VibrationVIEW®

NEXT GENERATION VIBRATION TESTING SOLUTIONS
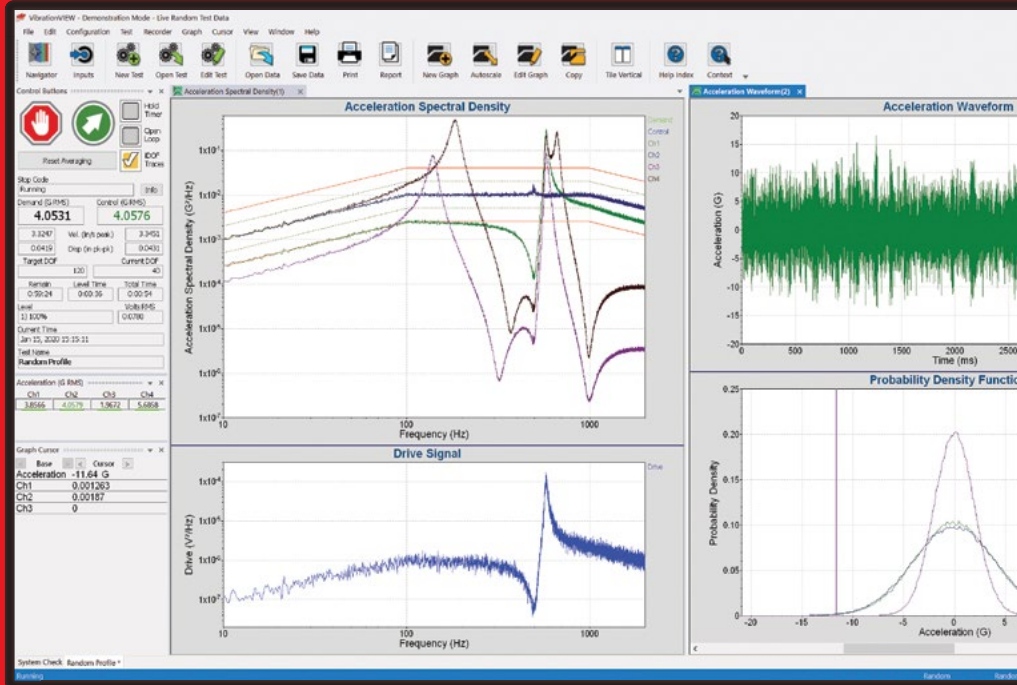
THE INNOVATOR IN
SOUND & VIBRATION TECHNOLOGY

VR
VIBRATION RESEARCH

YOUR CONFIDENCE SHOULD NEVER BE SHAKEN.

Better performance. Faster results. Ongoing support. That is what you can expect from Vibration Research. When you are testing a product for durability, you are also testing us — and we are committed to passing that test every time.

INNOVATIVE
We do not copy technology. We push technology forward. We do not follow trends. We engineer new ones.

PROVEN
Reputations are earned over time. We have earned ours by creating products that are reliable, durable, and outperform the rest.

USER-FRIENDLY
We are always listening to our customers in an effort to make our technology easier, more intuitive, and quicker to operate.

SUPPORTIVE
Our support team is ready to meet your needs — not outsource them. We invite you to contact the USA headquarters or a global representative in your area to request more information. Contact details are available on the last page of this brochure.

Vibration Research is the innovator in vibration control and data acquisition, developing its product line in Michigan, USA since 1995. Its applications help to solve troublesome industry issues such as test equivalency, end-use environment comparisons, and test acceleration. It is the premier choice of vibration testing labs around the globe.

VR recognizes that providing exceptional support significantly contributes to its customers' long-term success. That support is part of a recipe that combines versatile software with dependable hardware. Committed to advancements in technology and continued education, the company strives to innovate at the foundation of everything it does so that its customers can be their best.

INTUITIVE.
FLEXIBLE.
POWERFUL.

