



Subsurface Mapping

GS9000

Multichannel GPR





See Below Ground

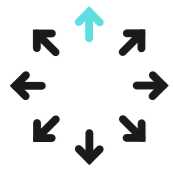




GS9000

Multichannel GPR pushcart

Modular sensors. Highest data quality.
Powerful 3D software. 100% real time.



Versatile

Two swappable array modules to cover one vast array of subsurface mapping applications.



Efficient

Simple to set up and operate, with on-the-fly data visualization to avoid interpretation errors on site



Accurate

Seamless GPR + GNSS technology integration for accurately georeferenced high-density data.



Overview



Wirelessly controlled from an iPad Pro with **gestures**

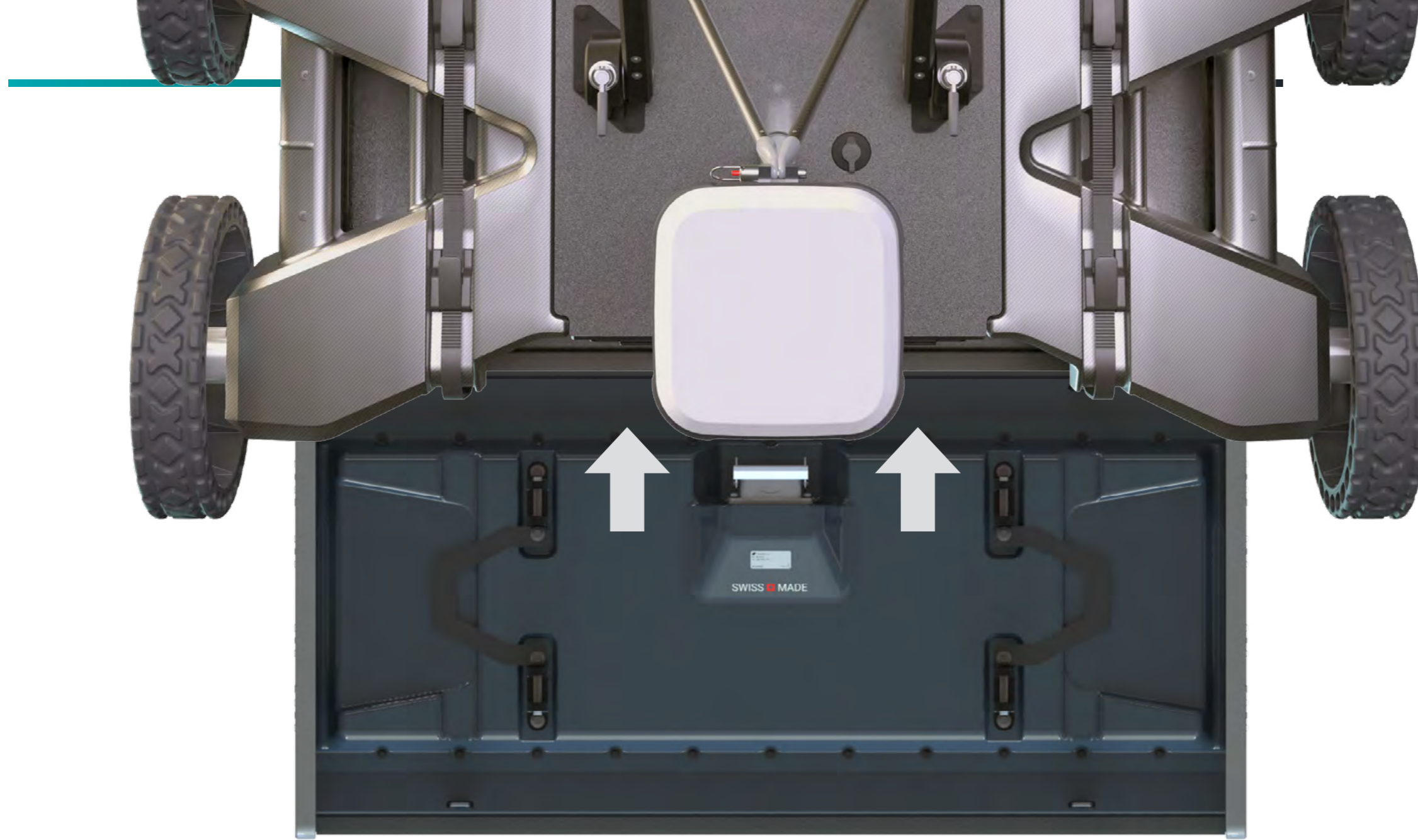
Excellent **ergonomics** designed for the best manoeuvrability

Built in carbon fiber to provide **durability and lightness**

Its smart **modular** concept allows to quickly attach the right GPR array antenna for the job at hand

Powered by **simple** hot-swappable power banks

Fully **foldable** for easy transport



Technology

Multichannel Stepped Frequency Radar



Outstanding data quality

Live signal modulation across a wide bandwidth and multiple channels, resulting in perfectly balanced radar imaging.

