



Random VIEW VR 615

RANDOM VIBRATION CONTROL SOFTWARE

Easy test entry

Frequency/amplitude breakpoints are entered in an easy to read tabular form using either frequency and amplitude breakpoints or by entering one endpoint and the desired dB/octave slope. Up to 1000 separate frequency/amplitude breakpoints can be entered, allowing entry of virtually any test.

Lines

The controller comes standard with user-selectable 100 to 14,000 lines of control to provide you with the frequency resolution required for your test. You can analyze to 20,000 Hz with the 14,000 lines without sacrificing resolution.

Control channels

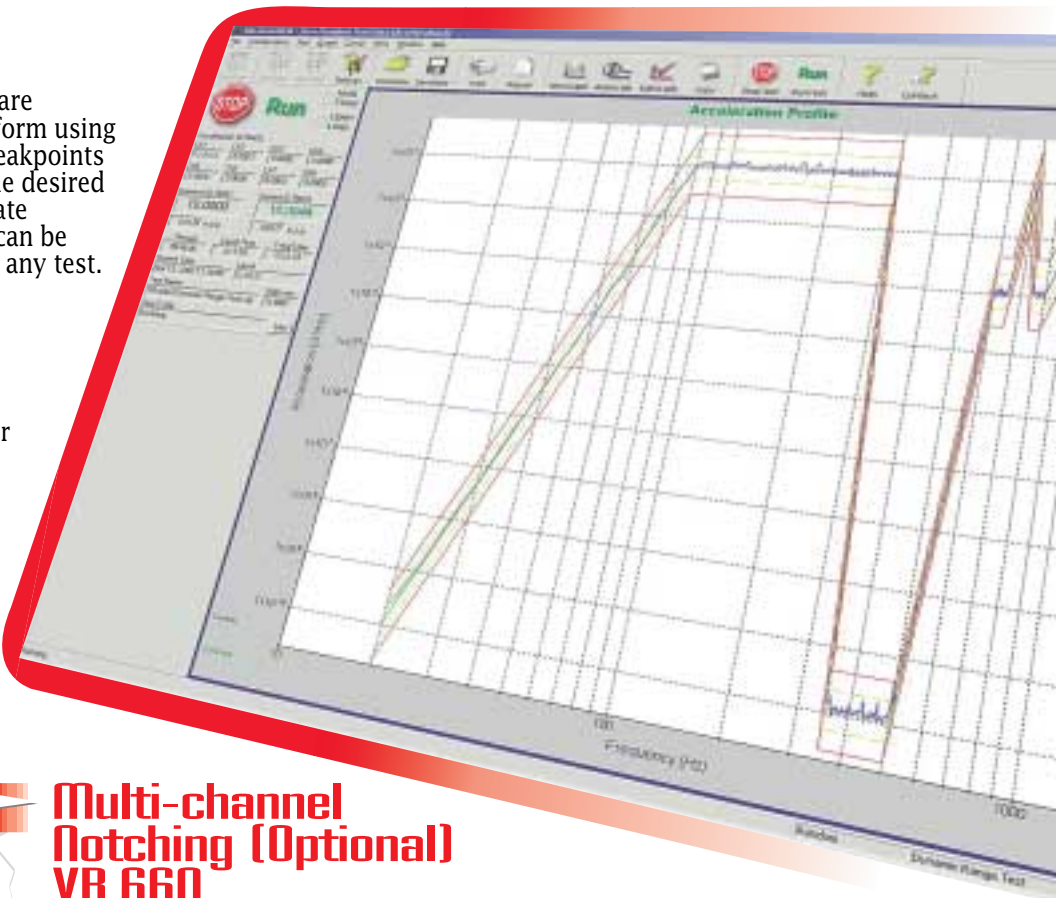
The control signal can be a single input channel, or configured as average or extremal combination of from 2 to 16 input channels.

Multiple shakers

From 1 to 4 control loops can be run simultaneously to independently control up to 4 shakers with 4 individually configurable and statistically independent waveforms.

Test scheduling

Tests can be scheduled to run a user-defined length of time, the spectrum level can be scaled by a specified dB-level, percentage or scaled for a specified RMS acceleration. Level schedules can be entered to run various durations at different acceleration levels.



