

# ***Derritron DVC-1600***

## ***Vibration Controller***



### ***Features***

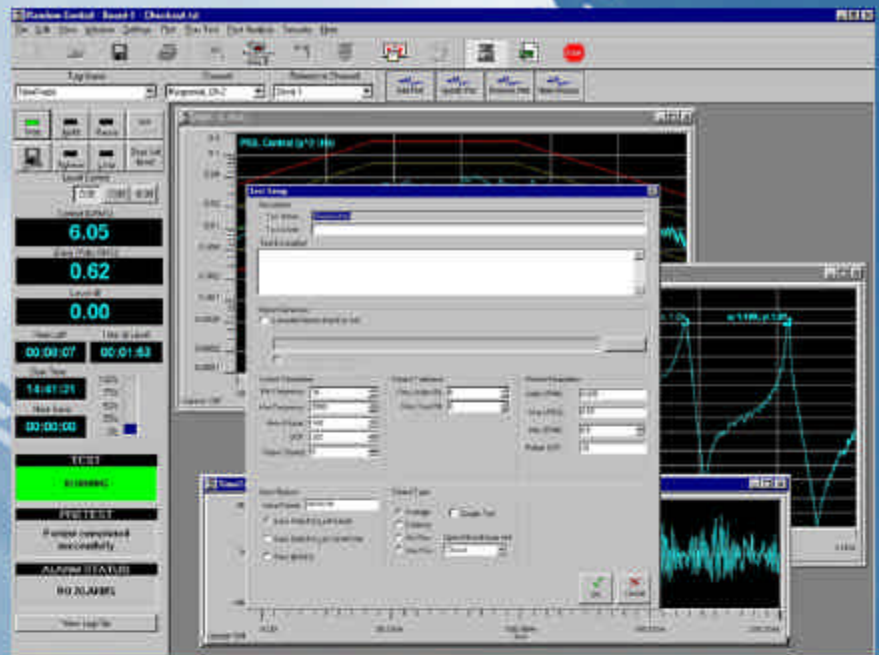
- Control Two Shaker Systems Simultaneously***
- Up To Eight Channels of Control or Monitoring***
- “Auto-Run” Profile Sequencing From External Trigger***
- Operates in Windows® 98/2000 Operating Systems***
- Total Interactive Operator Control of Test***
- High Speed “DSP” Technology***
- Online Interactive Help***



# Interactive Data Entry using Simple Dialog Boxes

Icons on the main toolbar represent commonly used commands. Clicking an icon opens the dialog box associated with that command. The user can enter new test data or use the intelligent default values for fast test setup. Error checking ensures the integrity of user input values. Unsuitable or miss-typed values will cause a warning message to appear and the incorrect value is highlighted. In the post analysis mode, the dialog boxes will display the parameters used when the test was run.

The following shows the four dialog boxes used to define a random test. The ability to load and save Schedule, Profile and Channel data independently ensures rapid test generation with minimal user input. Each dialog box allows for extensive comments to be added for audit and future reference.

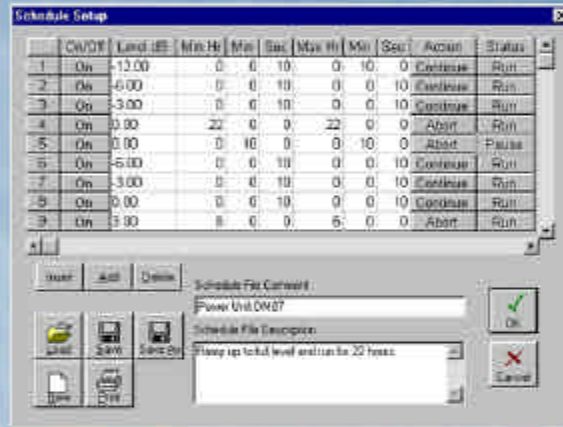


Test Generation



Test Setup

The test setup dialog box defines basic test parameters such as bandwidth, resolution and control strategy. Data save parameters and safety features are also defined in this dialog box.