SWISS  MADE

Compatible GPR array modules

GX1

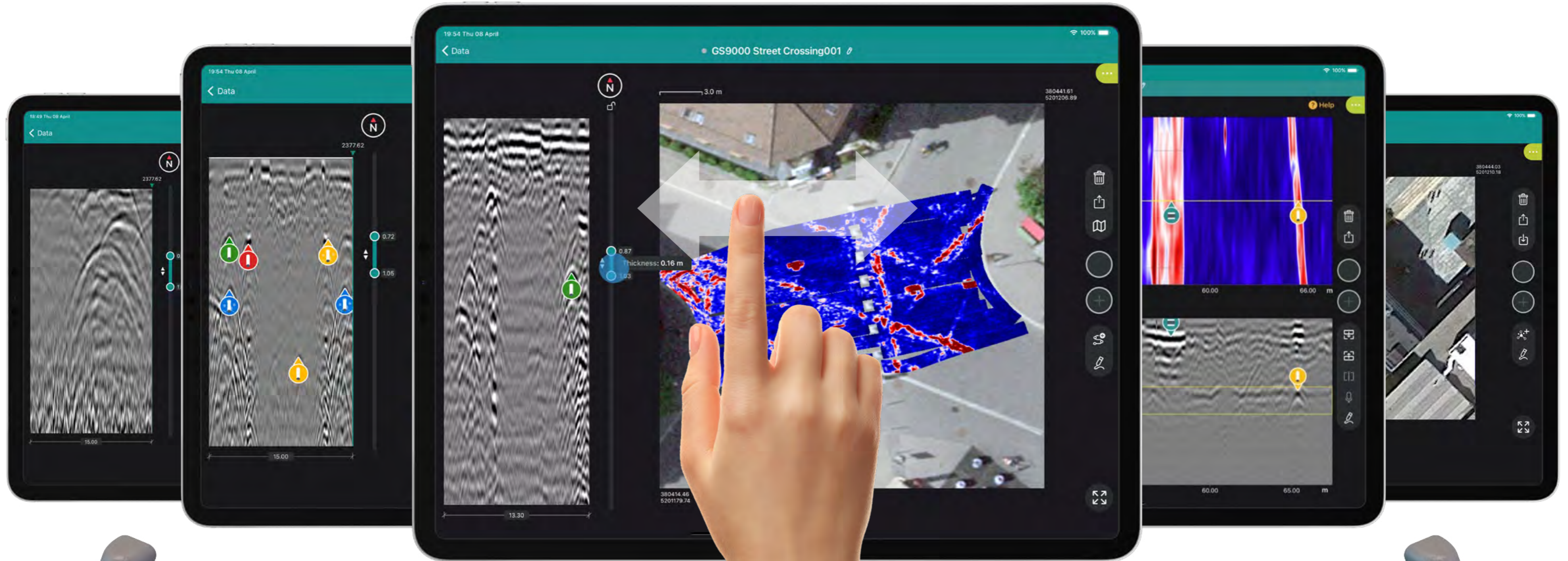
High frequency range

- For structural applications
- Ultra-high resolution in first meter
- Frequency range: 500-3,000 MHz
- 35 + 15 channels, dual polarization
- 2.5cm (1 in) channel spacing

GX2

Low frequency range

- For utilities and geophysics
- Optimal detection in first 2-3 m
- Frequency range: 30-750 MHz
- 83 cm wide swath - 11 channels
- 7.5cm (3 in) channel spacing



Software

FIELD APP

Live georeferenced data visualization



Live tomography

See buried objects forming on a map as you walk over them. No waiting time, all georeferenced.



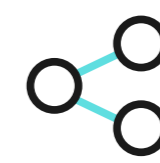
Intuitive data

Complex data presented in an understandable way. All needed tools to interpret and digitize the reality on site.



Simple gestures

Interact with the user interface with simple, familiar gestures. Full control at your fingertips.