Vibration Research systems are compatible with all brands of electrodynamic and servo-hydraulic shakers. Set up and monitor vibration tests using any VR hardware and customize automated reports. This advanced vibration control and analysis software helps to solve troublesome issues in vibration testing.
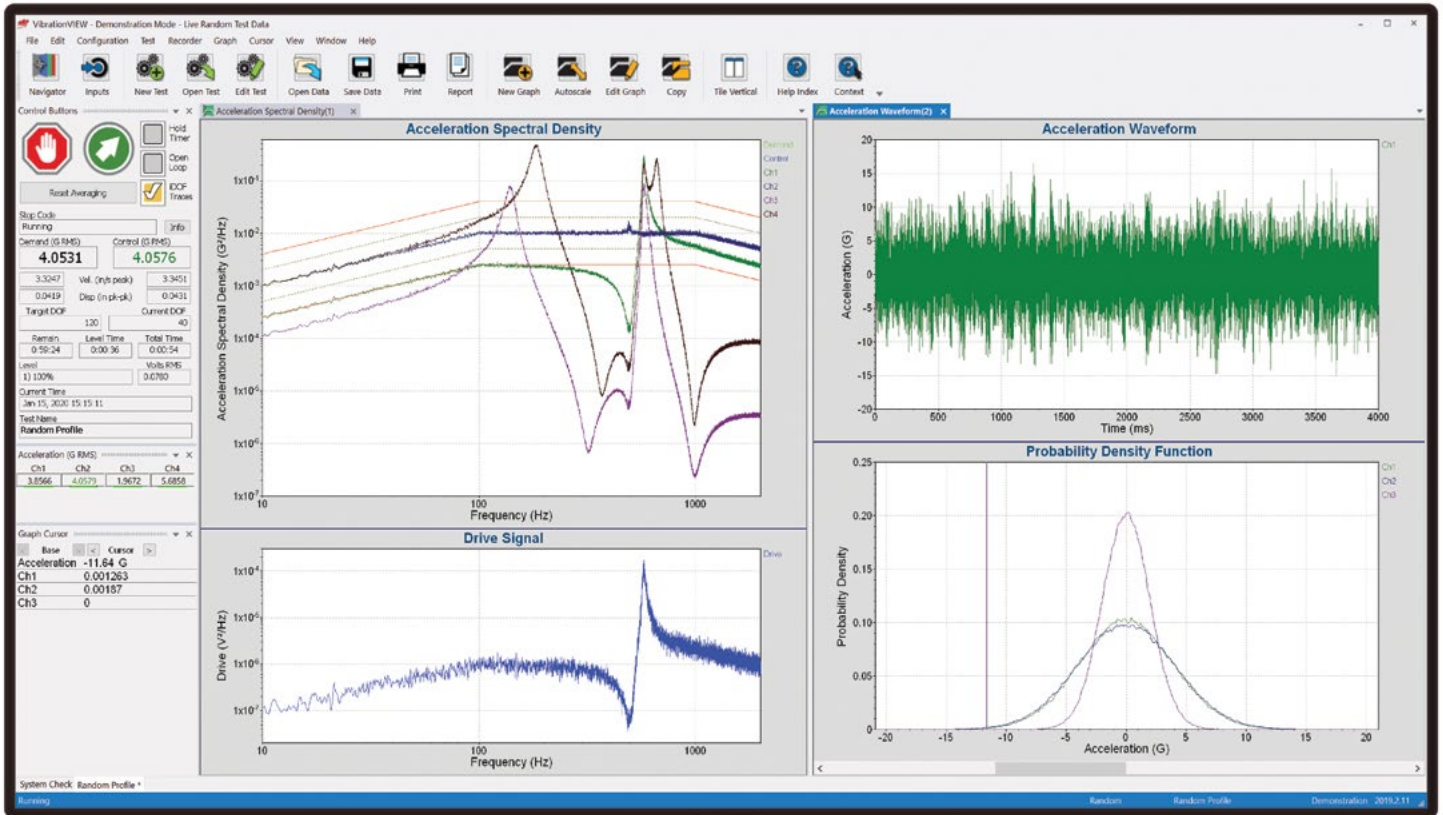
SOFTWARE FEATURES

PC and Windows Integration
Seamlessly integrate the VR control system with your PC and Windows operating system. Simply connect and load VibrationVIEW, and you are ready to test. Microsoft® Word and Excel are recommended.

Software Functionality
Applications such as Microsoft Excel, LabVIEW, MATLAB, and more can easily interface by way of ActiveX functions.

Ethernet Connection
An Ethernet connection provides important advantages over USB or PCI-based systems, including:

- Galvanic isolation eliminating ground loops
- Cable length up to 100 meters, unlimited with network infrastructure
- No drivers to install

Drag and Drop
Enables customers to quickly transfer data and images into Microsoft Word or Excel.

Customizable Reporting
All control systems include our robust reporting package that automatically produces presentation-ready reports. The reports can be customized, including the addition of company branding. With our pre-packaged templates, customers can also enter important data such as the technician, customer name, time, date, test parameters, and more. Report templates are available as html, text format, document, and spreadsheet.

