

NOGGIN[®]

by Sensors & Software Inc.



subsurface imaging solutions



NOGGIN®

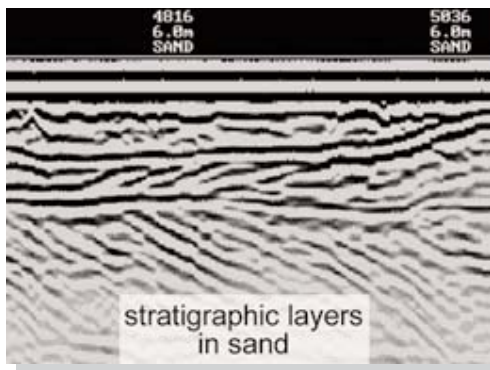
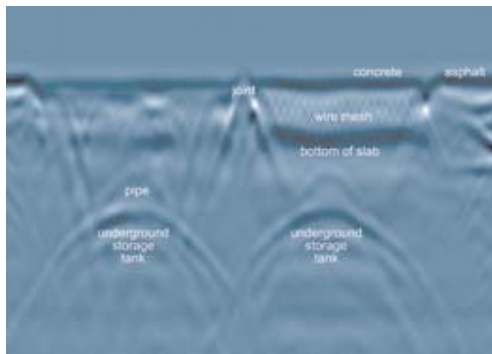
Noggin® subsurface imaging instruments are a fast, affordable and easy-to-use family of Ground Penetrating Radar (GPR) systems from Sensors & Software Inc. The rugged, weather-proof assembly combined with low power, compact, cutting edge digital electronics make Noggin® the most advanced GPR system ever developed. Experience from years of practical field operations has been exploited to enhance the functionality and simplicity of Noggin®.



Noggin® provides subsurface image output directly in digital form. Whether coupled with a PC using SpiView® or operated with a Digital Video Logger (DVL), the subsurface images appear in real-time and are recorded for scroll-through review. Printing hard copy or exporting data images to include in reports is quick and easy. All systems provide marker input as well as time and date stamps on each record.

The basic Noggin® family provides the convenience of "point and shoot" operation. The systems are designed to make you productive immediately. Once you try a Noggin® you will never do a GPR survey any other way.

NOGGIN® Applications



Use your Noggin® for:



Forensic & Archaeology



Geotechnical & Environmental

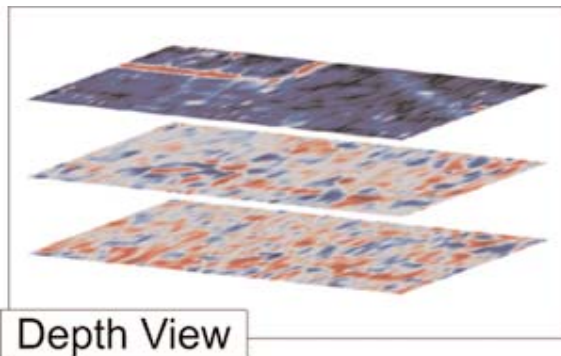
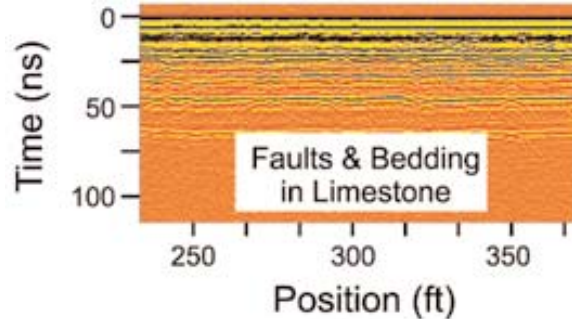
NOGGIN^{plus}

The Noggin^{plus} family of subsurface imaging instruments extends the power of the Noggin[®] group. All Noggin[®] systems acquire data and timing information in digital form internally. Noggin^{plus} systems are enhanced to export the raw digital data. To fully exploit the power of Noggin^{plus}, use a Sensors & Software Inc. DVL system to control, display, and record data.