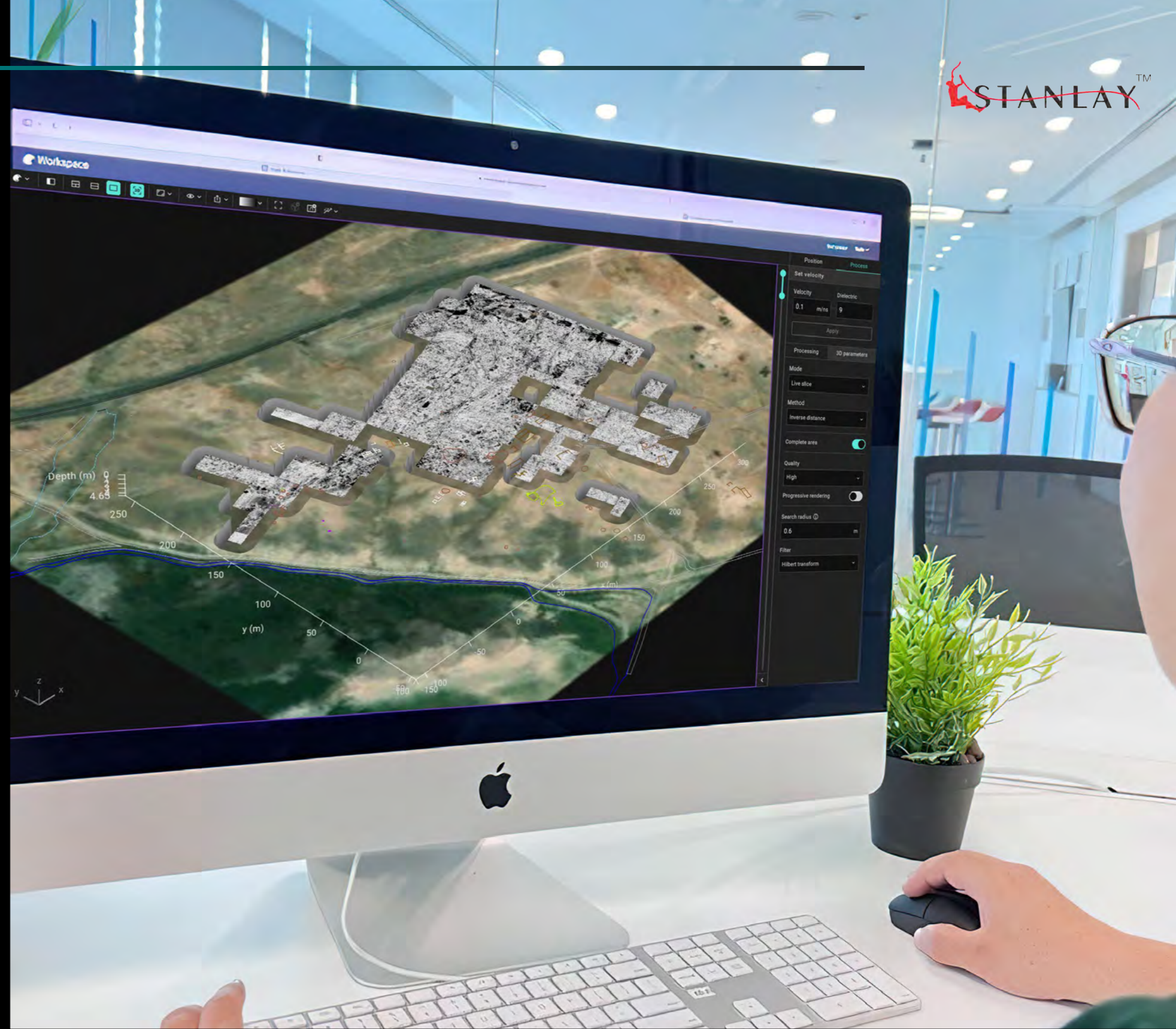
Instant sharing

Get your field projects, reports and drawings to your colleagues and clients in just one click.



Software

POST-PROCESS



Manage large projects

Merge multiple field jobs into one same project and see the big picture on a map.



Increase accuracy

Easily apply advanced filters to raw data, and correct topographically for the highest accuracy.



Get more insights

Organize how to see the data with advanced 2D and 3D visualization modes to not miss any detail.



