# VibeLab™ VL-145 Series

DIGITAL VIBRATION CONTROLLERS

145x – Sine and Random
145s – Sine
145r – Random

- Straightforward Virtual Instrument operating under Windows™.

- Automatic spectral calculation of Acceleration, Velocity and Displacement.

- Programmed test requirements automatically compared to system capabilities.

- Online help for both novice and experienced users.

- Generate reports to use with your preferred software.

- Fully expandable to the top of the line VibeLab™ controller.

- Comes completely assembled with everything you need including computer, monitor, keyboard and accelerometer with built-in signal conditioning. Not a kit.
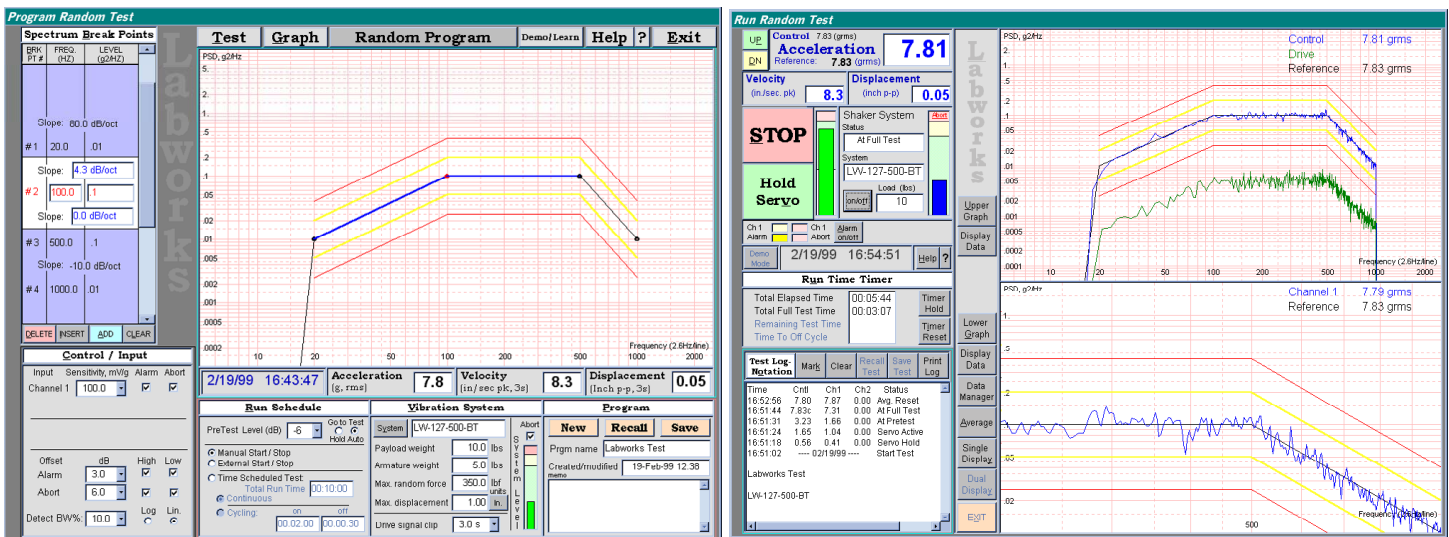
Complete Controller System Includes:

- Computer, Monitor, Keyboard, Mouse
- VibeLab™ and Windows™ software installed, ready to run
- Printer
- VibeLab™ Shaker interface PC Board w/accelerometer power supply, factory installed
- Accelerometer package: accelerometer, cable, stud, and mounting base

Labworks Inc.

VibeLab™ VL-145 Series

Digital Vibration Controllers

General Description

The VL-145 series VibeLab controllers are pc-based (WindowsTM) vibration test controllers. These controllers generate an analog output signal suitable for input to a vibration test system amplifier in response to specific user-defined test parameters. Vibration acceleration feedback from an accelerometer mounted on the shaker, fixture, and/or test article is compared with the desired test levels and the controllers internal servo adjusts its output to produce the corresponding vibration at the accelerometers location.

The VL-145 virtual instrument user interface layout, with its use of minimal hidden menus and straight forward terminology, is easy to use and the intuitive layout reduces the time required to learn, program, and run specific tests. Most critical system functions are automatically cross-checked during the program phase against the vibration system capabilities, accelerometer sensitivities, etc. to prevent erroneous or harmful tests. Previously defined test profiles can be recalled and saved at will as well as defined as the default start-up profile.

Three versions of the VL-145 single channel controller are available. The VL-145x single channel sine and random controller, VL-145s single channel sine only vibration and the VL-145r single channel random only vibration controller. The controller can be configured to monitor the operating level of the vibration test system and can be programmed to shut the system down if maximum operating levels are exceeded. The system parameters can be recalled from the complete Labworks system library or entered and saved to suit the your vibration system limitations.

VibeLab's primary report output is graphical. Either a single large or two smaller graphs can be prepared and printed or copied to the clipboard for use with other WindowsTM-based applications. Data files saved are spreadsheet compatible for custom report generation. The chronological test log is also available for direct printing or inclusion in custom reports.

General Specifications

Model Configuration*		**Training**	Demonstration/Learning mode
VL-145x	Sine and random	**Run Modes**	
VL-145s	Sine only	Random*	Manual, timed, timed cycle, external switch/TTL
VL-145r	Random only		
Frequency Range		Sine*	Manual, timed, sweep cycle, external switch/TTL
Random*	6 to 2,000 Hz or 2 to 500 Hz		
Sine*	2 to 10,000 Hz	**Program**	
Display Units	English or metric units with automatic conversion	Random Spectrum Entry*	Break point or line segment slope, graphical display
Reports	Graphical, tabular, current, or post analysis	Sine Sweep Profile Entry*	Break point or constant level, graphical display of acceleration, velocity, displacement, and frequency
Signal Input			
Number of Input Channels	1	Other Parameters	Virtual intrument design, minimum hidden menus
Acceleration Range	Random: 0.2 to 100 grms* Sine: 0.1 to 200 gpk*	**Test**	
Acceleration Resolution	16 Bit	Save and Recall	All parameters, user named including all program parameters, data, and display settings
Maximum Input Voltage	5 V peak		
Connectors	BNC		
Dynamic Range	80 dB minimum	Last Test	The last test run is automatically saved and can be recalled and continued or analyzed
Vibration System Protection			
System Checker	Automatic cross check of program with the vibration system force and displacement capabilities		
		Run Time Display	
Sensitivity Checker	Automatic cross check of program with accelerometer dynamic range and sensitivity	Graphical Data	Single or dual graphs with acceleration or output drive data: Ch 1, Control, Drive
Run-Time and Output Level Monitors	Show the vibration system operating level and VibeLab signal output voltage level	System Monitor	Vibration system operation level meter
		Timers	Cycle timers* and sweep cycle counter*
Test Article Protection			
Acceleration	Open loop/low gain + rate detection	**Graph/Data Save and Print**	Save a full data set to disk, print direct, or clipboard the Test Log or any Graph
Random*	Over and/or under acceleration alarm and abort levels		
Sine*	System operation level, acceleration and displacement	**Post Analysis**	Any saved test can be recalled and the data re-configured for report printing or saving to the clipboard for incorporation into other Windows applications
Manual Abort	Red "STOP" key and external shutdown terminals		
External Interlock	Normally open switch or Logic Low		

*Sine specifications apply only to the VL-145x and VL-145s.
*Random specifications apply only to the VL-145x and VL-145r.