



# SENTINEL-R

## POWERFUL DATA PROCESSOR

**KEY FEATURES**

### For on-site processing and streaming.

Sentinel-R is equipped with a quad-core processor that runs at 1.8GHz and 2GB of DDR4 RAM. Seismic localization software such as Lunitek Casp, SeisComP, EarthWorm or Structural Health Monitoring software such as Lunitek Asclepius or third party and proprietary software can be installed and run on the device. Sentinel-R comes with a Linux Debian Bullseye installation (kernel 5.4.3). Sentinel-R consumes 1.8W@12V in idle state (Linux up, WiFi active, 4G modem on). The internal battery guarantees an autonomy of 8 hours. This is useful in case of a black out and keeps the system up and running until the mains come back. Sentinel-R can be used as an accelerograph with high computational power or simply as a super rugged power pc on the system network.

POWERFUL QUAD CORE PROCESSOR WITH 2GB DDR4

BUILT-IN WI-FI, GNSS AND 4G MODEM

GIGABIT ETHERNET

32GB INTERNAL MEMORY

MINISEED DATA STREAM

STA/LTA TRIGGERING ALGORITHMS

SYNCHRONIZATION BETWEEN UNITS, TIME DELAY <math>< 1 \mu S</math>

BACKUP BATTERY IN CASE OF POWER LOSS



Seismological networks  
Structural monitoring and survey  
Post-seismic damage analysis  
Early Warning

APPLICATIONS

**CPU** Cortex™-A53 quad core  
**CPU CLOCK** up to 1.8GHz  
**INTEGER PERFORMANCE (DMIPS)** up to 16.560  
**RAM** 2GB DDR4  
**OS** resident on the internal memory  
**ETHERNET** Gigabit  
**WIFI** dualband 2.4GHz / 5GHz  
**BLUETOOTH** 4.2  
**MODEM** 4G CAT1

PROCESSOR

**DYNAMIC RANGE** >85dB  
**SELF-NOISE** <18µg/√Hz  
**FULL-SCALE RANGE:** User selectable ±2,±4,±8g

MEMS ACC.

**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

TRIGGERS

**MEMORY BANK** micro SD card from 32GB up to 256GB ejectable  
**DATA FORMAT:** Binary and MiniSEED  
**RING BUFFER:** 16 or 32 days continuously, depending on memory size plus strong motion events

STORAGE

**TIMING SOURCE** Absolute Time UTC through high sensitive integrated GNSS receiver (suitable for indoor use as well)  
**ACCURACY IN GPS SIGNAL LOSS CONDITION** ± 1 ppm (32 s/year)  
**ACCURACY WITH GPS SIGNAL** < 1 µS

SYNCHRONIZATION

**FILE TRANSFER** via LAN 10/100/1000, WiFi or 4G modem (opt.)  
**METADATA** RESP file available on IRIS  
**DATA DOWNLOAD** Via a SCP based protocol or via web interface  
**VPN** Compatible with OpenVPN and IPSec

COMMUNICATION

**POWER SUPPLY** 7 ÷ 28 Vdc, AC/DC adapter included  
**POWER CONSUMPTION** < 2 W typically 1.8W (idle)  
**UPS** Back-up LiPO battery, autonomy > 8 hours

POWER SUPPLY

**STORAGE TEMPERATURE RANGE** -20 ÷ +70 °C  
**HUMIDITY** 0 to 100%  
**STORE 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

OP. CONDITIONS

**CASE** Anodized aluminum case (SAE 316 steel optional)  
**PROTECTION GRADE** IP67  
**DIMENSIONS** 18 x 18 x 10 cm  
**WEIGHT** ≈ 1 Kg

PHYSICAL

