       |
|---|--|
|   | 800+   |
|   | L1/L2/L5/L2C                                 |
|   | B1, B2, B3, B1C, B2a                         |
|   | L1, L2, L3                                   |
|   | E1, E5, AltBOC, E5a, E5b, E6                 |
|   | L1, L2, L5, L6                               |
|   | L1, L5                                       |
|   | L5   |
|   | -  |
|   | N/A  |
|   | SatLab Radio                                 |
|   | Bluetooth:4.0/2.1+EDR                        |
|   | NFC  |
|   | WiFi 2.4G,802.11 a/b/g/n                     |
|   | SHC55, TBA, SL86, A8003H                     |
|   | SatSurv                                      |
|   | Support                                      |
|   | Yes  |
|   | H: 8mm + 1ppm RMS/ V: 15mm + 1ppm RMS        |
|   | H: 8mm + 1ppm RMS/V: 15mm + 1ppm RMS         |
|   | H: 2.5mm + 0.1ppm RMS/ V: 3.5mm + 0.4ppm RMS |
|   | H: 2.5mm + 0.5ppm RMS/ V: 5mm + 0.5ppm RMS   |
|   | H: 50cm RMS / V: 85cm RMS                    |
|   | H: 25cm RMS / V: 50cm RMS                    |
|   | <10s   |
|   | 99.9 %                                       |
|   | 8GB Internal Storage                         |
|   | IP67   |
|   | Shock resistant body to 2m(6.5ft) pole drop  |
|   | -30°C to 70°C                                |
|   | -40°C to 80°C                                |
| _ | 132mm×67mm                                   |
| _ | 800g Including Battery                       |
|   | 6800 mAh Lithium-ion Battery                 |

15 Hours Static/12 Hours RTK Rover



| SL700  |
|--|
| 800+   |
| L1, L2, L5,L2C                               |
| B1, B2, B3, B1C, B2a                         |
| L1, L2, L3                                   |
| E1, E5, AltBOC, E5a, E5b, E6                 |
| L1, L2, L5, L6                               |
| L1, L5                                       |
| L5   |
|  |
| 4 G LTE                                      |
| SatLab Radio                                 |
| Bluetooth, 4.0/2.1+EDR                       |
| NFC  |
| WiFi 2.4G,802.11 b/g/n                       |
| SHC55,SL86                                   |
| SatSurv,Aplitop TCPGPS,Carlson SurCE         |
| Support                                      |
| No   |
| H: 8mm + 1ppm RMS/ V: 15mm + 1ppm RMS        |
| H: 8mm + 0.5ppm RMS/ V: 15mm + 0.5ppm RMS    |
| H: 2.5mm + 0.1ppm RMS/ V: 3.5mm + 0.4ppm RMS |

H: 50cm RMS / V: 85cm RMS

H: 25cm RMS / V: 50cm RMS

<10 s

99.9 %

8 GB Internal Storage

IP67

Shock resistant body to 2m(6.5ft) pole drop

-40 C to 65 C

-40 C to 85 C

164mm×83.5mm

1.4kg Including Battery

5000 mAh Lithium-ion Battery

≥13 Hours RTK Rover

H: 2.5mm + 0.5ppm RMS/V: 5mm + 0.5ppm RMS



|          | SL800                                 |
|----------|---------------------------------------|
|          | 555                                   |
|          | L1C/A, L1C, L2C, L2P, L5              |
|          | B1, B2, B3                            |
|          | L1 C/A, L2C/A, L2P, L3, L5            |
|          | E1, E5 AltBOC, E5a, E5b, E6           |
|          | L1 C/A, L1C, L2C, L5, L6              |
|          | L1, L5                                |
|          | L5                                    |
|          | TerraStar(optional)                   |
|          | N/A                                   |
|          | N/A                                   |
|          | Bluetooth 4.0                         |
|          | NFC                                   |
|          | N/A                                   |
|          | SHC55,SL86                            |
| S        | atSurv,Aplitop TCPGPS,Carlson SurCE   |
|          | _                                     |
|          | No                                    |
| H:8      | mm+1ppm RMS / V:15mm+1ppm RMS         |
| <br>: 8r | mm + 1ppm RMS/ V: 15mm + 1ppm RMS     |
| <br>2.5r | nm + 0.1ppm RMS/ V: 3.5mm + 0.4ppm RN |

