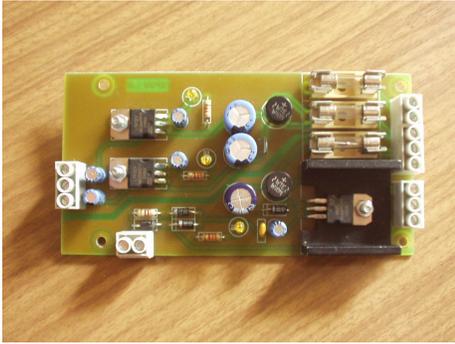


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**SPOW10****STABILIZED POWER SUPPLY UNIT**

The SPOW10 is a classic linear power supply board designed to be used with the other seismic board of the SEISMOSTACK series. It is very simple and reliable even in operating and maintenance, if ever required. It is especially useful for training and evaluation purposes.

**Overview**

The SPOW 01.00 board is a simple multivoltage power supply board suitable for precision analogic and digital electronic system. Where you need to power supply circuits both analogic (with high gains and precision measurements) and digital circuit generating a lot of wideband noise, you need to keep separate the two power supply lines. This board is designed for this purpose.

The unit is supplied with its coil transformer with 3 secondary windings one secondary for the digital supply and the two remaining secondary for the analogic dual supply. The transformer has the 110V input and the 220V input and it is correctly operates for even 50Hz or 60Hz power grids.

**Technical features**

Coil transformer input A:	15+15V AC center tapped
Coil transformer input B:	15V AC
Output A:	+/-12V dc
Output B:	+10.5V dc
Max current digital output:	300mA*
Max current analogic output:	150mA
Backed up battery:	for 8.2 NkCd rechargeable battery #
Max current backed up digital out:	100mA
Dimensions:	120x62x20mm (seismostack size standard)

\* with a transformer of 10VA

# typically only for the SADC0100 / 0200 board if not equipped with a GPS receiver

**Applications**

- Preamplifier and a/d converter power
- GPS receiver power
- AC to DC power supply application
- Training and seismostack board evaluation

**SPOW20 SWITCHING POWER SUPPLY UNIT**

The SPOW10 is a power supply board designed to be used with the other seismic board of the SEISMOSTACK series. The unit is a switching power regulator.

**Overview**

The SPOW20 board is a simple and reliable switching multivoltage power supply board suitable for precision analogic and digital electronic system. Where you need to power supply circuits both analogic (with high gains and precision measurements) and digital circuit generating a lot of wideband noise, you need to keep separate the two power supply lines. This board is designed for this purpose.

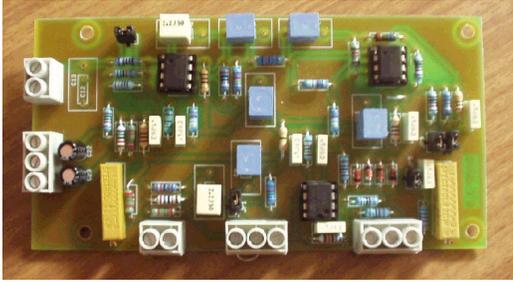
The unit allow to have a stabilised voltage output with a wide range of input voltages between 8 and 30V. The switching design allow this wide range minimizing the power loss, the unit is well shielded in order to do not generate RF noise.

**Technical features**

Power input:	8V-30Vdc	
Output A:	+12V dc	100mA
Output B:	-12V dc	100mA
Output C:	+10.5V dc	150mA
Output D:	+5V dc	1000mA (custom up to 1.4A)
Dimensions:	120x62x35mm (seismostack size standard)	

**Applications**

- Preamplifier and a/d converter power
- GPS power
- STXRX seismostack transceiver power
- PC104 single voltage 5V CPU boards power

**SAMP20 PREAMPLIFIER / FILTER BOARD**

The SAMP20 board is a single channel high performance and low cost board.

The quality components and superior design make this board an excellent device with low noise and high resolution.

**Overview**

The SAMP02.00 board is an electronic board designed for amplification and filtering of seismic signals. It can be adjusted to meet various requirements with gain factor between 24x and 14400x. The quality components and superior design make the SAMP 02.00 board an excellent device with low noise and high performances. The board is a single channel and if used with the boards of its series (SEQUA, SADC, SGPS and SPOW) it can be used to setup a multi-channel, low cost modular system easily modified with low maintenance.

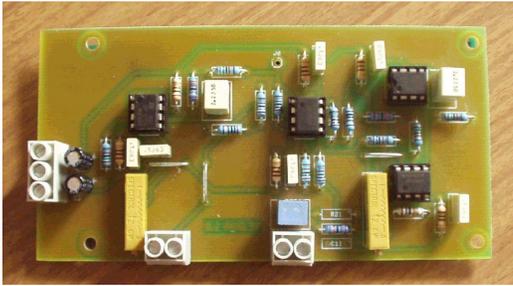
This board can be quickly adjusted to pick differential or single-ended signals and it's 5 poles filter can be adjusted (by factory upon request) to meet Bessel or Butterworth configuration with low pass filtering from 1 to 50Hz.

