QUAKELOGIC

LUNITEK

SENTINEL GEO

PREMIUM-QUALITY ACCELEROGRAPH PLUS SEISMOGRAPH

Structural monitoring and seismology

The onboard MEMS triaxial accelerometer which exhibits a dynamic range > 85dB and self-noise < 18µg/√Hz can be synchronously sampled up to 500sps. The embedded triaxial velocimeter sensor is made of three geophones with a flat bandpass from 4.5Hz up to 100Hz, synchronously sampled at 24bit with a dynamic range that exceeds 120dB. The contribution, in terms of performance, given by the combination of the two sensors (accelerometer and velocimeter) is considerable. In fact the greater sensitivity of the velocimeter provides better seismic information whereas the resolution of the accelerometer limits while the latter provides better results with strong motion events where the velocimeter would cause saturation. The integrated memory bank (32 ÷ 256 GB) allows you to manage a ring-buffer for long continuous recordings as well as event data.

KEY FEATURES

- ONBOARD 85dB MEMS ACCELEROMETER
- EMBEDDED TRIAXIAL 4.5Hz GEOPHONES
- SAMPLING RATES 125, 250, 500 ,1000 sps
- SYNCHRONOUS SAMPLING
- LAN, WIFI
- INTEGRATED 4G MODEM (OPTIONAL)
- BUILT-IN GNSS RECEIVER
- INTEGRATED UPS
- MINISEED DATA FORMAT

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LIVE DATA SHEET

APPLICATIONS

Seismological networks
Structural monitoring and surveys
Post-seismic damage analysis

SENSORS

TYPOLOGY MEMS accelerometer and geophones
DYNAMIC RANGE > 85 dB
SELF-NOISE <18µg/√Hz
FULL-SCALE RANGES User selectable ±2, ±4 and ±8g
GEOPHONES Bandwidth from 4.5Hz to100Hz

A/D CONVERSION

RESOLUTION 20bit synchronous sampling
SAMPLE RATES Adjustable up to 500 sps (3ch) 250 sps (6ch)
ANTI-ALIASING FILTER FIR
OFFSET CORRECTION automatic via web interface

TRIGGERS

THRESHOLD TRIGGER independent for each channel and Trigger broadcasting towards recorders in the network
THRESHOLD TYPE Absolute or STA/LTA and STA/LTA between 0.1 Hz and 12 Hz

STORAGE

MEMORY BANK 32GB up to 256GB (more than 30 days continuous recording @ 500Hz on 3 channels)
DATA FORMAT Binary and MiniSEED
RING BUFFER 16 or 32 days continuously, depending on memory size plus strong motion events

SYNCHRONIZATION

TIMING SOURCE Absolute Time UTC through high sensitive integrated GNSS receiver (suitable for indoor use as well)
ACCURACY in GNSS signal loss condition: ± 1 ppm (32 s/year)
ACCURACY WITH GNSS SIGNAL < 1 µS

COMMUNICATION

FILE TRANSFER Via LAN 10/100, WiFi or integrated HSPA modem (optional)
WIFI MODE SOFT AP function and Client at the same time
METADATA RESP file available on IRIS
DATA DOWNLOAD Through SCP protocol based program or via web interface
VPN Compatible with OpenVPN and IPSec

CONFIG.

INTERFACE Web Server

POWER SUPPLY

POWER SUPPLY 5 ÷ 16 Vdc, AC/DC adapter included
POWER CONSUMPTION < 2 W
UPS Back-up LiPO battery, autonomy > 5 hours
ALARMS alerts in case of blackout

OP. CONDITIONS

STORAGE TEMPERATURE RANGE -20 ÷ +70 °C
HUMIDITY 0 to 100%
OPERATING TEMPERATURE RANGE Without battery - 40 ÷ +85°C *
*LiPo batteries can be charged in the range 0 ÷ +45°C while discharge is allowed in the range of -20 ÷ +70°C.
If the temperature is out of range, the LiPo battery will be inhibited by the electronics

PHYSICAL

CASE Anodized aluminum case (AISI 316 stainless steel optional)
PROTECTION GRADE IP67, IP68 optional
DIMENSIONS 130 OD x 66 mm
WEIGHT ≈1 Kg

SENTINEL-GEO — Seismic Station