SENSORS & SOFTWARE®
from RADIODETECTION

NOGGIN®

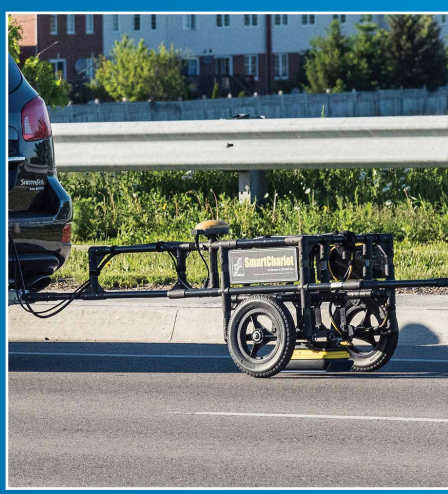
Adaptable, High-performance GPR

Are you a GPR professional who performs multiple surveys daily?

Need a flexible GPR system for many applications in varied terrains?

Do you need to scan large areas efficiently?

If so, Noggin is the GPR for you!



SPX TECHNOLOGIES

NOGGIN®s provide optimal flexibility and performance

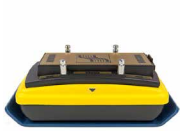
5 Sensors

5 Configurations

HIGHER RESOLUTION

DEEPER PENETRATION

1000



SmartCart®

Durable, 4-wheeled, folding cart; provides rapid data collection in open areas.

500

SmartTow™

Light, compact hand-tow configuration; traverse rough or difficult terrain.

250

SmartSled™

Hand or vehicle tow over rough terrain or survey large areas quickly.

100

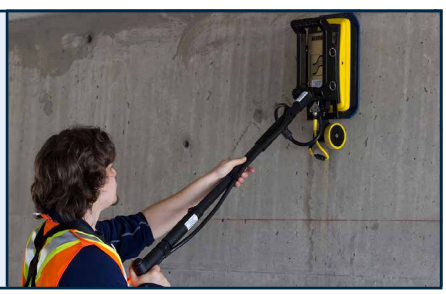
SmartChariot™

Rugged, vehicle hitch-mounted; rapidly survey large, flat areas such as roads, parking lots and golf courses.

Ultra 100

SmartHandle™

Versatile, compact handle; operates on vertical or overhead surfaces and in confined spaces.

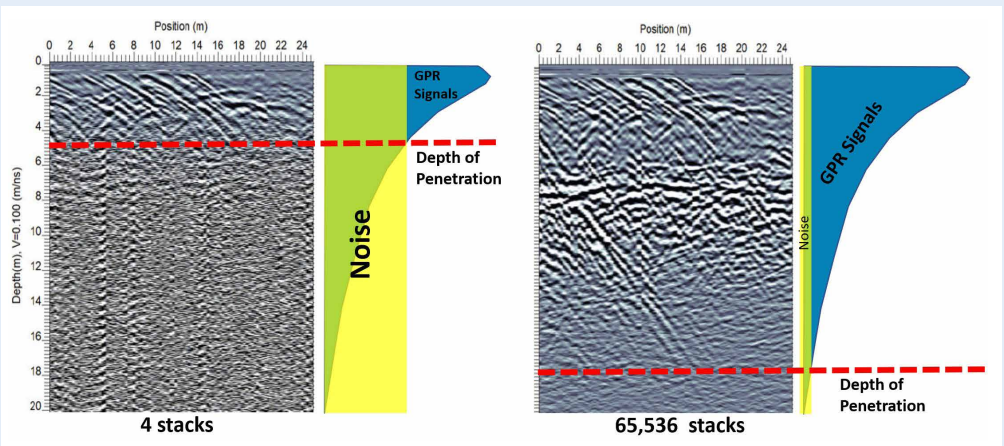


Use your Noggin system to expand your business into new markets. Easily add another frequency, a new configuration or accessories to your existing Noggin system and your subsurface investigation opportunities are limitless.

Choose the **NOGGIN** and configuration that is right for you. Or mix and match.