**Technical features**

Power supply:	+/-12 dc
Power consumption:	< 20mA (10mA from +12V and 10mA from -12V)
Gain:	Adjustable from 24X to 14,400 by changing components or on-board jumpers.
Channels:	1
Input type:	differential or single-ended (jumpers and wiring selectable) A separate high-pass filter is provided to handle DC input for already pre-amplified sensors.
Adjustments:	Differential Input balance and offset
Low pass filter:	5 poles with a Bessel or Butterworth
High pass filter:	1 or 2 stages jumper selectable
Attenuation stage:	1 customizable at factory
SNR @ 48x:	>99dB
Dimensions:	120x62x35mm (seismostack size standard)

**Applications**

- Signal conditioning of velocitymeters sensors like GS11D, L15 or L4C or GS-1 and more

**SEQUA10 GEOPHONE PERIOD EXTENDER**

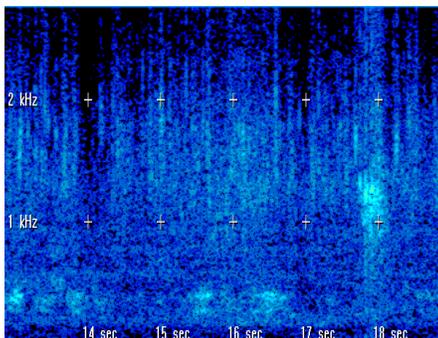
The SEQUA01.00 board is an electronic circuit that amplifies low frequency signals generated by a velocity sensor.

The circuit is based on active filters designed to enhance the gain at low frequency.

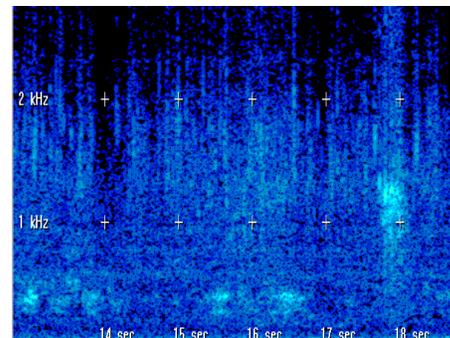
**Overview**

The SEQUA01.00 board is an electronic circuit that amplifies low frequency signals generated by a velocity sensor. The circuit is based on active filters. The low-pass filters stages are summed to non filtered signals to achieve a flat response even near the natural frequency of the sensor and over the natural period. The circuit is designed to be used with geophones of 4.5Hz natural period. The seismograms obtained are excellent and represents an optimal deal between quality recording and low price. This because the circuit have the ability to extend the period of the 4.5Hz sensor down to 1Hz making a low cost sensors very similar to a much more expensive 1Hz natural period sensor. The following charts show two time/frequency diagram of an L15 4.5Hz sensor and a L4C 1Hz sensor.

L4C 1Hz



L15 4.5Hz equalized

**Technical features**

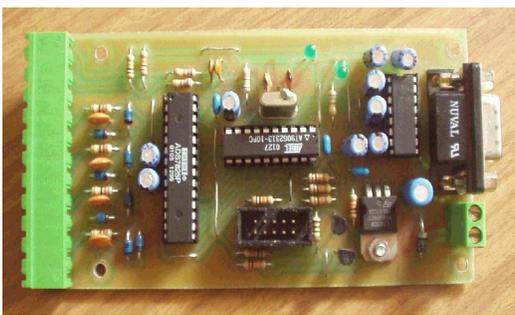
Power Supply: +/-12Vdc  
Power consumption: less than 10mA  
Gain: unity gain at 3 Hz, over 400x at 0.2-1 Hz  
Channels: 1 per board  
Input type: single ended  
Output type: single ended  
Dimensions: 120x62x35mm (seismostack size standard)

**Applications**

- Period extension or low frequency enhancement for 4.5Hz sensors

**Recommendations**

*This device is not useful to extend sensor with 1Hz natural period or long period sensors, even changing the filter setup. It generates a certain amount of low frequency noise below 1Hz allowing the usage of this board only with 4.5Hz sensors.*

**SADC10/18 SEISMIC A/D CONVERTER 16 / 18 BIT**

**The SADC10 / 18 board series is a low-cost a/d converter for seismic measurements.**

**It provides 4 channel of 16 bit noise free or 18 bit data word with a 16.5 bit of noise free resolution.**

**Overview**

This board embeds an high speed 4 channel SAR converter. This converter is suitable for seismic recording thanks to its high speed sampling rate, wide voltage input range, and low noise.

The a/d device is managed by a powerful microcontroller with an embedded UART device that allow reliable communications using the RS232 standard. The microcontroller has an internal flash memory where the firmware is stored. The firmware can be updated returning the board usually for free.

It embeds a real time clock allowing a precise synchronization of the seismic data with the UTC.

