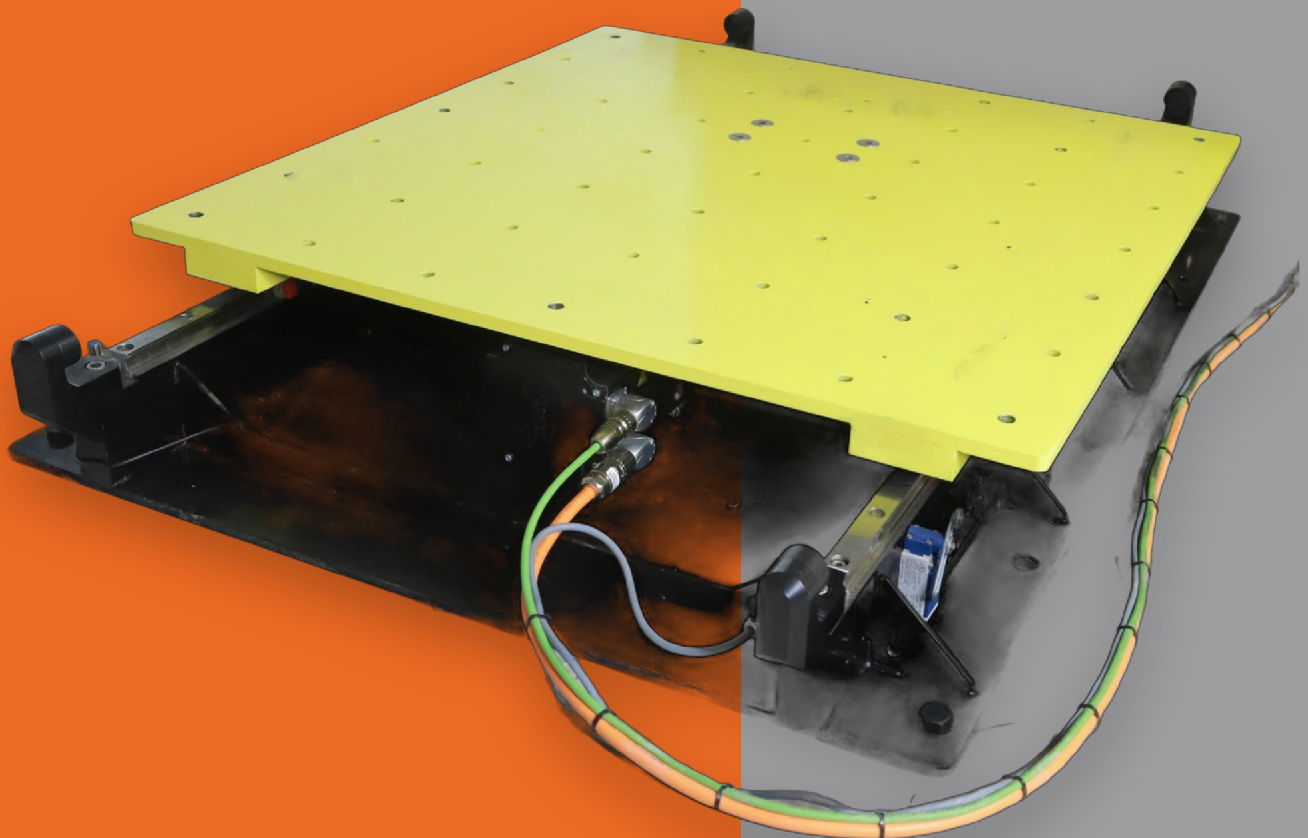


QUAKELOGIC

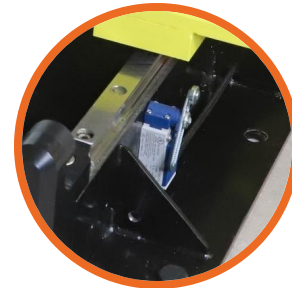
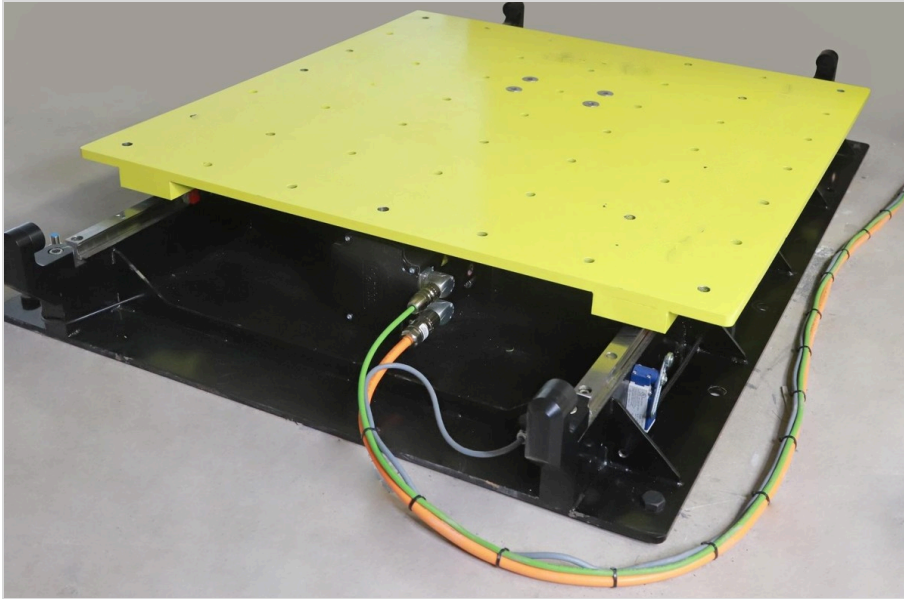
UNIAXIAL SERVO
EARTHQUAKE
SHAKE TABLE

QL-UNISHAKE 500



QL-UNISHAKE 500

Uniaxial Servo Electrodynamic Earthquake Shake Table



REPRODUCE REAL EARTHQUAKES IN YOUR LAB

The QL-UNISHAKE 500 is a single-axis earthquake simulator for testing and calibrating strong-motion accelerographs, demonstrating earthquake dynamics, and research on small-scale structural models. A servo motor and precision ball-screw linear module drive a 1.0 × 1.0 m table under real-time closed-loop control, reproducing recorded earthquakes, sine, sweep and random motions with a 500 kg payload at ± 1 g.

- Carries 500 kg (1,102 lb) at ± 1 g with ± 150 mm stroke and 500 mm/s velocity for low-frequency earthquake content.
- Imports recorded ground motions, including PEER .AT2 files, and compares commanded and measured response spectra after every run.
- Built-in signal generator covers sine, sweeps, chirp, sine beat, white noise, shock and user-defined patterns.
- Limit switches, redundant run-away sensors with Safe Torque Off, and an emergency stop protect people, specimens and the machine.

STANDARD FEATURES »

- Uniaxial horizontal motion
- 500 kg payload at ± 1 g
- ± 150 mm stroke
- 500 mm/s velocity
- 0.1–30 Hz frequency range
- 1.0 × 1.0 m table top
- M12 threaded mounting grid
- AC servo motor and drive
- Precision ball-screw linear module
- Roller linear guideways
- Closed-loop PID control
- Ethernet controller link
- Limit switches, both ends
- Safe Torque Off sensors
- Emergency stop
- QL-SHAKECONTROL software
- Earthquake record import
- FFT and response spectra
- Control panel with indicators