Automated mapping

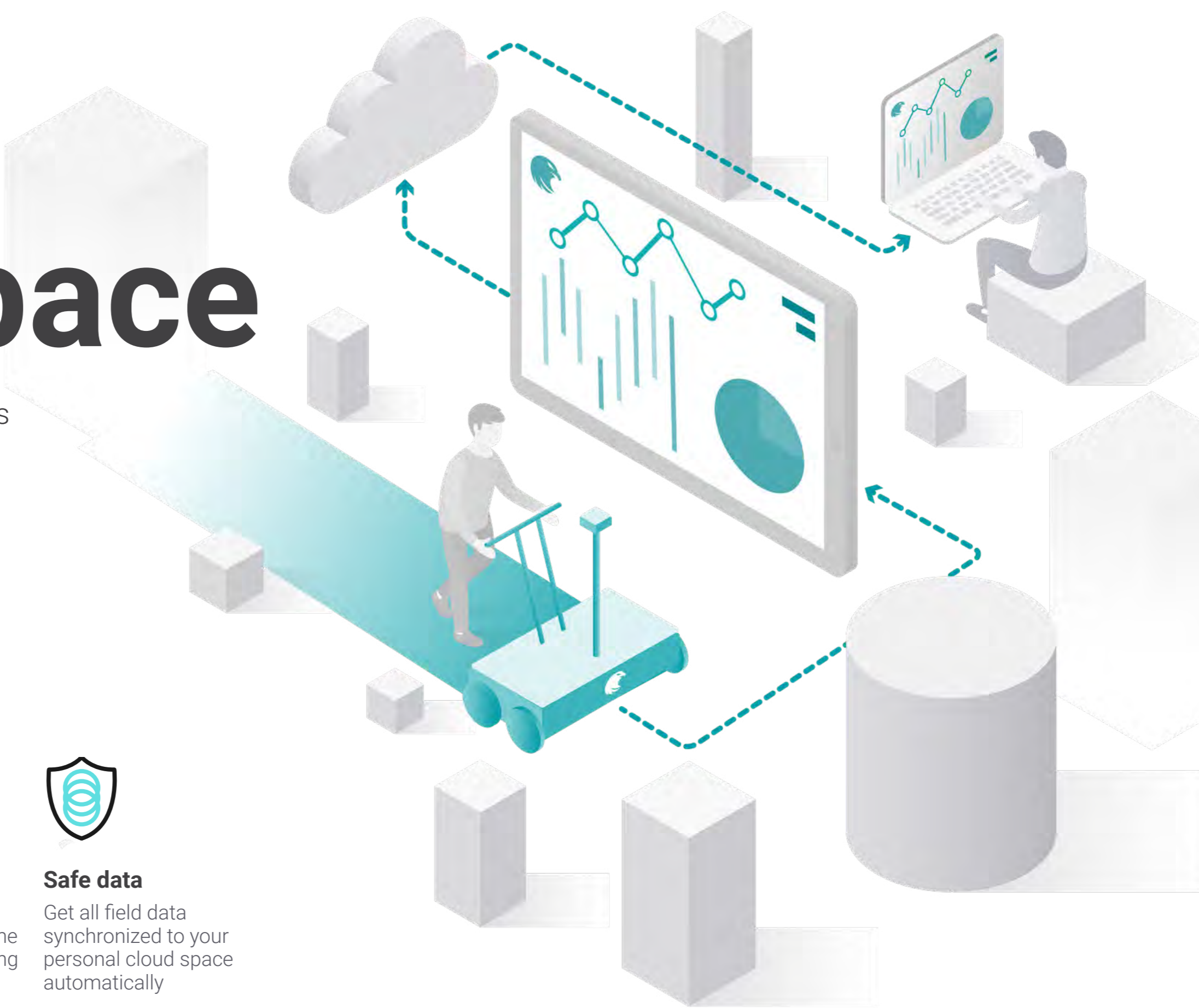
Ultra-fast algorithms to analyse raw data and create application-specific diagnostic maps



All powered by Workspace

Cloud-connected workflow & services

Collect
Sync
Share



Streamlined workflow

Field data management, post-processing software and sharing options integrated in the same platform



Integrated services

Data conversion tools and services like real-time GNSS corrections running online for maximal convenience



Safe data

Get all field data synchronized to your personal cloud space automatically



Applications

GS9000

SUE & Utility mapping

Detection of buried pipes, ducts and cables for safe digging or utility mapping purposes



Road & Bridge inspection

Structural diagnostics and monitoring of bridges, concrete structures and roadways