**Technical features**

Power supply:	8-15V dc (anti inversion protected)
Programmable SPS:	200, 100, 50, 25, 20, 10, 5, 2
Communication:	RS232 at 38400
Channels:	4 independently programmable
Clock:	Embedded with DCF77 decoder
Firmware:	On flash memory
Crystal Clock:	11.0592 Mhz
Resolutions:	16 bits or 18 bits *
Voltage resolutions:	0,000305 Volts or 0,00007629 Volts *
Voltage range:	+/- 10 volts
Channels impedance:	45.8 Kohm
Input capacitance:	35pF
Gain:	3276.8 count/Volts / 13107.2 count/Volts *
Dynamic Range:	96dB / 108dB *
S/N ratio:	96dB / 99dB *
Accuracy:	+/- 3 digits
Crosstalk separation:	> 99db
Skew time:	<= 2.5mS (virtually zero due to the Interval Sampling Method)
Dimensions:	120x62x35mm (seismostack size standard)

*\*) The second value is referred to the 18 bits version.*

**Applications**

- Seismic data acquisition and synchronization
- Best performances with the SAMP20 preamplifier board and SAC10 accelerometer board
- Multichannel application using the SBUF board
- Easy UTC synchronization with the SGPSDCF board

**SADC20 SEISMIC A/D 24 BIT CONVERTER**

**The SADC20 is a powerful, low cost and low noise a/d converter with 24 bit word resolution.**

**This board is conceived to allow direct connection of velocimeters to the a/d device without a preamplifier unit.**

**Overview**

The a/d conversion SADC20 board embeds one of the best and low cost Sigma-Delta converter available on the market. The board use 1 converter per channel assuring the complete phase of the seismic signal on the 3 channels. A microcontroller with a RS232 communication interface allow this board to be used for a wide range of seismic application.

**Technical features**

Analogue channels:	3
Anti alias filter:	1 poles 40Hz low-pass filter (standard)
Band-pass:	standard DC to 40Hz (within +/-3dB)
A/D converter:	24 bit sigma delta
Input type:	Differential
Gain:	fixed unity gain
Input range:	+/- 2.5V
Overvoltage protection:	zener diode up to 1kV for few mS
Impedance:	Typically 1 Mohm
Noise level:	typically < 2.5 counts at 100 SPS
Crosstalk rejection:	> 144dB
Skew time:	zero (simultaneous sampling on all 3 channel)
Dynamic range:	140dB at 25 SPS
Clock:	crystal clock 10ppm stability
Precision:	+/- 2 secs/weeks at 20°C
Firmware:	on flash memory
Communication:	1 RS232 port at 38400 baud
Protocol:	binary proprietary SARA format
Sample frequency:	200, 100, 50, 25, 20, 10
Power supply:	8-15Vdc - 0.1W
Operating temperature:	-20/+70 °C
Dimensions:	120x62x35mm (seismostack size standard)

**Applications**

- Seismic recording of geophones and/or velocimeters sensors signals
- Multichannel application with the SBUF10 board
- Easy UTC sincronization with the SGPSDCF board

## **SADCMX SEISMIC ADC 16 BIT 16 CHANNEL**

picture not available

**The SADCMX seismic board is an economic solution for multichannel application where high performances for channel phasing and noise are not determinant for the application.**

**Typical target of this board are old seismic network with analogue signal transmission over cable or radio modulators.**

### **Overview**

The SADCMX seismic a/d boards embeds only one high speed SAR a/d converter connected with a simple and reliable switch multiplexer in order to reach a 16 channel capability. The microcontroller apply all the techniques required in order to give the best performance in terms of low channel phase shift (low skew time) and signal resolution.

### **Technical features**

Power supply:	8-15V dc (anti inversion protected)
Converter chip:	High speed 16 bit SAR A/D converter.
Programmable SPS:	200, 100, 50, 25, 20, 10, 5, 2
Data throughput:	up to 875 total SPS
Communication:	38400 baud
Channels:	16
Clock:	Embedded with DCF77 decoder (or GPS using the GPSDCF interface)
Firmware:	on flash memory
Crystal Clock:	At 11.0592 Mhz
Resolutions:	16 bits
Voltage resolutions:	0,000152 Volts
Voltage range:	+/- 5volts
Channels impedance:	> 50 Kohm
Gain:	6553.5 count/Volts
Dynamic Range:	96dB
S/N ratio:	84dB
Accuracy:	+/- 3 digits
Crosstalk separation:	> 84dB
Sampling channel interval:	<= 5mS
Dimensions:	120x62x35mm (seismostack size standard)

### **Applications**

- Low cost seismic network upgrade from analogue to digital recording systems
- Generic data acquisition

## **SGPSRX GPS RECEIVER CARRIER MODULE**



**This module it is a NMEA compatible 12 channel GPS receiver.**

**This GPS module board is sized according to the mechanical dimension of the Motorola Oncore (tm) GPS module.**

### **Overview**

This small board is sized to bring the GPS module our company use in the Seismostack line to the size of the Motorola Oncore (tm) GPS module. This allow to old users of Motorola Oncore unit using NMEA sentences to use our GPS module. The fast acquiring and the 12 channel capabilities allow this module to be an excellent timing source for all seismic equipment of the Seismostack series.

