ACEBOX is a compact all-in-one high resolution accelerograph. Based on the reliable and proven-on-field SL06 recorder it embeds three force balance accelerometers of the SA10 series, allowing to put on the field an efficient and fast to deploy instrument. Within seconds from the switch on it is operative.

The robust aluminum casing, coated and treated against corrosion, can be left on the field without time limit and with very simple environemental protections.
Its weight and robustness guarantee good ground coupling.
Flexible data connectivity allows direct link of unit to your central observatory.

The ULTRA FAST SeedLink server can be accelerates the data streaming up to transmit 10 packets per second; this make the ACEBOX the best option for Earthquake Early Warning Systems (EEWS) !

Applications

* Earthquake Early Warning Systems (EEWS)
* Operational Modal Analysis (OMA)
* Structure Health Monitoring (SHM)
* Reservoir microseismic monitoring
* Seismology
* Aftershock studies

Main features

* Ultra low noise design digitiser
* Embedded FBA with ultra low noise and cross-axis sensitivity sensor
* FBA with robust suspension system, mass-lock not necessary
* GPS synchronised or PPS or NTP when GPS not available
* Wide power supply voltage range, embedded anti inversion and surge protections on all lines
* Internal NiMh battery for safe shutdown on power failure
* Edge-computing power that may includes alerting algorythms (i.e. P wave analysis)
* Ultra Fast SeedLink streaming protocol or custom protocols with substreaming capability
* Networking: TCP, SSH, FTP, http, ModBus, MQTT, Telnet, Telegram, SMS
* VPN ready to work behind firewalls and NAT filters
* High capacity local data storage
* Real time measurements according to the UNI9916 norm
* Automatic frequency peak-picking with frequency shifting alarm report
* Easy Web browser configuration and management
* IP68 protection grade for harsh environement use
* Response file in IRIS NRL repository
* Made in EU (Italy)

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Specifications

Power supply:	9-36Vdc, optional internal backup UPS battery (to be requested at order)
Power consumption:	< 3.2W in standard working mode (GPS on, real time streaming, memory writing)
Number of channel:	3 with Sigma Delta high resolution ADC (24 bit or 32 bit system upon order)
Input range:	typical on board selectable 0.8, 1, 2, 4g (customization possible, ask to us for details)
Dynamic range:	144dB system, 141dB Peak over RMS noise at 2g and 100 SPS
	32 bit system version available with up to 162dB dynamic range
Sampling rates:	1,2,5,10,20,50,100,200,250,300,400,480,500,600,800,1000,1500 Hz
Anti Aliasing Filter:	Analog and Digital (FIR) both customizable upon request
Offset compensation:	by software with various options selectable from web control panel
Real Time Clock:	GPS disciplined clock +/- 10ppm -20/+50°C
RTC Accuracy:	down to 1µs to the respect of UTC with SPLL locked and PPS available
GPS Antenna:	external with coaxial cable of 10 meters and BNC connector
GPS type:	Multiconstellation receiver unit with status, coordinates, elevation, nr. of satellites
Messaging:	Telegram alerting for groups, message bot or SMS
Data Links:	Ethernet 10/100, RS232, RS485 (optional)
Mass Memory:	microSD and USB
Data Format:	GSEcm6, GSEint, SAC, SAF, miniSEED
Recording:	continous and/or on-event trigger
Triggering:	multimode STA/LTA, amplitude, IP voting and scheduled; fully independent, high/low/band pass filter; pre/post event: 1 to 10000 seconds
Status of health:	Memory, Power, Vref, test pulse for sensors, peers status (if some units are connected toghether in voting systems)
Test sensor:	test pulse applied to the force feedback loop, (others upon request)
Protection grade:	IP68
Anchoring:	with keyhole in bottomside and three levelling feets
Control panel:	LCD 16x2 + 3 buttons for system check and setup
Housing:	machined out of a solid block of aluminum, wall mount possible
Connectors:	MIL-C-26842 series, with 10, 18, 19, 26 pins depending on configuration
Operating temperat.:	-20/+70°C
Dimensions:	205x170x107 mm (weight: about 4 kg, depending on embedded sensors)
Norms conformity:	CE
	Force Balance Sensor SA10 series – please refer to SA10 datasheet for all details
Cross axis sensit.:	< 0.1%
Linearity:	< 0.02% of full scale

Widely used worldwide, Acebox is one of the most used system in Türkiye.

The map at right shows one half of the unit deployed in the country.

Many are runned by AFAD, (the Türkiye Civil Defense Department) many others are for other local observatories or on other structures.

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Notice! This paper is an information leaflet only; it is published without programmed updates. All specifications, features and prices are subjected to changes without any prior notice. In the event of any discrepancies between this document and a commercial offer or bidding document, these latter will take precedence.