Geophysical surveys

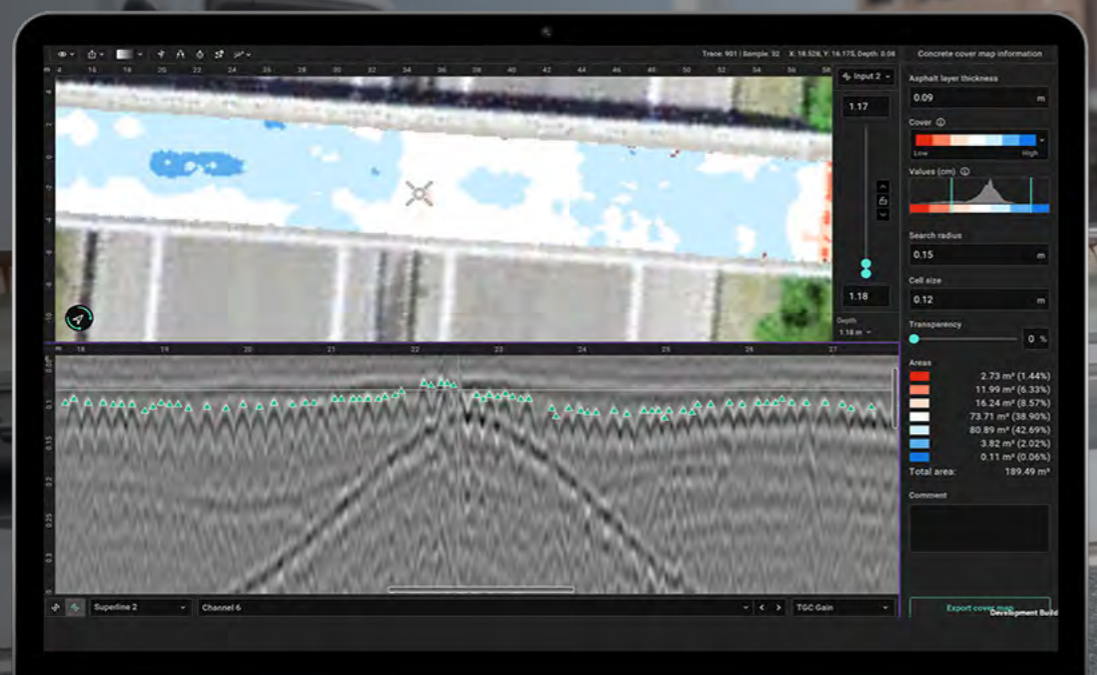
Geotechnical projects and detection of geological anomalies and hazards



Archaeology & Forensic explorations

Prospection of archaeological sites, detection of unexploded elements





GS9000

Combined with GX1

- Bridge condition & deterioration
- Concrete cover & moisture mapping
- Asphalt layer thickness analysis
- Fiber cable detection and mapping

GS9000

Combined with GX2

- Subsurface utility mapping
- Underground cavity detection
- Archaeological site prospections
- Unexploded ordnance surveys



HW Specs

GS9000



GX1 array module

500-3000 MHz

35 + 15 channels
2.5 cm spacing

GX2 array module

30-750 MHz

11 channels
7.5 cm spacing



Dimensions

45Kg

72 x 118 x 44 cms

Up to

27,500 scans/m

5,000 points / linear m

Powered by



45W Power bank

Real-time 3D accuracy



SSR included
NTRIP compatible

1-5 cm

Total station compatible

Wireless



optional USB-C



SW Specs



Field software

Field methodology

- Free Path
- Superline

Live Image Processing

- Time Slice View (geo-referenced)
- Hilbert migration
- Depth range adjustment
- Dynamic Gain / Manual Gain
- Sensitivity filter
- Background removal filter
- Noise cancellation filter
- Frequency filter

Live Display Options

- Satellite imagery
- GNSS trajectory
- CAD object layers
- Spectral / seismic color palettes

On-site annotations

- Tags
- Points of interest
- Photos
- Voice markers
- Markups
- Linework

Field calibration options

- Odometer calibration
- Velocity by hyperbola fitting
- Velocity for multiple layers

Cloud services

- Live data synchronization to Workspace¹
- Permanent data storage
- Raw data export to SEG-Y
- Instant CAD / SHP / KML drawing generation
- Instant report generation
- Share via url

Coordinate Systems

- EPSG global database
- Local grid models
- Geoid models

Languages

- English, Spanish, French, German, Italian, Chinese, Japanese, Korean

Display unit

- Any iPad Pro® with M2 chip²
- Screen resolution: up to 2732 x 2048 pixels
- Storage capacity: up to 2 TB