KEY FEATURES

- Servo motor and digital drive turn a precision ball screw on roller guideways, giving long stroke, low distortion and repeatable motion without hydraulics.
- Rated 500 kg at ± 1 g with full force margin in the drive train, so heavier fixtures and tall specimens up to 2,000 mm stay within capacity.
- ± 150 mm stroke and 500 mm/s velocity reach ± 1 g at rated payload from about 3 Hz, covering the dominant band of most recorded strong motions.
- Real-time digital motion controller closes the PID position loop and connects to the control PC over 10/100 Mbit Ethernet.
- Profile mode loads acceleration or displacement records, scales, filters and baseline-corrects them, and shows input and table response side by side.
- Response spectrum tools import target spectra and overlay the spectrum of the measured table motion for test verification.
- Integrated DAQ channels record table and specimen sensors on one time base, with per-channel calibration, filtering and export.
- Layered safety: software speed check and output limiting, limit switches, redundant inductive sensors wired to Safe Torque Off, and an E-stop.
- Designed, manufactured and tested in the USA by QuakeLogic, with installation, training and long-term support.

PRODUCT FEATURES

Motion

Uniaxial (X); ± 150 mm stroke; 500 mm/s; ± 1 g at 500 kg

Table

1.0 $\times$ 1.0 m (39.4 $\times$ 39.4 in); M12 threaded grid; specimen height to 2,000 mm

Drive

AC servo motor, digital servo drive, precision ball screw, roller linear guideways

Control

Real-time digital motion controller; closed-loop PID; encoder feedback; Ethernet

Software

QL-SHAKECONTROL: easy mode, profiles, signal generator, DAQ, record viewer

Analysis

Time histories, FFT, response spectra, input vs measured comparison

Safety

Limit switches, Safe Torque Off sensors, E-stop, automatic output limiting

Power

400–480 VAC, 50/60 Hz, three-phase

For more information about the features, specifications, and available configurations of the QL-UNISHAKE 500, please contact QuakeLogic.

STANDARD CONFIGURATION

COMPONENT	CONFIGURATION
Shake table	QL-UNISHAKE 500 uniaxial table, 1.0 × 1.0 m
Drive	AC servo motor and digital servo drive
Linear module	Precision ball screw, radial bearings, coupling
Guidance	Roller linear guideways
Controller	Real-time digital motion controller, Ethernet
Feedback	Position encoder, closed-loop PID
Control panel	Mains switch, phase and 24 V indicators, alarm
Safety	Limit switches, STO run-away sensors, E-stop
Software	QL-SHAKECONTROL, perpetual licence
Cables	Motor power and feedback cable set
Documentation	User manual, maintenance guide, test report

CAPACITY & PERFORMANCE

SPECIFICATION	VALUE
Rated payload	1,102 lb (500 kg) at ±1 g
Peak acceleration	±1 g at rated payload
Stroke	±5.9 in (±150 mm), 11.8 in (300 mm) total
Peak velocity	19.7 in/s (500 mm/s)
Frequency range	0.1–30 Hz
±1 g at rated payload	From about 3.2 Hz
Encoder resolution	0.0004 in (0.01 mm)
Max specimen height	78.7 in (2,000 mm)