	Applications	SmartCart	SmartTow	SmartSled	SmartChariot	SmartHandle
1000	• Pavement • Bridge deck • Concrete assessment					
500	• Archaeology • Forensics • Ice/snow					
250	• SUM/SUE • Underground storage tanks (UST) • Drainage systems					N/A
100	• Geologic mapping • Geotechnical applications			N/A	N/A	N/A
Ultra 100	• Deep Geologic mapping • Deep Geotechnical applications			N/A	N/A	N/A

The **NOGGIN Ultra 100** system stacks (averages) the GPR data up to 65,536 times, increasing the signal-to-noise ratio and suppressing random, background noise. This results in the detection of weaker GPR signals from greater depths.



NOGGIN Field-proven solutions across many applications

Noggin GPRs are trusted by leading researchers to provide high quality data in countless subsurface applications, even in the most demanding conditions worldwide – from the Arctic to the Sahara desert.

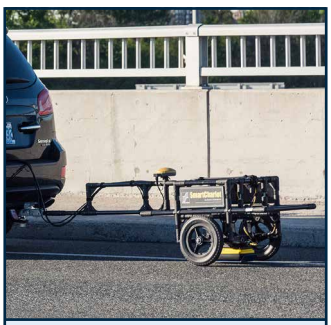
Archaeology & Cemeteries

- Search for artifacts and tombs
- Locate foundations of ancient structures
- Find graves and burials

Subsurface Utility Engineering

- Detect metallic and non-metallic pipes and cable
- Locate abandoned infrastructure and buried structures

Concrete & Pavement



- Assess the interior of concrete for deterioration
- Measure pavement layering
- Prioritize infrastructure maintenance

Geotechnical & Environmental

- Map depth to bedrock and geological stratigraphy
- Locate underground storage tanks (UST)
- Detect sinkholes
- Conduct bathymetry and sub-bottom profiling

Forensics & Military

- Find buried caches of drugs, money and weapons
- Locate clandestine graves and tunnels
- Detect landmines, UXO and buried IEDs

Mining & Quarrying

- Improve mine safety practices
- Guide resource development
- Locate fractures, faults and joints

Agriculture & Forestry

- Map drainage tile
- Characterize soil conditions in crop-growing areas
- Map tree roots
- Evaluate water content
- Conduct biomass assessment

Ice & Snow

- Measure snow and ice thickness
- Detect crevasses
- Survey glaciers and ice sheets

NOGGIN – Powerful yet simple data collection

High visibility touch screen display unit

Free lifetime system software updates

User selectable languages

US Standard and Metric units

On-site Reports

Produce instant reports from your display unit in the field

USB

USB for easy data transfer

Integrated GPS

Integrated GPS receiver for geo-referencing data

Optional External GPS

For high accuracy positioning and mapping

Wi-Fi

Built-in Wi-Fi capability

Color Field Interpretations

Mark targets at depth with the touch of a finger

In-Field Depth Slicing

Flexible grid collection with immediate results

DynaQ® – Dynamic Stacking

Don't waste a nanosecond! For odometer-based data collection, DynaQ increases data quality by stacking (averaging). You always collect the highest quality data for your survey speed.

Up to 2048 stacks for NOGGIN 100/250/500/1000.

Up to 65,536 stacks for NOGGIN Ultra 100.

Number of stacks	Colour Code
0	White
1-3	Yellow
4-7	Blue
8-511	Dark Blue
512-2049	Purple
2050-8191	Light Green
8192-65536	Dark Green

Higher quality

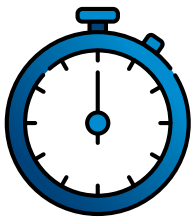
NOGGIN Data Collection Trigger Options:

