NOGGIN®
ADAPTABLE, HIGH-PERFORMANCE GROUND PENETRATING RADAR
Noggins are available in four center frequencies, ranging from 100 MHz for deep penetration to 1000 MHz for shallow, high resolution surveys. Easily switch your Noggin between a cart, hand-tow, trailer or handle configuration to collect data in any terrain. Noggin’s patented ultra-wide band (UWB), ground-coupled antennas provide maximum signal penetration and the highest GPR data quality. Noggins provide optimal flexibility and performance for your diverse needs.

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

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

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

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

Custom Systems
Modular Noggins are ideal for customized systems. Design your own unique deployments, or engage our engineering team to assist you.
The Digital Video Logger (DVL) has a high-resolution, sunlight visible, touchscreen and provides flexible data collection settings. Adjust depth, step size, stacking, time window, grid size, triggering and more to optimize your GPR survey.

**Internal GPS**
Geo-tag screen captures and grids for Google Earth™

**Optional External GPS**
Serial port GPS connection for high accuracy positioning

**Color Field Interpretations**
Mark targets at depth with the touch of a finger

**In-Field Depth Slicing**
Flexible grid collection with immediate results

**Wi-Fi Enabled**
Connect to a Wi-Fi network or hotspot to email reports from the field

**USB Data Transfer**
Quickly transfer project data for further analysis

**Map View**
Using external GPS, view a map of the GPS survey path, grids, field interpretations & flags.

**EKKO_Project Software**
EKKO_Project makes complex GPR analysis and reporting easy with intuitive tools to organize, edit, process & plot your data. Quickly and easily create superior deliverables for your clients.

**Send Reports from the Field**
Capture screen images and email mini-reports to your colleagues or customers before leaving the site.
### Specifications

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<th>Noggin 100</th>
<th>Noggin 250</th>
<th>Noggin 500</th>
<th>Noggin 1000</th>
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<tr>
<td><strong>Size</strong></td>
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| 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) | 7.3 kg (12.5 lbs) | 3 kg (6.5 lbs) | 2.3 kg (5 lbs) |
| **Center Frequency** |            |            |             |
| 100 MHz | 250 MHz | 500 MHz | 1000 MHz |
| 50 - 150 MHz | 125 - 375 MHz | 250 - 750 MHz | 500 - 1500 MHz |
| **Shielding Front to Back** |            |            |             |
| ground coupled focusing | >20 dB | >20 dB | >20 dB |
| **Maximum Time Window** |            |            |             |
| 4,000 ns @ 0.8 ns/pt | 2,000 ns @ 0.4 ns/pt | 1,000 ns @ 0.2 ns/pt | 500 ns @ 0.1 ns/pt |
| **Maximum Depth Setting** |            |            |             |
| 200 m (656 ft) | 100 m (328 ft) | 50 m (164 ft) | 25m (82 ft) |

Maximum points/trace*: 5,000  
Power: 8 watts 12V @ 0.6A DC  
Performance Factor: 160 dB + 10 log_{10} stacks  
Acquisition Rate*: 100,000 samples/second  
* Determined by the computer software controlling data acquisition. DVL specifications indicated here.

### Applications

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| Pavement  
Bridge deck  
Concrete assessment | Archaeology  
Forensics  
Ice/snow | SUM/SUE  
Underground storage tanks (UST)  
Drainage systems |  
Geologic mapping  
Geotechnical applications |

### Stacks

- Unlimited, DynaQ when odometer triggering

### Integrated GPS

- Point mark or continuous NMEA string logging

### Data output

- Digital (raw) 16 bit 2’s complement

### Operating Temperature

- -50 to +50°C, Environmental IP65

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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.
Ground Penetrating Radar images objects and structures (both metallic and non-metallic) embedded in soil, rock, concrete, asphalt, and fresh water – any non-metallic material. Noggin GPRs are recognized by leading researchers as providing the highest quality data of all GPR systems available today. Rugged by design, Noggin GPR systems have been used successfully in the most demanding conditions around the world – from the Arctic to the Sahara desert.

For more than a quarter of a century, Sensors & Software has pioneered advancements in GPR technology and delivered practical, innovative, easy to use, and cost-effective GPR solutions. GPR is in our DNA: research to manufacturing is conducted in a single cutting-edge facility. Through our extensive dealer network and global offices, Sensors & Software is equipped to provide a complete solution, both hardware and software.

When you purchase a Noggin, you are not only buying the highest-performing GPR system in the market today, you are also joining the worldwide Sensors & Software community.

When you engage with us, we:

- Assess the feasibility of using GPR technology to solve your problem
- Recommend suitable products for your needs
- Provide support and training for field collection, analysis and reporting
- Help you with technical advice, supplemental rentals and support throughout the lifetime of your product
Expandable GPR to seize tomorrow’s opportunities

As your GPR knowledge and expertise grow, 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.

Noggin systems provide valuable insights in countless subsurface applications:

**ARCHAEOLOGY & CEMETERIES**
- Search for artifacts and tombs
- Locate foundations of ancient structures
- Find graves and burials

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

**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

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

**MINING & QUARRYING**
- Improve mine safety practices
- Guide resource development
- Locate fractures, faults and joints

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

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