OPTIONAL FEATURES & ACCESSORIES

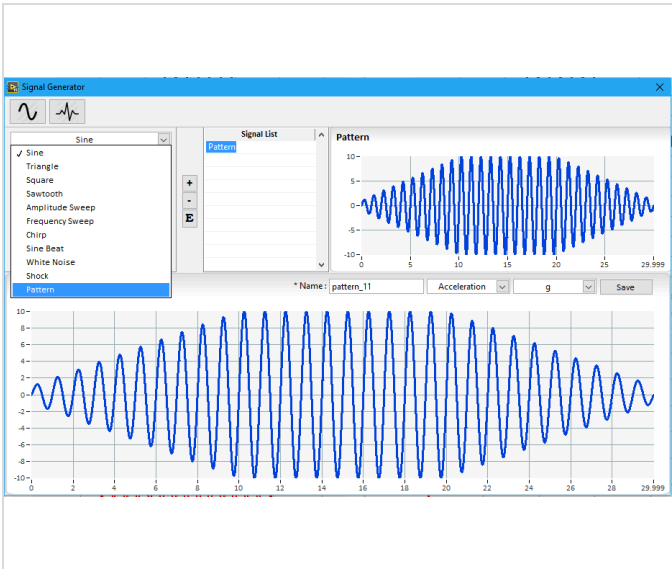
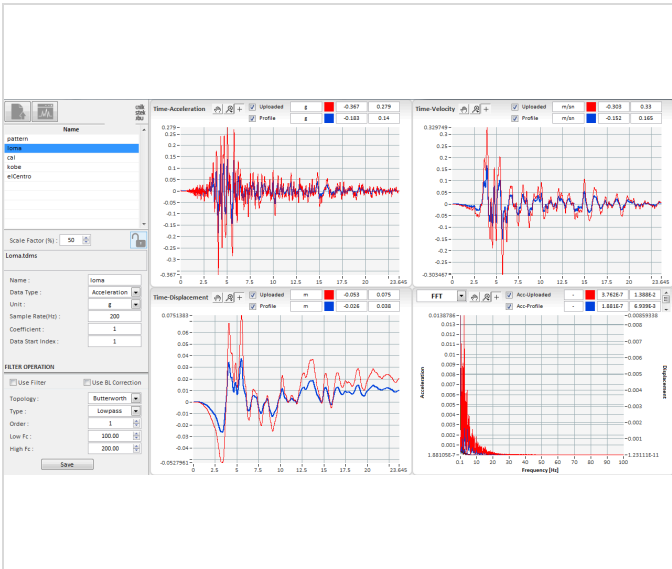
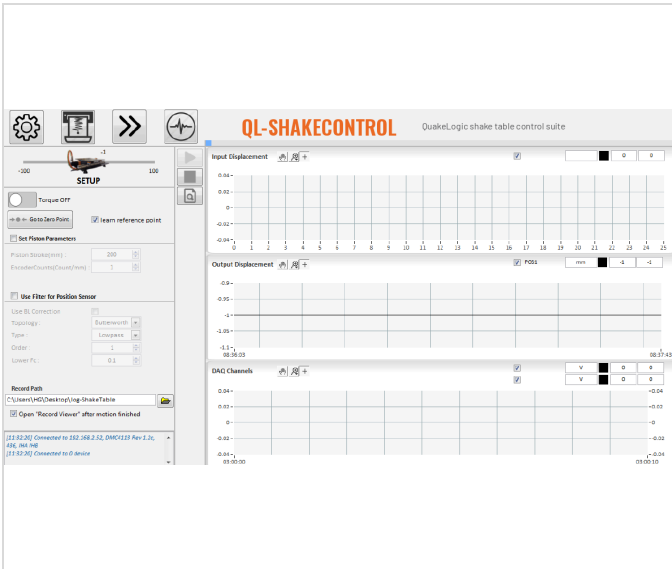
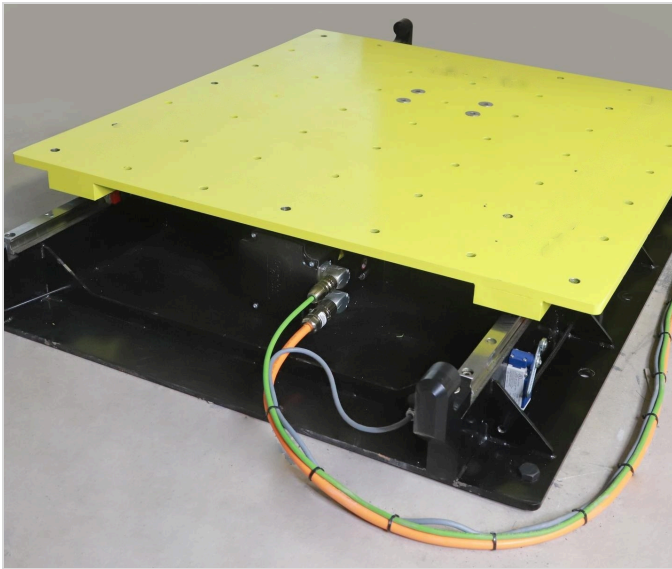
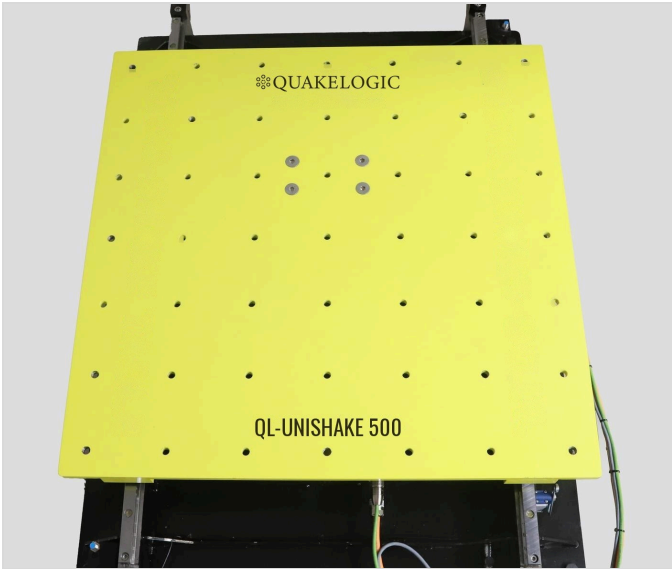
DATA ACQUISITION 24-bit, 16-channel DAQ with triaxial MEMS reference accelerometer for table and specimen recording.	ACCELEROGRAPH KIT Adjustable mounting fixtures for strong-motion accelerographs of different sizes, with levelling and orientation marks.
MOBILE BASE & ENCLOSURE Steel base with lockable casters and levelling jacks, plus a transparent acrylic safety enclosure.	OPERATOR TOUCHSCREEN 10.1 in touchscreen panel PC with preset earthquake scenarios for demonstrations and teaching.

