



# SENTINEL-X

## 4-CHANNEL DIGITIZER

### KEY FEATURES

HIGH DYNAMIC 24bit ADC

INTEGRATED WI-FI

INTEGRATED 10/100 LAN

OPTIONAL ONBOARD HSPA/4G MODEM WITH NANO SIM CARD

INTEGRATED GNSS RECEIVER FOR SPECIFIC TIMING APPLICATION

32GB INTERNAL MEMORY

MINISEED DATA STREAM

STA/LTA TRIGGERING ALGORITHMS

SYNCHRONIZATION BETWEEN UNITS, TIME DELAY <math>< 1 \mu\text{s}</math>

BACKUP BATTERY IN CASE OF POWER LOSS

## For strong motion and geophysical monitoring.

The analog channels are 40Vpp capable and synchronously sampled up to 500 Sps at a resolution of 24bit.

Dynamic range exceeds 125dB@100Hz.

The integrated memory bank (32 ÷ 256 GB) allows you to manage a ring-buffer for continuous long term recordings as well as event data. The data is saved in MiniSEED format. The system implements sophisticated trigger criteria (STA/LTA and threshold) which distinguishes false events (i.e. environment vibrations) from true seismic events.

The internal GNSS receiver allows you to create a network where all the instruments are synchronized to the absolute time.

The connection to the instrument can be established either using the local network (LAN or WiFi) or, alternatively, remotely using the optional internal HSPA (4G upcoming) modem.



Seismological networks Structural monitoring and survey Post-seismic damage analysis Geophysical survives	APPLICATIONS
<b>RESOLUTION</b> 24bit synchronous sampling <b>SAMPLE RATES</b> Synchronous, adjustable up to 500 Sps <b>OFFSET CORRECTION</b> automatic via web interface	A/D CONVERSION
<b>THRESHOLD TRIGGER</b> independent for each channel and Trigger broadcasting towards recorders in the network <b>THRESHOLD TYPE</b> Absolute or STA/LTA and STA/LTA between 0.1 Hz and 12 Hz	TRIGGERS
<b>MEMORY BANK</b> 32GB up to 256GB <b>DATA FORMAT</b> Binary and MiniSEED <b>RING BUFFER</b> 16 or 32 days continuously, depending on memory size plus strong motion events	STORAGE
<b>TIMING SOURCE</b> Absolute Time UTC through high sensitive integrated GNSS receiver (suitable for indoor use as well) <b>ACCURACY</b> in GNSS signal loss condition: $\pm 1$ ppm (32 s/year) <b>ACCURACY WITH GNSS SIGNAL</b> $< 1 \mu\text{s}$	SYNCHRONIZATION

<b>FILE TRANSFER</b> Via Ethernet 10/100, WiFi or integrated 4G modem (optional) <b>WIFI MODE</b> SOFT AP function and Client at the same time <b>METADATA</b> RESP file available on IRIS <b>DATA DOWNLOAD</b> via a SCP protocol based program or via web interface <b>VPN</b> Compatible with OpenVPN and IPSec	COMMUNICATION
<b>USER INTERFACE</b> Web Server	CONFIG.
<b>POWER SUPPLY</b> 5 ÷ 16 Vdc, AC/DC adapter included <b>POWER CONSUMPTION</b> $< 2 \text{ W } 12\text{v}@50\text{mA}$ supply for each sensor channel <b>UPS</b> Back-up LiPO battery, autonomy $> 5$ hours	POWER SUPPLY
<b>STORAGE TEMPERATURE RANGE</b> $-20 \div +70 \text{ }^\circ\text{C}$ <b>HUMIDITY</b> 0 to 100% <b>OPERATING TEMPERATURE RANGE</b> Without battery - $20 \div +70\text{ }^\circ\text{C}$ * <small>*LiPo batteries can be charged in the range <math>0 \div +45\text{ }^\circ\text{C}</math> while discharge is allowed in the range of <math>-20 \div +70\text{ }^\circ\text{C}</math>. If the temperature is out of range, the LiPo battery will be inhibited by the electronics</small>	OP. CONDITIONS
<b>CASE</b> Anodized aluminum case (AISI 316 stainless steel optional) <b>PROTECTION GRADE</b> IP67 <b>DIMENSIONS</b> 17,5x9,2x4,1 cm <b>WEIGHT</b> $\approx 500$ g	PHYSICAL