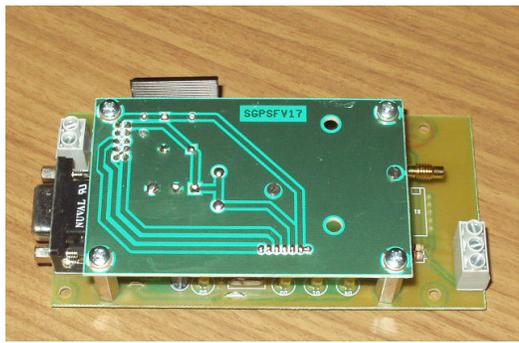
### **Technical features**

Power supply:	5V
Power consumption:	120-130mA (0.65W)
Backup battery:	embedded lithium battery or Gold series capacitor
Output:	TTL NMEA standard protocol 4800 baud
Nr of channel:	12
Satellite acquire time:	cold start 5 minutes, warm start 20 seconds
Output format:	NMEA 0183 (4800 baud)
Timing accuracy:	< 1 microSeconds
Antenna connector:	MMCX

### **Applications**

- Gps signal recording, time and position acquisition
- Time synchronization with the GPSDCF converter board

## **GPSDCF GPS RECEIVER / DCF77 CONVERTER**



**This module it is a NMEA compatible 12 channel GPS receiver and converter to the DCF77 pulsing code.**

**This tecnique allow to synchronize the a/d seismic board with a PPS signal including the time and date information.**

### **Overview**

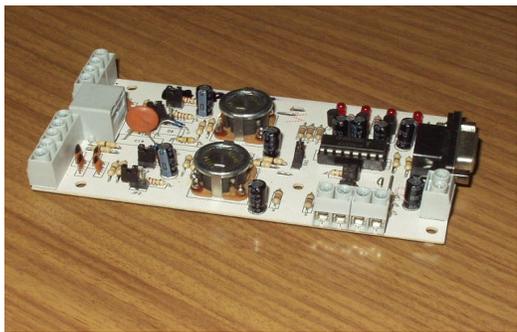
The SGPSDCF 01.00 board is a circuit that convert the time signal received by a GPS receiver in a coded pulses stream according with the DCF77 standard. The board is equipped also with a converter TTL-RS232 to allow the connection of the receiver to a personal computer. If the computer is equipped with a software for NMEA sentences reading it can be used to pick the position and accurate time for the PC.

### **Technical features**

Power supply:	5V
Power consumption:	120-130mA (0.65W)
Backup battery:	embedded lithium battery or Gold series capacitor or external battery connector (min 2.5V max 5V)
Nr of channel:	12
Satellite acquire time:	cold start 5 minutes, warm start 20 seconds
Output:	TTL RS232 NMEA standard protocol 4800 baud
Output connector:	standard RS232 DB9F
Timing accuracy:	< 1 microS
Antenna connector:	MMCX or BNC
Cable length:	5 or 10 meters
Timing accuracy:	< 1 microS
DCF emulated signal output:	NPN open collector transistor (10mA max load)
Dimensions:	120x62x35mm (seismostack size standard)

### **Applications**

- Gps signal recording, time and position acquisition
- Time synchronization of all seismic SADCxx series A/D boards

**SRXTX RS422 4 CHANNEL TRANSCEIVER**

**This transceiver device is a fully isolated RS232 – RS422 4 channel (2 channel full duplex) converter.**

**A couple of these devices allow to setup reliable long distance cable communication between RS232 interfaces. A RJ45 and DB9F connector simplifying the board wiring.**

**Overview**

This board can be used to connect an a/d converter (or any other kind of device equipped with a RS232 port) at great distance to its corresponding device. The board using an advanced RS422 isolated driver converter allow high performance and reliable connection at high speed up to thousands of meters distance.

The board is bidirectional (full duplex) using 4 channels (2 tx and 2 rx). This allow signals (also PPS signals) to be transmitted at their destination with great accuracy (with shift time of less than a nanosecond).

This feature make this device particularly interesting for networks of sensors that have to be synchronized, typically in seismic arrays.

The signal at the RS422 side is the classic differential signal 0-5V (TX+/TX-/RX+/RX-).

**Technical features**

Power supply: +5V dc  
Power consumption: < 100-200 mA (depending on the cable length and line load)  
Channels: 2 TX and 2 RX  
Max speed for 1000mt: 1 Mbaud  
Max speed for 5000mt: 300 Kbaud  
Connectors RS422 side: RJ45 and pressure connectors for direct wire connection.  
Connector RS232 side: DB9F bringing 2 channels TX1/RX1 TX2/RX2  
Dimensions: 120x62x35mm (seismostack size standard)

**Applications**

- Cable Data communication at long distance
- Arrays data collection
- Arrays synchronization

## **SBUF10 RS422 BUFFER MEMORY UNIT**



**This is a serial buffer/converter.**

**An RS232 port is converted in RS422 and a memory of up to 128kbytes can be used as a buffer in order to retrieve data from a network of RS232 devices.**

### **Overview**

This board allow an RS232 device to be connected in a network of RS422 devices. It is addressable and up to 32 different addresses are available. It is a dual processor device using a standard Static RAM for buffering.