Multi-channel Notching (Optional) VR 660

Automatically notches the control channel demand to minimize resonance points you don't want to overdrive.

Random Import (Optional) VR 650

Import analog or digital time data to automatically generate a profile. Import PSD data, too.

Configurable safety limits

To protect your test article and shaker system, configurable acceleration limits, line limits and drive limits can be set by the user. The control input is also verified against shaker acceleration and displacement limits.

Data Storage

All of the test data can be stored to the disk for later retrieval. Data storage can be done manually or programmed to automatically save at user-defined intervals.

Reference Output

The second output channel supplies an inverted copy of the main output channel.

Data plots

Many graphical display options are available, including acceleration spectral density, output voltage spectral density and channel-to-channel transmissibility. Graphs can be easily auto-scaled or zoomed and cursors displayed. Data and text annotations can be easily placed on the graphs, with data values updated live as the data changes.

VIBRATION RESEARCH CORPORATION

2385 Wilshire Dr. Suite A
Jenison, MI 49428 USA
PH (616) 669-3028
FAX (616) 669-5337
www.vibrationresearch.com



RANDOM VIEW

8500 TECHNICAL SPECIFICATIONS

Random performs real-time closed loop control of PSD profiles. All inputs are simultaneous, which means there is an A/D assigned to each input (not multiplexed). The inputs continuously take data, and there are no "unsampled" periods. Highly evolved control algorithms make control of both electro-dynamic and servo-hydraulic shakers automatic and easy.

PARAMETERS

Frequency range: DC to 20 KHz, user selectable.

Frequency resolution: 100 to 13,000 lines.

Sample rate: 10 to 86,000 Hz.

Frequency resolution: Upper frequency / number of lines.

Dynamic range: 100 dB typical.

Loop time: User adjustable, continuously sampled input data.

Degrees of Freedom (DoF): User adjustable. 2 to 250.

Measurement strategies: Input channels can run individually, or combined by minimum, maximum, or average.

Drive clipping: Clipping at any level between 1 to 10 sigma.

PROFILE

Breakpoints: Up to 2000 frequency/amplitude breakpoints with slope (dB/octave) automatic calculations.

Units: English, SI, Metric, mixed, user specified.

Abort/alarm: High and low profile limits specified either universally, or independently at each breakpoint in dB with respect to reference. RMS high and low limits calculated automatically from profiles or specified by user.

Profile View: Profile graphics shown and updated as profile is created. Automatic listing of RMS acceleration, and displacement values for profile. Profile operating levels are compared to the shaker parameter table.

LEVEL SCHEDULE

Number of levels: 1000.

Level types: Scale entered profile by % level, Scale entered profile by dB level, Scale entered profile to an RMS acceleration level, Wait for operator intervention, Wait for a timed interval Level looping (with nested looping up to 10 levels).

SAFETY CHECKS

Shutdown: Shutdown can be requested by operator or the program can shut the test down. Shutdown is at a smooth rate. Emergency stop is instantaneous.

Input Signal Checks: Automatic detection of input overload, open loop, and loss of control signal.

Line-abort Shut Down: Percentage of spectral lines allowed to exceed limits to total number of lines; from 0 to 100%.

Tolerance and Abort Limits: Can be set globally, or individually for each breakpoint. Units are dB, %, or g^2/Hz .

RANDOM IMPORT (optional)

This option is used to automatically generate the random spectrum profile from an external file, or analog signal. Import analog signals from the inputs, or a digital data file. Generate the spectrum using average or peak hold capture modes. Also provides the ability to import a g^2/Hz table from a spreadsheet or text file.

DRIVE NOTCHING / LIMITING

This option links to all Random and Sine family software to provide additional safety for fragile test articles or components. The Automatic Drive Notching feature can be used to set acceleration limits on the input channels in any of the Random modules (i.e., Random, SoR, RoR, or SRoR) or the Sine modules (i.e., Swept Sine and RSTD). Any channel can be enabled as a Limit channel. Each limit channel has a corresponding Limit Profile. Both the limit channel input spectrum and Limit Profile can be viewed during a test. If any input channel exceeds its limit during testing, the drive output (at that frequency) will be reduced (notched) until the input channel does not exceed its limit.

Subject to change without notice.

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