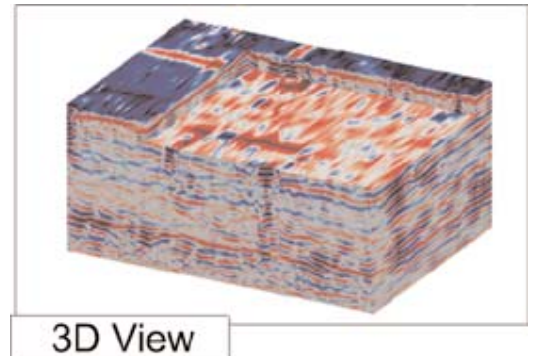
Noggin^{plus} is designed for the professional GPR user who needs fast and simple operation combined with full digital data acquisition for enhanced imaging. Combine Noggin^{plus} with a SmartCart[™] or SmartHandle[™] system to rapidly create maps and 3D visualizations using EKKO_Mapper, EKKO_Pointer and EKKO_3D Windows based software.

NOGGIN^{plus} Applications



Depth View

2D and 3D views of Old Foundations



3D View



Mining & Quarrying



Buried Utilities



Structure Assessments (NDT)

Systems and Peripherals



SmartCart™

The SmartCart™ provides the perfect platform for rapid surveying. The collapsible cart is constructed from tough fiberglass components. With quick release removable wheels and a fold down handle, the SmartCart™ is easily loaded into a vehicle or neatly stored. The integrated DVL, battery, and wheel odometer make controlled surveys easy. From arrival on site to beginning surveying, start up time is less than a minute. The computer managed power system allows survey operation all day using a single rechargeable battery. Integrated data management makes surveying of grids for maps and 3D visualization quick and easy. Downloading data to a PC or making hard copy records directly to a printer are standard features of the integrated system software.

SmartHandle™

The SmartHandle™ provides a compact platform for surveying in confined areas with a Noggin®. Building on Sensors & Software Inc.'s ergonomic designs, the integrated odometer and intelligent control button, light indicators, and beeper accelerates remote data acquisition. A SmartHandle™ system includes the same DVL data acquisition and power management features as the SmartCart™.



DVL (Digital Video Logger)

The DVL provides for control, display, and recording of data for the family of Noggin® systems. The robust, waterproof package enables easy survey operation in any weather condition. The wide temperature range, high contrast, sunlight visible LCD screen makes outdoor operation practical. No more squinting at screens through tunnel hoods to see your data in the field. Large capacity data storage, easy integration with peripherals, and support of GPS operation make the DVL an indispensable part of the Noggin®

*Sensors & Software offers a complete range of accessories that complement the Noggin® family of GPR systems. From shipping cases to battery packs to cables, visit www.sensoft.ca or contact us to find out more.

◆ Military, Law Enforcement & Espionage

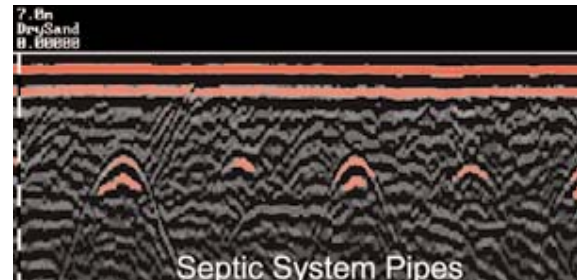
◆ Bio Applications

◆ Snow & Ice

Software

SpiVIEW[®]

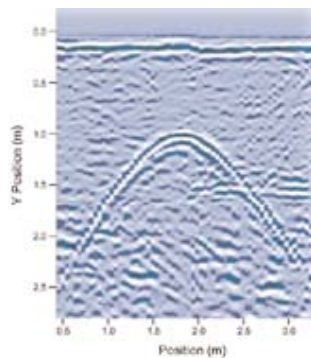
SpiView™ turns a DOS-based PC into a control, display, printing, and data storage system for the Noggin® family. Simple time-based operation of Noggin® with on-the-fly gain, depth, colour, and speed adjustments make for an inexpensive entry to the exciting GPR field.



NOGGIN^{plus}

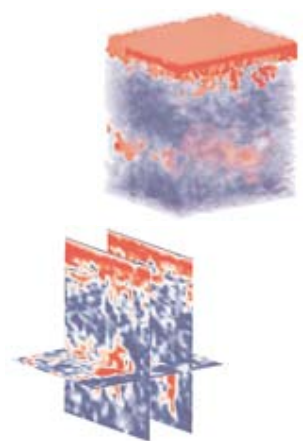
EKKO_View

For Noggin^{plus} users with raw digital data, EKKO_View provides a powerful Windows® based data editing, display, and plotting capability. EKKO_View acts as a pre-processor for the EKKO Mapper, EKKO_3D and EKKO Pointer imaging software modules.



