PRS-1

Coded Seismic Source and Acquisition System



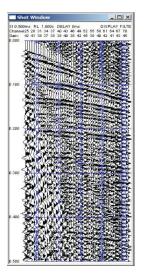


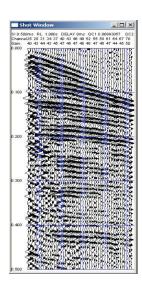
Inexpensive construction tampers are used for the energy source.

Seismic surveys in urban areas represent a significant logistics challenge. Vibrators are disruptive and expensive; explosives are dangerous and difficult to permit.

Geometrics offers an alternative to vibrators and explosives that is inexpensive and non-destructive. This technique uses widely available portable construction tampers to introduce a pseudo-random, encoded impact sequence into the ground. The reference signal is recorded with a special geophone near the base of the construction tamper and transmitted to a signal conditioning box before being used to decode the encoded shot record.

The Geometrics PRS package brings with it most of the benefits of a swept source, but at a fraction of the cost. Highly portable, it can be used anywhere a small ATV can be driven. But where this method really proves its worth is in high-noise, urban environments, especially along roads. Since the energy is introduced into the ground over a relatively long period of time (30-60 seconds), the effects of passing vehicles can be





Hammer record on the left (10 stacks) compared to 1 sixty-second acquisition with the PRS system.

monitored and suppressed. The result is a much higher signal-to-noise ratio than that obtainable with an impulsive source when working along roads.

Since the energy is introduced through a series of small impacts over a relatively long period of time, the technique is environmentally friendly.

- Ideal for reflection surveys for faults, petroleum, water.
- Replaces expensive vibrators or dangerous explosives.
- Uses widely-available, low-cost construction tampers.
- Works well in urban, high traffic areas.
- Low transportation costs; man-portable.
- Built-in noise suppression; ideal for working along roads.
- Sophisticated pilot quality control assures sharp autocorrelation pulse.



PACKAGE INCLUDES

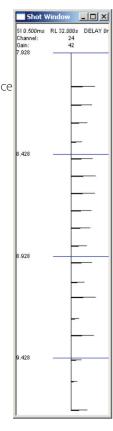
Hardware:

- StrataVisor NZ or Geode seismograph
- Pilot Processing Module for recording reference signal from 100-Hz geophone
- 64,000 samples/trace record length

Software:

- Pilot conditioning
- Pilot summing (for multiple tampers)
- Acquisition and display-only correlation
- Real-time noise suppression
- Pilot QC analysis

Tamper blows are turned into a single impulse by signal processing software

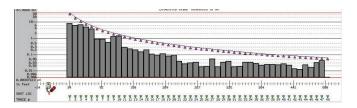


Noise Suppression

If you've ever conducted a seismic survey along a busy road, you know the aggravation of waiting for a quiet period. The PRS system allows you to ignore the traffic altogether. With noise suppression enabled, each channel is monitored for inappropriate noise levels which might degrade the final result. Operator settings help account for variations in signal level with distance from the source.

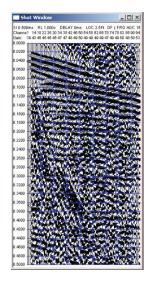
Quality Control

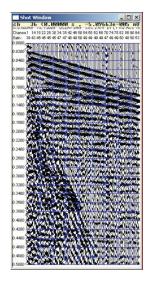
When using a vibrator, data quality is improved by exciting the ground with a wide bandwidth signal with unique frequencies. With a construction tamper, good data quality demands that the time intervals between impacts are unique. PRS quality control software analyses each record and reports a "randomness quotient". If the randomness quotient drops below the user-selected threshold, the record can be discarded without adverse affects and the data reacquired.



RMS noise display helps set up traffic noise suppression thresholds.

If you are finding it increasingly difficult to use explosives, or if you are doing more and more seismic surveying in urban settings, this real-time processing option for the Geode/NZ seismograph could be just what you've been looking for. Call Geometrics today to find out how the PRS can improve your productivity.





Effect of real time noise suppression in high vehicle traffic area.

Left record – noise suppression disabled.

Right record – noise suppression enabled.

 ${\bf Specifications\, subject\, to\, change\, without\, notice.}$

PRS-1_v1 (0723)



GEOMETRICS INC. 2190 Fortune Drive, San Jose, California 95131, USA Tel: 408-954-0522 • Website: www.geometrics.com • Email: sales@geometrics.com

GEOMETRICS EUROPE Geomatrix Earth Sciences

Tel: 44-1525-383438 • Website: www.geomatrix.co.uk • Email: sales@geomatrix.co.uk

GEOMETRICS CHINA Greenview Geophysical Instruments Ltd

Tel: +86-10-85850099 • Fax: +86-10-85850991 • Email: greenviewgeo@greenviewgeo.com.cn