TECHNICAL SPECIFICATIONS

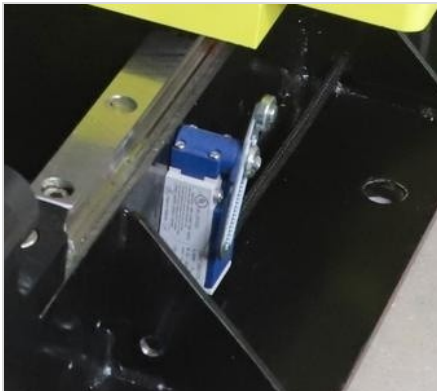
SPECIFICATION	DESCRIPTION
Axes	Uniaxial, horizontal (X)
Rated payload	1,102 lb (500 kg) at ± 1 g
Peak acceleration	± 1 g at rated payload
Stroke	± 5.9 in (± 150 mm)
Peak velocity	19.7 in/s (500 mm/s)
Frequency range	0.1–30 Hz
Table size	39.4 × 39.4 in (1,000 × 1,000 mm)
Table mass	≈364 lb (≈165 kg)
Mounting	M12 threaded grid; custom patterns available
Max specimen height	78.7 in (2,000 mm)
Overall dimensions	65.4 × 43.3 × 8.9 in (1,660 × 1,100 × 227 mm)
System mass	≈1,433 lb (≈650 kg) without payload
Drive	AC servo motor and digital servo drive
Linear module	Precision ball screw, radial bearings, coupling
Guidance	Roller linear guideways

