SIRveyor™ SIR-20

Features

Integrated data collection and processing for instant results

Very fast data collection at up to 800 scans per second

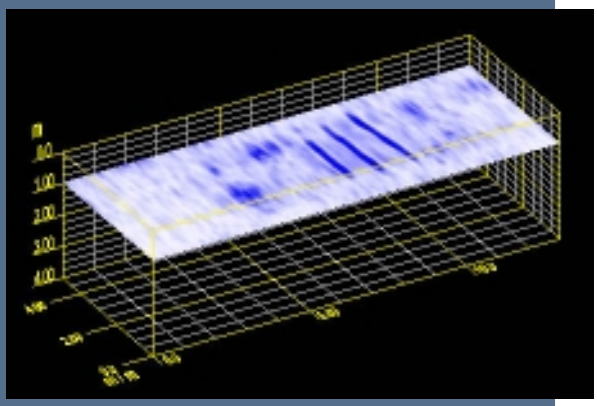
Collect data in 3D mode

Applications

Utility detection

Road and bridge inspection and evaluation

Concrete evaluation with StructureScan III



3D QuickDraw data example showing pipes at a depth of 1 m

The new SIRveyor SIR-20 is the most recent addition to GSSI's line of GPR products. The first in a new generation of GPR data acquisition systems, the SIR-20 revolutionizes the GPR industry by combining a rugged, powerful data collection unit and a laptop PC with GSSI's Windows™-based RADAN NT post processing data software.

- Data collection with the SIR-20 is extremely user-friendly. The flexibility of GSSI SIR-20 allows the use of the full product line of antennas for maximum range in depth penetration.
- The SIR-20 also allows the operator to collect data in single line mode or collect data specifically for 3D format, making data processing quick and easy.
- GPS compatible.

SIRveyor SIR-20

Best Signal-to-Noise Ratio

The SIR-20 provides unsurpassed data quality, far exceeding any other GPR system on the market.

Multi-Channel System - Multiplexed

Two hardware channels for up to 4 data channels allows the user maximum flexibility for data acquisition. Collect data at a rate of up to 400 scans per second on each antenna.

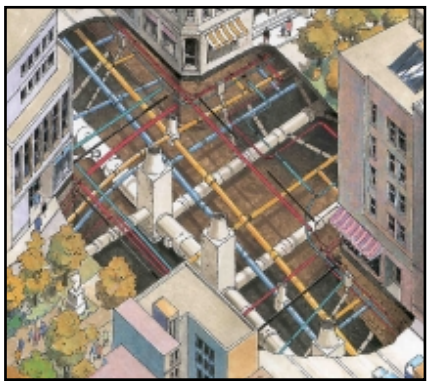
Fastest Data Collection Rate

Collect data at a rate of up to 800 scans per second. With one antenna, data density is one scan per inch at 45 mph.

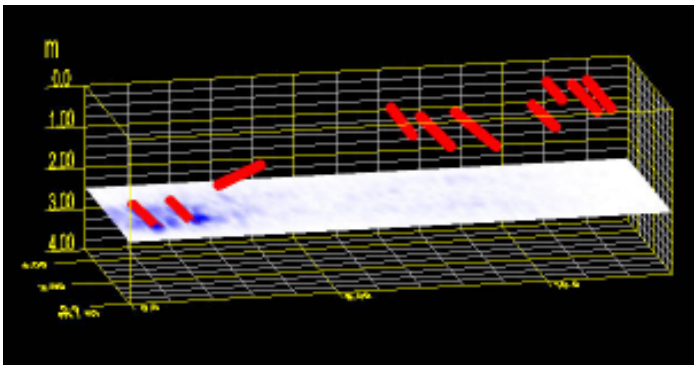
Field-rugged laptop PC running Windows NT and GSSI's RADAN NT post processing data software.

Utility Detection

Complex utility layouts that involve multiple intersecting targets at varying depths are easily surveyed and imaged with GPR for utility planning, maintenance and problem solving.



For utility location and investigation, GPR imaging is the best technology in every situation. This real-time survey method quickly and accurately locates the position and depth of utilities and subsurface voids thereby helping to eliminate the dangers associated with construction activity.



3D QuickDraw identifies and marks utilities and other targets in 3 dimensions.

Road & Bridge Inspection

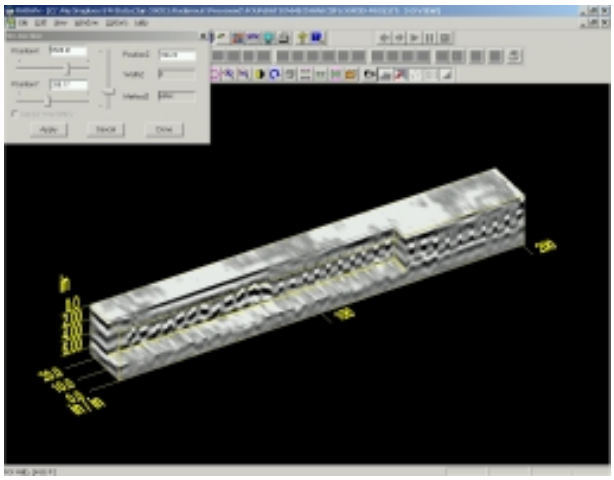
Accurate pavement thickness

Roadway condition assessment

Base and sub-base evaluations

Defines deterioration boundaries & quantities within reinforced concrete deck that result from chloride-induced corrosion

