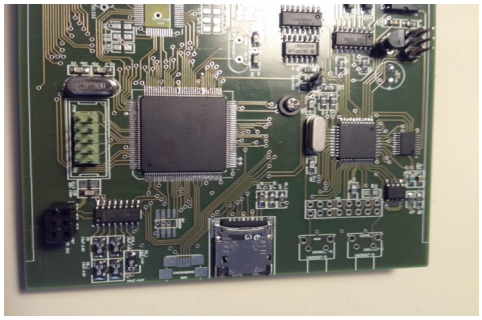
NEW seismic digitizer/recorder
for passive seismic monitoring applications

The SRi32L with the C100 sensor

LandTech Geophysics introduces its new ultra high resolution digitizer/recorder which has been designed with the cooperation of GEObit. The technology is based on the SRi32 digitizer/recorder, initially designed for micro-cracking monitoring from the surface. Since Landtech is focusing in both PST and Fracturing Monitoring applications, the instrument has been re-designed, in order to comply with all the requirements for operating in PST acquisition Special characteristics such as ultra high resolution, miniature size, ultra low power consumption (the unit can operate for one week with a small 12V/9Ah battery) combine to make the instrument the most competitive in today's market. Our latest innovation in technology keeps LandTech several steps ahead today's competition.

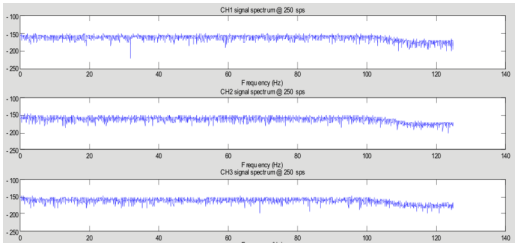
Benefits of the new instrument are:

- Ultra high resolution digitizer, with effective resolution greater than 138dB@250sps and 129dB@1000sps. Up to 32 bit performance at lower sampling rates.
- Integrated Force-balance sensor electronics for bandwidth and sensitivity extension of a 4.5Hz geophone sensor. Using this technique, provides our C100 sensor (made by ION-SM6 geophones) with a wide bandwidth range from 0.2Hz to 98Hz and ultra high sensitivity 2000V/m/sec. In parallel, sensor body dimensions are miniature, only 50mm diameter and 180mm length. This type of sensor has been widely used in our PST projects for years, giving excellent performance.
- Selectable Sampling rate steps of 50, 100, 200, 250, 400, 500, 1000 samples per second increases flexibility.
- Ability to connect a second 3 channels digitizer, to produce a compact 6-channels digitizer/recorder.
- Internal Timing unit, GPS synchronized, using Digital PLL (DPLL) - TCXO - RTC unit with ultra low drift, less than 17.3usec between one hour GPS cycles. 96% of operation time, the GPS is switched off.
- Miniature LCD that informs the user about instrument's operation, with alternative messages.
- Very powerful ARM type processor, running custom embedded DOS/LINUX compatible OS. Data are stored on a removable microSD Card up to 64GBytes. Semi-compressed CORE32 format, allowing data storage for months.
- Ultra low total power consumption, 0.7W, and miniature size 168 X 106 X 68 mm, easily hidden underground.
- Ethernet port and communication plug-in (Seiscomp/SEEDLINK compatible) for real time telemetry applications .

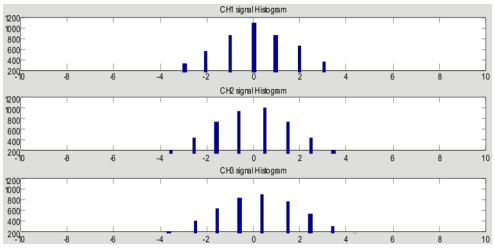


The ARM processor and the microSD card

The SRi32L recorder with the C100 passive sensor



32bit digitizer noise spectrum @ 250sps



32bit digitizer signal histogram

SRi32L specifications

ULTRA LOW POWER, MINIATURE SIZE 32BIT PASSIVE SEISMIC DIGITIZER/RECORDER	
DIGITISER	
Number of analog channels	3 or 6
A/D converter	Fourth Generation, Delta-Sigma, 32bits resolution
THD	-125Db
Modulator	Fourth Generation, 4th order Delta-Sigma Modulator
Filter	Programmable SINC, FIR, IIR filtering, auto-calibration function
Filter Response	Selectable Minimum or Linear Phase Filter
Input resistance	500kOhms differential
Sampling Rate	50 - 1000 samples per second, in steps
Power	9-18Vdc , 0.7W, 0.8 with integrated sensor electronics
Autonomy	One week powered from a 12V/9Ah battery, 36days powered from a 12V/55Ah car battery.
RMS noise	138dB @ 250sps 129db@1000sps
DATA RECORDING	
Media	Removable microSD flash card up to 64GBytes
Data file type	CORE32 format, embedded FAT32 file system
Information file	System log file
Recording mode	Continuous, in ten minutes data files
Trigger	Programmable STA/LTA
TIME BASE	
Type	12 channels GPS receiver/DPLL
Accuracy	Time: +/-1usec to UTC time pulse, +/-5 meters to position
Timing Sources	Ultra low drift DPLL unit using TCVCXO, RTC
DPLL drift	Less than 17usec between one hour GPS cycles
COMMUNICATION	
Telemetry	Serial port or Ethernet port (optional)
Connectivity	Seiscomp/ SEEDlink, RS232 port
LCD	Miniature LCD with alternative information messages
LED	Six high brightness LEDs monitoring system SOH
INTEGRATED FORCE-BALANCE SENSOR ELECTONICS	
Bandwidth	0.2Hz – 98Hz
Technology	Force – Balance technology
Sensitivity	2000V/m/sec using force-balance electronics.
PHYSICAL (DIGITISER/RECORDER WITH INTEGRATED SENSOR ELECTRONICS)	
Size	168mm x106mmx68mm mm
Weight	1.2kgr
PHYSICAL (SEISMIC SENSOR)	
Type	Borehole Type
Dimensions	50mm dia X 180mm length
Cable length	20meters, up to 100 meters
Mounting	Smart elastic clamp for quick installation and un-installation
Weight	1.2kgr
Humidity	Up to 20 bar external water pressure
Tilt	+/-10 degrees
ENVIRONMENT (DIGITIZER/RECORDER)	
Temperature range	-20 to +70 °C
Humidity	100%, IP67 enclosure

Landtech Geophysics

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When the Earth whispers we are there!!!

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