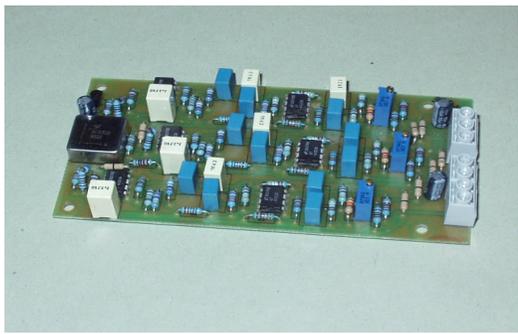
The transmission speed must be kept the same for the RS422 and RS232 front end. This represent the only limitation of this device. To be modified in the further versions in order to support different data speed for the both serial port sides.

### **Technical features**

Power supply:	5V
Power consumption:	80mA
Interfaces:	1 RS232 and 1 RS422
Architecture:	dual processor architecture
Address available:	32
Address selection:	jumper selectable
Standard comm speed:	38400 baud N,8,1
Handshaking protocol:	SARA proprietary compatible with the SADCxx series protocol
Dimensions:	120x62x35mm (seismostack size standard)

### **Applications**

- Multichannel system managing over the 3 or 4 channel of the standard A/D board of the seismostack series

**SACC10 STRONG MOTION 3 AXIS ACCELEROMETER**

**Strong motion sensor board with capacitive monolithic triaxial accelerometer.**

**Bandpass 0.5Hz-10Hz.  
Standard Full range +/-250mG**

**Overview**

This accelerometer board is based on a capacitive sensor. The full scale is at +/- 10V output giving with the standard 80x magnification factor a full range of +/-250mG. The signal is also filtered with an high-pass filter removing the DC component of the capacitive sensor and with a 5 poles Bessel filter to give a flat response +/-3dB between 0.5 and 10Hz of bandpass.

The sensor is directly connected on the PCB. The small size of the board allow to orient it in the requested way in order to get the classic X, Y and Z acceleration signal from the sensor board.

**Technical features**

Power supply requirement:	+/-12Vdc
Power consumption:	10+10mA
Nr. Channel:	3
Sensor type:	capacitive monolithic accelerometer
Sensor sensitivity:	500mV/G
Mass:	3.5g
Amplifier gain:	80x (standard)
Full scale range:	+/-250mG
Resolution:	+/-2.5mG
Voltage noise output:	+/-100mV
Dynamic range:	40dB
Transverse sensitivity:	+/-20%
Linearity:	+/-15%
Filters:	1 poles high-pass + Low Pass Bessel 5 poles
Band pass:	0.5Hz - 10Hz
Offset adjustment:	+/- 2 Volts (trimmer adjustable)
Dimensions:	120x62x35mm (seismostack size standard)

**Applications**

- Acceleration measurement for strong motion movements
- Arrays
- Building and Structural vibration analysis
- Strong motion earthquake detection

## SR97/SR97SX 16/18 BIT SEISMIC UNIT



The SR97xx is a low cost compact and rugged 4.5Hz triaxial seismic sensor/digitizer. It allow to record seismic signal using low-cost geophones that can be embedded in the unit or placed at short distance.

High flexibility design using the Seismostack series boards.

### Overview

This unit is a compact and rugged seismometer/digitizer capable of recording earthquake signals with professional performance. The low cost allow the usage of this unit also for training and personal use. The unit require a Personal Computer for the recording of the seismic signal. The unit can be operated with 12Vdc or 110-220Vac 50Hz power.

### Technical features

Number of sensors:	up to 3 sensors or up to 4 channel
Embedded Sensor type:	4.5Hz, rotating coil geophones velocimeter
Anti-alias filter:	Bessel 5 poles
Cutoff corner frequency:	10Hz typical (customizable upon request) Notice: Customization of filter response is usually free of charge on new devices. Ask for your needs.
High-pass filter:	0.5Hz typical (customizable upon request)
A/D Converter:	SADC10 board
A/D Resolution:	16 or 18 bit (upon request)
A/D Noise:	16 bit noise free, 18 bit +/- 1.5 bit of noise
Dynamic range:	96dB with 16 bit
A/D Skew time:	< 125uS (virtually zero)
SAMPLING RATE:	programmable from 1 to 200 SPS per channel
Communication:	38400, N,8,1
Communication protocol:	Binary, proprietary of SARA snc
Amplifier Noise:	< 0.2microV @ gain of 10000x
Clock precision:	< 3 seconds per week at 20°C
Power consumption:	14W with 220Vac or 0.35A with 14Vdc
Timing synchronization:	with GPS receiver
Dimensions:	26x22x9.5cm, with tripod brackets 27x30x14cm
Weight SR97:	1.5Kg (only digitizer), 1.8Kg 1 axis sensor, 2.2Kg 3 axis

### Applications

- Short range seismic monitoring
- Training
- Personal Seismograph
- Arrays
- Building arrays (see SR97 wall mounting arrangement)

**SR04/SR04SX 24 BIT SEISMIC UNIT**

The SR04xx is a rugged and compact seismic system designed to recording signals produced by seismometers (geophones, velocity-meters, accelerometers, etc..). SR04 and its components make up a scientific instrument suitable for professional use and training purposes.

