



# Early Warning Accelerograph

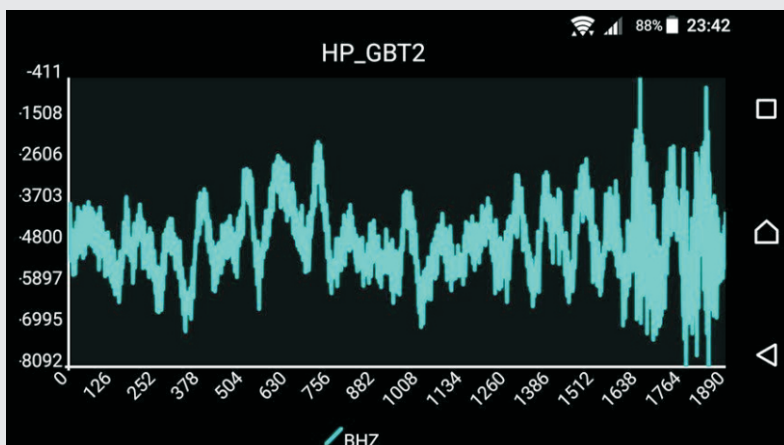
- ▶ 3 components miniature Accelerograph
- ▶ Range +/-2g, +/-4g, +/-8g
- ▶ Low power consumption
- ▶ Ethernet and WiFi
- ▶ Dimensions 90 X 115 X 55 mm
- ▶ 20bit analog to digital converter
- ▶ Embedded Seedlink and Earthworm Server
- ▶ Realtime Telemetry and Local Storage
- ▶ MiniSEED data format
- ▶ Linux OS
- ▶ Web Configuration Interface
- ▶ SSH, SFTP, HTTP NTP
- ▶ SPDT relay, software configurable
- ▶ Dynamic Range 85dB
- ▶ STA/LTA, PGA, CAV
- ▶ Operation Range: -20 +70°C
- ▶ Waterproof IP67 Aluminum Case



## Pay less, get more!

**GEObit introduces world's lowest price, miniature digital accelerograph based on MEMS accelerometer, 20bit digitizer, local data storage and embedded Seedlink and Earthworm Server for data telemetry.**

GEOwarning is a compact, ultra low-cost digital accelerograph. It integrates 3 axes MEMS accelerometer, 20bit digitizer, embedded linux OS and GPS or NTP timing. Seedlink and Earthworm servers ensure reliable real time data telemetry while large storage volume ensures a long period of local data recording. The instrument has very low power consumption so it can operate powered from a small 12Vdc battery. Due to its small size and its flexibility of communication (Ethernet or WiFi) and timing (GPS or NTP), it can be easily installed at buildings and other structures. The device supports a software configurable, variable range of +/-2g, +/-4g, +/-8g presenting an ideal solution for a wide range of structural monitoring and early warning applications. Minimum data latency along with the calculation of an earthquake's Cumulative Absolute Velocity (CAV) guarantee that the user can be immediately alerted just at the beginning of the event. Compact design is a competitive advantage and this is reflected in the price which is only a small fraction of the typical commercial accelerograph's cost. The user is now able to deploy even five times more units for the same budget.



SEEDgram: Real Time Seedlink plot

- ▶ Earthquake Early Warning
- ▶ Disaster Indication
- ▶ Local Seismicity Monitoring
- ▶ Structural Monitoring
- ▶ Aftershock monitoring
- ▶ Educational Seismograph
- ▶ Personal Seismograph



# Instrument Specifications

<b>GEOwarning miniature digital accelerograph</b>	
<b>DIGITISER</b>	
Channels	Three acceleration channels
A/D converter	20bits analog to digital converter
Self Noise	20µg/aqrt(Hz)
Range	+/-2g, +/-4g, +/-6g,
Filter	Programmable high and low pass.
Analog Input	MEMS accelerometer
Sampling Rate	100, 250, 500 samples per second
Power	9-18Vdc , 0.8W
Autonomy	One week powered from a 12V/9Ah battery, 36days powered from a 12V/55Ah car battery.
Dynamic Ragne	85dB
<b>DATA RECORDING</b>	
Media	Internal flash card up to 64GBytes
Data file type	Miniseed
Information file	System log file
Recording mode	Continuous or Trigger mode
Parameters	PGA, CAV, displacement
<b>TIME BASE</b>	
Type	12 channels GPS receiver/DPLL, NTP
Accuracy	Time: +/-1usec to UTC time pulse, +/-5 meters to position, +/-5msec from NTP
Timing Sources	GPS, RTC, NTP
DPLL drift	Less than 17usec between one hour GPS cycles
<b>COMMUNICATION</b>	
Telemetry	Ethernet port, WiFi
Connectivity	SEEDlink, Earthworm
Switch	Internal SPDT relay, 2A, software configurable
<b>PHYSICAL DIMENSIONS</b>	
Type	Surface Type
Dimensions	90 X 115 x 55 mm
Cable length	Standard 5 meters, up to 50* meters
Mounting	Metallic Base
Weight	0.9kgr
Tilt	+/-10 degrees
<b>ENVIRONMENT</b>	
Temperature	-20 to +70 °C
Humidity	100%, IP67 enclosure