# SL06 SEISMOGRAPH

**sara** electronic instruments

Linux

The SL06 seismograph is a high performance recorder based on Linux o.s. capable to record the seismic signal at high resolution in standard USB flash pen drives.

It provides several Internet services like SeedLink, FTP client & server to transmit data flow toward the most popular central station recording software like SeiscomP, Earthworm, Seislog, etc..; this is possible thanks to the *SEISMONUX software*, capable to make the instrument VERY easy to use and giving great operability and flexibility in operation.

## SL06

This seismograph is a dedicated recorder designed to work for espcially for earthquakes monitoring. It is compact, reliable and flexible, thanks to its recording software, Linux based, SEISMONUX.
Most recent versions offer from 3 to 12 channels with sampling rates up to 1500 samples per seconds.

## Connectivity

The Linux o.s. offer several native protocols and we added also more protocols, among them: TCP, UDP, HTTP, FTP, SSH, Telnet. Remote command of smart relays with MODBUS protocol is integrated. The unit can be accessed by console port as terminal emulator both by Ethernet and RS232; this allow fully operativity with any data carrier PSTN, GSM, GPRS, SAT, WAN, LAN, etc. VPN guarantee to reach the instrument even behind firewalls and NAT filters.

## Energy

The low power consumption allow the SL06 to be used in remote installation and powered with small accumulators and solar panels.

## Synchronization

As all our instruments SL06 is equipped with an embedded GPS receiver to synchronize the data flow with the UTC time worldwide used time in seismology. Additionally an NTP client can be used to synchronize devices which cannot receive a GPS signal.

## Modularity

In our design we always follow a modular approach allowing the instruments to be easily repaired and upgraded. This safeguard your investment and the environement from waste of equipment increasing the duration of the product.

## Development

Our softwares are always updated on a free base allowing improvements of functionalities. Development is constantly done in contact with our clients as geophysicists, civil engineers and seismologists.
Among our users we can list: INGV, OGS, ENEA, C.N.R., ENI, and thousands of our instruments are working worldwide.

## Applications

SL06 is excellent for mobile networks, small local networks, single stations, structure health monitoring. It can accept signals from any velocity or accelerometric sensor, the three channel version can have embedded sensors.

The A/D Converter gives its maximum performances with electrodynamic sensors (geophones). In this setup it can resolve low amplitude of background seismic noise providing performance at same and sometime higher level than much more expensive instruments.

With a series of trigger algorthyms it can work in network with other SL06 instruments in order to avoid false triggers or don't miss any small signal. A numbers of automation are available inside and allow the automatic send to a data server of all the recorded files to be analised with modules of SEISMOWIN software suite like the DESK (for seismology) or ESCAP module (for engineering). SL06 can be also used for Nakamura (HVSR) surveys.

Thanks to the WEB based management system you can control the SL06 in a very simple and easy manner.

Customization on the unit are possible, on both hardware and software side.
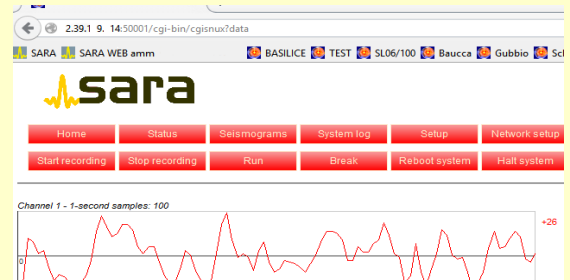
Some technical features

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|---|---|
| Power : | 9-36Vdc, power consumption less than 2.5W full active main features |
| Number of channel: | 3,4,6,8,9,12 channels 24 bit ($\Sigma\Delta$) 144dB |
| Sensitivity: | 119nV/count / 238 nV/count (jumper selectable), calibration test results provided |
| Sampling rates: | 10,20,50,100,200,250,300,400,480,500,600,800,1000,1500 Hz* |
| Anti Aliasing Filter: | Analog and Digital FIR |
| Real Time Clock: | GPS disciplined clock +/- 10ppm -20/+50°C (accuracy +/- 40$\mu$s to the respect of UTC, <= 0.4$\mu$s after stabilization) |
| GPS Antenna: | external with coaxial cable of 10 meters and BNC connector |
| Mass Memory: | USB pen-drives, with EXT2 file system up to 8 Terabytes |
| Data Format: | GSEcm6, GSEint, SAC, SAF, SEED |
| Data Links: | Ethernet 10/100 and RS232 |
| Triggering: | multimode STA/LTA, amplitude, IP voting and scheduled; fully independent, high/low/band pass filter; pre/post event: 1 to 10000 seconds |
| Housing: | machined out f a solid block of aluminum, IP68, wall mounting possible |
| Dimensions: | 205x170x107 mm (weight: about 3 kg) |
| Operating temperat.: | -25/+70°C |
| Sensor connector: | MIL-C 10#, MIL-C 18, or MIL-C-26 (depending on versions) |

\* The maximum sampling rate is lower increasing the number of channels.
# Lennartz's sensors compatible.

Important notice! This paper is an information leaflet onyl; it is published without programmed updates; with the purpose of improve the product all specifications are subjected to change without any prior notice and except error and omissions.
When the product is offered in bid document or commercial offer, if differences exist between this document and the commercial or bid offer document, the bid document prevails.