HGS (INDIA) LIMITED

SPECIFICATION SHEET – DAQlink 5-24 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 system, or a distributed seismic reflection system (48 Channels).

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

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 27 kHz
- Low Distortion – 0.00008% THD @ 500 sps
- Wide Dynamic Range – >124 dB @ 500 sps
- Low Noise – <0.15 µV RMS @ 500 sps

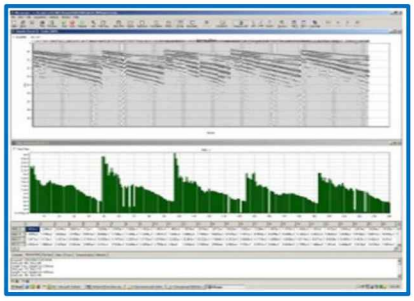
Multiple Time Synchronization Modes:
- GPS Clock Discipline for Autonomous Recording (on request)
- VHF/UHF Radio for Underground Use
- Supports PTP to time synchronise multiple units

Multiple Trigger Modes:
- Trigger on hammer switch for shot acquisition
- Trigger using GPS time for noise monitoring (on request)
- 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 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



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

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Operation Modes

Record Active Source Data:

- Use with a sledgehammer & 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)
- Use Cellular Modem for Remote Data Collection
- Works with surface/ downhole sensors

Use for Event Detection and Monitoring:

- Continuously record and store data (on request)
- Use LTA (Long Term Average) or STA (Short Term Average) tolerance to detect events
- Includes automatic email notifications as events are located

A Stackable and Modular System

The DAQlink 5-24 system is designed to be stacked into 48 channel (and more) systems. Simply buckle individual units together and connect the cables. The DAQlink 5-24 features network system timing so a single GPS module can synchronise 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.

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 100M to 3Km
- 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.

DISTRIBUTED DAQLINK 5-24

Downhole Data Acquisition

Small Crews

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Standalone DAQlink 5-24 Seismograph Specifications	
Electrical	
A/D	24-bit, high speed sigma delta converters
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	64,000, 32,000, 16,000, 8,000, 4000, 2,000, 1,000, 500, 250, 125, & 62.5 sps
Sampling Intervals	0.016, 0.032, 0.0625, 0.125, 0.250, 0.500, 1.0, 2.0, 4.0, 8.0, & 16.0 milliseconds
Record length	Unlimited (with continuous recording)
Record Modes	▪ DAQlink (Triggered with external event) ▪ Sigma (Continuous recording)
Internal Network	▪ Twin 100-BaseT Ethernet Chips ▪ Supports PTP clock synchronisation between systems ▪ Includes realtime data transfer
User Selectable Pre-Amp Gains	x1 (12 dB), x4 (24dB), x16 (36 dB) x256 (60dB)
Max Input Voltage	±6.5 Volts @ x1 gain
Bandwidth	0 to 27 kHz (unfiltered)
Wide Dynamic Range	>144dB (System)
Input Impedance	**Standard:** 100K Ω **Extended:** 20K Ω **2MOhms:** 2M Ω
GPS Interface Standard (On request)	Internal Clock synchronised to GPS time; GPS time and position saved with data
Power Supply	11 to 28 VDC
Power Usage per 24 channels	Less than 0.13 watts per channel
Performance (at 500 sps)	
Trigger Accuracy	± 1 µs at any sampling frequency
Dynamic Range	Greater than 124 dB
% THD	0.00008 %
Crosstalk	Better than 124 dB
CMRR	Better than 100 dB
Typical Noise Floor	0.15 µV RMS @ 500sps
Physical	
Number of Channels	24
Temperature	-40°C to +85°C
Humidity	0 to 100%
Size	11.0” x 9.5” x 1.6” (280x 242 x 40 mm)
Weight	4.4 lbs. (2 kg)
Data Storage (Internal 16GB CF)	120 hours continuous (24 channels @ 500 sps)
Data Storage (on Computer)	Unlimited
Data Storage (External USB)	Limited by size
Data Format	SEG-2, SEG-D, SEG-Y, ASCII and MiniSEED
LEDs	Network, Status, Battery
Case	Sturdy Milled aluminium; Weatherproof seal-IP67

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Ordering Part Numbers	
MK001415	Standalone DAQlink-5 24 Channels Standard Seismograph
MK001416	Standalone DAQlink-5 24 Channels Extended Seismograph
MK001417	Standalone DAQlink-5 24 Channels 2MegΩ Seismograph
MK001510	Distributed DAQlink-5 24 Channels Standard Seismograph
MK001511	Distributed DAQlink-5 24 Channels Extended Seismograph
MK001512	Distributed DAQlink-5 24 Channels 2MegΩ Seismograph

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