GS System

The GS System is our next-generation high-performance, purpose-built GPR system designed for applications that require deeper depth penetration. This system features a modular design that allows the user to select which controller best suits their needs; the rugged SIR 4000, combined with our new WiFi module, or the Panasonic Toughpad G2 Tablet with a custom user interface. Both controllers will be connected to the digital, wireless antenna via the HS Module. The HS Module incorporates system electronics, an internal GPS, and connectivity ports via an IP65 rated housing.

200 HS Antenna

The 200 HS antenna uses GSSI's patented HyperStacking® technology which improves signal to noise performance and increases the antenna depth penetration under ideal soil conditions. The GS System is suited for geophysical, geotechnical, or environmental applications that require high reliability under challenging survey conditions.

MAX DEPTH 21 m (70 feet)	**ANTENNA FREQUENCY** 200 MHz
ANTENNA WEIGHT 17.9kg (39.6 lbs)	**STORAGE CAPACITY** SIR 4000: 32 GB Panasonic Toughpad G2: 512 GB
OPTIONAL SOFTWARE RADAN® 7	**ACCESSORIES** Multiple GPS options, GPS Mount, Wheel Kit, Transit Case, Survey Wheel

See our website for more information and detailed specifications: www.geophysical.com

THE GS SYSTEM ADVANTAGE

Acquire Data Wirelessly

The HS Module is the communication bridge from the antenna to the controller. With the new WiFi Module, users can use their existing SIR 4000 controller to run the new GS System. The 200 HS improves survey efficiency and in-field use. For multi-person surveys, the WiFi range can reach distances of up to 15 meters (50 feet) within line of sight between the controller and antenna.

HyperStacking Technology & Improved Depth

The GS System uses GSSI's proprietary HyperStacking Technology to provide clear, high resolution data of subsurface features. In ideal soil conditions, the 200 HS achieves greater depth penetration, nearly double than that of conventional GPR antenna designs.

Optional Survey Accessories

Several accessories enhance the ease of use for data collection. These options include a GPS mount and a four-piece wheel kit that can decrease the wear of the antenna on prepared surfaces such as gravel and asphalt. An optional rugged transit case is designed to hold the HS Module, wheel kit, tow strap, batteries, battery charger, and the SIR 4000 WiFi Module or the Panasonic G2.

TYPICAL USES

- Water Table Mapping
- Bedrock Profiling
- Stratigraphy
- Bathymetry
- Sinkhole Areas
- Deeper Utility Detection
- Archaeological Investigations

FCC, RSS-220 and CE Certified

GS SYSTEM CONFIGURATIONS

Existing SIR 4000 Customers

- 200 HS Antenna
- HS Module
- SIR 4000 Wireless Module

SIR 4000

- 200 HS Antenna
- HS Module
- SIR 4000
- SIR 4000 Wireless Module

Tablet

- 200 HS Antenna
- HS Module
- Panasonic Toughpad G2 Tablet

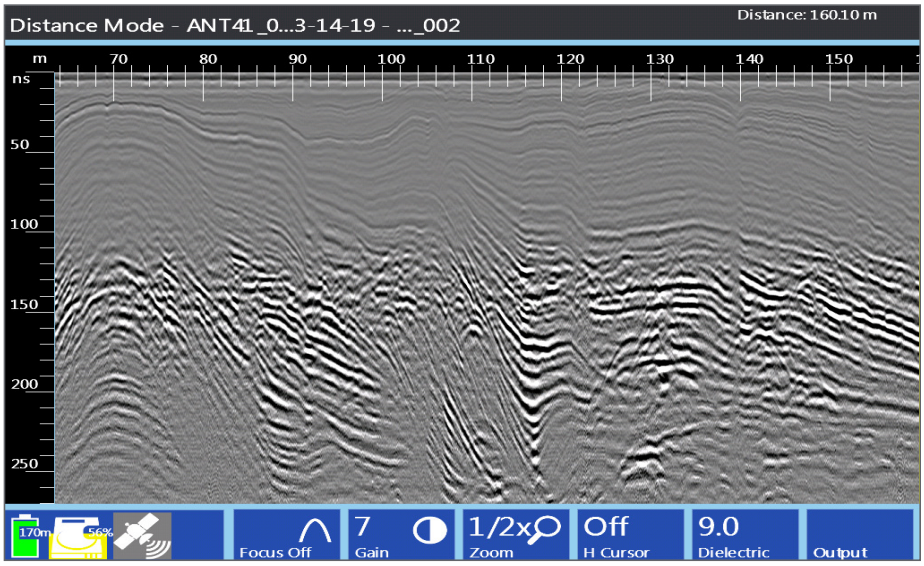
Note: 200 HS antenna exclusively uses the GSSI Model 620 survey wheel.