| H: 2.5mm + 0.1ppm RMS/ V: 3.5mm + 0.4ppm RMS |
|--|
| H: 2.5mm + 0.5ppm RMS/ V: 5mm + 0.5ppm RMS   |
| H: 50cm RMS / V: 85cm RMS                    |
| H: 25cm RMS / V: 50cm RMS                    |
| <10 s  |
| 99.9 %                                       |
| 8 GB Internal Storage                        |
| IP67   |
| Shock resistant body to 2m(6.5ft) pole drop  |
| -40°C to 65°C                                |
| -40°C to 85°C                                |
| 127.5mm×57mm                                 |
| 700 g Including Batttery                     |
| 6300 mAh Lithium-ion Battery                 |
| 9 Hours Static / RTK Rover                   |
|  |



|         | SL900                                    |
|---------|--|
|         | 1760                                     |
|         | L1C/A, L1C, L1PY, L2C, L2P, L5           |
|         | B1I, B1C, B2a, B2I, B3                   |
|         | L1CA, L2CA, L2P, L3 CDMA                 |
|         | E1, E5 AltBOC, E5a, E5b, E6              |
|         | L1 C/A, L1C, L2C, L5, L6                 |
|         | L1, L5                                   |
|         | L5                                       |
|         | -  |
|         | 4G LTE                                   |
|         | SATEL Radio                              |
|         | Bluetooth:V2.1+EDR                       |
|         | NFC                                      |
|         | WiFi 2.4G,802.11 b/g/n                   |
|         | SHC55,SL86                               |
| Sa      | atSurv,Aplitop TCPGPS,Carlson SurCE      |
|         | Support                                  |
|         | Yes                                      |
| H: 6m   | nm + 0.5ppm RMS/ V: 10mm + 1ppm RMS      |
| H: 8mr  | m + 0.5ppm RMS/ V: 15mm + 0.5ppm RMS     |
| H: 2.5m | nm + 0.1ppm RMS/ V: 3.5mm + 0.4ppm RM!   |
| H: 2.5n | nm + 0.5ppm RMS/ V: 5mm + 0.5ppm RMS     |
|         | H: 50cm RMS / V: 85cm RMS                |
|         | H: 25cm RMS / V: 50cm RMS                |
|         | 2 - 8s                                   |
|         | 99.9 %                                   |
| 8GB     | Internal Storage, Support 32GB SD card   |
|         | IP67                                     |
| Sho     | ck resistant body to 2m(6.5ft) pole drop |
|         | -40°C to 65°C                            |
|         | -40°C to 85°C                            |
|         | 170 mm x 95 mm                           |
|         | 1.2kg Including Battery                  |
|         | 5000 mAh Lithium-ion Battery             |
|         | 10 Hours RTK Rover                       |

## SHC55

### Bigger Screen, Wider Vision



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



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



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



Android 10.0 operating system equipped to maintain the productivity of numerous survey projects and data.



# 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)

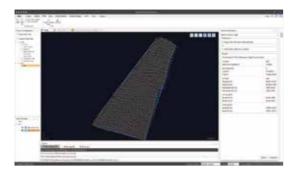
High-precision GNSS Data Post-processing Software

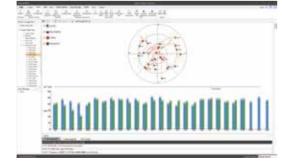
- Advanced solution engine that focuses on GNSS data post-processing.
- Stable and automatized data processing procedure for better solution results.
- Concise and user-friendly operational interface to facilitate work.
- Information visualization and quality control for data management.











### TBA

#### Handheld Tablet

Powered by Android 10, the TBA tablet with 10-inch sunlight readable screen provides an efficient experience for field users.

Optional high-precision GNSS version for GIS applications.

