

Quakey-Duo

QUAKELOGIC

INTEGRATED
ACCELEROGRAPH &
SEISMOGRAPH



Quakely-Duo

Integrated Accelerograph & Seismograph



DUAL-SENSOR SEISMIC MONITORING IN ONE INSTRUMENT

Quakely-Duo integrates a triaxial MEMS accelerometer and a triaxial velocity sensor into a single synchronized instrument, digitizing all six channels simultaneously with sub-microsecond GPS timing. Built for structural health monitoring, earthquake engineering, and ambient vibration testing, it delivers laboratory-grade acceleration and velocity data from a rugged IP67 field enclosure, streaming in real time to Ethernet and smartphone monitoring workflows.

- Combines a triaxial accelerometer and triaxial velocimeter in one unit, capturing strong-motion and ambient vibration data without deploying two instruments.
- GPS and wireless synchronization better than 1 microsecond lets multiple units form phase-coherent arrays for modal analysis and permanent networks.
- 148 dB dynamic range with sub-25 $\mu\text{g}/\sqrt{\text{Hz}}$ noise resolves both large seismic events and low-level ambient response from a single deployment.
- IP67 anodized aluminum enclosure with internal battery enables plug-and-play field deployment in harsh outdoor and infrastructure environments.

STANDARD FEATURES »

- Triaxial Accelerometer
- Triaxial Velocity Sensor
- Six Synchronized Channels
- GPS Time Sync
- Wireless Sync
- Ethernet Interface
- Smartphone Interface
- Real-Time Streaming
- FFT / PSD / H/V
- Digital Filtering
- TXT Data Export
- Internal LiPo Battery
- IP67 Enclosure
- Anodized Aluminum Housing
- GPS Antenna
- Power Supply
- Ethernet Cable
- Bubble Level
- Mounting Hardware

Key Features

- Integrated triaxial accelerometer and triaxial velocity sensor deliver both strong-motion and low-level ambient vibration data from one synchronized instrument.
- Six independent channels are digitized simultaneously, keeping acceleration and velocity records phase-aligned for accurate structural and modal analysis.
- GPS time synchronization with better than 1 microsecond accuracy enables phase-coherent multi-station arrays and permanent seismic network deployments.
- Wireless synchronization links multiple units without cabling, simplifying array setup across bridges, buildings, and distributed infrastructure.
- 148 dB dynamic range at 16 Hz captures both major earthquakes and faint ambient response without changing hardware or gain settings.
- Adjustable sampling up to 4.8 kHz resolves high-frequency structural response for detailed modal testing and equipment vibration studies.
- Real-time Ethernet and smartphone streaming provide live waveform, FFT, PSD, and H/V visualization during deployment and monitoring.
- Internal rechargeable LiPo battery supplies up to five hours of autonomous operation for surveys where mains power is unavailable.
- CNC-machined anodized aluminum IP67 housing withstands -30°C to +50°C for permanent outdoor and critical-infrastructure installations.

PRODUCT FEATURES

Sensors

Integrated triaxial accelerometer (X, Y, Z) · Integrated triaxial velocity sensor (X, Y, Z) · 6 synchronized measurement channels

Measurement Ranges

Acceleration: ± 2 g, ± 4 g, ± 8 g · Velocity: ± 120 mm/sec

Noise & Dynamic Range

Acceleration noise better than $25 \mu\text{g}/\sqrt{\text{Hz}}$ · Velocity noise better than $20 \text{ ng}/\sqrt{\text{Hz}}$ (1–20 Hz) · 148 dB @ 16 Hz; 136 dB @ 400 Hz

Timing & Sync

GPS synchronized, $<1 \mu\text{s}$ accuracy · Wireless synchronization · Sampling adjustable up to 4.8 kHz

Communications

Ethernet interface · Smartphone interface · Real-time data streaming

Software

Real-time waveform, FFT, PSD, H/V · Digital filtering, equalization, unit conversion · TXT export, trimming, splitting, remote view

Enclosure & Power

IP67 CNC-machined anodized aluminum · Operating -30°C to +50°C · Internal LiPo, up to 5 h autonomy

For more information about the features, specifications, and available configurations of the Quakely-Duo, please contact QuakeLogic.

