# SHAKE TABLE II

Bench-scale single-axis motion simulator

The Quanser Shake Table II is a mid-size, open architecture, single-axis motion simulator ideal for teaching structural dynamics and control, vibration isolation, feedback control, and other topics related to structural, earthquake, and mechanical engineering. Users can generate sinusoidal or chirp motion profiles, as well as use the pre-loaded acceleration profiles of real earthquakes, such as Northridge, Kobe, and El Centro to study their effects on buildings, bridges, and various materials. Additional earthquake profiles can be downloaded from the PEER Ground Motion Database and scaled down for replaying on the Shake Table II. Combining two Shake Table II units, users can perform multi-point or bi-directional shaking experiments, or work with higher payloads.

Features
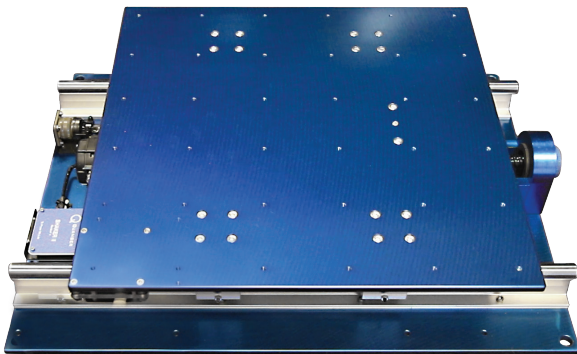
Accurate
Precise positioning using high-resolution encoder and low-backlash guide

Customizable
Customizable for xy motion. Easy integration of sensors, actuators, user-built or Quanser test structures

Simple Operation
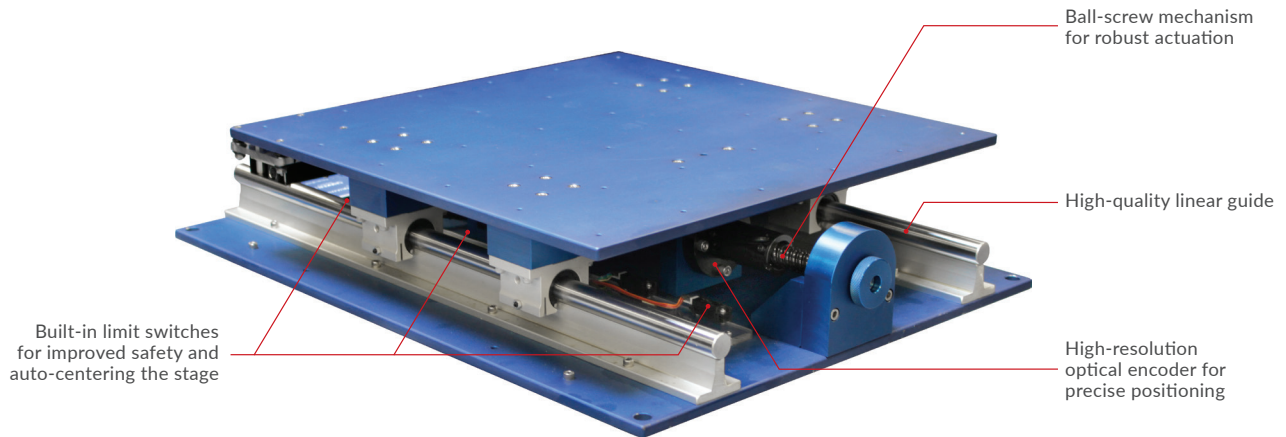Safe, reliable, clean operation, and low maintenance

Flexible
Scaling and playback of earthquake data supported

Workstation Components

Motion simulator	Shake Table II
Data acquisition devices	Quanser Q8-USB
Amplifier	Quanser AMPAQ-PWM amplifier
Control design environment	Standalone Shake Table II software QUARC Software for Simulink - Integration license
Test structure (optional)	One- or two- floor Active Mass Damper with VoltPAQ-X1 or VoltPAQ-X2 amplifier

Ball-screw mechanism for robust actuation

High-quality linear guide

Built-in limit switches for improved safety and auto-centering the stage

High-resolution optical encoder for precise positioning

Device Specifications

Dimensions (L x W x H)	61 cm x 46 cm x 13 cm
Total mass	27.2 kg
Payload area (L x W)	46 cm x 46 cm
Maximum travel	± 7.62 cm
Maximum payload at 2.5 g[1]	7.5 kg
Maximum acceleration with 7.5 kg payload[1]	2.5 g
Maximum velocity with 7.5 kg payload[1]	0.665 m/s
Operational bandwidth[1]	10 Hz
Lead screw encoder resolution (quadrature)	8192 counts/rev
Effective stage position resolution	1.22 µm

XY configuration with two Shake Table II units

Maximum travel (X and Y)	± 7.62 cm
Maximum payload at 1 g[1] (X-axis, bottom)	34.7 kg
Maximum payload at 2.5 g[1] (Y-axis, top)	7.5 kg
Maximum acceleration (X-axis, 34.5 kg payload)[1]	1 g
Maximum acceleration (Y-axis, 7.5 kg payload)[1]	2.5 g
Maximum velocity (X and Y with 7.5 kg payload)[1]	39.9 cm/s

[1] Please contact Quanser for full operational bandwidth specifications

About Quanser:
For 30 years, Quanser has been the world leader in education and research for real-time control design and implementation. We specialize in outfitting engineering control laboratories to help universities captivate the brightest minds, motivate them to success and produce graduates with industry-relevant skills. Universities worldwide implement Quanser's open architecture control solutions, industry-relevant curriculum and cutting-edge work stations to teach Introductory, Intermediate or Advanced controls to students in Electrical, Mechanical, Mechatronics, Robotics, Aerospace, Civil, and various other engineering disciplines.