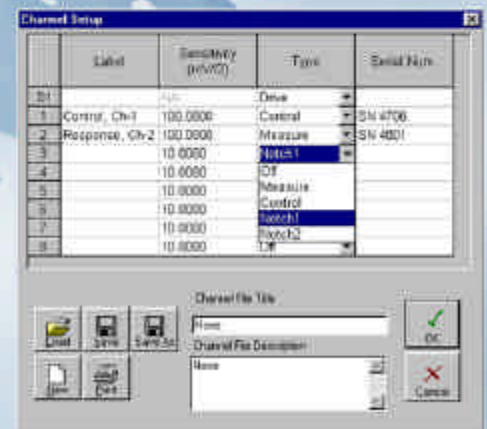
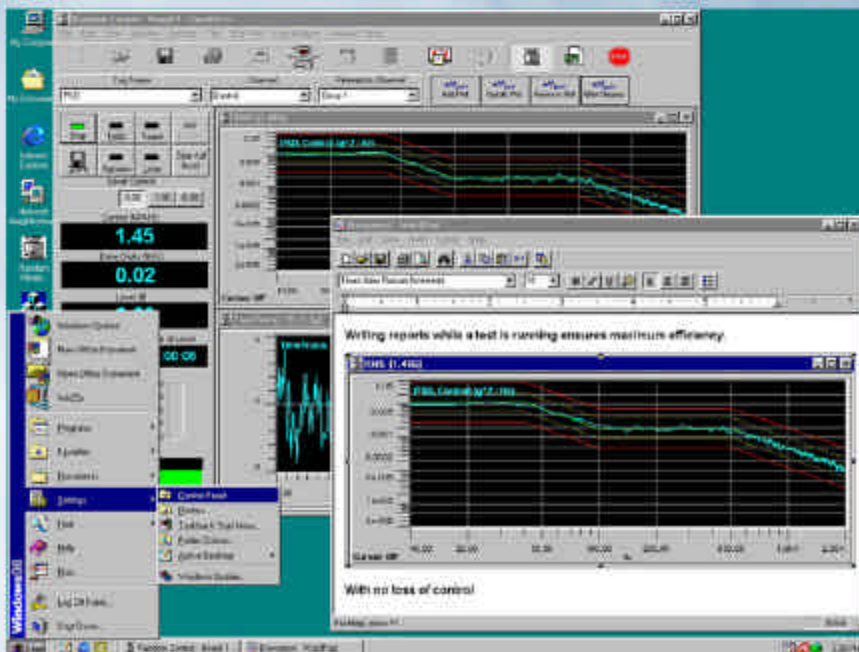
Schedule Setup

After setting the basic parameters, the schedule can be defined. As can be seen, total flexibility allows for control of run/pause status, level timing, abort status as well as standard level information.



Profile Setup

The profile setup box defines the reference spectrum. Breakpoints can be defined as power spectral density, slope or as an overall GRMS. Up to 500 breakpoints can be defined. Profile data may also be imported from field data.



Channel Setup

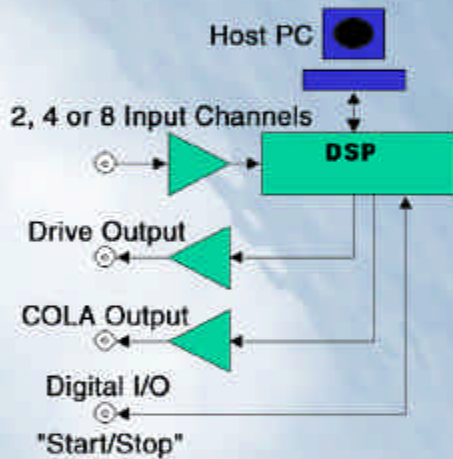
This dialog box is used to define the sensitivity of each of the transducers. A label for display may also be assigned along with a transducer serial number for future reference. The transducer can be set to any combination of control or measurement channels. The user can also assign channels to either of the two available notch profiles.

The DVC 1600 allows multiple applications to be running during test or analysis

# DVC-1600 Vibration Control System gives You Total Control

The DVC-1600 Vibration Control System was one of the first controllers to take advantage of the Windows Operating System, combining advanced multi-processing DSP hardware with the Windows interface. This has resulted in a vibration controller with unparalleled control capabilities and the ultimate in user-friendly operation. In the event of a host computer failure, the advanced multi-processing DSP hardware will continue to provide total control and provide for a controlled shutdown of the system, independent of the host computer. Thus, ensuring complete safety of the unit under test.

The DVC-1600 is fully compatible with Windows 98/2000. The Windows Operating System of your choice allows you to work with several applications at once. The user can switch between applications allowing for report generation in Microsoft Word or in a spreadsheet, while still running a test under total control.



