


Wave32


Digital Recorder

Wave32 uses state-of-the-art technology to provide high-resolution data for seismic applications. Wave32 is versatile device - it fits to wide range of needs, starting from single low-power off-line recording device to high precision network recorder providing real-time data to data center.







High-resolution digitizer for seismic applications



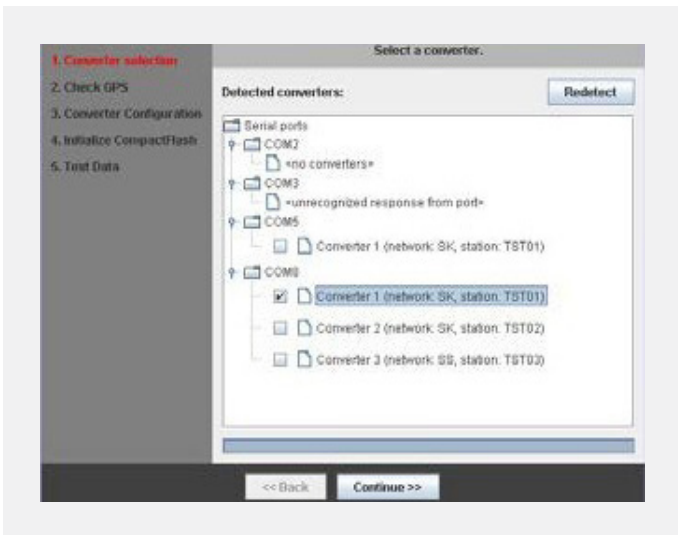
Versatile and scalable device



Built-in seedlink server



Low power consumption



Analog inputs

Wave32 provides 3 to 24 differential analog input channels with high dynamic range - 141 dB at 20 sps. The parameters of Wave32 inputs are designed to work with wide range of seismic sensors - starting with the simplest low-gain devices to advanced high-gain ones.

The basic measuring range of the channels is ± 20 V and variable gain up to 32 (in sequence of powers of 2) can be applied. LSB can vary from 9 nV (at gain 1 x) to 0.28 nV (at gain 32 x).

Digital outputs

Input signals are simultaneously sampled at 1 MHz and then filtered and decimated by three-stage filtering to desired frequency. The technique reduces noise and provides wide range of output frequencies ranging from 1 Hz to 1000 Hz.

Timing

Wave32 uses precise clock locked to GPS pulses for timing. Independent GPS module WaveGPS is supplied with Wave32 recorder. The module contains GPS antenna as well as receiver.

Communication

Wave32 supports standard communication interfaces ethernet and USB for configuration, maintenance and data retrieval.

Data exchange

Data exchange is based on TCP/IP protocols realized on different physical layer types. Wave32 supports SeedLink protocol for real time data exchange.

Recording and data format

Data are recorded on removable SD card in data - only SEED format. Wave32 support USB disk mode for fast data download.

System state monitoring

Internal state and state of the GPS module (signal quality, fix type) is monitoring by Wave32. Additionally, Wave32 provides 3 additional analog input channels for sensor state monitoring

as well as control signals for sensor remote maintenance (autozero, period switching, locking).

Software

Wave32 comes with software for its installation and in-field maintenance. Software provides tools for configuration of the device, inspection of the data and device status and download of the data. Software is platform independent.

Housing

Wave32 is supplied in two types of aluminium cases:

- robust water-proof IP67 case for harsh environment
- or lighter and smaller IP65 case

Both cases are equipped with military standard water- proof connectors.

Input channels

Number	3 to 24
Type	differential
Gain selection	1 x, 2 x, 4 x, 16 x, 32 x
Full scale	±20 V @ 1 x
Dynamic range	141 dB @ 20 sps @ ±20 V (FSrms / noiserms)
Internal sampling frequency	1 MHz
Output sampling frequencies	1000, 500, 250, 200, 100, 80, 60, 50, 40, 20, 10, 5, 2, 1 Hz

Timing and interfaces

Communication interfaces	USB, Ethernet, RS-232
GPS time synchronization	Internal
Precise internal clock timing	1 ppm free running

Recording and data format

Continuous, triggered	SEED
Compact flash capacity	4 GB standard (extensible up to 64 GB)

State of the health monitoring and sensor maintenance

Number of channels	3
Input single ended	±10 V
Calibration signal	square wave, frequency and amplitude adjustable
Control signals	automatic centering, period switching, sensor locking, calibration enable

Power

Voltage	6 V to 18 V, PoE enabled
Consumption	< 1 W

Power

Voltage	6 V to 18 V, PoE enabled
Consumption	< 1 W

Mechanical

Dimensions (standard case)	219 x 118 x 81 mm (101 mm including connectors)
Dimensions (light case)	168 x 105 x 35 mm (55 mm including connectors)
Weight (standard case)	1616 g
Weight (light case)	572 g

Environmental

Operating temperature range	-40 °C to +70 °C
Water-proof aluminium case	<ul style="list-style-type: none"> • IP 67 standard case • IP 65 light case