

## Sine and Swept-Sine Vibration Controller



### Complete harmonic control

The Real Vibrations Sine and Swept-Sine Vibration Controller is a state-of-the-art instrument for generating and controlling fixed frequency sinusoids for resonance dwell and fatigue type tests as well as swept-sine vibrations for resonance search and durability and endurance testing. The system can be configured to control any multi-axis system such as heave, pitch and roll simulators, multi-post road simulators and multi-axis shakers for seismic and structural testing. The system consists of a software / hardware package that connects directly onto any standard laboratory random vibration test system such as servo-hydraulic and electro dynamic shakers.

### Easy-to-use and packed with functionality

Our software is designed to be used easily and intuitively. It contains on-line help and guidance throughout and our web site includes video dedicated to guiding users through the features and functions of the system.

The sine and swept-sine vibration controller is a single axis control system containing all the necessary features necessary to undertake resonance search tests, resonance dwell tests and swept-sine durability tests. The main feature of the system is its ease of use and versatility. It has the following features and functionalities:

- Ability to establish the vibration system's frequency response function for improved performance
- Ability to set and vary the following test parameters at any time during a test:
  - Amplitude
  - Frequency
  - Sweep rate (log or linear)
  - Sweep direction
  - Sweep pause & resume
  - Number of sweeps
  - Duration
- Plot of response amplitude vs frequency in real time.
- Plot of transmissibility vs frequency (multiple curves with selectable input and output channels) in real time
- Set alarms and abort levels
- Configurable digital filter to remove distortion components from the measured sinusoid

- Data capture (gap-free streaming) on up to 14 channels
- COLA (Constant Output Level Analogue) signal for stroboscope synchronisation
- Up to 20 kHz bandwidth
- Controllable quantities: displacement, velocity and acceleration

### **Performance**

The controller is based on powerful National Instruments® hardware recognised across the globe for quality and reliability. It offers 16 Bit (96 dB) dynamic range, high conversion rate (up to 2 MSamples/s) and multiple input channels for real-time data acquisition. The software module incorporates the latest control algorithm that includes an optimized digital filter processor which affords speed and accuracy and a wide control bandwidth.

### **Gap-free data capture**

The Sine and Swept-Sine Vibration Controller can accommodate gap-free (streaming to disk) capture of data on all available input channels (up to 31) including the feedback signals. This capability is useful for monitoring the response of the test system or structure at various points during a test. This information can be used to establish variations in the system's characteristics such as dynamic stiffness and damping.

Demonstrations and guided tours of the Sine and Swept-sine Vibration Controller in operation are available from the Real Vibrations web site at [www.RealVibrations.com](http://www.RealVibrations.com)