

GEOwarning

Early Warning Accelerograph

- 3 components miniature accelerograph
- Range $\pm 2g$, $\pm 4g$, $\pm 8g$
- Low power consumption
- Ethernet and WiFi
- Dimensions 90x115x55mm
- 20bit Σ - Δ 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 switch, software configurable
- Dynamic range 97dB
- STA/LTA, PGA, CAV
- Operation Range: -20 $+70^{\circ}\text{C}$
- Waterproof IP67 aluminum case



**Pay Less
Get more!**

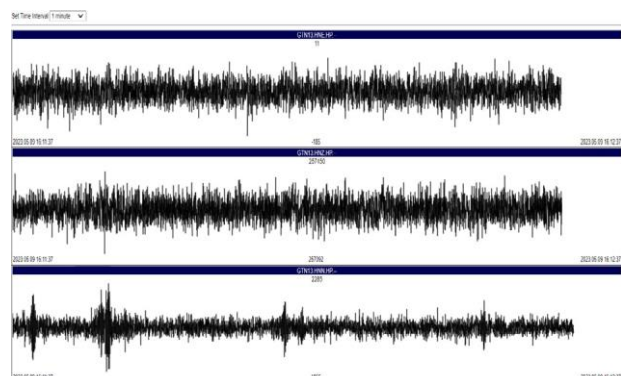
GEObit introduces world's lowest price, miniature digital accelerograph based on MEMS accelerometer, 20bit digitizer, local data storage and embedded Seedlink and Earthworm Server for data telemetry.



FEATURES

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 embedded 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 $\pm 2g$, $\pm 4g$, $\pm 8g$ 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 after the occurrence of an earthquake. The internal switch can be used for critical utilities shut down. Compact design is the competitive advantage and this is reflected to 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 budget was required for one single accelerograph. As an option, the GEOwarning device can produce displacement equivalent output signal.

- Earthquake early warning
- Disaster indication
- Local seismicity monitoring
- Structural monitoring
- Aftershock monitoring
- Educational seismograph
- Personal seismograph





INSTRUMENT SPECIFICATIONS

GEOwarning MINIATURE DIGITAL ACCELEROGRAPH

DIGITIZER

Channels	Three acceleration channels
A/D converter	20bits Σ - Δ analog to digital converter per ch.
Self Noise	20 ng/sqrt(Hz)
Range	+/-2g, +/-4g, +/-8g,
Filter	Programmable high and low pass.
Analog Input	MEMS accelerometer
Sampling Rate	100, 125, 200, 250, 500, 1000, 2000, 4000 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 Range	97dB
Bandwidth	DC-750Hz

DATA RECORDING

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
Processor	Arm-9 type, running embedded linux
Output Data	Acceleration or Displacement equivalent
Trigger	STA/LTA based, pre/post trigger time >30sec

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, +/-5msec from NTP
Timing Sources	GPS, RTC, NTP
DPLL drift	Less than 17usec between one hour GPS cycles

COMMUNICATION

Telemetry	Ethernet port, WiFi
Connectivity	SEEDlink, Earthworm
Switch	Internal SPDT relay, 2A, software configurable
Protocols	SSH, FTP, SFTP, Web Interface, TCP/IP, HTTP, HTTPS, PPP, MQTT, CoAP/CoAPS, NTP

PHYSICAL DIMENSIONS

Type	Surface Type
Dimensions	90x115x55 mm
Cable length	Standard 5 meters, up to 50* meters
Mounting	Metallic Base
Weight	0.5kg
Tilt	+/-10 degrees

ENVIRONMENT (DIGITIZER/RECORDER)

Temperature	-20 to +70°C
Humidity	100%, IP67 enclosure
EMI/RFI	EMI/RFI protected (metallic enclosure)