MACHINE CONFIGURATION

COMPONENT	CONFIGURATION
Accelerometer	Integrated triaxial MEMS (X, Y, Z)
Velocity Sensor	Integrated triaxial velocimeter (X, Y, Z)
Total Channels	6 synchronized channels
Digitizer	Simultaneous 6-channel, up to 4.8 kHz
Timing	GPS synchronized, <1 μs accuracy
Wireless Sync	Built-in wireless synchronization
Communications	Ethernet + smartphone interface
Data Delivery	Real-time streaming
Enclosure	CNC-machined anodized aluminum, IP67
Power	Internal rechargeable LiPo battery
Battery Autonomy	Up to 5 hours
Country of Origin	USA

CAPACITY

SPECIFICATION	VALUE
Acceleration Range	±2 g / ±4 g / ±8 g
Velocity Range	±120 mm/sec
Acceleration Noise	< 25 μg/√Hz
Velocity Noise	< 20 ng/√Hz (1–20 Hz)
Dynamic Range @ 16 Hz	148 dB
Dynamic Range @ 400 Hz	136 dB
Sampling Rate	Up to 4.8 kHz, adjustable
Timing Accuracy	< 1 microsecond
Battery Autonomy	Up to 5 hours

OPTIONAL FEATURES & ACCESSORIES

EXTENDED ARRAY KIT

Adds wirelessly synchronized units for phase-coherent multi-station arrays used in modal analysis and permanent seismic networks.

EXTERNAL GPS ANTENNA CABLE

Extended-length GPS cabling routes the antenna to skyline positions for reliable timing on enclosed or shielded installations.

EXTERNAL POWER ADAPTER

Mains and external DC options extend autonomous operation beyond the internal battery for continuous permanent monitoring.

WEATHERIZED MOUNTING BRACKET

Field-grade mounting hardware secures the instrument to structures, decks, and foundations for long-term outdoor deployment.

TECHNICAL SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Accelerometer	Triaxial MEMS (X, Y, Z)
Velocity Sensor	Triaxial (X, Y, Z)
Total Channels	6 synchronized
Acceleration Range 1	±2 g
Acceleration Range 2	±4 g
Acceleration Range 3	±8 g
Velocity Range	±120 mm/sec
Acceleration Noise	Better than 25 µg/√Hz
Velocity Noise	Better than 20 ng/√Hz (1-20 Hz)
Dynamic Range @ 16 Hz	148 dB
Dynamic Range @ 400 Hz	136 dB
Sampling Rate	Adjustable, up to 4.8 kHz
Synchronization	GPS + wireless
Timing Accuracy	Better than 1 microsecond
Communications	Ethernet, smartphone interface
Streaming	Real-time
Software Display	Real-time waveform, FFT, PSD, H/V

SPECIFICATION	DESCRIPTION
Signal Processing	Digital filtering, equalization
Data Handling	Unit conversion, trimming, splitting
Export	TXT export, remote visualization
Operating Temperature	-22°F to +122°F (-30°C to +50°C)
Enclosure Rating	IP67
Enclosure Material	CNC-machined anodized aluminum
Battery	Internal rechargeable LiPo
Battery Autonomy	Up to 5 hours
GPS Antenna	Included
Power Supply	Included
Ethernet Cable	Included
Bubble Level	Included
Mounting Hardware	Included
Country of Origin	USA
Warranty	One year
Lead Time	4-6 weeks

Quakeely-Duo

Corporate Headquarters:**QUAKELOGIC INC.**

2008 Opportunity Dr., Suite 130
Roseville, CA 95678, USA

Monday – Friday

9:00 AM – 5:00 PM (PST/PDT)

Contact Us:

Phone: +1 (916) 899-0391

Email: sales@quakelogic.net

Web: products.quakelogic.net

About QuakeLogic:

QuakeLogic Inc. is a California-based engineering and technology company providing innovative, reliable, high-quality solutions to customers worldwide.

Our Commitment

We are committed to quality, innovation, and customer satisfaction – building lasting partnerships through reliable solutions and dependable support.

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