**Overview**

The SR04 is an instrument with all the electronic components needed to digitize an analogue seismic signal in digital format for PC recording. It embeds a sigma-delta high speed and high precision analogue to digital converter, a GPS receiver for accurate timekeeping and sincronization, 1 or 3 compact 4.5Hz sensors.

The system needs to be used with a personal computer running the proper data logging software. The PC becomes the main processing unit of the seismograph and can be called a "digital seismic station"; if this station is connected to Internet (by modem or better with a DSL line) it can easily become part of a seismic network. You can request the unit with or without sensors; the SR04 is a digitizer, the SR04Sx is a digitizer with sensors.

**Technical features**

Analogue channels: 3  
Anti alias filter: 1 poles 40Hz low-pass filter  
Band-pass: standard DC to 40Hz (customizable)  
A/D converter: 24 bit sigma delta  
Type: Differential input  
Gain: fixed gain  
Input range: +/- 2.5V (customizable)  
Overvoltage protec.: zener diode up to 1kV for few mS  
Damping: geophones internally damped, external sensor damping with external resistors  
Input Impedance: Typically >= 1 Mohm  
Noise level: typically < 2.5 counts at 100 SPS  
Crosstalk rejection: > 140dB  
Skew time: zero (simultaneously sampling on all 3 channel)  
Dynamic range: 140dB at 25 SPS  
Clock: crystal clock 10ppm stability  
Precision: +/- 2 secs/weeks at 20°C  
Sincronization: GPS receiver included  
GPS Antenna: Amplified antenna with 10mt of coaxial cable and BNC connector  
Communication: 1 RS232 port at 38400 baud  
Protocol: binary proprietary supported by SEISLOG and SEISMOWIN  
Sample frequency: 10, 20, 25, 50, 100, 200 SPS  
Power supply: 10-25Vdc - 0.5W  
Housing: rugged aluminum case, splash proof  
Operating temp.: -20/+70 °C  
Overvoltage protect.: 50V (max 5 seconds)  
Cabling: RS232 and power cable provided with the unit  
Weight: 1,5 Kg

**Applications**

- Small seismic networks
- Seismic arrays
- Personal Seismograph
- Training

**SL97/SL97SX 16/18 BIT SEISMIC DATALOGGER**

Picture not available

The SL97xx is a rugged and compact seismic datalogger system up to 3 channel. 4.5Hz sensors can be embedded.

Up to 2 Gbytes of storage memory in SSD or hard-disk technology, with exchangeable cartridges. Ethernet connectivity for high speed data download and wireless connection are supported. Standard modem solutions for PSTN events downloading supported.

**Overview**

In the compact and rugged aluminum case are embedded all the needed components to have a standalone seismic station. The detected seismic signal are amplified conditioned, digitized and recorded in the storage media. Client can choose the media size and type according to its requirements in terms of memory life power consumption etc.

The unit offer the state of art of seismic instrumentation at an affordable cost, with reliable and high standard performances. Client can choose the preferred operating system and datalogging software between a wide range of o.s. starting from DOS, Windows, NT, WindowsCE, Linux. The CPU platform is a compact and reliable industry standard PC104 board. Ask to your dealer in order to choose the best solution according to your requirements. Wireless networking or long distance cable networking can be achieved.

**Technical features (general overview)**

Analogue channels: 3  
Band-pass: standard DC to 40Hz (customizable)  
A/D converter: 16 or 18 bit SAR A/D converter  
Damping: geophones internally damped, external sensor damping with external resistors  
Dynamic range: 96dB  
Clock: crystal clock 10ppm stability  
Precision: +/- 2 secs/weeks at 20°C  
Sincronization: GPS receiver included  
GPS Antenna: Amplified antenna with 10mt of coaxial cable and BNC connector  
Sample frequency: 10, 20, 25, 50, 100, 200 SPS  
Power supply: 10-25Vdc - 0.5W  
Housing: rugged aluminum case, splash proof  
Operating temp.: -20/+70 °C  
Overvoltage protect.: 50V (max 5 seconds)  
I/O: 2 RS232 comm port, 1 ethernet  
Weight: 3 Kg  
CPU: Intel Pentium class processor or AMD processor  
CPU board: PC104 industry board  
Mass storage Memory: up to 2 Gbyte of SSD memory, or 80 Gbyte of standard hard-disk (with external sensors)  
Sensors: internal sensors 4.5Hz natural period velocimeters or accelerometers  
External sensors: wide range of sensors input, to be specified at order

**Applications**

- Earthquake monitoring in short range seismic network
- Personal Seismograph
- Training

**SL04/SL04SX**

**24 BIT SEISMIC DATALOGGER**

**Vettore**

Picture not available

The SL04xx is a rugged and compact seismic datalogger system up to 3 channel. 4.5Hz sensors can be embedded.

