HGS (INDIA) LIMITED

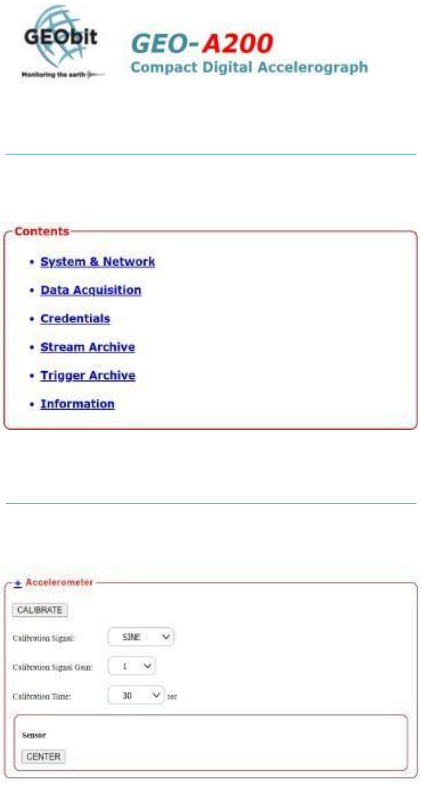
SPECIFICATION SHEET – GEO-A200F

Compact Digital Accelerograph

GEObit introduces GEO-A200 high resolution and high dynamic range compact digital accelerograph. The size of the instrument is only 139mm height and 138mm diameter. The power consumption is less than 2.5W. Available sampling rate is 1 to 1000sps and optional low- er sampling rates are supported. Build-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 remove is also performed automatically or on demand. Acquisition parameters and operation modes can be set from the user-friendly web interface, up to 64 characters password protected.

GEO-A200F

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 it's open source architecture is able to run any custom ap- plication thus providing the next day solution to the user. The hardware is based over 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.



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System Features

- FBA based compact digital accelerograph
- Cost Effective and high performance
- Bandwidth DC-310Hz
- Dynamic Range >155dB
- Ethernet – Wi-Fi - 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

FBA Based Compact Digital Accelerograph Specifications	
Digitizer	
Analog channels	3 seismic (acceleration) channels
A/D converter	Fourth Generation, Delta-Sigma, 32bits data stream
THD	125 Db
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	1-1000 sps, optional 0.1-1000sps
Power	9-18Vdc or 9-36Vdc < 2.5W
Dynamic Range	>142dB@100sps,131db@1000sps
Communication	
Telemetry	Seedlink or Eearthworm server Ultra low latency 0.1sec
Connectivity	Ethernet port, WiFi, or Serial Port (*) Static/Dynamic IP address
LED	Six high brightness LEDs
LCD	Miniature LCD with alternative information messages
Protocols	Protocols SSH, FTP, SFTP, Web Interface, TCP/ IP, HTTP, HTTPS, PPP, MQTT, CoAP/CoAPS, NTP
Integrated Acceleration Sensor	
Bandwidth	DC - 310Hz
Full Scale Range (g)	+/-4, 2, 1, 0.5,0.25, 0.125, 0.075 g
Dynamic Range	>155dB, >160dB@1H/1HzBW
Noise	Below ALNM between 3s-10Hz 10ng/sqHz @1Hz
Cross axis sensitivity	Less than 0.5% of full scale
Linearity	0.1% at 0 to +40 °C

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Data Recording	
Storage Media	MicroSD flash card, removable USB stick Ringbuffer RAM storing 10h+ data. Miniseed data files, min, hour, day duration, user configurable
Recording mode	Continuous, Triggered STA/LTA based or both supporting dual sampling rate
Information File	System log file. SOH message UDP transmitted
Data storage	Stores to internal and external memories with various modes, user configurable.
State of Health	Detailed SOH message with acquisition, timing & environmental parameters
Operating System	Open Source based, ability for custom application run
Memory	Internal 256Mbyte RAM in ring buffer mode, minimum 32Gbyte internal FLASH memory and, up to 128Gbyte external storage unit.
Time Base	
Type	GNSS receiver (GPS, GLONASS, WAAS, EGNOS, BeiDou, QZSS) /DPLL, GPS port, 32 channels
Antenna	Up to 30m cable GPS antenna or 120m active GPS antenna, SMA or TNC con.
Accuracy Time	+/-1usec to UTC time pulse, +/-5 meters to position
Timing Sources	Ultra-low drift DPLL unit using TCVCXO, RTC
DPLL Drift	DPLL drift Less than 17usec between one hour GPS cycles
Network Time	NTP. PTP
Calibration	
Control Signals	Automatic or on demand centering (offset removal)
Calibration	Pulse, Sine waveform, variable amplitude and frequency, 16bit DAC
Maintenance	Remote firmware update
On Board Processing	
Seismic Parameters	Real time calculation of PGA, PGV, PGD
Physical	
Size	139mm height, 138mm diameter
Weight	2.8kgr
Environmental	
Temperature range	-20 to +70 °C
Humidity	100%, IP67 enclosure
Cables	Military type, waterproof, rodentproof 3m or more
Emergency	
Seismic Switch	SPST type Relay, 1A switch
Configuration	Web interface configurable, threshold limit activated.

Ordering Information	
Item Description	**HGS Part No.**
Geo A200F	MK001581

Version 1.0

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