Post-processing software

Web version

- Running on Workspace personal cloud space

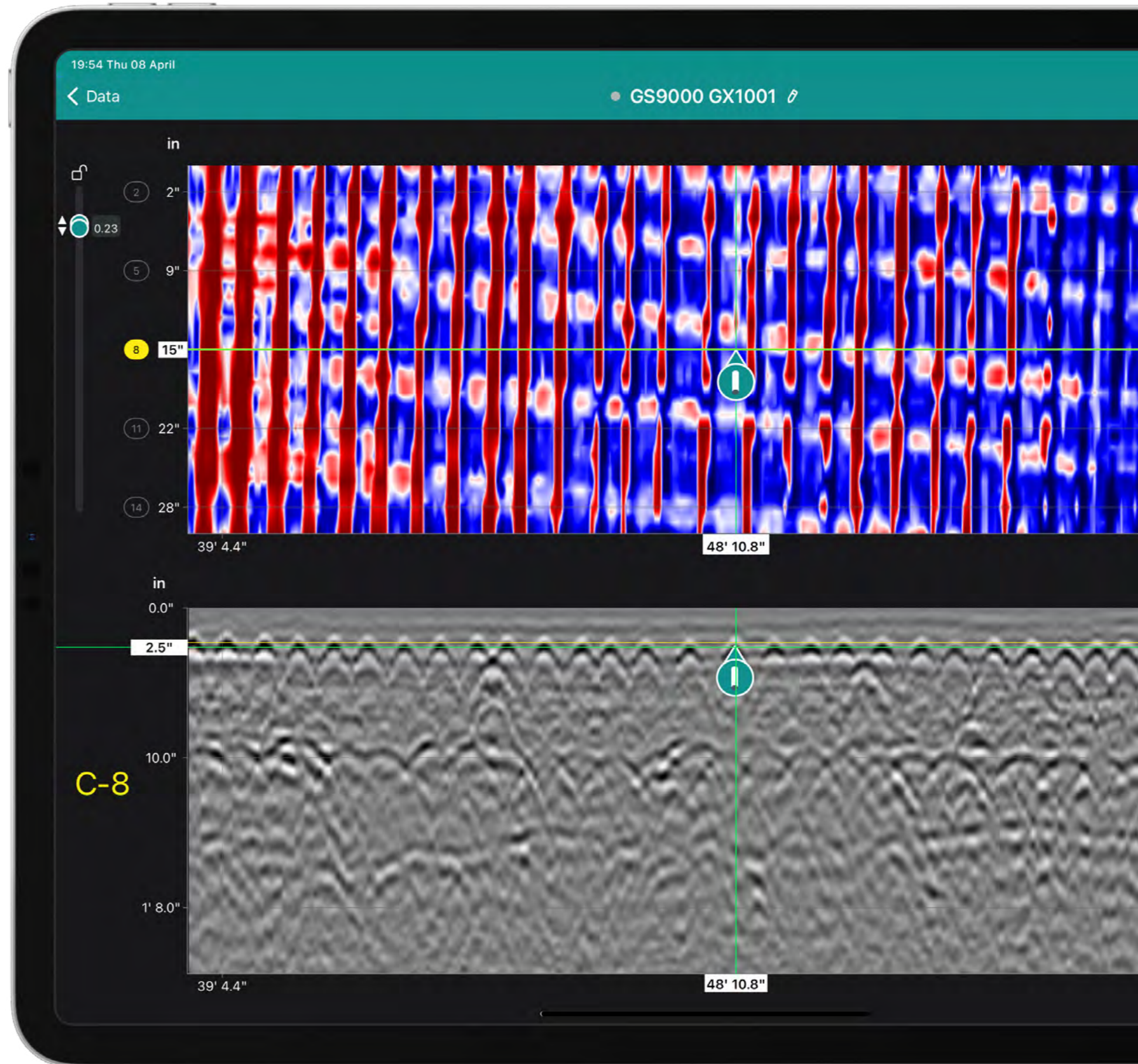
Local version

- PC running Windows 10 or superior³

Special modules

- 3D multichannel
- Utility Mapping
- Bridge inspection

1. Up to 1 TB of personal space per user ID
 2. Running an up-to-date iOS version; recommended models: iPad Pro® WiFi + Cellular (2022 model or superior)
 3. Recommended: x64 architecture, 1 TB hard drive, 32 GB of RAM memory, Full HD monitor





