Portable Seismic DAQ
[PS-DAQ®]

SENPRONICS

FEATURES

- 8 Channel Simultaneous acquisition
- 100ksps sampling rate with 16-bit resolution for more accurate results.
- Possible to remotely monitor operate when connected to LAN
- Provides both Wireless [Wi-Fi] and wired [Ethernet] communication
- Reliable and secure data communication for remote monitoring and acquisition
- Can operate for up to 2 hours in battery mode
- Compact, easy portable rugged case
- Comes with IP65 enclosures
- Plug and play method: Straight into action with minimal setup requirements
- Different time frames and resolutions for sampling can be configured using the software.

APPLICATIONS

- Recording blast signals
- Building monitoring due to blast
- Structural health monitoring
- Critical infrastructure monitoring

Operation

PS-DAQ® contains a complete system in a single IP65 standard case, thus extending the portability of this device to places with extreme climatic conditions. PS-DAQ® comes with 8 channel Geophone input option, that allows users to cover most of the observational ground area. PS-DAQ® operated with powerful LINUX-based OS and has 1GB RAM clocked at 400MHz for faster performance.

PS-DAQ® has 3 USB ports for connecting I/O devices like Keyboard, mouse, or even a USB flash drive for data transfer. Full-size HDMI port enables users to connect a Display to the PS-DAQ®, if the Data is to be acquired remotely PS-DAQ® can be connected to the local network either by using onboard Wi-Fi or ethernet port available on the front panel.

Once all the peripherals are connected user has to trigger the capturing button on board after ARMING it through software. Recorded data will be displayed at the bottom of the software and the same will be saved on the desktop for further research purposes.

General Description

The PS-DAQ® is a compact, rigid and easily portable seismic data acquisition device. While there are many engineering seismographs on the market, they are expensive. PS-DAQ® is designed to satisfy several survey techniques which often include refraction, reflection, surface wave, and bore-hole surveys. PS-DAQ® is designed to satisfy a narrow range of applications, surface wave, and bore-hole surveys. PS-DAQ® is perfectly suitable for students and those getting started in engineering geophysics.

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Technical Specification

SAMPLING SPECIFICATIONS		
Channel	8	± 24V Protection
Sampling Rate	100ksps	Typ
Signal to Noise ratio	90 dB [Typ]	
Input Voltage Range	0 – 5V DC	Geo Phone Range
Resolution	16bits	
PHYSICAL DESCRIPTION		
Casing	Rugged Equipment Case	IP Certified
Dimensions	275*210*110 mm	L*B*H
Weight	1.5KG	
PROCESSOR DETAILS		
Processor	1.2GHz Quad-Core	ARM Cortex 7
RAM	1GB SDRAM @ 400 MHz	
Memory	16GB	8GB Usable
COMMUNICATION METHODS		
Wireless LAN	IEEE 802.11 b / g / n Wi-Fi	maximum range of 100 meters.
Bluetooth	IEEE 802.15 Bluetooth [4.1]	maximum range of 50 meters.
Ethernet	10/100 BaseT Ethernet socket	
Video	HDMI	Full Size
USB	3	2.0
POWER DESCRIPTION		
Battery	8.1v 4000mah	Lithium Ion
Power Source	8.1 VDC, 500mA, 50Hz	AC Adapter

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Boot up Procedure

1. Connect the desired number of Geo-phones to the PS-DAQ® front panel.
2. Connect USB keyboard & mouse to any of the 3 USB ports.
3. Connect any good quality monitor to HDMI port of PS-DAQ®
4. Once all the peripherals are connected turn on the device using the toggle switch.
5. If the device is turned on, a green LED will light up on the front panel. Simultaneously, the display will startup.
6. Open terminal and type the following commands one after the other:
   - cd Desktop
   - seisR.tk
7. Seismic Recorder software will launch up at this stage.
8. Now select the following as per the application requirement:
   - Number of Samples
   - Sample Interval
   - Number of Samples
   - Vertical stack - [this is the number of source efforts that will be added to a single file record]
   - Source Header
   - Set the SP Number if needed.
     > NOTE: This is NOT incremented automatically. You have to do it manually, it is just a label in the headers, has nothing to do with file numbers.
   - Phone orientations. V=vertical, R=inline radial, T=transverse
   - Geometry (coordinates in meters of source and geophones. This is kept very simplistic (assume a straight-line recording). If you have 3 component phones, then 3 record values can be the same.
   - Set the Data File Number if needed.
     > **NOTE:** When the program starts, this is initialized to zero. But if you have been recording and already have several files saved on disk, you don't want to write over them. So set this to 1 more than where you left off. The data file number increments automatically after each file is written.
9. Check to make sure all the geophone and trigger cables are connected.
10. USB Connection status – Click the **CHECK** button for making sure everything is powered up properly and is connected.
11. Click on the ARM button.
12. Activate the source (contact closure trigger, i.e. momentary short of trigger lines). For ambient recording, press the push button on the recorder.
13. To terminate the Seismic Recorder program, click on the Quit button.