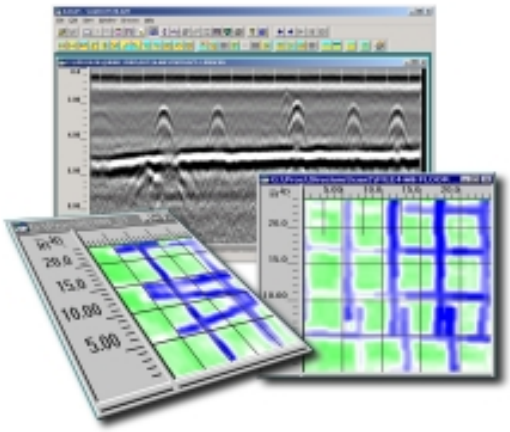
Integrate GPR data through GIS, video & maps - ask us



Note that splicing (mesh overlap) exists over the left 1/3 of cube's length; there is also significant depth variability in the mesh, particularly along right 2/3 of the volume…each of these variables will affect FWD response—both in terms of deflection and signal damping or vibration.

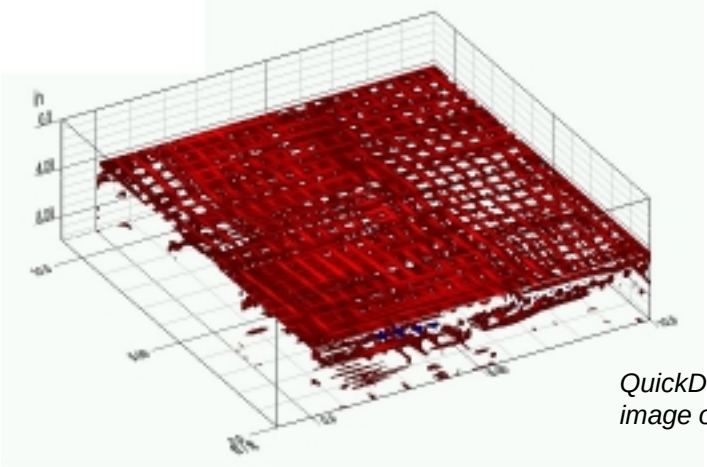
Single layer of mesh only on right 2/3 of FWD/GPR testing region.

StructureScan III



Provides clear 3D plan view of rebar, plastic pipes and other conduits

Traditional 2D (top) and C-Scan plan view images of rebar in concrete.



Obtain 3D image or C-scan slice image with the click of a single button

QuickDraw Super 3D image of rebar mat

SIR®-20 System Preliminary Specifications

Software

Antennas: Records data from 1 or 2 hardware channels simultaneously; 1 to 4 data channels, selectable.

Display Modes: Linescan, Wiggle Plot and Oscilloscope. In linescan display, 256 color bins are used to represent the amplitude and polarity of the signal.

Automatic System Setups: Storage of an unlimited number of system setup files for different road types, survey conditions, and/or antenna deployment configurations.[1]

Range Gain: Manual adjustment from -20 to +100 dB. Number of segments in gain curve is user-selectable from 1 to 8.

Vertical Filters: Individually filter the scans in the time domain. Low and high Pass, Infinite Impulse Response (IIR), Finite Impulse Response (FIR), Boxcar and Triangular filter types are available.

IIR	
Low Pass	2 poles
High Pass	2 poles
FIR, Boxcar and Triangle	
Low Pass	up to ½ scan length
High Pass	up to ½ scan length

Horizontal Filters:

IIR	
Stacking	1 to 16384 scans
Background Removal	1 to 16384 scans
Static	
Stacking	2 to 32768 scans
Background Removal	

Radar System Connectors

- (2) Antenna inputs
- (1) 12 VDC input power
- (1) Survey wheel or DMI input
- (1) Marker input

Mechanical

Size: 466 mm x 395 mm x 174 mm (18.4 x 15.5 x 6 in)

Weight: 10 kg (22 lbs)

Electrical

Antennas: Operates with any GSSI model antenna and can handle up to 2 antenna inputs simultaneously.

Resolution: 5 picoseconds.

Range: 0-8,000 nanoseconds full scale, selectable.

Output Data Format: 8- or 16-bit, selectable.

Number of samples per scan: 256, 512, 1024, 2048, selectable.

Scan Rate: 2 to 800 scans/second, selectable. U.S.: 2 to 160 scans/second, selectable.

Input Power: 12 volts, DC nominal with operating range of 11-15 volts, 60 watts.

Thermal

Operating Temperature: -10°C to 40°C external.

Relative Humidity: <95% non-condensing.

Maximum Temperature Variation: <1°C per minute, <10°C per 30 minutes.

Storage Temperature: -40°C to 60°C.

Data Storage, Standard (Internal)

Greater than 6.0 GB

Data Storage, Optional (External)

Any standard PC peripheral using the PC parallel port, USB port, or Ethernet port

Radar System Paramenters[2]

- Signal to noise ratio > 110 dB
- Dynamic range > 110 dB
- Time base accuracy .02%

Fully FCC Compliant

[1]Limited only by computer hard disk capacity
[2]Does not include antenna figures

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