CONTROLLER OPTIONS

SIR 4000

The SIR 4000 is a high-performance GPR data acquisition unit that is designed to operate with all of GSSI's analog and digital antennas. When coupled with the new WiFi Module, the SIR 4000 becomes a field-proven controller for the GS System by allowing users the ability to connect wirelessly to the 200 HS antenna. The high definition screen is designed to be clearly visible in bright field conditions. The WiFi Module attaches to the back of the SIR 4000 and has user-replaceable WiFi antennas to limit any potential field down time.

This IP65 rated control unit also provides users the ability to connect to the antenna via a digital control cable during challenging field conditions or where WiFi is not permissible.



Stratigraphic analysis of fluvial deposits in Northeastern United States. Data collected with SIR 4000 and 200 HS antenna.

Panasonic Toughpad G2

The Panasonic G2 is a rugged Windows 10 tablet that comes with pre-loaded software designed for the GS System. The tablet weighs three pounds (1.4 kg), features an easy to use interface, and has an integrated GIS map mode.

The GIS map mode will display the GPR data collected on the left side of the screen and a location map on the right side of the screen. This GIS map mode provides position information using a user-selected GPS and serves as a tool to visualize the survey layout.

Tablet screen image of 2D GPR data indicative of flood plain deposits located in the Northeastern United States (left) and geographic information system (GIS) data (right).

ADVANCED SPECIFICATIONS

SIR 4000	
Number Of Channels	Records data from 1 single-frequency antenna or 1 dual-frequency antenna
Data Storage	32 GB Flash, 1 GB RAM
Display	Enhanced 10.4 inch LED display with internal high brightness, Active matrix 1024 x 768 resolution and 32-bit color
GPS	Data logged internally
Display Modes	Linescan, Linescan plus O-scope, Wiggle trace Full 3D, 256 color bins are used to represent the amplitude and polarity of the signal
Environmental Rating	IP65
Operating Temperature	-20°C to 40°C external (-4°F to 104°F)
Panasonic Toughpad G2	
Data Storage	512 GB (SSD)
Display	10.1 inch, WUXGA Gloved Multi Touch + Digitizer
Memory	16 GB DDR4
Processor	Intel® Core™ i5-10310U vPro™ processor, 1.7GHz with Turbo Boost up to 4.4GHz, 6MB cache
Graphics	Intel UHD Graphics
Connectivity	Intel Wi-Fi 6 / 4G LTE multi carrier with satellite GPS (Band 14 EM7511)
Bluetooth	Bluetooth® v5.1
Ports	USB-C 10Gbps (w/PD) / USB-A 5Gbps / 1Gbps Ethernet RJ-45/ 2nd LAN xPAK
Battery Life	8 hours with typical use / 1 min hot swap time
Weight	1.3 kg (2.9 lbs)
Dimensions	280 mm x 188 mm x 28 mm (11.0” x 7.4” 1.1”)
Operating System	Windows® 10 Pro 64-bit
200 HS Antenna	
Center Frequency	200 MHz
Max Depth	21 m (70 ft)*
Battery Life	4 hours
Environmental Rating	IP65
Vibration	Mil-STD-810G Method 514.6C Category 9
Operating Temperature	-10°C to 40°C external (14°F to 104°F)
Weight	17.9 kg (39.6 lbs)
Dimensions	64.8 x 64.8 x 34.3 cm (25.5 x 25.5 x 13.5 in)
Model Number	50200HS
Data Acquisition	
Data Format	RADAN® (.dzt)
Output Data Format	32-bit
Scan Interval	Up to 200 scans/sec
Number Of Samples Per Scan	512, 1024, 2048, 4096, 8192
Operating Modes	Continuous (time), Survey Wheel (distance triggered), or Point Mode
Time Range	0-16,000 nanoseconds full scale, user-selectable Gain: manual adjustment from -42 to +126 dB Number of segments in gain curve is user-selectable from 1 to 8
Signal-to-Noise Ratio	171 dB
Standard Real-Time Filters	Infinite Impulse Response (IIR) - Low and High Pass, Vertical and Horizontal
Advanced Real-Time Features	Surface Position Tracking, Signal Noise Floor Tracking, Adaptive Background Removal, Dynamic Gain Control
Automatic Antenna Recognition	Automatic recognition of HS Antennas to allow maximum compliant transmit rate
Internal GPS Accuracy	Autonomous 2.5 m (8.2 ft), SBAS 2.0 m (6.6 ft)
External GPS	Bluetooth
Wireless Range	15 m (50 ft)
Input/Output	USB, rugged Ethernet, survey wheel and marker input, digital connector

* Under ideal soil conditions

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