DAQlink 5-24 Seismograph

High Resolution Seismic Recording System with High Speed, Compact Size & Low Power

DAQlink 5 is the fifth generation of portable seismograph systems. It can be configured as a stand-alone monitoring system, a refraction system or a distributed seismic reflection system.

Vscope software controls the seismograph, providing acquisition control, data QC and file storage. This seismograph utilizes industry standard Ethernet for command, control, and fast data file transfer.

DAQlink5-24
24 Channel Seismograph

System Features:

Cutting-Edge Performance
- 1 to 24 channels per seismograph
- High-Speed 24bit ADC – up to 64,000 sps
- Wide Bandwidth – DC to 27 KHz
- Low Distortion – <0.00008% THD @ 500 sps
- Wide Dynamic Range – >124 dB @ 500 sps typical
- Low Noise – <0.15 µV RMS @ 500 sps typical

Multiple Time Synchronization Modes
- GPS Clock Discipline for Continuous Recording
- Supports PTP to time synchronize multiple units
- VHF/UHF Radio for Underground Use

Multiple Trigger Modes
- Trigger on hammer switch for shot acquisition
- Trigger using GPS time for noise monitoring
- Trigger using LTA/STA for event monitoring
- Two trigger circuits available, one for standard and a second for low-voltage inputs

Multiple Data Storage Methods
- 16 Gbytes internal memory card standard
- External mounted, USB-compatible Memory Plug for data backup and transfer
- Ethernet connection for fast data transfers and remote data storage

Twin Built-in Ethernet Networks
- Use network to configure seismograph and monitor acquisition
- Compatible with cables, Wi-Fi and Cellular Data
- Internal FTP server for external data access
- Optional network extenders for connecting DAQlinks together for high channel count systems

Built-in Acceptance Testing
- Instrument Tests:
  Distortion, Cross-feed, CMRR, Impulse & Noise
- Sensor Tests:
  Resistance, Frequency, Damping, Sensitivity

Operation Modes:

Record Active-Source Data
- Use with a sledgehammer and hammer switch source for lightweight and fast crew
- Use with a vibrator and controller to acquire data in noisy and/or difficult situations
- Network a computer to monitor acquisition, quality control data, and store shot Records

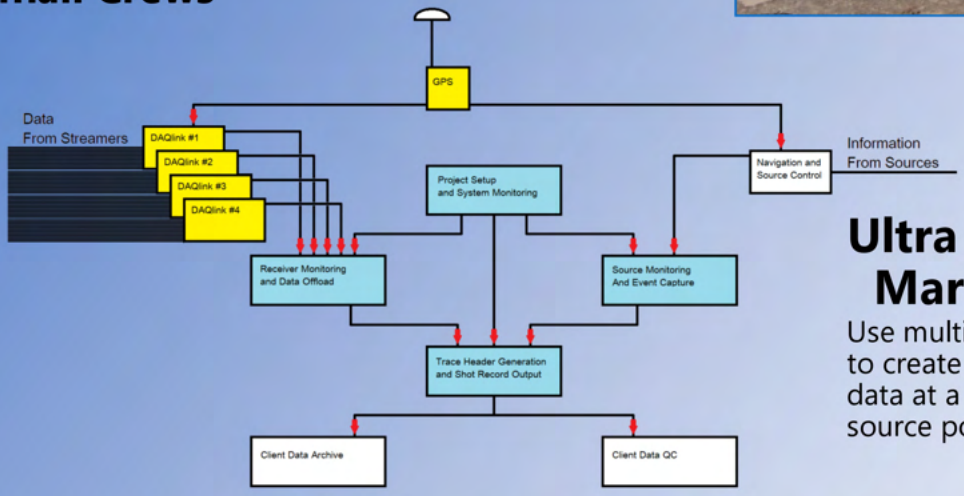
Record Passive Data
- True Continuous Recording
- Use Cellular Modem for Remote Data Collection
- Works with surface or downhole sensors

Use for Event Detection & Monitoring
- Continuously record and store data
- Use LTA/STA Tolerance (Long Term Average / Short Term Average) to detect events
- Includes automatic email notifications as events are located

A Stand-Alone Seismograph

Small Crews

Downhole Data Acquisition



Ultra High Resolution Marine Seismic

Use multiple DAQlink 5-24 seismographs to create a system for acquiring seismic data at a fast sample rate and dense source point spacing.

Expandability and Flexibility

All DAQlink5-24 seismographs are compatible with the entire line of Seismic Source Co source control electronics. This includes the Force 3 Vibroseis controller, the Boom Box 3 dynamite synchronizer and the RTM 3 remote trigger module. DAQlink seismographs are also compatible with the Universal Encoder 3. Use the UE 3 for precise source operation.