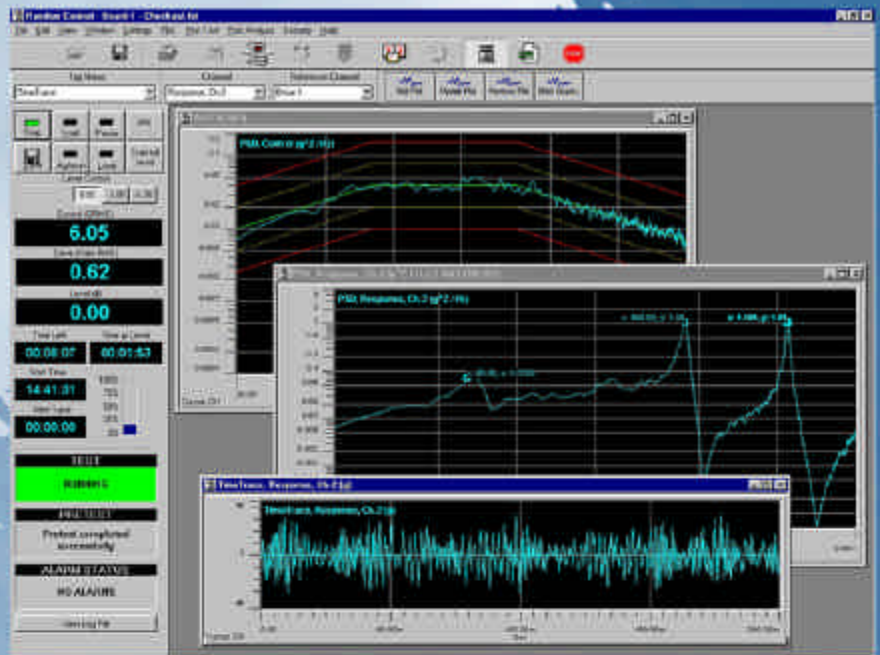
Controller Block Diagram

## Intelligent Graphics

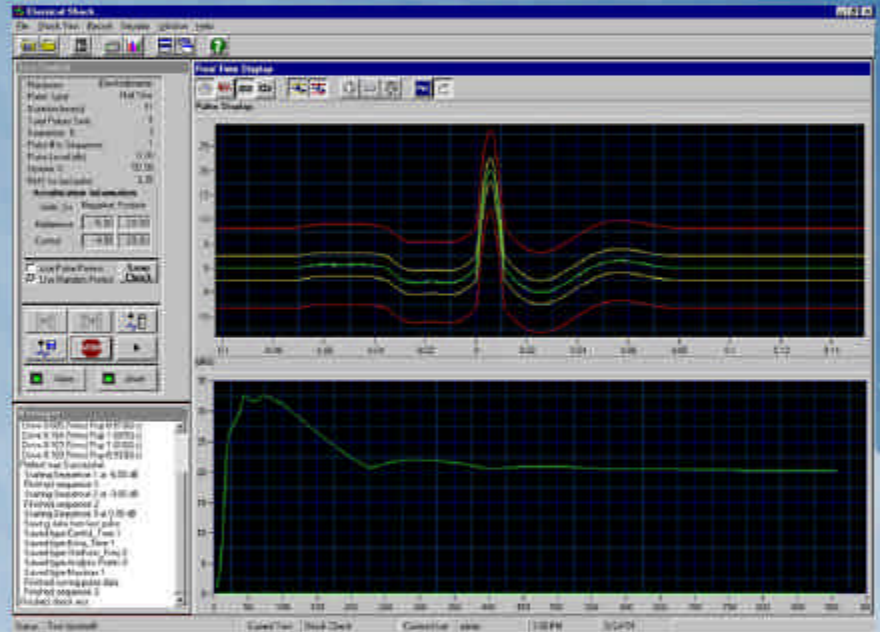
The high-resolution screen display gives detail to your test that lower resolutions would be unable to display. The system has the ability to display up to 16 windows simultaneously with up to 8 overlaid channels per plot. Where required, the user can change size and layout of the windows to enhance detail.