Odometer

User sets distance interval between data traces

Free run – Speed

User sets distance interval between data traces and towing speed



Free run – Time

User sets time interval between data traces

Manual Button Press

User collects data traces when desired

NOGGIN Configuration features

SmartCart

GPS
for geo-referencing data

Foldable cart
for easy transport

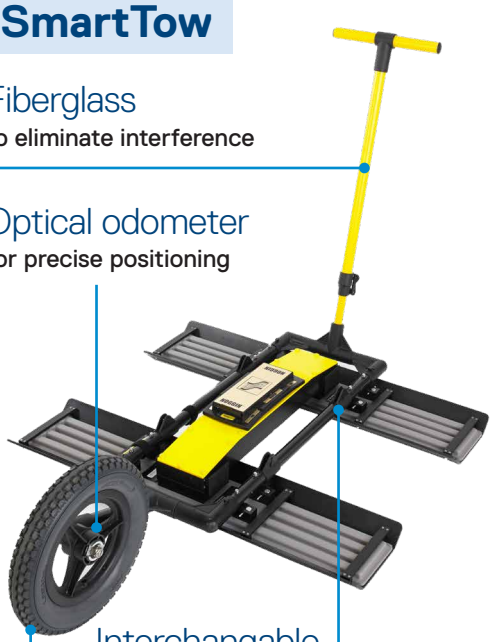
12 Volt battery
in case

Fiberglass
to eliminate signal interference

Interchangable brackets
allow any Noggin sensor to be attached

Optical odometer
for precise positionning

SmartTow



Fiberglass
to eliminate interference

Optical odometer
for precise positioning

Interchangable brackets
allow any Noggin sensor to be attached

Rugged treaded tire
for challenging terrains

SmartSled

SmartSled cover
to protect equipment from dust, debris and water

Optical odometer
for precise positioning

Tow hitch
for use on any vehicle: truck, ATV's, tractors, golf carts, snowmobiles

Fiberglass
to eliminate interference

Rugged treaded tire
for challenging terrains

SmartChariot

Tow hitch
for any vehicle

GPS
for geo-referencing data

Ground Coupled
for maximum penetration

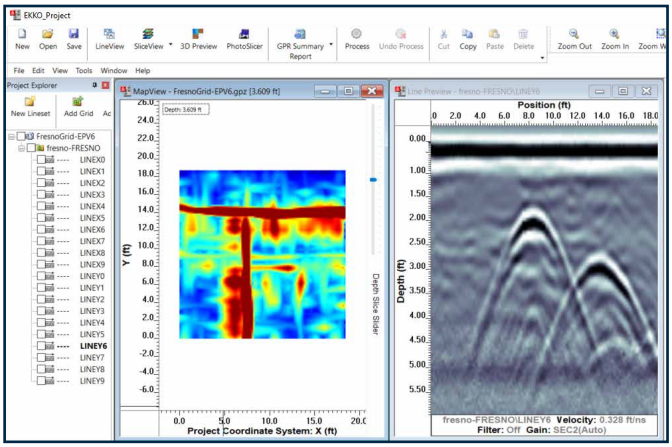
SmartHandle

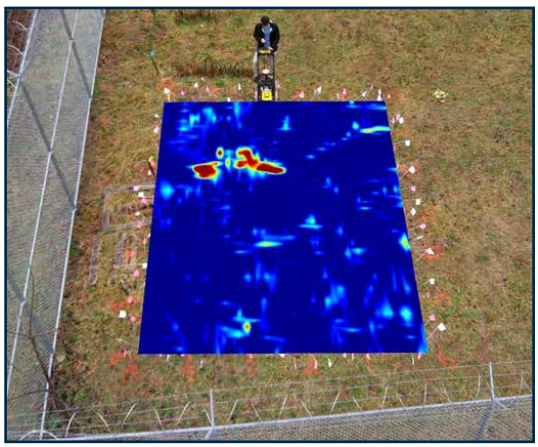
Fiberglass
to eliminate interference

Optical odometer
for precise positionning

EKKO_Project™ Software

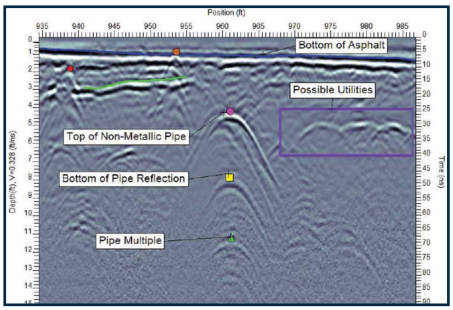
Visualize, Understand and Report your GPR results with the optional EKKO_Project PC Software.