Up to 2 Gbytes of storage memory in SSD or hard-disk technology, with exchangeable cartridges. Ethernet connectivity for high speed data download and wireless connection are supported. Standard modem solutions for PSTN events downloading supported.

**Overview**

This unit represent the top edge of the SARA snc current production. In the compact and rugged aluminum case are embedded all the needed components to have a standalone seismic station. The detected seismic signal are amplified conditioned , digitized and recorded in the storage media. Client can choose the media size and type according to its requirements in terms of memory life power consumption etc.

The unit offer the state of art of seismic instrumentation at an affordable cost, with reliable and high standard performances. Client can choose the preferred operating system and datalogging software between a wide range of o.s. starting from DOS, Windows, NT, WindowsCE, Linux. The CPU platform is a compact and reliable industry standard PC104 board. Ask to your dealer in order to choose the best solution according to your requirements. Wireless networking or long distance cable networking can be achieved.

**Technical features (general overview)**

Analogue channels: 3  
Band-pass: standard DC to 40Hz (customizable)  
A/D converter: 24 bit sigma delta  
Damping: geophones internally damped, external sensor damping with external resistors  
Dynamic range: 140dB at 25 SPS  
Clock: crystal clock 10ppm stability  
Precision: +/- 2 secs/weeks at 20°C  
Sincronization: GPS receiver included  
GPS Antenna: Amplified antenna with 10mt of coaxial cable and BNC connector  
Sample frequency: 10, 20, 25, 50, 100, 200 SPS  
Power supply: 10-25Vdc - 9 Watts  
Housing: rugged aluminum case, splash proof  
Operating temp.: -20/+70 °C  
Overvoltage protect.: 50V (max 5 seconds)  
I/O: 2 RS232 comm port, 1 ethernet  
Weight: 3 Kg  
CPU: Pentium class 300Mhz processor  
CPU board: PC104 industry board  
Mass storage Memory: up to 2 Gbyte of SSD memory, or 80 Gbyte of standard hard-disk (with external sensors)  
Sensors: internal sensors 4.5Hz natural period velocimeters or accelerometers  
External sensors: wide range of sensors input, to be specified at order

**Applications**

- Earthquake monitoring in short range seismic network
- Personal Seismograph
- Training

**ADCASE CARRYING CASE FOR SR/SL SEISMIC UNITS**



**This case is designed to allow an easy way to transport SL and SR 04 and 97 series of digitizers / dataloggers / sensors.**

**Overview**

The ADCASE is designed to allow an easy way to transport SR97, SR04, SL97 and SL04 series of digitizers / dataloggers / sensors. Ask to your dealer for special arrangements of the internal spacers and/ or to have replacement of the rubber foam and to have spare parts of this unit.

It can be also used to transport seismic sensors like GS11D with spikes and seismic refraction or refraction-microtremor mini arrays and/or seismic sensors like the MarkProducts L4C or the Geospace GS1.

The case is not designed to be sumergible but it is only an anti-shock accessory.

**Technical features**

Dimensions:

Weight: 0.25 Kg

Maximum shock for S unit with sensors: 3G

**Applications**

- SR97 SR04 SL97 and SL04 transport
- Sensors transport

**SEISMOWIN PC WINDOWS BASED DATALOGGING**



**SEISMOWIN is a datalogging software suitable especially for training and small seismic network.**

**It is capable to provide recording using the major triggering algorithm up to 4 separate channel.**

**It works with any of the SADCxx a/d boards and/or with the complete SR97/SR04 digitizers.**

**Overview**

The SEISMOWIN software is a program to be used with SADC series boards and/or SR97/SR04 digitizers. It allows the acquisition of up to 4 channels with automatic storage of seismic events and storage of continues files (datalogging) for retrieving of previously recorded data.

Others board are supported for training purpose like some DATAQ boards NuovaElettronica single channel boards and Infilterc amateur board.

The SARA (SADC series) board can use their internal real time clock to synchronize the incoming seismic data with a high precision reference time.

SEISMOWIN can be used together with others tools like SEISMONET and SEISMODOCTOR that are able to give extra features to your seismic station.

**System requirements**

SEISMOWIN require the usage of a Pentium Class processor. It is not needed a big memory of ram and the hard disk capacity is subdue to the will of the owner in order to record more or less seismic data.