## Test Control Window

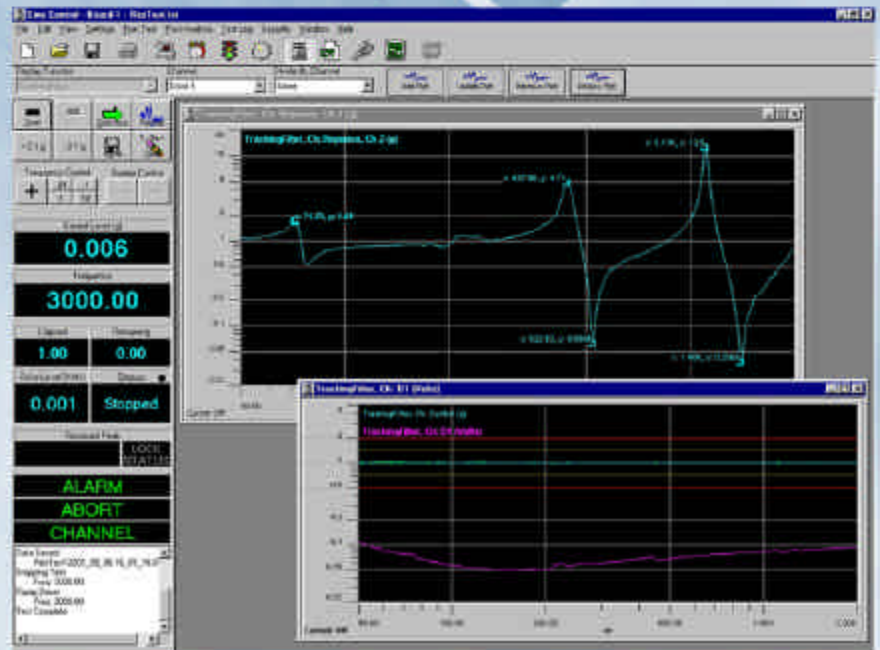
The test control window allows the user total control over the testing process. Once activated, the test control window gives the user the ability to Start/Stop, Pause/Resume or Hold/Continue the current test, as well as make adjustments to the test being run. In addition, the test control window provides the user a view of all test parameters for the current test.



Running a Random Test



Running a Classical Shock Test



Running a Sine Test

# Software Package Specifications

## Random Vibration Control Software Package

DVC-100

Frequency Range:..... 1 Hz to 6 KHz.  
 Resolution:..... 100, 200, 400, 800, 1600 lines.  
 Control Method:..... Max. RMS, Min RMS, Average or Extremal.  
 Control Channel:..... Any combination of channels may be used for control and/or measurement.  
 Dynamic Range:..... Greater than 85 dB.  
 Loop Time:..... 200 msec @ 2,000 Hz and 400 lines of resolution.  
 Equalization:..... ±1 dB with 202 DOF.  
 Reference PSD:..... Defined by G<sup>2</sup>/Hz, (m/s<sup>2</sup>)/Hz or dB/oct with up to 500 breakpoints.  
 (Profile)  
 Random Signal:..... True random signal of gaussian amplitude distribution.  
 Sigma Clipping:..... User selectable from 1.0 to 5.0 sigma.  
 Pre-test:..... During pre-test a small signal level is used to determine initial transfer function calculations and evaluate test loop integrity.  
 Profile Limiting:..... Two user definable notch profiles may be used to automatically limit the response of a measurement channel.  
 (Profile Notching)  
 Sine on Random:..... Any Combination of stationary or swept sine tones  
 (SOR)  
 Random on Random:..... Any Combination of stationary or swept narrow bands. Narrow bandwidth specified in Hz.  
 (ROR)  
 Displays:..... Interactive Windows displays, allowing for real time user display changes. Display types Include:  
 · Response PSD  
 · Time history  
 · Transfer function  
 · Alarm and abort limits.

## Sine Vibration Control Software Package

DVC-200

Frequency Range:..... 0.5 Hz to 6 KHz.  
 Sweep Mode:..... Linear, Logarithmic or Incremental.  
 Sweep Rate:..... Entered in Oct/min, Hz/sec, Hz/step  
 Control Method:..... Max., Min or Average.  
 Control Channel:..... Any combination of channels may be used for control and/or measurement.  
 Dynamic Range:..... Greater than 85 dB.  
 Reference Profile:..... Defined with any combination of Displacement, Velocity or Acceleration.  
 Pre-Test:..... Automatic loop check for safety.  
 Displays:..... Interactive Windows displays, allowing for real time user display changes. Display types Include:  
 · Target Profile.  
 · Response of selected channel  
 · Alarm and abort limits.  
 Tracking Filter:..... Digitally processed in 32 bits.  
 Profile Limiting:..... Two user definable notch profiles may be used to automatically limit the response of a measurement channel.  
 (Profile Notching)  
 Extended Dwell:..... Allows user to define multiple dwell events in chart form.  
 Resonant Search..... Allows user to perform a resonant search based on a definable transmissibility ratio. Data from the search is then used by the system to perform an active dwell at selected frequencies.  
 & Dwell:..... During dwells, the system continually tracks the resonance and adjusts should the resonant peak shift.

