



HGS (INDIA) LIMITED



SPECIFICATION SHEET - Distributed DAQlink 5-24 Channel Seismograph

Networked Seismic Recording System

Inexpensive, Flexible and Expandable

The Distributed DAQlink 5 System is the combination of a standard DAQlink 5 seismograph and internal, high-speed, network extenders. Using inexpensive twisted pair telephone cable, these network extenders will send triggering times to, and receive seismic data from, other DAQlinks. Individual cable runs can reach 10,000 ft, or 3 km, in length.

The entire system is connected to a computer which controls the seismograph network and stores the acquired seismic data. This computer can be simultaneously providing Quality Control as the project is acquired. The final data files can be stored in SEG-2, SEG-D, SEG-Y, ASCII or MiniSEED format

Distributed DAQlink 5



24 Channel Seismograph

System Features

Cutting-Edge Performance:

- 1 to 24 channels per seismograph node
- High-Speed 24bit ADC – up to 64,000 sps
- Wide Bandwidth – DC to 32 KHz (unfiltered)
- Low Distortion – 0.00008% THD @ 500 sps
- Wide Dynamic Range – >124 dB (system) and >124 dB (measured) @ 500 sps
- Low Noise – <0.15 μ V RMS @ 500 sps

Multiple Time Synchronization Modes:

- GPS Clock Discipline for Autonomous Recording
- VHF/UHF Radio for Underground Use Or synchronize multiple DAQlink units via cable

Multiple Trigger Modes:

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

Multiple Data Storage Methods:

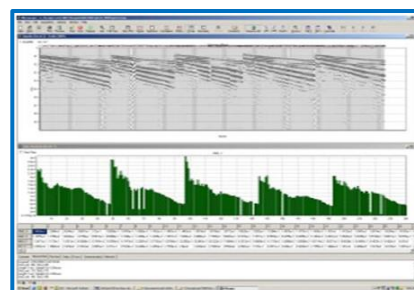
- 8 Gb internal memory card standard
- External mounted, USB-compatible Memory Plug for data backup and transfer
- Ethernet connection for fast data transfers & remote data storage

Built-in Ethernet Network:

- Uses network to configure seismograph and monitor acquisition
- Compatible with cables, Wi-Fi and Cellular Data
- Internal FTP server for external data access

Built-in Acceptance Testing:

- Instrument Tests: Distortion, Cross-feed, CMRR, Impulse, Noise
- Sensor Tests: Resistance, Frequency, Damping, Sensitivity



Includes VibraScope Software

Functions:

- Configures DAQlink 5 for Acquisition
- Monitors Seismograph Operation
- Offloads and Evaluates Data

Features:

- Data Display
- Analysis – Amplitude & Phase Spectra
- RMS Noise and Signal Graphs





Expansion:

- For larger systems, DAQlink 5 seismographs are compatible with the full line of iSeis Sigma Field Software, including Source Link & Sigma Observer



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|--|---|
| <p>Operation Modes</p> <p>Operate as Stand-Alone Seismograph</p> <ul style="list-style-type: none"> Use a sledgehammer and hammer switch Small, lightweight unit for small, fast crews <p>Operate as an Acquisition System:</p> <ul style="list-style-type: none"> Uses a sledgehammer & hammer switch Uses a vibrator and Force 3 controller Networks a computer to Monitor Acquisition, Quality Control Data, and Store Shot Records <p>Passive Monitoring:</p> <ul style="list-style-type: none"> True Continuous Recording Uses Cellular Modem for Remote Data Collection Works with surface/ downhole sensors <p>Automated Event Detection:</p> <ul style="list-style-type: none"> Continuously records and stores data Uses LTA (Long Term Average) or STA (Short Term Average) to detect events Includes automatic email notifications as events are located |  |
| <p>Distributed DAQlink 5 with Built-In Network Extender Features:</p> <ul style="list-style-type: none"> Provides high-speed time break, system status and data transfer Uses inexpensive twisted pair telephone cable Simple setup and configuration Allows seismograph spacing of 10,000 ft, 1.9 miles or 3 kilometres By networking DAQlink 5 seismographs, system of over 1000 channels can be achieved. |  <p style="text-align: center;"><i>24 Channels per Node</i></p> |
| <p>Other DAQlink 5 Connection Options:</p> <p>Besides the Network Extender option, seismograph networks can be constructed using the 100Base-T network</p> <ul style="list-style-type: none"> Cable Solution - 100 meters maximum between network switches Wi-Fi solution - typical line of sight or 1 Km with 900 MHz units (distance depends on environment) Cellular Data Modem Solution – Connects each DAQlink 5, or the entire DAQlink 5 system, to a cellular data modem and downloads data from anywhere via the Internet |  <p style="text-align: center;"><i>Vibrators or Impulse Sources</i></p> |
| <p>Standard DAQlink 5 Seismograph with standard top-mounted connectors</p> |  |