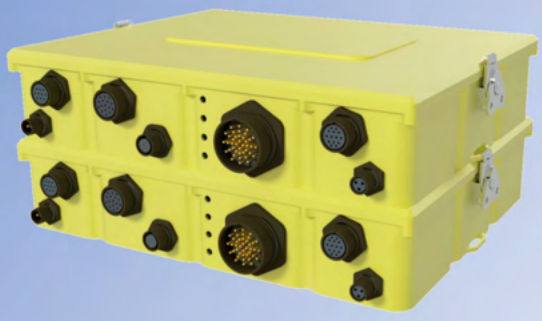
A Stackable & Modular System

Stacking DAQlink 5-24 Units

The DAQlink 5-24 seismograph is designed to be stacked into 48 channel (and more) systems. Simply buckle the individual units together and connect the cables

The DAQlink 5-24 features network system timing, so a single GPS module can synchronize all the modules in a stack of DAQlink 5-24 units, increasing overall timing precision.

The entire system is connected to a computer which controls the seismograph network and stores the acquired seismic data. This computer can also simultaneously provide Quality Control as data is being acquired. Using supplied software, seismic data can be stored in Raw (*.dat), SEG-2 (*.sg2), SEG-D (*.sgd), SEG-Y (*.sgy), ASCII (*.csv), or MiniSEED formats.



Stackable DAQlink 5-24
A 48 channels Package

Distributed Node Systems

For Large Projects

Link Units Together
For Larger Systems

Distributed DAQlink 5-24

Distributed Connection Options

Besides stacking DAQlink 5-24 units together, seismograph networks can be constructed using a 100Base-T network:

- Cable Solution - Distributed DAQlinks increase distance between units from 100 meters to 3 kilometers
- Wi-Fi solution - Typical line of sight distances using standard Wi-Fi transceivers
- Internet Solution – Connect each DAQlink, or the entire DAQlink system, to a cellular data modem and CloudConnect to download data from anywhere.

DAQlink 5-24 Specifications

Technical Features

A/D Conversion:
24-bit, high-speed, delta-sigma converters
Typical Dynamic Range:
Greater than 124 dB (measured @ 500 sps)
Crossfeed:
Better than 124 dB (measured @ 500 sps)
Common Mode Rejection:
Better than 100 dB (measured @ 500 sps)
Total Harmonic Distortion
Better than 0.00008% (measured @ 500 sps)
Typical Noise Floor:
0.15 µV RMS (measured @ 500 sps)
Bandwidth:
0 to 27 KHz (unfiltered)
Preamp Gain (User Selectable):
x1 (0 dB), x4 (12 dB), x16 (24 dB), x256 (48 dB)
Maximum Input Signal:
x1 gain - 6.5 Volts peak to peak
Input Impedance:
100 K Ohms
Digital Filter (User Selectable):
Low-Cut Filter - Disabled, 0.001-120 Hz
Filter Type - Linear or Minimum Phase
Anti-Alias Filter:
85% of the Nyquist frequency
Sampling Interval:
0.016, 0.032, 0.0625, 0.125, 0.250, 0.500, 1.0, 2.0, 4.0, 8.0, & 16.0 milliseconds
Sampling Rate:
64,000, 32,000; 16,000, 8000, 4000, 2000, 1000, 500, 250, 125, & 62.5 sps
Record Length:
Unlimited (with Continuous Recording)
Record Modes:
DAQlink (Triggered by External Event)
Sigma (Continuous Recording)
Trigger Accuracy:
±1 microsecond at any sampling frequency
Pre-Trigger Delay:
Up to 32 seconds
Post-Trigger Delay:
Up to 100 seconds

Physical Features

Internal Network:
Twin 100-BaseT Ethernet Chips
Supports PTP clock synchronization between systems
Includes real-time data transfer
Internal CF-Card Memory:
16 Gbytes Standard (can be expanded)
Optional External Removable Memory:
32 Gbytes (can be expanded)
GPS Interface Standard
Internal Clock synchronized to GPS time
GPS Time and Position saved with data
Power Consumption (per 24 channels):
Less than 0.13 watts/channel
Power Requirements:
11 to 28 VDC
Included Tests:
Internal tests for verification of the instrument and the geophone spread
Dimensions (standard version):
Size: .....280 x 246 x 56 mm
.....11.0 x 9.7 x 2.2 inches
Weight:.....2.0 kg
.....4.4 pounds
Operating Temperature:
-40° to 80° C
Case:
Sturdy Milled Aluminum
Weatherproof seal - IP67

DAQlink5-24
24 Channel Seismograph