## **GEO-A200**

Compact Digital Accelograph



- FBA based compact digital accelerograph
- Cost effective and high performance
- Bandwidth DC-200Hz
- Dynamic range >155dB
- Ethernet WiFi Serial port
- 32bit ADC digitizer
- GNSS time/Precision DPLL
- 0.1-1000 samples per second
- LCD and six status LEDs
- Integrated Seismic Switch
- Embedded open source OS
- Embedded seedLink server
- Embedded earthworm server
- Continuous and trigger recording
- Advanced networking functionality
- Smart seismic network operation



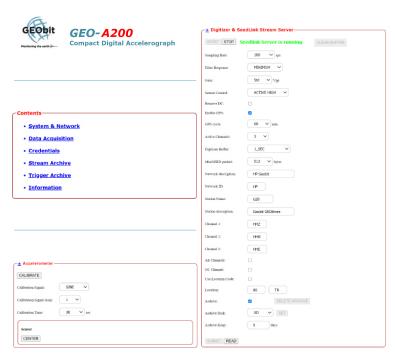


## **FEATURES**

GEObit introduces GEO-A200 high resolution and high dynamic range compact digital accelerograph. The size of the instrument is only 139mm heigh and 138mm diameter. The power consumption is less than 2W. Available sampling rate is 1 to 1000sps and optional lower sampling rates are supported. Built-in GNSS receiver combined with ultra accurate DPLL unit providing time drift 10e-9sec ensures timing stability even in the absence of GPS signal. NTP timing is also available. The instrument provides self calibration functionality. DC offset removal is also performed automatically or on demand. Acquisition parameters and operation modes can be set from the user-friendly web interface, which can be protected with up to up to 64 characters passwords.

The unit operates in continuous mode, triggered mode or both and data are streamed through different data ports. Local data storage is selectable as well as logfile information. The unit supports advanced functionality, implemented from the combination of trusted open source software components. Because of open source architecture it is able to run any custom application, thus providing the next day solution to

the user. The hardware is based on an embedded ARM9 400MHz ARM linux board running 14.6 linux kernel. The data are stored in mini-SEED format into the microSD card or to a removable USB stick. The instrument supports 10/100 ethernet port and debug port. FTP, SFTP, SSH are also available. The state of health is transmitted over UDP packets upon request.



The instrument supports embeded earthworm and seedlink server with configurable data packet size that allows data transmission with low latency. The instrument is ideal for earthquake monitoring, early warning applications and structural monitoring applications. Single bolt mounting and flexibility of connectivity allows easy and quick installation.

## FBA BASED COMPACT DIGITAL ACCELEROGRAPH

**DIGITIZER** 

Analog channels 3 seismic (acceleration) channels

Fourth Generation, Delta-Sigma, 32bits data stream A/D converter

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

Sampling Rate 1-1000sps, optional 0.1-1000sps

9-18Vdc, <2W Power

**RMS** noise >137dB@100sps, >128db@1000sps COMMUNICATION

Connectivity Ethernet port, WiFi, Serial Port (Optional)

Seedlink and Earthworm server Telemetry

**Protocols** Protocols SSH, FTP, SFTP,

Web Interface, TCP/ IP, HTTP, HTTPS,PPP, MQTT, CoAP/CoAPS,NTP

Miniature LCD with altering information messages LCD

**LED** Six high brightness LEDs

**CALIBRATION** 

**Control Signals** Automatic or on demand centering (offset

removal)

Pulse, sine waveform, variable amplitude and frequency, 16bit DAC Calibration

**DATA RECORDING** 

MicroSD flash card, removable USB stick Ringbuffer RAM storing 10h+ data. Miniseed data files Storage Media

Information file System log file. SOH message

Recording mode Continuous, Triggered STA/LTA

based or both

Advanced functionality if connected to Operation

an Earthworm server

**Operating System** Open Source based, ability for custom

Internal 256Mbyte RAM in ringbuffer mode and minimum 64Gbyte FLASH Memory

memory

INTEGRATED ACCELERATION SENSOR

Axes Three, orthogonally placed

DC - 200Hz Bandwidth **Dynamic Range** >155dB

Full Scale Range (g) +/-4, +/-2, +/-1 +/-0.5, +/-0.25

Below ALNM between 0.2-45Hz Noise

**PHYSICAL** 

Size 139mm height, 138mm diameter

Weight 2.8kg

**TIME BASE** 

Type

GNSS receiver (GPS, GLONASS, WAAS, EGNOS, BeiDou, QZSS) /DPLL, GPS port, up to 30m cable GPS antenna or 120m active GPS antenna

+/-1usec to UTC time pulse, +/-5 meters to position **Accuracy Time** 

Ultra low drift DPLL unit using TCVCXO,RTC **Timing Sources** 

DPLL drift less than 17usec between one hour GPS cycles **DPLL** drift

**ENVIRONMENTAL** 

Temperature range  $-20 \text{ to } +70 \text{ }^{\circ}\text{C}$ 

Humidity 100%, IP67 enclosure

**EMMERGENCY** 

Seismic Switch SPST type relay, 1A switch

Web interface configurable, threshold limit Configuration

activated



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