



# ATLAS-*plus*

Digital recorder for seismic or structural monitoring

Atlas is a robust and reliable digital recorder.

The instrument is equipped with high-resolution delta-sigma 32 bit ADCs, all the channels are synchronized and the sample rate is adjustable up to 5000 sps per channel.

The internal memory (up to 1TB) has two independent recording zones: the ring-buffer which is dedicated to continuous sampling, and the triggering which is used for event sampling. The data format is MiniSEED. The built-in GNSS receiver synchronizes the system clock with the absolute time so that a network of several units can be created where all the channels are synchronized. Using the trigger criteria that is available in the firmware, it is possible to distinguish environmental vibrations from seismic events.

ADC RESOLUTION 32 bit

DYNAMIC RANGE > 145dB@100 sps

SAMPLING RATE 1, 20, 25, 50, 100, 200, 250, 500, 5000 sps

SYNCHRONOUS SAMPLING

GIGABIT ETHERNET, WiFi

INTEGRATED 4G/5G MODEM (OPTIONAL)

GNSS, PTP, NTP AND FREE RUNNING OPTIONS AVAILABLE

INTEGRATED UPS, 20 HRS SYSTEM AUTONOMY

MINISEED DATA FORMAT

COMPATIBLE WITH EARTHWORM, SEISCOMP, GEOPSY, SEISGRAM2K

CORTEX A53 1.5 GHz QUAD CORE  
RAM 2 GB DDR4

APPLICATIONS	Seismological networks
	Structural monitoring and surveys
	Post-seismic damage analysis
INPUTS	<b>INPUT CHANNELS</b> 3 or 6 analog, 3 digital channels (RS422)
	<b>SAMPLING</b> Simultaneous
	<b>INPUT IMPEDANCE</b> 90KΩ or opt 2MΩ
	<b>INPUT VOLTAGE</b> 40,20,10,5,2.5,1.25,0.625 Vpp (x1, x2, x4, x8, x32, x64)
A/D CONVERSION	<b>SENSOR COMPATIBILITY</b> Accelerometers (FBA, MEMS), Geophones, Seismometers and Microbarometers
	<b>ADC</b> Sigma-delta 32 bit synchronous sampling
	<b>DYNAMIC RANGE</b> > 145dB @ 100 sps
	<b>SAMPLE RATES</b> 1, 20, 25, 50, 100, 250, 500, 1000, 5000 sps
	<b>ADVANCED FEATURES</b> Dual Sampling
TRIGGERS	<b>ANTI-ALIASING FILTER</b> FIR linear
	<b>ADDITIONAL DIGITAL FILTERS</b> Low-pass and High-pass filter
TRIGGERS	<b>TRIGGERS</b> STA/LTA and threshold independent for each channel AND/OR configuration on all channels Trigger broadcasting towards recorders in the network
	<b>FORMAT</b> MiniSEED
TRIGGERS	<b>INTERNAL MEMORY</b> 32GB standard, optionally up to 1TB
	<b>RING BUFFER DATA RECORDING</b> (16 or 32 days, depending on mem. size) plus strong motion events
	<b>ADV. FEAT.</b> Periodic generation of ambient noise and post-seismic analysis
SYNCHRONIZATION	<b>TIMING SOURCES</b> GNSS – Absolute UTC time via high sensitivity integrated multi-constellation receiver (GPS, GLONASS, BeiDou, QZSS, 72 channels) PTP – IEEE 1588 Precision Time Protocol / NTP – Network Time Protocol / Free Running – Internal oscillator mode
	<b>ACCURACY</b> With valid GNSS: < 1 μs to UTC With GNSS signal loss: ± 1 ppm (32 s/year) PTP/NTP accuracy depends on network configuration and latency conditions

CPU	<b>CPU</b> Cortex A53 Quad core 1.5 GHz + Realtime co-process Cortex M7 650 MHz
	<b>RAM</b> 2 GB DDR4
UI	<b>LEDs</b> Heartbeat, LTE, WiFi, GNSS, Ethernet, Power
	<b>BUTTONS</b> Power on/off and WiFi enable/disable on the same button
COMMUNICATION	<b>FILE TRANSFER</b> Via Ethernet 10/100/1000, WiFi (optional) or integrated LTE modem (optional)
	<b>WIFI MODE</b> SOFT AP function
	<b>METADATA</b> RESP file available on IRIS
	<b>DATA DOWNLOAD</b> Through SCP protocol based program or via web interface
	<b>VPN</b> Compatible with OpenVPN
DATA STREAMING	<b>FORMAT</b> Seedlink protocol management for real-time interface with most common seismic programs such as SeisComP and Earthworm
	<b>STREAM</b> Seismic and State-of-Health
	<b>ALARMS</b> Management towards remote monitoring server
CONFIGURATION	<b>INTERFACE</b> Web Server
	<b>CONTROL</b> Connection and management on remote servers
	<b>UPDATES</b> Remote software update (local network or via internet)
	<b>ADVANCED FEATURES</b> Multiple units can be connected to the network (Ethernet, WiFi or LTE) acting as a single multi-channel instrument
POWER SUPPLY	<b>POWER SUPPLY</b> 9 ÷ 36 Vdc - AC/DC adapter included
	<b>POWER CONSUMPTION</b> < 2 W
	<b>SENSOR POWER</b> Provided from sensor connector
	<b>UPS</b> Back-up LiPO battery, autonomy > 20 hours
	<b>ALARMS</b> Remote alarms management in case of blackout
OP. CONDITIONS	<b>HUMIDITY</b> 0 to 100%
	<b>OPERATING TEMPERATURE RANGE</b> Without battery - 40 ÷ +85°C* <small>*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</small>
PHYSICAL	<b>CASE</b> Anodized Al6061 aluminum case with surface treatment against corrosion and atmospheric events.
	<b>PROTECTION GRADE</b> IP67
	<b>DIMENSIONS</b> 17 x 13 x 8 cm
	<b>WEIGHT</b> ≈2 Kg
	<b>CONNECTORS</b> MIL-STD / M12 / M8 /TNC /FME

