QUAKELOGIC

LUNITEK

SENTINEL-X

4-CHANNEL DIGITIZER

For strong motion and geophysical monitoring.

The analog channels are 40Vpp capable and synchronously sampled up to 500 Sps at a resolution of 24bit.
Dynamic range exceeds 125dB@100Hz.
The integrated memory bank (32 ÷ 256 GB) allows you to manage a ring-buffer for continuous long term recordings as well as event data. The data is saved in MiniSEED format. The system implements sophisticated trigger criteria (STA/LTA and threshold) which distinguishes false events (i.e. environment vibrations) from true seismic events.
The internal GNSS receiver allows you to create a network where all the instruments are synchronized to the absolute time.
The connection to the instrument can be established either using the local network (LAN or WiFi) or, alternatively, remotely using the optional internal HSPA (4G upcoming) modem.

KEY FEATURES

- HIGH DYNAMIC 24bit ADC
- INTEGRATED WI-FI
- INTEGRATED 10/100 LAN
- OPTIONAL ONBOARD HSPA/4G MODEM WITH NANO SIM CARD
- INTEGRATED GNSS RECEIVER FOR SPECIFIC TIMING APPLICATION
- 32GB INTERNAL MEMORY
- MINISEED DATA STREAM
- STA/LTA TRIGGERING ALGORITHMS
- SYNCHRONIZATION BETWEEN UNITS, TIME DELAY <1 µS
- BACKUP BATTERY IN CASE OF POWER LOSS

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LIVE DATA SHEET

APPLICATIONS

- Seismological networks
- Structural monitoring and survey
- Post-seismic damage analysis
- Geophysical survives

A/D CONVERSION

RESOLUTION 24bit synchronous sampling
SAMPLE RATES Synchronous, adjustable up to 500 Sps
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
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 Ethernet 10/100, WiFi or integrated 4G modem (optional)
WIFI MODE SOFT AP function and Client at the same time
METADATA RESP file available on IRIS
DATA DOWNLOAD via a SCP protocol based program or via web interface
VPN Compatible with OpenVPN and IPSec

CONFIG.

USER INTERFACE Web Server

POWER SUPPLY

POWER SUPPLY 5 ÷ 16 Vdc, AC/DC adapter included
POWER CONSUMPTION < 2 W 12v@50mA supply for each sensor channel
UPS Back-up LiPO battery, autonomy > 5 hours

OP. CONDITIONS

STORAGE TEMPERATURE RANGE -20 ÷ +70 °C
HUMIDITY 0 to 100%
OPERATING TEMPERATURE RANGE Without battery - 20 ÷ +70°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
DIMENSIONS 17,5x9,2x4,1 cm
WEIGHT ≈ 500 g

Sentinel-X — Seismic Station