

RT 1000

Wireless Seismic System

The wireless system with real-time data

wireless**SEISMIC**

When Real-time Matters

What the RT 1000 Offers You

Real-time data retrieval with cableless flexibility

Cableless seismic technology offers huge advantages to operators in virtually any kind of terrain. Until recently, cableless meant shooting blind, which made many seismic contractors reluctant to go wireless. With the RT 1000 wireless seismic system – you don't have to compromise. The RT 1000 will let you collect thousands of channels of seismic data in real time using wireless telemetry.

Ability to avoid costly re-shoots

With the RT 1000 you will see your data as it is gathered, so you will know your units are there, acquiring data with the fidelity and quality you expect.

You can monitor the units at the central system to ensure unwanted background noise is not recorded and that all stations are live. And with real-time monitoring, your data is secure from theft or node failure.

Benefits at every step

Cableless seismic systems offer huge advantages over wired systems in terms of cost, logistics, safety and environmental concerns. Without heavy cables to transport, crew and equipment requirements are reduced, and deployment is faster and easier – with far less chance for injury. Troubleshooting and repair time is slashed, because there are no cables to be damaged, checked and repaired each day.

Surveys without boundaries

As a drop-in replacement for a conventional cable system, the RT 1000 will significantly lower the costs and risks of virtually any seismic survey. Crews can work through agricultural fields with minimal crop damage, operate across wetlands, and traverse environmentally or politically sensitive areas, including non-permitted zones, efficiently and easily.



RT 1000 Advantages

- **Real-time data retrieval:** No data collection or transcription required
- **Real-time noise monitoring and QC:** No blind shooting, no loss of data due to box theft or damage
- **Lower costs:** Reduced system weight and volume requires fewer people and less equipment
- **Safer operation:** Fewer people and vehicles mean fewer injuries
- **Higher productivity:** No downtime for cable repairs & faster troubleshooting
- **Faster deployment:** Light-weight units can be easily deployed & redeployed
- **Smaller footprint:** Easier permitting, less line clearing and virtually no crop damage
- **Obstacle-free deployment:** Virtually invisible, roads and river crossings are no obstacle



What Places the RT 1000 at the Head of the Class of Cableless Systems

The Wireless Remote Unit (WRU)



The WRU is the heart of the RT 1000 system. It's a sophisticated data acquisition unit with a built-in radio link. Units are connected to a standard geophone string and arrayed in a line without interconnecting cables. Seismic data is digitized and relayed along the line, with each unit receiving downstream data, adding its own information, and forwarding it upstream to the backhaul. The central recording system sends commands to the WRU to configure parameters for acquisition, analyze instrument performance and test geophones – just as it would in a cabled system.

The WRU uses an intuitive deployment approach (patent pending), which can be mastered easily by unskilled personnel. Indicator lights quickly confirm successful deployment.

Once the units have been deployed, they have been designed to quickly transition from one power state to another on command to maximize battery life in the field. With two lithium-ion batteries attached, the unit will deplete the lowest capacity battery first, and then switch to the second, while advising the operator in the recording truck of changes in battery utilization. When it is time to replace batteries, they can be “hot swapped” without interrupting survey operations.

The WRUs use radios that operate in the 2.4 GHz ISM band, which is license-free virtually worldwide. The units continuously negotiate transmission power, optimizing based on quality of service. Short hop station spacing provides an adaptive, power-saving telemetry system. Extra units can be used as repeaters if radio conditions deteriorate.

The Backhaul

A structured radio-linked backhaul, operating in the unlicensed 5.8 GHz band, serves as strategically placed access-point for lines of WRUs. The high-bandwidth backhaul effortlessly telemeters commands, seismic data, and unit status between the central recording truck and the wireless remote units.



Lightweight, telescoping backhaul masts are used to elevate the backhaul components above obstructions and to enable radio communications to accommodate typical cross-line distances. A stable base supports the masts along with temporary guy wires that raise the mast from horizontal to vertical and which can be installed by a single person.



Long-lasting power

Sophisticated power management uses one or two lithium-ion batteries for seamless operation. Batteries can be “hot swapped” in the field without interrupting survey operations.



The Central Recording System

The recording system uses a scalable client/server architecture with a highly intuitive and configurable interface.

Features & Specifications

- Single station 24-bit digital acquisition
- Built-in self tests
- Built-in GPS for self discovery
- License free 2.4-GHz ISM band
- Autonomous deployment with LED status indicators
- Skip healing telemetry
- Synchronous and asynchronous recording
- Continuous real time data collection
- Scalable system architecture
- Industry standard geophone connector
- Intelligent lithium-ion battery with self-contained charging circuitry
- Operating temperature -40°C to $+75^{\circ}\text{C}$
- Humidity 0 to 100%
- Gain Selections: x1, x4, x16, x64
- Sample Interval: $\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 4 milliseconds
- 0.1% channel to channel matching
- Stackable, rugged aluminum enclosure
- Hot-swappable battery packs

Specifications

Maximum input signal level: 1.768 V RMS @ x1 gain
Total System Dynamic Range: 143 dB @ 2 ms sampling
Instantaneous Dynamic Range
125 dB @ x1 gain
124 dB @ x4 gain
117 dB @ x16 gain
106 dB @ x64 gain
Anti-alias filter:
Pass band edge (0.01dB ripple) 0.75 Nyquist
Stop band attenuation >120 dB at Nyquist
-3dB point is at 0.8 Nyquist
Linear or minimum phase
Common Mode Rejection: >100 dB
Equivalent Input Noise @ 2 msec
0.93 μV @ x1 gain
0.27 μV @ x4 gain
0.14 μV @ x16 gain
0.13 μV @ x64 gain

8125
Total Harmonic Distortion: 0.0002% @ 7.1825 Hz.

Dimensions:

5.8 x 2.8 x 9.0 inches
(14.7 x 7.1 x 22.9 cm)
Weight (w/o battery packs): 4.0 lbs. (1.8 Kg.)
Total Weight with 2 Batteries and Antenna; 7.1 lbs. (3.2 Kg)

The logo features a black Wi-Fi symbol above the word "wireless" in a lowercase, sans-serif font. To the right of "wireless" is the word "SEISMIC" in a larger, bold, uppercase, sans-serif font. The "S" and "E" in "SEISMIC" are red, while the remaining letters are black.

For more information call us at:
832.532.5059

Or go to our website:
www.wirelessSEISMIC.com

Disclaimer:

This data is accurate as of the publication of this data, certain details may be subject to change, and users interested in purchase of a system are encouraged to request the latest information.