The entire system controlled from a central laptop

Distributed DAQlink - Multiple Seismographs on the Line

Distributed DAQlink 5f

- Seismographs positioned 24 channels apart on the line
- Seismographs communicate via a ruggedized communications cable
- Communications cables carry digital data plus status and configuration information
- Each Distributed DAQlink has a GPS module and battery
- One Distributed DAQlink is networked to a central computer for user control and data collection
- Idea for long receiver lines on land



24 channel DAQlink Unit

Stackable DAQlink - Multiple Seismographs in one package

Stackable DAQlink 5s

- Seismographs all located at a central location
- Seismographs communicate via “Bridge cables”
- Bridge cables carry Ethernet data, GPS signals, trigger pulses and power
- One GPS module and one battery supports the DAQlink stack
- The DAQlink stack is networked to a central computer for user control and data collection
- Idea for downhole and marine applications



48 channel DAQlink Package



Distributed DAQlink Seismograph System



| Distributed DAQlink 5 Seismograph Specifications | |
|---|---|
| Technical Futures | |
| A/D conversion | 24-bit, high-speed, delta-sigma converters |
| 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) |
| Noise Floor: | 0.15 μ V RMS (measured @ 500 sps) |
| Bandwidth: | 0 to 32 KHz (unfiltered) |
| Preamplifier Gain (User Selectable): | x1 (0 dB), x4 (12 dB) & x16 (24 dB) |
| Maximum Input Signal: | x1 gain - 6.5 Volts peak to peak |
| Input Impedance: | Standard: 100K Ω Extended: 20K Ω 2MOhms: 2M Ω |
| 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: | \pm 1 microsecond at any sampling frequency |
| Pre-Trigger Delay: | Up to 32 seconds |
| Post-Trigger Delay: | Up to 100 seconds |
| Physical Features | |
| Internal Network: | 100-BaseT Ethernet Includes real-time data transfer. |
| Internal CF-Card Memory: | 8 Gbytes Standard (can be expanded) |
| GPS Interface Standard | Internal Clock synchronized to GPS time GPS Time and Position saved with data |
| Optional External Removable Memory: | 8 Gbytes (can be expanded) |
| Power Consumption (24 channels): | Less than 0.13 watts/channel |
| Power Requirements: | 9 to 27 VDC |
| Included Tests: | Internal tests for verification of the instrument and the geophone spread |
| Dimensions: | 280 x 246 x 89 mm 11.0 x 9.7 x 3.5 inches |
| Weight: | 3.0 kg, 6.6 pounds |
| Operating Temperature: | -40° to +80° C |
| Case: | Sturdy Milled Aluminum Weatherproof seal - IP67 |
| Ordering Information | |
| Item Description | HGS Part No. |
| Distributed DAQlink 5-24 Channels Standard Seismograph | MK001510 |
| Distributed DAQlink 5-24 Channels Extended Seismograph | MK001511 |
| Distributed DAQlink 5-24 Channels 2Mohms Seismograph | MK001512 |

Version 1.1



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