<b>Item</b>	<b>Minimum requirements</b>	<b>Recomended configuration</b>
Processor	Pentium 60	Pentium Celeron or Pentium 2 or higher
Ram	8 mbytes	32 Mbytes
Hard disk	200 Mbyte	2 Gigabyte
Operating system	Windows95	95/98se/Me/XP (not NT, 2000)
CD rom	-	yes
Audio board	-	yes
Parallel port	-	yes
Serial port	1	1
Video board	640x480 (VGA)	SVGA 1024x768
Monitor	monochrome	color

**SR97sx**

**WALL MOUNTING DIGITAL SENSOR**



The SR97 series equipment can be ordered in wall mounting arrangement allowing to construction of building array for structural vibration monitor or earthquake hazards mitigation monitoring in insulated structures. This kind of arrangement typically accept a 3 axial accelerometer and a 3 axis velocimeters.

**Overview**

This is a special arrangement of the rugged and robust SR97 series equipment. It allow the embedding of accelerometers and velocimeters and all others wide range of Seismostack series boards. Sensors can be alone in the boxes or with digitizers and buffer memory in order to makeup a complete digital array.

Can be ordered in wall mounting arrangement allowing to construction of building array for structural vibration monitor or earthquake hazards mitigation monitoring in insulated structures. This kind of arrangement allow up to 8 channels using a double serial communication boards or RS422 serial standard with or without memory buffers. Usually this kind of boxes are called digital sensors considering the signal coming out is completely digital using the transmission protocols supported by Seismowin and Seislog.

**Technical features**

- Power supply: 12-30Vdc
- Power consumption: typically 150mA for an average of 3 channels
- Dimensions: big size: 19x17 cm  
small size: 27x22 cm
- Weight: 2-4Kg
- Connector: ITT-Cannon 10 poles connector
- Synchronization: PPS/GPS signal
- Serial ports: 2 RS232 or 1 RS422 with buffer memory, optionally fully isolated

**Applications**

- Dynamic Structural vibration monitoring
- Bulding seismic arrays

## SR97MUX RACK MOUNTING SERIAL MULTIPLEXER



This rack is typically used in building arrays where a number of digital sensors are to be connected to a single personal computer and/or datalogger.

The unit provide all power supply for all the array and precise GPS sincronization.

### Overview

The unit is a rack-mount unit 4U high. The unit is capable of power supply all the connected station typically up to 16 communication port can be arranged in the unit for a total number of channel of 64 channels (using 4 channel A/D boards). The unit provide also to the distribution of the PPS sincronization signal to all the unit in order to keep an accurate time for all the processed data. The unit can reroute the data to a personal computer for mass storage and recording.

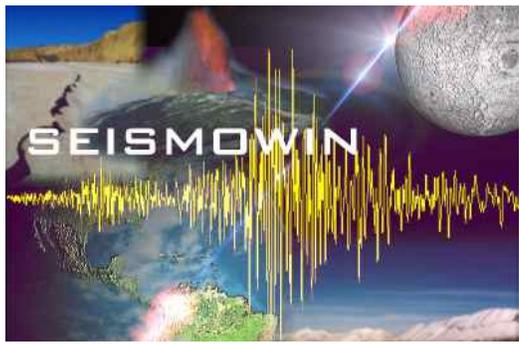
### Technical features

Power supply:	110V or 220V 50 or 60Hz ac
Power consumption:	depending on how much system are connected
	With a 5 sensor network the all units draw about 2A at 24Vdc
Comm ports:	Array Network with RS422
	Pc connection RS232
Nr. of comm ports:	up to 16
Memory buffer:	up to 128k bytes per comm port

### Applications

- Arrays
- Building vibrational monitoring
-

**SEISMOWIN-PRO professional Windows based datalogging**



**SEISMOWIN-PRO is a datalogging software suitable for professional purposes and seismic network data recording and arrays data recording. It is capable to provide recording using the major triggering algorithm up to 64 different channel.**

**It works with any of the SADCxx a/d boards and/or with the complete SR97/SR04 digitizers and it is capable to drive many serial ports simultaneously.**

**Overview**

The SEISMOWIN PRO software is a program that represent the professional evolution of its little brother SEISMOWIN. It is capable of management up to 64 physical channel and virtual channels. Any device of the seismic production of SARA snc can be driven by Seismowin-pro. An user friendly interface make easy the channel setup in all the requested parameter to bring the data from count to the measurement unit. The major data format on seismic instrumentation are supported: SAC, Seisan and the highly portable ASCII format (psn-text).

**System requirements**

SEISMOWIN require the usage of a Pentium Class processor. It is not needed a big memory of ram and the hard disk capacity is subdue to the will of the owner in order to record more or less seismic data.

Item	Minimum requirements	Recomended configuration
Processor	Pentium 60	Pentium Celeron or Pentium 2 or higher
Ram	32 mbytes	128 Mbytes
Hard disk	200 Mbyte	2 Gigabyte
Operating system	Windows95	95/98se/Me/XP/NT/2000
CD rom	yes	yes
Audio board	-	-
Parallel port	-	-
Serial port	1	4
Video board	640x480 (VGA)	SVGA 1024x768
Monitor	monochrome	color

**XXXXX**

**XXXXX**

**Overview**

**Technical features**

**Applications**