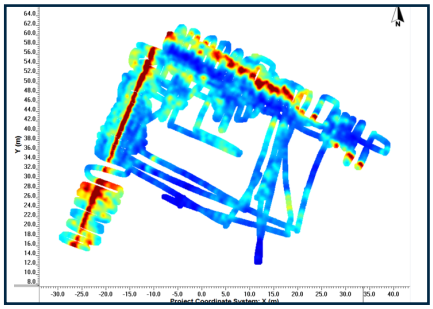


Core

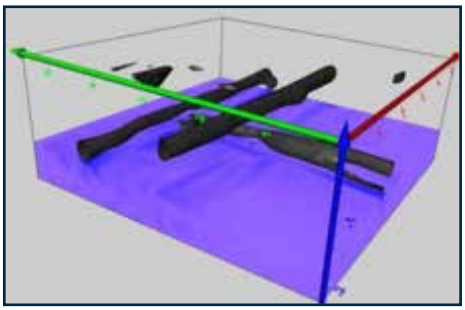
Organize your GPR data, photos and other files and save as a single project file. Easily create PDF reports of your findings.



Examine (Cross-sections)



Reveal (Depth Slices)



3D Reveal (3D Visualization)

Specifications – Hardware

Specifications	Noggin Ultra 100	Noggin 100	Noggin 250	Noggin 500	Noggin 1000
Size	91 x 76 x 17 cm (36 x 30 x 6.5 in)	91 x 76 x 17 cm (36 x 30 x 6.5 in)	63 x 41 x 23 cm (25 x 16 x 9 in)	38 x 23 x 15 cm (15 x 9 x 6 in)	30 x 15 x 11 cm (12 x 6 x 4.5 in)
Weight	9.5 kg (21 lbs)	9.5 kg (21 lbs)	7.5 kg (12.5 lbs)	3 kg (6.5 lbs)	2.3 kg (5 lbs)
Center Frequency -3dB Bandwidth	100 MHz 50 - 150 MHz	100 MHz 50 - 150 MHz	250 MHz 125 - 375 MHz	500 MHz 250 - 750 MHz	1000 MHz 500 - 1500 MHz
Max.Time Window	8000 ns @ 0.5 ns/pt	4000 ns @ 0.8 ns/pt	2000 ns @ 0.4 ns/pt	1000 ns @ 0.2 ns/pt	500 ns @ 0.1 ns/pt
Max. Depth Setting	200 m (656 ft)	200 m (656 ft)	100 m (328 ft)	50 m (164 ft)	25 m (82 ft)
Max. Stacks	65,536	2048	2048	2048	2048
Data output	32-bit	16-bit	16-bit	16-bit	16-bit
Max. points/trace	5,000				
Power	8 watts 12V @ 0.6A DC				
Performance factor	160 dB + 10 log10 stacks eg: for 193 dB for 2048 stacks				
Acquisition Rate	100,000 samples/second				
Operating Temp.	-50 to +50°C, Environmental IP65				
Emission Regulations	Noggins comply with the Industry Canada (IC), United States Federal Communications Commission (FCC), and European Technical Standards Institute (ETSI) Regulations for ultra-wide bandwidth (UWB) devices.				

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SPX TECHNOLOGIES

Our Mission

Provide best in class equipment and solutions, to prevent damage to critical infrastructure, manage assets and protect lives.

Our Vision

To be the world's leader in the management of critical infrastructure and utilities.

Our Locations

USA

Raymond, ME
Kearneysville, WV

Canada

Mississauga, ON

Europe

United Kingdom **HQ**
France
Germany
The Netherlands

Asia Pacific

India
China
Hong Kong
Indonesia
Australia

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