GM8000
Multichannel
mobile GPR



All dimensions of subsurface mapping

GS9000
Multichannel
GPR cart



GS8000
Single-channel
GPR cart





gs Proceq GPR Subsurface App Tech Specs

Field Methodology	Free Path Superline
Live Image Processing	Time Slice View (georeferenced) Hilbert migration Depth range adjustment Dynamic Gain / Manual Gain Sensitivity filter Background removal filter Noise cancellation filter Frequency filter
Live Display Options	Satellite imagery GNSS trajectory CAD object layers Spectral / seismic color palettes
On-site Annotations	Tags Points of interest Photos Voice markers Markups Linework
Field Calibration	Odometer calibration Velocity by hyperbola fitting Velocity for multiple layers
Cloud Services	Live data synchronization to Workspace ⁹ Permanent data storage Raw data export to SEG-Y Instant CAD / SHP / KML generation Instant report generation Share via url
Coordinate System	EPSG global database Local grid models Geoid models
Languages	English Spanish French German Italian Chinese Japanese Korean
Display unit	Any iPad® or iPad Pro® ¹ Recommended: iPad Pro WiFi + Cellular Screen resolution: up to 2732 x 2048 pixels Storage capacity: up to 2 TB

iPad is a trademark of Apple Inc.; iOS is a registered trademark of Cisco in the US and is used by Apple under license



Instrument Tech Specs

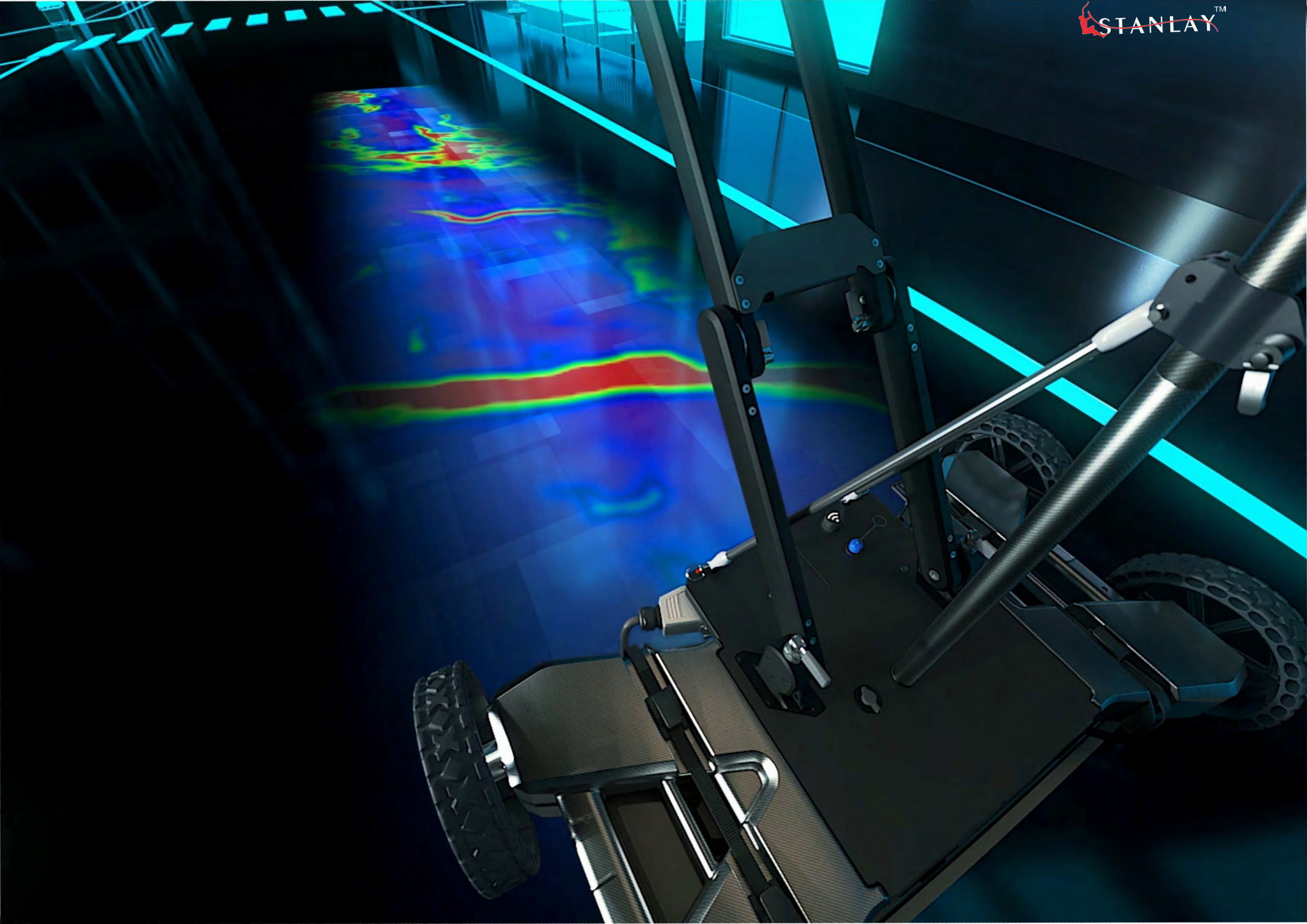
Radar technology	Stepped-frequency GPR
Modulated frequency range	500 – 3000 MHz ² 30 – 750 MHz ³
Number of channels	35 (VV) + 15 (HH) ² 11 (VV) ³
Channel spacing	2.5 cm (VV), 5.5 cm (HH) ² 7.5 cm ³
Scan width	0.85 m ² 0.82 m ³
Scan rate	27500 scans/s ² 22000 scans/s ³
Time window	45 ns ² 130 ns ³
Spatial interval	Up to 100 scans/m
Dimensions	722 x 1178 x 443 mm
Weight	45 Kg ²
Wheel encoders	2, on rear wheels
Ingress protection (IP) / sealing	IP65
Power consumption	Off-the-shelf power bank ⁴
Autonomy	6 hours Hot-swappable ⁵
Operating temperature	-10° to 50°C 14° to 122° F
Operating humidity	<95% RH, non-condensing
Connectivity	WiFi, USB-A, USB-C, Lemo ⁶
GNSS satellites	Multiband GPS + Glonass + Galileo + Beidou
GNSS real-time corrections	SSR augmentation / NRTK-compatible ⁷
GNSS real-time 3D accuracy	Typ. 1 - 5 cm 0.5 - 2 in ⁸
GNSS initialization time	Typ. 5 - 30 s

