HGS (INDIA) LIMITED

SPECIFICATION SHEET - DAQlink 5- 48 Channel Seismograph

High Resolution Seismic Recording System

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 unit, or a distributed seismic reflection system.

VibraScope 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.

DAQlink 5

48 Channel Seismograph

System Features

Cutting-Edge Performance:
- 1 to 48 channels per seismograph
- High-Speed 24bit ADC – up to 64,000 sps
- Wide Bandwidth – DC to 27 kHz (unfiltered)
- Low Distortion – 0.00008% THD @ 500 sps
- Wide Dynamic Range – >124 dB @ 500 sps
- Low Noise – <0.15 µV RMS @ 500 sps

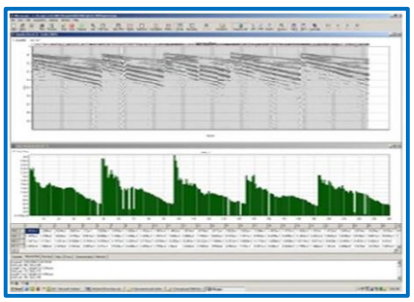
Multiple Time Synchronization Modes:
- GPS Clock Discipline for Continuous Recording
- VHF/UHF Radio for Underground Use

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

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

Twin Built-in Ethernet Network:
- Use network to configure seismograph and monitor acquisition
- Compatible with cables, Wi-Fi and Cellular Data Internal FTP server for external data access
- Supports PTP to time synchronize multiple units. 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



Includes VibraScope Acquisition Software

Features:
- Configures DAQlink 5-48 for Acquisition
- Monitors Seismograph Operation
- Offloads and Evaluates Data
- Data Display
- Analysis – Amplitude & Phase Spectra
- RMS Noise and Signal Graphs

For larger systems, DAQlink 5-48 seismographs are compatible with the full line of iSeis Sigma field software, including Source link and Sigma Observer.

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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 (on request)
- Uses Cellular Modem for Remote Data Collection
- Works with surface or downhole sensors

Use for Event Detection & Monitoring

- Continuously records and stores data (on request)
- Uses LTA (Long Term Average) or STA (Short Term Average) to detect events
- Includes automatic email notifications as events are located.

Stacking DAQlink 5-48 Channel Seismograph

The DAQlink 5-48 seismograph is designed to be stacked into 96 and 120 channel systems. Simply buckle the individual units together and connect the cables.

The DAQlink 5-48 features network system timing, so a single GPS module can synchronize all the modules in a stack of DAQlink 5-48 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.

A 96 Channel Package

Distributed Connection Options

Besides stacking DAQlink 5-48 units together, seismograph networks can be constructed using a 100Base-T network:

- Cable Solution -100 meters maximum between network switches
- 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 download data from anywhere via the Internet.

Individually or Stacked Together

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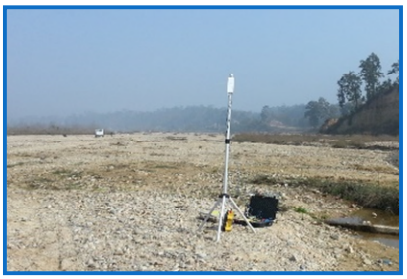
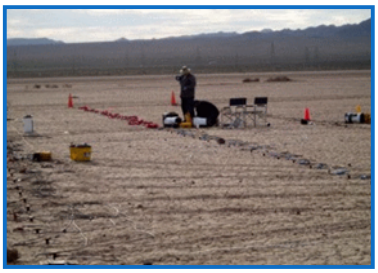
Distributed Node System



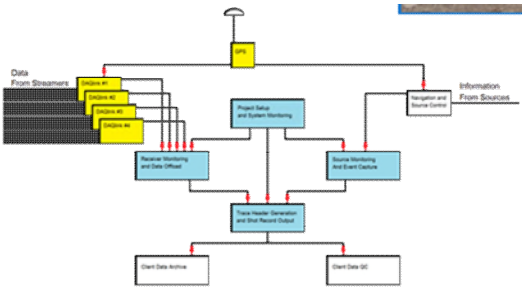
Large Projects



A Stand- Alone Seismograph

Ultra-High Resolution Marine Seismic

Use multiple DAQlink 5-48 seismographs to create a system for acquiring seismic data at a fast sample rate and dense source point spacing.



Expandability and Flexibility

All DAQlink 5-48 seismographs are compatible with the entire line of source control electronics provided from Seismic Source Company. This includes the BBM Refraction Unit, 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 2 Source Electronics.

Downhole Data Acquisition

Small Crews

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DAQlink 5 Seismograph Specifications	
Electrical	
A/D	24-bit sigma delta converter
Anti-Alias Filters	85% of Nyquist frequency
Low Cut Filter	User Selectable: Disabled, 0.001 to 120 Hz
Filter Type	Linear or Minimum Phase
Sample Rates	62.5 to 64,000 sps
Sampling Interval	0.016 to 16.0 milliseconds
Record Length	Unlimited (With Continuous Recording)
Pre-Trigger Delay	Up to 32 seconds
Post – Trigger Delay	Up to 100 seconds
User Selectable Pre-amp Gains	x1 (12 dB), x4 (24dB), x16 (36 dB), x256 (60 dB)
Max Input Voltage	±6.5 Volts @ x1 gain
Bandwidth	0 to 32 kHz (unfiltered)
Wide Dynamic Range	>144dB (System)
Input Impedance	**Standard:** 100K Ω **Extended:** 20K Ω **2Meg:** 2 Mega Ω
Clock Sync (on request)	GPS or VHF Radio
Power Supply	9 to 27 VDC
Power Usage	Typically, 0.1 watts per channel
Performance (at 500 sps)	
Trigger Accuracy	± 1 µs at any sampling frequency
Dynamic Range	Better than 124 dB @ 500sps
% THD	0.00008 % @ 500sps
Crossfeed	Better than 124 dB @ 500sps
CMR	Better than 100 dB @ 500sps
Noise Floor	< 0.15 µV RMS @ 500sps
Physical	
Number of Channels	48
Temperature	-40°C to +80°C
Humidity	0 to 100%
Size	2.8 x 13.7 x 11.0 inches (70 x 350 x 280 mm)
Weight	11.1 lbs (5.0 kg)
Data Storage (Internal 16GB CF)	120 hours continuous (48 channels @ 500 sps)
Data Storage (on Computer)	Unlimited
Data Storage (External USB)	Unlimited
Data Format	SEG-2, SEG-D, SEG-Y, ASCII and MiniSEED
LEDs	Network, Status, Battery
Connectors	
Ethernet/ Computer Network	10-pin Weatherproof
GPS	6-pin Weatherproof
Trigger	3-pin Weatherproof
Power	2-pin Weatherproof
Miscellaneous/ Auxiliary Data	14-pin Weatherproof
USB Memory	19-pin Weatherproof
Seismic Data	55-pin Weatherproof
Ordering Information	
Item Description	**HGS Part No.**
DAQlink 5-48 (Standard) Seismograph	MK001355
DAQlink 5-48 (Extended) Seismograph	MK001375
DAQlink 5-48 (2MegΩ) Seismograph	MK001439

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