**IP67** 

IP67 Standard

MIL

MIL-810G Standard\*



Global Connectivity: 4G LTE, 3G GSM



Dedicated GPS Antenna



Sunlight Readable Display



Unique Voice Telephony Support



4 G Memory 64 G Storage 2.2 Ghz

Qualcomm 8953 processor



## 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 0.3s. Reflectorless range 800m.



#### Colorful Screen

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



#### Power

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



#### **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 Hi-Survey Road connection. Support secondary development.

### **Applications**

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

### SLT10

### High Light Screen and High Reliability 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.



( imes Accuracy: 2'')



#### **New EDM**

Reflectorless range 1000m. Speed down to 0.3s.



#### 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

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



## Stable Hardware Design

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



#### **Software Connection**

Support SurvCE and Satsurv connection.
Support secondary development.

14

### TTS2

#### The New Cost-effective Total Station

Affordable price with classical convenient functions, providing accurate and reliable results.

### **Key Features**



High-performance MCU STM32



Dual-axis Compensation





Diagonal Eyepiece



× Accuracy: 2"

### SLX-1

#### Multi-Application GNSS Receiver



Swedish Quality



Multiple Tasking



Mutiple Transfer Data Transfer



Highly Precise GNSS Data



Linux OS On Board



- Position accuracy with 2.5mm.
- Large capacity storage with 64GB.
- 12,500mAh 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

## 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



## HydroBoat 990

USV Bathymetry Solution of Efficiency and Durability

- One key setup with just a powerful controller, and the auto-connection makes it a direct-to-go system with a 2 km operation range and 200 meter depth measure range.
- •Advanced pilot system for auto and manual mode, safeguarded by radar avoidance and hovering system.
- Compact design with 1408-channel heading GNSS receiver, 1 cm depth accuracy echosounder, and controlling system integrated.
- Stable hull design for standing waves and wind, IP67 and rugged body with collision durability.
- Advanced Android app for hydrography and pilot control, making the task easier to be done on the smart controller.



### ES224

#### Dual-frequency Echo Sounder

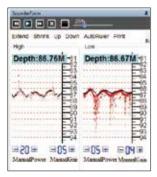
- 24 kHz & 200 kHz operation frequencies
- 0.15 to 300 meters and 0.8 to 2000 meters depth range
- Accuracies meet the IHO standards
- The full-featured software for reliable data collection and processing
- 17-inch large tempered glass screen shortcut buttons
- Windows Operating System with 128 GB internal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



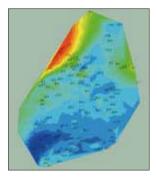
### **Applications**

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

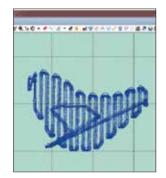
### Working Process



Surveying



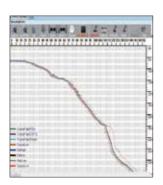
Result Preview



Track



User-defined Export



Process



External Sensor

## HydroScan 1400/4900

#### The Dual-frequency Side Scan Sonar Systems



#### **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**

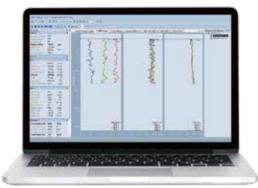
- Hydrology Monitoring
- Irrigation Monitoring
- Fisheries Studies
- Flood Warning
- Environmental Studies





### Monitoring and collecting software





## Cygnus

#### Handheld SLAM Scanner



Speedy and Accurate 16-channel LiDAR



Real-time and Rapid Data Processing

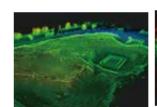


Powerful Mobile Software

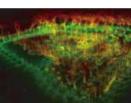


Light-weight, Durable and Versatile

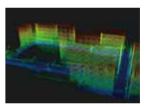
### \_ Applications



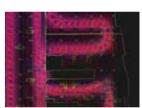
Stockpile Volumes Measure-



Natural Resources & Environment Investigation



Building Information Collection



Underground Space Digitalization

### Optional Accessories



**UAV Platform Adaptor** 



RTK Backpack



Vehicular Bracket



Panoramic Camera

20



## Strategic Partnership Alliances



## Global Reach Service & Support



Local support for different time zones



Reliable spare parts service



Partner programme to share experience



## SatLab Geosocial Networking Forum

## Sat-Live Day















Connect and share

geospatial industry





