1. Running an up-to-date iOS version; recommended models: iPad Pro® WiFi + Cellular (2022 model or superior)
2. In combination with GX1 array module
3. In combination with GX2 array module
4. USB-C power bank with Power Delivery. Max. dimensions: W 85mm x H 28mm (recommended power: 12/15/20V - >45 W)
5. Using 2x 26,800 mAh power banks
6. For terrestrial positioning systems, an intermediate serial adapter to DB9 might be needed to output Pseudo NMEA GGA positions
7. Needs an active Internet connection on the iPad; SSR service available in Europe, USA, southern Canada, southeastern Australia and South Korea / NRTK corrections via NTRIP in RTCM3 format
8. Via NTRIP RTK or SSR corrections; the achieved accuracy is subject to atmospheric conditions, satellite geometry, observation time, etc.
9. Up to 1 TB of personal space per user ID

Our Accessories

Image	PartNumber	Description
	39367260	GX1 GPR array module (500-3000 MHz) for road & bridge mapping. Compatible with: GM8000, GS9000
	39367250	GX2 GPR array module (30-750 MHz) for utility & geophysical mapping. Compatible with: GM8000, GS9000
	39360277	Skid plate for GX1 array module
	39360281	Skid plate for GX2 array module
	39350660	Stabilizes your GNSS pole in uneven terrains. Included in GS9000 Pro hardware variant.
	39350710	Included in GS9000 Pro hardware variant.
	39350404	Accommodates any iPad Pro and sun & rain cover. Included in all hardware variants.
	39350060	Accommodates an umbrella to protect the user from sun & rain.
	39350480	Protects the iPad from sun & rain. Included in GS9000 Pro hardware variant.
	39350486	Makes the tablet holder compatible with diverse accessories and cases. Included in all hardware variants.

Standards & Guidelines	Description
AS 5488-2013 (Australia)	
NF_S70-003 (France)	
UNI/PdR 26.01:2017 (Italy)	
ASCE 38-02 (United States)	
CSA S250 (Canada)	
HSG47 (United Kingdom)	
PAS128 (United Kingdom)	
ASTM D6432-11	
NCHRP Synesis 255	
SHRP H-672	
SHRP S-300	
SHRP S-325	





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