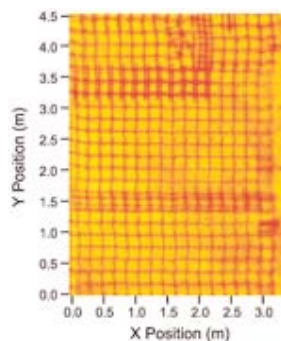
EKKO_3D

EKKO_3D provides 3D visualization of GPR grid data obtained using the SmartCart™ or SmartHandle™ Systems. EKKO_3D enables fascinating 3D slice, cube, and chair presentations and movies to be created quickly and easily.



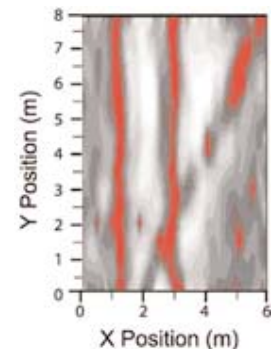
EKKO Mapper

EKKO Mapper converts the Noggin^{plus} SmartCart™ or SmartHandle™ grid survey data into GPR time and depth slice maps. The DVL and Noggin^{plus} output merge seamlessly into EKKO Mapper to enable rapid map creation. Map outputs ease the understanding of complex 3D structures.



EKKO Pointer

EKKO Pointer uses pattern recognition to identify localized target responses in GPR data and creates a statistical output representation. Output aids in identifying features such as pipes and cables. Processing is highly automated and operates on the same grid data sets used by EKKO Mapper and EKKO_3D.



NOGGIN® Technical Specifications

| | NOGGIN® 1000 | NOGGIN® 500 | NOGGIN® 250 |
|---|--|--|--|
| Size | 12 x 6 x 4.5 in (30 x 15 x 11 cm) | 15 x 9 x 6 in (39 x 22 x 16 cm) | 25 x 16 x 9 in (63 x 41 x 23 cm) |
| Weight | 5 lbs (2.3 kg) | 6.5 lbs (3 kg) | 16 lbs (7.3 kg) |
| Power | 8 watts 12 V @ 0.7A DC | 8 watts 12 V @ 0.7A DC | 8 watts 12 V @ 0.7A DC |
| Performance Factor | >160 dB | >160 dB | >160 dB |
| Transducer Patented Dipole | 500 - 1500 MHz | 250 - 750 MHz | 125 - 375 MHz |
| Shielding Front to Back | >20dB | >20dB | >20dB |
| Noggin® to PC | 115KB, RS232 | 115KB, RS232 | 115KB, RS232 |
| Default Depth Windows (User Definable) | 0.25, 0.5, 1, 2, 4m (6.25, 12.5, 25, 50, 100ns) | 1, 2.5, 4, 5, 8m (25, 50, 75, 100, 150ns) | 2.5, 5, 7.5, 10, 15m (50, 100, 150, 200, 300ns) |
| Acquisition Rate (depends on control system) | 100,000 samples/s | 100,000 samples/s | 100,000 samples/s |
| PC & DVL Output | Digital image in .PCX Format | Digital image in .PCX Format | Digital image in .PCX Format |
| DVL Output | Digital (raw) 16 bit 2's complement* | Digital (raw) 16 bit 2's complement* | Digital (raw) 16 bit 2's complement* |
| Integrated GPS | Point mark or continuous recording | Point mark or continuous recording | Point mark or continuous recording |
| Operating Temperature | -40 to 40°C | -40 to 40°C | -40 to 40°C |
| Environmental | IP66 | IP66 | IP66 |

* In Noggin^{plus} only

SpiView and Noggin are ® registered trademarks of Sensors & Software Inc.
All Noggin units comply with FCC 15.509.



Sensors & Software Inc. is recognized globally as the technical leader in GPR products. Our name is synonymous with technical excellence, continuous innovation and responsive customer service.

Our products and systems have been designed for a broad range of customers and markets. Contact us for more information on our application areas.

All statements, technical information, and recommendations related to Sensors & Software Inc.'s products are based on information believed to be reliable, but the completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The statements contained herein are made in lieu of all warranties, expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose which warranties are hereby expressly disclaimed.

s u b s u r f a c e i m a g i n g s o l u t i o n s

Sensors & Software Inc.
1040 Stacey Court
Mississauga, ON L4W 2X8 CANADA

Tel: (905) 624-8909
Fax: (905) 624-9365

Email: sales@sensoff.ca
Website: www.sensoff.ca