Remote Interface
Our customers can use a handheld device to monitor and control their vibration test in front of their shakers or from anywhere in the world. Test initiation, monitoring, and shutdown can be controlled remotely as well as:

- Start | stop | pause | continue
- Monitor unit under test for failure
- Multiple test selection
- Amplifier control and monitoring

Calibration
Every new control unit arrives freshly calibrated with an NIST traceable Certificate of Calibration. We recalibrate hardware quickly to ensure less downtime than other providers. The VR lab is A2LA certified (ISO/IEC 17025) and offers both accredited calibration and standard factory calibration.

Configurable Safety Limits
To protect a test article and shaker system, an authorized user can set configurable acceleration limits, line limits, system gain limits, and drive limits. The software continuously monitors the input channels for fault conditions. The control input is also verified against shaker acceleration, velocity, and displacement limits.

VibrationVIEW
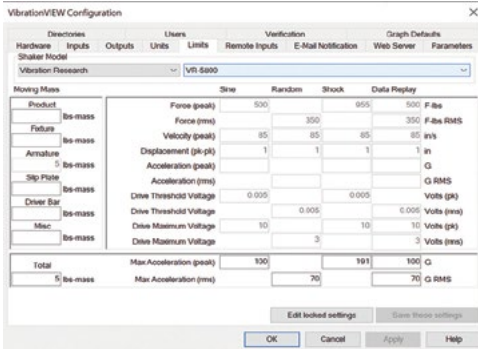
Shaker Compatibility

VibrationVIEW works with any electrodynamic, servo-hydraulic, or servo-electric shaker and includes single-axis, dual-axis, dual-phase, rotational, three-axis, multi-loop/four-post, and seismic control options.
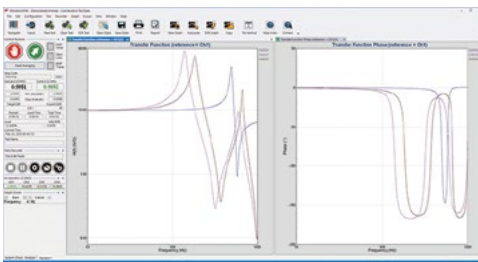
Analyzer Functions

Analyzer includes Coherence, Cross-Spectrum, and Transfer Function plots in both Random and FDR test modes, THD graphs and FFT Spectrum plots in Sine test mode, and scatter plots (channel-to-channel) in all test modes. In addition, this option provides a configurable function generator for outputting user-defined voltage waveforms.
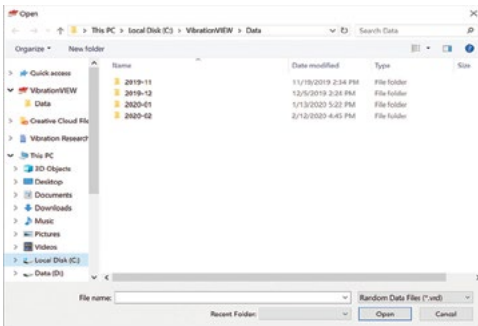

Data Storage

Store test data to any disk or network drive for later retrieval. Data can be stored manually or programmed to automatically save at user-defined intervals.

Test and Level Scheduling

Tests are scheduled to run for a user-defined length of time, and the spectrum level is scaled by a specified dB level, percentage, or amplitude. Tests are programmable to run for various periods at different intensity levels.

Amplitude levels can be changed while the test is running.
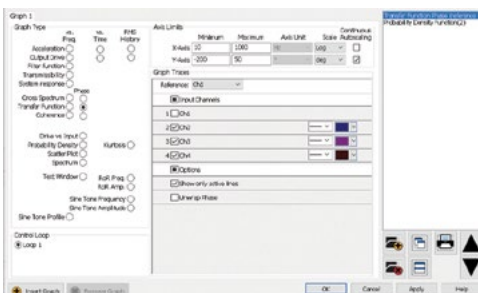
Data Plots

Our software offers many graphical display options:

- Acceleration spectral density
- Output voltage spectral density
- Channel-to-channel transmissibility
- Phase between inputs or outputs