## Classical Shock Control Software Package

DVC-300

Waveform:..... Pre-defined waveforms: half sine, initial/terminal peak Saw tooth, triangular, rectangular & haversine.  
 Pulse Width:..... Custom Pulse  
 Analyzing Time:..... 0.1 to 100 msec for fixed waveform.  
 Frequency Range:..... 20.0 msec to 2.0 sec.  
 Equalization Channel:..... 0.1 Hz to 10 KHz  
 Tolerance:..... One channel (Remaining channels available for measurement).  
 Pulse Polarity:..... Alarm and abort, MIL 810, IEC + other standard limits.  
 SRS Analysis:..... ±, Selectable.  
 Pre-load/Post-load:..... 1/1, 1/3, 1/6, 1/12 and 1/24 octave.  
 Parameter:..... 0.1 to 99.9 Percent  
 Displays:..... Acceleration in G or m/s<sup>2</sup>.  
 Interactive Windows displays, allowing for real time user display changes. Display types Include:  
 · Time Trace:  
 · Profile  
 · Response  
 · Drive Waveform  
 · Frequency Domain data:  
 · Profile Spectrum  
 · Transfer Function  
 · Alarm and Abort Limits

## Common Features

Input Channels:..... 2, 4, or 8 channel configurations available  
 Input (each):..... ADC, 16 bit resolution with a sampling frequency of 51.2 KHz and input range of ±10V (BNC).  
 Output Channels:..... 2 channels, Drive and COLA Channel (Sine)  
 Output (each):..... DAC, 16 bit resolution with a sampling rate of 51.2 KHz and input range of ±10V (BNC).  
 Filtering:..... Delta Sigma Converters on both input and output channels. Eliminating the need for analog anti-aliasing filters on input and anti-imaging filters on output.  
 Operating System:..... Microsoft Windows 98/ME/NT/2000 compatible.  
 Display:..... Available 17" High Resolution Color Display, display of up to 16 simultaneous plots with up to 8 over laid channels per plot.  
 Hard Copy Unit:..... Any printer supported by the Windows Operating System.  
 Remote Control:..... Remote Start/Stop with external signal. (Can be generated by temperature chamber controller)  
 Import/Export of Data:..... Industry standard ASCII file format.  
 Report Generation:..... Report generation in Microsoft Word, automatically via user definable report templates or manually.

# Available Software Options

DVC-100 Random Vibration Control  
 DVC-101 Random Post Analysis (2nd)  
 DVC-110 Random Response Profile Limiting  
 DVC-600 Sine on Random (Requires DVC-100)  
 DVC-650 Random on Random (Req. DVC-100)  
 DVC-900 Sine Gunfire Control (incl. DVC-600)  
 DVC-910 Random Gunfire (incl. DVC-650)  
 DVC-200 Sine Vibration Control  
 DVC-201 Sine Post Analysis (2nd)  
 DVC-210 Sine response Profile Limiting  
 DVC-225 Sine Resonance Search & Dwell  
 DVC-226 Sine Extended Dwell  
 DVC-300 Classical Shock w/ SRS Analysis  
 DVC-301 Shock Post Analysis (2nd)  
 DVC-350 Time History Reproduction  
 DVC-400 SRS Control (requires DVC-300)  
 DVC-500 Random, Sine & Shock Suite  
 DVC-501 Suite Post Analysis (2nd)  
 DVC-999 Random, Sine, Shock (all Features)

## Hardware Specifications

CPU - Intel 866Mhz Pentium III  
 MEMORY - 128MB PC133 SDRAM,  
 512KB processor cache  
 EXPANSION SLOTS - 2 ISA, 5 PCI, 1 AGP  
 FLOPPY/HARD DISK - 1.44MB / 20GB UDMA/66  
 CDROM - 52X  
 I/O - 2 serial, 1 parallel, 2 USB  
 GRAPHICS - ATI Rage AGP accelerator,  
 (17" VESA compliant monitor opt.)  
 OPERATING SYSTEM - Microsoft Windows 98  
 (Windows 2000 optional)  
 POWER - 85 VAC to 135 VAC or 180 VAC to  
 270 VAC (50/60HZ).  
 OPTIONS - Up to 100 GB hard drive, internal tape  
 backup, ZIP drive, 17", 19" or 21" monitor, Color  
 printer, network & sound card, and more

**\*Specifications are subject to change**

