QUANTERRA

A Division of Kinemetrics

Q8

Q8 Qantix

ULTRA-LOW POWER, FEATURE-PACKED, HIGH-RESOLUTION SEISMIC SYSTEM

The Q8 is the newest member of the Quanterra® Qantix family of ultra-high resolution data acquisition systems. The Q8 represents the pinnacle of Quanterra's 30+ years' undisputed leadership in designing the most advanced ultra-high performance data acquisition systems in our marketplace.

The core Q8 architecture comes from the legendary Q330 family of data acquisition systems experience that established the global standard for comparison in the performance, reliability and number of units in operation since introduction. With achieved data availability of 99.5% at the USArray including more than 2,000 installations in the 10+ years of operation, the Q8 includes the best features of the Q330 data acquisition system and adds emerging technology features in a much smaller size, lighter weight and power consumption reduced to about half.

Q8 was designed for "plug'n play" into existing Q330-based networks, offering the same reliability, extraordinary temperature stability and data redundancy.

FEATURES

Extremely low power, light weight and small size
Collection of seismic data increasingly demands deployment in the world's most remote locations. Q8 will do the job, with continuous average power as low as < 300mW. Fewer batteries or solar panels means lower costs and simpler logistics. The Q8 bests by half the system that set the global standard for power at highest performance – the Quanterra Q330.

Universal, easy Web-based management
Configuration is quick and intuitive with a universal web-based display compatible with all present and future hand-held devices. No unique support applications required. No app obsolescence!

Extremely Low Noise for passive sensors
Q8 includes a super-quiet Quanterra "front end", with noise levels as low as -166dB VPSD re 1 V^2/Hz, or 5nV/$\sqrt{}$Hz.

Enhanced Resolution Mode – Ultra-Low Temperature sensitivity
The Q8 can be operated with any selection of channels enabled 1 through 6, or in an enhanced-resolution mode with 3 channels, featuring lowest noise and extremely low thermal drift for operation in environments subject to wide temperature change. No contamination of your data with thermal artifacts.

Built-in 3-axis ±2g MEMS Accelerometer
Never lose a significant earthquake! The accelerometer consumes negligible power, and is digitized on dedicated channels with 200 sps, synchronously with the main sensor inputs.

WiFi Interface
In addition to the Gbit Ethernet interface for telemetry, management, and fast data offload, the WiFi can be used for comfortable unit management using industry-standard browsers even on your mobile phone.

Mesh Network for Auxiliary data
Collection of seismic data often requires ancillary data for complete interpretation, such as meteorological data, specialized sensors, or information on systems parameters. This sometimes leads to an unwieldy, or electrically-compromised combination of wires and sensors, ultimately reducing reliability. Q8 incorporates a new wireless Mesh network for collection of these ancillary data sources. Monitor a stack of solar cells? No problem. Collect MET data – no problem! Control an external device – no problem!

Protocols
In addition to protocols standard in networked environments, e.g. HTTP, FTP, etc., Q8 supports real-time protocols both compatible with the Q330, and featuring even lower-latency delivery. All Quanterra protocols are extensively documented and supported by numerous application software packages.

Universal Sensor Interface
Q8 includes not only Q330-type digital sensor controls, but a universal serial connection to sensors of many manufacturers.

Import of external timing sources
Normally the Q8 uses GPS-derived timing. Q8 can accept an external time input for applications where GPS is unavailable, such as OBS use.

Multiple High-Integrity Storage Media
In addition to the internal 32G solid-state storage with power-fail safe integrity, Q8 includes a primary, removable, rugged, USB flash drive and a secondary, removable, standard size SD card.

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⚙ SPECIFICATIONS

Channels	6 channels 24-bit standard 7th channel 24-bit to digitize cal signal 6 channels 16-bit auxiliary channels
Dynamic Range	Standard Mode: 142dB ratio Full Scale RMS sine wave to RMS noise, 0.01-7Hz band, 145dB zero-to-peak sine wave. Enhanced Mode (3 channel): 145dB ratio Full Scale RMS sine wave to RMS noise, 0.01-7Hz band, 148dB zero-to-peak sine wave.
Noise	Standard Mode: typical -126 dB VPSD re 1 V^2/Hz at gain 1, or as low as -164 dB at maximum gain Enhanced Mode: typical -129 dB VPSD re 1 V^2/Hz at gain 1, or as low as -166 dB at maximum gain
Filtering	Linear or Minimum phase FIR
Input Range	40V P-P at gain=1
Gain	Selectable per 3-channel group: 1, 2, 4, 8, 16, 32, 64, 128, 512
Sample Rate	1000, 500, 250, 200, 100, 50, 40, 20, 10, 1 (future 4000 and 2000 sps)
Time Accuracy	<1µs when locked to GPS
Total Harmonic Distortion	Typical better than -120dB, may be as low as -129 dB, depending on configuration
Cross-talk	typical better than -140dB
Temperature	Fully specified -40 to +60° C
Data Storage and Retrieval	PC/Mac/Linux FAT-formatted removable USB flash drive, standard 32GB (up to 256GB possible); optional removable SD card for data copying or mirroring, standard 32GB (up to 256GB possible)
Sensor Control	Calibrate: step, low-THD sine wave, MLS or random binary; lock/unlock & re-center. serial "tunnel" mode for native control of sensors supporting a serial interface.

Operational Status	Over 50 State-of-Health channels including temperature, voltages, currents, GPS status, Sensor boom position (6 channels)
Network	Ethernet (10/100/1000BT) Full IP Protocol Stack (Linux)
Auxiliary Data	Wireless Mesh Network
Other Ports	2 x USB2.0 – one external, one internal in sealed compartment External Time input (RS-485)
Power	12VDC nominal (10.5-32VDC operational) Consumption depending on configuration (approx. 300mW for 3 channels recording, no telemetry)
Physical	Sealed, molded plastic enclosure, triangular prism 7.5 X 5.5 X 3.5in., 2 lbs.
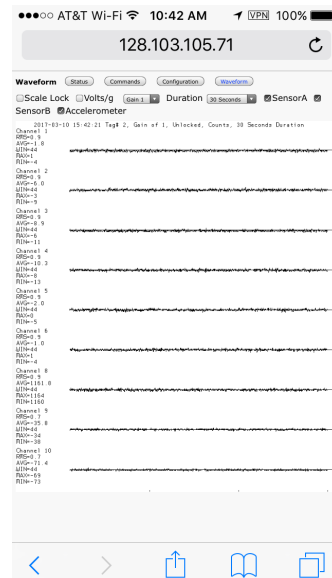
iPhone ™ Screenshot showing real-time waveform display of all 9 channels (6 analog + 3 accelerometer), connected via WiFi
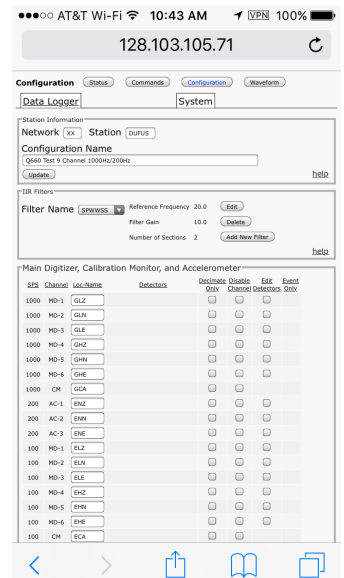
iPhone ™ Screenshot showing one of the MSEED channel-configuration pages, connected via WiFi

Specifications subject to change without notice

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