- Lissajous curves
- Historical data logging
- Real-time drive voltage
- Real-time channel acceleration
- Drive vs. input, including system limits
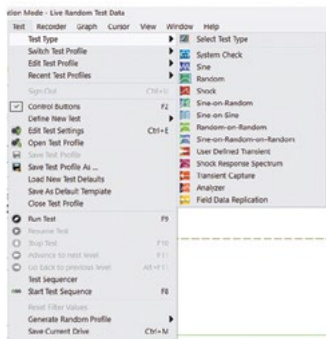
VibrationVIEW
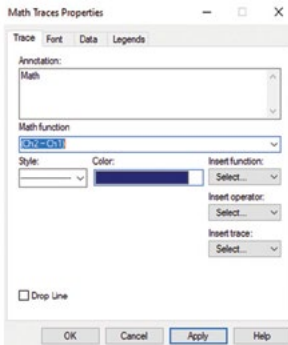
Math Traces and Calculator Functions

Define math functions based on graph traces, test parameters, and/or test results. Plot the result of the calculations as additional graph traces. In addition, define calculators to evaluate a function continuously during the test and plot a time history of the result. Each calculator can have upper and lower limits to stop the test based on the calculation result.
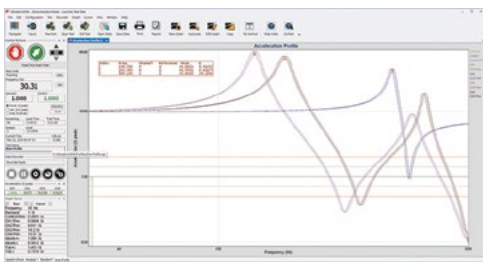
Data Cursors

- Automatically locate and track peaks and valleys
- Highlight data points
- Calculate RMS between frequencies
- Calculate slopes in logarithmic or linear plots
- Find harmonics of resonances

System Check

All VibrationVIEW software packages include a system check mode that provides a manually controllable sine wave output and spectrum analysis plots of the accelerometer inputs. Use this test mode to verify operation of the controller, amplifier, shaker, and accelerometers.
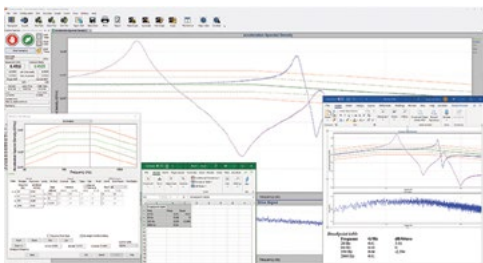
Graphs

VibrationVIEW has an easy-to-use graphing system that includes auto scaling and zooming capabilities. Graph images and raw data can be copied to any word processor or spreadsheet.
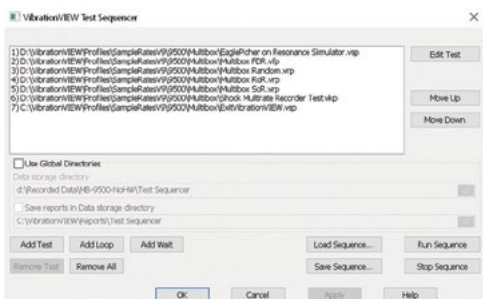
Test Sequencer

Automatically execute a sequence of tests. All the tests can be the same type of application, or switch modes as part of the test sequence.

CONFIGURE ON DEMAND.

The VR software packages can be configured for as many or as few test modules as you need (à la carte). You may add more at any time. Test modules are also available to rent for short-term needs and are easily activated via electronic key.

SINE
Perform closed-loop control of fixed and swept sine vibration. The digital control algorithm provides time and frequency calculations using floating point mathematics. This results in frequency changes as small as one millionth of a hertz and produces a smooth, continuous sweep.

- Sine Resonance Track & Dwell
- Sine-on-Sine
- Accelerometer Calibration
- Sine Reduction
- High Frequency
- Recorder
- And more...

RANDOM
Generate a more closely matched vibration to your end-use environment with the highest possible control. Random performs real-time, closed-loop control of PSD profiles. All inputs are simultaneous and continuously take data with no "unsampled" periods.

- Random-on-Random
- Sine-on-Random
- Fatigue Damage Spectrum
- Kurtosion®
- Instant Degrees of Freedom (iDOF®)
- Random Import
- High Frequency
- DC Offset
- Recorder
- And more...

SHOCK
Perform closed-loop control of transient waveforms. The transient period is sampled simultaneously and without gaps. The drive is calculated between each pulse. All the classical pulse types are supported. The speed and adaptiveness of the SRS control algorithm is second to none.

- Shock Response Spectrum
- Transient Capture
- Transient Waveforms Control
- High Frequency
- Chatter Monitor
- Recorder
- And more...