SPECIFICATION	DESCRIPTION
Controller	Real-time digital motion controller
Control loop	Closed-loop PID position control
Feedback	Quadrature encoder, 0.01 mm resolution
PC link	10/100 Mbit Ethernet
Waveforms	Sine, triangle, square, sawtooth, sweeps, chirp, sine beat, white noise, shock, pattern
Earthquake input	Acceleration or displacement records; .txt, .csv, PEER .AT2
Signal processing	Scaling, band-pass filtering, baseline correction
Analysis	FFT, response spectra, record viewer
Data export	.csv
Safety	Limit switches, STO run-away sensors, E-stop, output limiting
Cooling	Forced air
Power	400–480 VAC, 50/60 Hz, three-phase
Installation	Level concrete floor; anchored, anti-vibration pads
Software licence	Perpetual

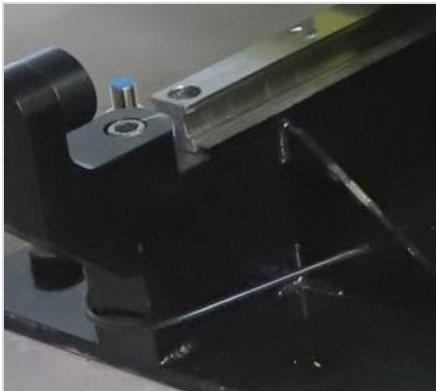
PRODUCT GALLERY



PRECISION COMPONENTS & CONFIGURATION



GUIDEWAY & STO SENSOR



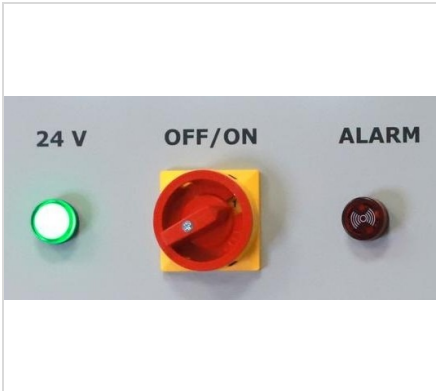
MECHANICAL END STOP



SERVO CONNECTORS



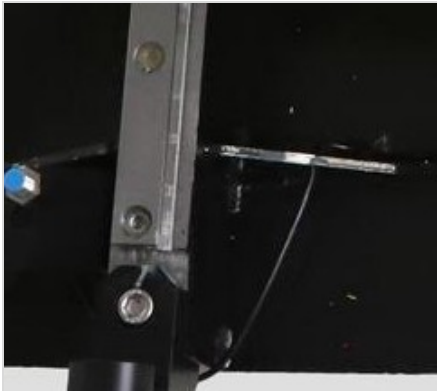
THREADED MOUNTING GRID



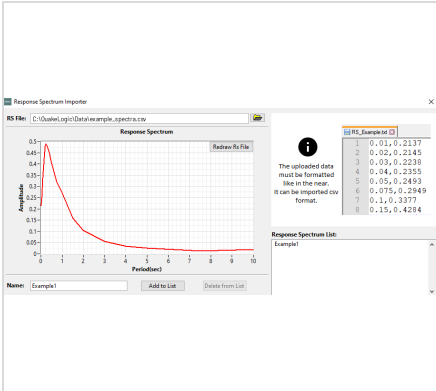
MAIN SWITCH, 24 V & ALARM



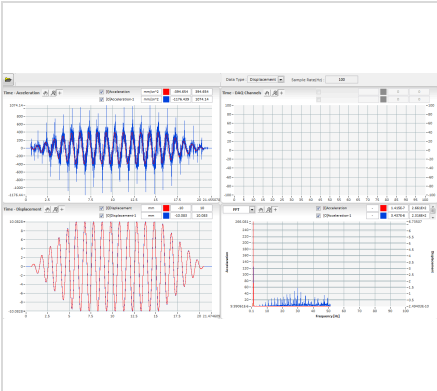
PHASE & POWER INDICATORS



LINEAR GUIDE RAIL



RESPONSE SPECTRUM TOOL



RECORD VIEWER

QL-UNISHAKE 500

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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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