GEOtinyBH10
Borehole Compact Digital Seismometer

GEObit
Monitoring the earth

- 3C borehole seismic and 3C acceleration sensor
- DR: 146dB velocity. 97dB acceleration
- Wide response V:10s to 98Hz, A:DC-550Hz
- Low power consumption
- Cost affordable design
- Only 130mm D/60mm H
- Integrated 24bit digitizer, 138dB
- Embedded Seedlink & Earthworm Server
- Realtime Telemetry and Local Storage
- MiniSeed data format
- Linux open source OS
- Web Interface Menu
- SSH, SFTP, HTTPS, CoAP, NTP
- Modular seismic sensor design
- Customized Sensor Corner Frequency
- High sensitivity 1500V/m/s
- Operation Range: -20 +70°C
- Waterproof IP67 aluminum case

Pay Less Get more!
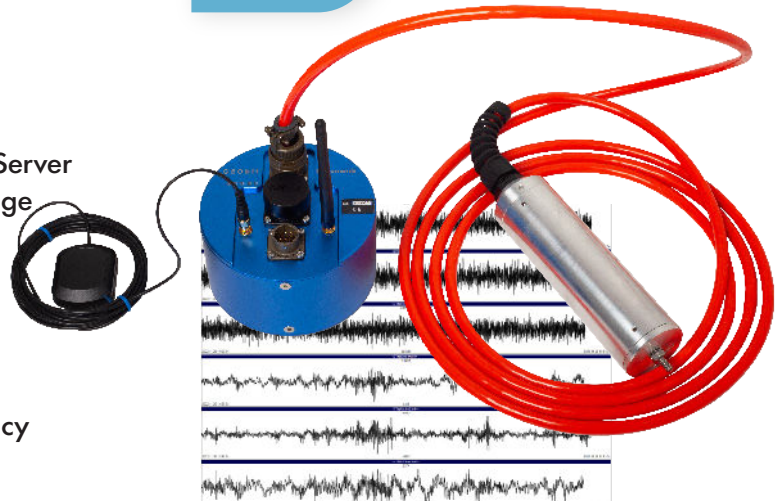
GEObit introduces world's lowest price, compact digital borehole seimometer which integrates borehole seimic and surface acceleration sensor, 24bit digitizer, local data storage and Seedlink Server for data telemetry.

FEATURES

GEOtinyBH10 is a compact miniature digital seismometer which integrates three seismic and three acceleration channels. It supports high resolution 24bit digitizer, embedded linux OS and GPS or NTP timing. Seedlink server ensures reliable real time data telemetry while large storage volume ensures long period local data recording. The instrument has very low power consumption so it can operate getting powered from a small 12Vdc battery. Due to its small size provides the ability to be buried underground.

Modular sensor interface allows the user to select between a variety of sensor types and frequency corners (10sec, 5sec, 2sec, 1sec, 2Hz, 4,5Hz), thus covering the short period and wide band seismic range. Additionally, the user can select between two preset low corner frequencies like 10sec and 1 sec. The transition is done from the webUI. Design simplicity is the great advantage and it is reflected to the price which is only fraction of the common commercial seismometers. The user is able to deploy even 100% more units than using common seismometers at same cost.
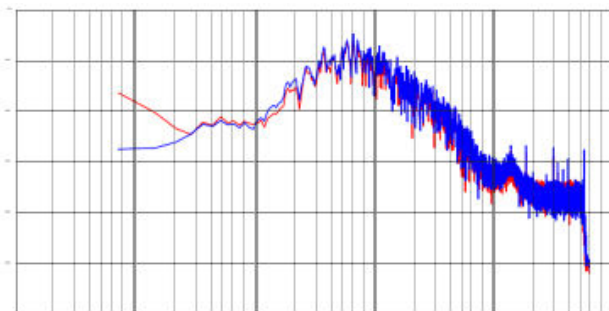
Sensor PSD compared to a Guralp3T 120Sec sensor
RED– GEOtiny, BLUE – 120sec seismometer

- Aftershock monitoring
- Regional seismicity monitoring
- Seismic tomography acquisition
- Induced seismicity monitoring
- Volcano monitoring
- Structural monitoring
- HVSR, MASW surveys
- Global Earthquake Monitoring
- Educational seismograph
- Personal seismograph

GEOtinyBH10 TINY BOREHOLE DIGITAL SEISMOMETER

DIGITIZER

Channels	Three seismic and three acceleration channels
A/D converter	Fourth Generation, Delta-Sigma, 24bits
Nonlinearity	+/-0.001%
Modulator	Fourth Generation, 4th order Delta-Sigma Modulator
Filter	Programmable , FIR filtering
Analog Input	Modular sensor board
Sampling Rate	1 tp 1000 samples per second
Power	9-18Vdc , or 9-36Vdc 0.8W, 0.95 with integrated sensor board
Autonomy	One week powered from a 12V/9Ah battery, 36days powered from a 12V/55Ah car battery
RMS Noise	138dB @ 100sps

PHYSICAL (SEISMIC SENSOR)

Type	Borehole Type, 50mm dia X 160mm H
Dimensions	130mm diameter x 60mm length
Cable Length	Standard 5 meters, up to 20 meters
Mounting	BH Sensor: Elastic Packer
Weight	1.2kgr
Tilt	+/-10 degrees

TIME BASE

Type	GNSS receiver (GPS, GLONASS, WAAS, EGNOS, BeiDou, QZSS)/DPLL, GPS port
Accuracy Time	+/-1usec to UTC time pulse, +/-5 meters to position
Timing Sources	GPS, RTC, NTP
DPLL Drift	Less than 17usec between one hour GPS cycles

COMMUNICATION

Telemetry	SEEDlink
Connectivity	Ethernet port, WiFi
LED	5 high brightness LEDs monitoring system SOH
Protocols	SSH, FTP, SFTP, Web Interface, TCP/IP, HTTP, HTTPS, PPP,MQTT, CoAP/CoAPS, NTP

INTEGRATED FORCE-BALANCE SENSOR ELECTONICS (modular)

Bandwidth	10sec–120Hz, variable frequency corner (10s, 5s, 2s , 1s, 2Hz , 4.5Hz)
Technology	Electro-dynamic Force–Balance technology
Sensitivity	1500V/m/sec , Acc: +/-2g, +/-4g,+/-8g
Dynamic Range	Velocity >142dB, Acceleration > 97dB

DATA RECORDING

Media	Internal flash and Removable USB stick
Data File Type	Miniseed
Information File	System log file
Recording Mode	Continuous/Trigger or both

ENVIRONMENT (DIGITIZER/RECORDER)

Temperature range	-20 to +70 °C
Humidity	100%, IP67 enclosure