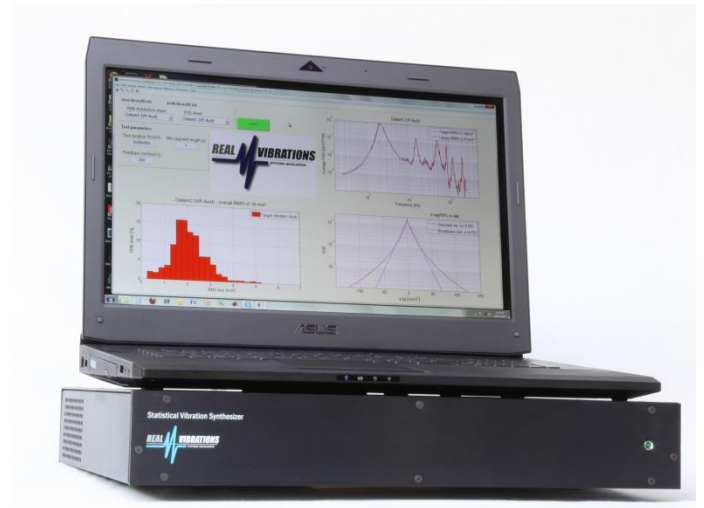


Vibration Shaker Controller



Simulate and control random vibrations

Our Vibration Shaker Controller (VSC) is a state-of-the-art instrument for recreating and controlling random vibrations in a laboratory setting. The system comes pre-programmed with all the standard spectral functions (PSDs) as well as a number of PSDs from measured field data. The system can be configured to control up to four axes or degrees-of-freedom (axes) in multi-axis systems such as Heave Pitch and Roll systems, multi-post road simulators and multi-axis seismic simulators. It 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 comprehensive real-time test information

Our software is designed to be used easily and intuitively. It contains on-line help and guidance throughout and our website includes video dedicated to guiding users through the features and functions of our system. Demonstration and training videos can be seen [here](#). The target PSD is defined and managed within MS Excel® which is made to interact seamlessly with our software. It can be defined with break points or imported in various formats (CSV, TXT...) including from our Field Data Analyser.

The Real Vibrations VSC provides comprehensive test information in real-time. This includes all measurements time histories (feedback + additional response signals), statistical functions and parameters such as the instantaneous and average PSDs and PDFs.

Performance

The Real Vibrations RVC 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 FFT processor which affords a broad control bandwidth (up to 20 kHz) along with frequency resolutions of up to 16,000 lines.

Add-ons

The Real Vibrations SVC can be enhanced with the inclusion of add-on modules. This comprises superimposing various deterministic signals and functions onto a random signal. Because of the follower-

like performance of our controller, such complex composite signals can be accurately and faithfully reproduced on electro dynamic and electro hydraulic shakers.

- Sine-on-random for the superposition of multiple sinusoids onto a Gaussian random background. This feature is useful to account for constant frequency components that cannot be controlled with the PSD.
- Swept sine-on-random for the superposition of multiple swept sinusoids Gaussian random background. This feature is useful to simulate harmonics of varying frequency (such as engine vibrations) that cannot be adequately controlled with the PSD
- Shock-on-random for the superposition of shock events onto a Gaussian random background. The shocks are fully definable by the user and their amplitude and occurrence and made to vary randomly according to user-defined statistical distributions.

Note that all the add-on functions can be activated simultaneously.

Gap-free data capture

The Random Vibration Controller can accommodate gap-free (streaming to disk) capture of data on all available input channels (up to 31) including the feedback signals. In addition to data streaming, the system can display the average PSD form each of the measurement channels or the Frequency Response Function (FRF) between a number of signal pairs thus transforming the controller into a real-time multi-channel spectrum analyser. 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 Vibration Shaker Controller in operation are available from the Real Vibrations website at www.RealVibrations.com