



# Rugged, High-Performance Multi-Channel GPR Data Acquisition System

**SIR<sup>®</sup> 30**

[www.geophysical.com](http://www.geophysical.com)

The SIR 30 is the next generation high performance multi-channel radar control unit. This system can collect up to eight channels of data simultaneously with uncompromised performance.

The SIR 30 offers advanced filters and display capabilities for real-time processing including migration, surface positioning, signal floor tracking and adaptive background removal.

As the basis of a high-speed data collection system, the SIR 30 is ideal for: measuring pavement layer thickness, detection of cavities, airport runway assessment, detection of fouled/clean ballast and utility detection.

## Typical Uses

- Road structure assessment
- Utility designation
- Bridge deck inspection
- Rail bed inspection

## Flexible, Modular Design

- Available in a two, four or eight channel configuration
- Operate the control unit with a laptop computer or as a standalone system
- Compatible with most GSSI antennas

## Integrated System

- Ideal for vehicle-mounted applications, supports AC or DC operation
- Full internal GPS logging capability
- Multiple mounting configurations

## Deliver Results

- High speed GPR data collection—capable of more than 5,792 scans/second, with four channels
- USB and Ethernet ports for system flexibility
- Up to 500 GB data storage



“With recent technological advancements, we’ve seen superior data quality in real-time, rather than relying on post-processing in the office. It’s a real advantage when we can make decisions in the field.”

*Brad Rister, University of Kentucky Transportation Center*

# SIR 30 Specifications

<b>System</b>																																					
Antenna Support	Compatible with most GSSI antennas																																				
Number of Channels	Records data from 1 to 4 hardware channels simultaneously; two 4 channel systems can be connected to form an 8 channel system																																				
Data Storage	Internal memory: 4 channel 500 GB Internal SSD 2 channel 250 GB Internal SSD GPS data logged internally																																				
Display Modes	Linescan and O-scope. In Linescan display, 256 color bins are used to represent the amplitude and polarity of the signal																																				
Operational Modes	External laptop, standalone with external monitor and keyboard or remote command set																																				
<b>Data Acquisition</b>																																					
Data Format	RADAN (.dzt)																																				
Scan Rate Examples	Output Data Resolution: 32-bit																																				
	<table border="1"> <thead> <tr> <th colspan="2">1-4 Channels @ 100 KHz PRF</th> <th colspan="2">1-4 Channels @ 800 KHz PRF</th> </tr> <tr> <th>Samples</th> <th>Max Rate (scans/Sec)</th> <th>Samples</th> <th>Max Rate (scans/Sec)</th> </tr> </thead> <tbody> <tr> <td>256</td> <td>326</td> <td>256</td> <td>1449</td> </tr> <tr> <td>512</td> <td>178</td> <td>512</td> <td>990</td> </tr> <tr> <td>1024</td> <td>93</td> <td>1024</td> <td>606</td> </tr> <tr> <td>2048</td> <td>48</td> <td>2048</td> <td>341</td> </tr> <tr> <td>4096</td> <td>24</td> <td>4096</td> <td>182</td> </tr> <tr> <td>8192</td> <td>12</td> <td>8192</td> <td>94</td> </tr> <tr> <td>16,384</td> <td>8</td> <td>16,384</td> <td>48</td> </tr> </tbody> </table>	1-4 Channels @ 100 KHz PRF		1-4 Channels @ 800 KHz PRF		Samples	Max Rate (scans/Sec)	Samples	Max Rate (scans/Sec)	256	326	256	1449	512	178	512	990	1024	93	1024	606	2048	48	2048	341	4096	24	4096	182	8192	12	8192	94	16,384	8	16,384	48
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Scan Interval	User-selectable																																				
Number of Samples per Scan	256, 512, 1024, 2048, 4096, 8192, 16,384																																				
Operating Modes	Continuous (time), Survey Wheel (distance triggered) or Point Mode (with static stacking up to 100,000 scans)																																				
Time Range	0-25,000 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.																																				
Standard Real-Time Filters	Infinite Impulse Response (IIR) - Low and High Pass, vertical and horizontal Finite Impulse Response (FIR) - Low and High Pass, vertical and horizontal																																				
Advanced Real-Time Filters	Migration, Surface Position Tracking, Signal Floor Tracking, Adaptive Background Removal																																				
External Marker	Three different inputs/codes: Antenna, Back panel, Accessory connector																																				
Automatic System Setups	Storage of an unlimited number of system setup files for different survey conditions and/or antenna deployment configurations																																				
Automatic Antenna Recognition	Automatic recognition of Smart Antennas to allow maximum compliant transmit rate																																				
<b>Languages</b>																																					
	English																																				
<b>Operating</b>																																					
Operating Temperature	-10°C to 50°C external (14°F to 122°F)																																				
Battery	260W max (120W typical) at 95-250VAC 50/60Hz or +10VDC to +28VDC																																				
Transmit Rate	Up to 800 KHz (International), US/Canada and CE rates depend on antenna model																																				
<b>Input/Output</b>																																					
Available Ports	Antenna inputs (2 or 4), Survey wheel, Marker, DC power input, Serial RS232 (GPS port), Sync connector, Accessory connector, HDMI video, Ethernet (2), USB (3)																																				

Dimensions: 17.7x13x5.1 in (45x33x13cm)  
 Weight: 2 channel system-18.5 lbs (8.4 kg)  
 4 channel system-21 lbs (9.4 kg)  
 Relative Humidity: <95% non-condensing  
 Storage Temperature: -40°C to 60°C

[See Our Website For More Information](#)



**Antennas and accessories sold separately**  
**FCC, RSS-220 and CE Compliant**

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**Geophysical Survey Systems, Inc.**

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