Explore each module in detail at vibrationresearch.com/software/vibrationview

INNOVATION
NEVER STOPS.

VR's vision is to make the world's most innovative sound and vibration technology tools, enabling customers to make reliable decisions and trustworthy products. VR launched its proprietary testing software in 1995 and now offers five innovations - including two patents - and we are not done yet.

1995
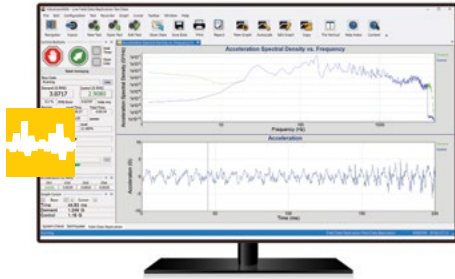
FIELD DATA REPLICATION (FDR)
Instead of approximating a field environment through standard Random, Sine, or Shock tests, FDR provides the capability to replicate field acceleration measurements and reproduce them on the shaker in the test lab.

2005
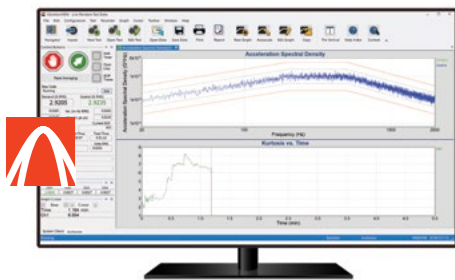
KURTOSION®
The greatest damage potential to a product is at extreme levels. An increased kurtosis of the signal lengthens the time spent at peak levels, which makes a test better reflect what is happening in the real world.

2010
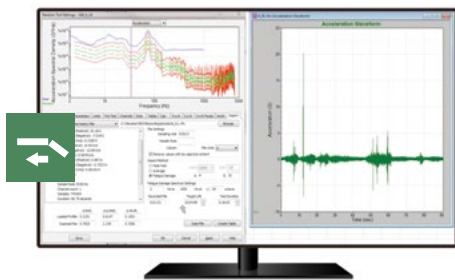
FATIGUE DAMAGE SPECTRUM (FDS)
Reproduce a lifetime of damage in a short period of time. FDS measures a product's environment, characterizes the severity of fatigue, and generates an accelerated test profile to represent a lifetime of fatigue.

2015
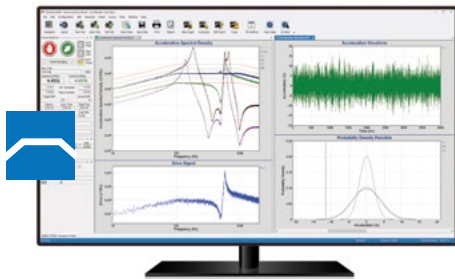
INSTANT DEGREES OF FREEDOM® (iDOF®)
iDOF provides the smoothest control lines in the industry, enabling companies to run highly accurate vibration tests in a condensed period. This ensures a product is tested for just the right amount of time.

2020

SINE TRACKING, ANALYSIS AND GENERATION (STAG)
Generate sine-on-random tests reflective of environments with dominant rotational tones that are rendered as sine tones on a shaker table. STAG is a real-world evaluation of products that may experience these dominant sinusoidal components, such as engine components.

DEPENDABILITY FOR EVERY FREQUENCY.

VR serves many industries worldwide, and our customers include engineers and technicians with varying expertise. Explore our connections at **vibrationresearch.com/industries**

Aerospace	**Military & Defense**
Automotive	**Packaging**
Consumer Goods	**Seismic**
Electronics	**Testing Labs**
Medical	**Universities**

DARE TO COMPARE - FOR 30 DAYS.

Skeptical that we can't meet your standards? Put us to the test. The VibrationVIEW software package runs on all our hardware platforms. Whether you need a brand new system or a replacement controller, we will let you try our fully enabled hardware and software for up to 30 days. Once you use it, we think you will be hooked.

VR9500® **Vibration Controller**
Up to 128 channels
Lifetime warranty
Up to 200kHz sample rate

ObserVR1000® **Vibration Controller**
and Portable Dynamic Signal Analyzer

Up to 128 channels
1-year warranty
Up to 128kHz sample rate
6+ hour battery life

VR10500™ **Vibration Controller**
Up to 512 channels
Lifetime warranty
Up to 256kHz sample rate

> *Our express reason for choosing the VR controller over other controllers is the flexibility it gave us with SRS testing. In particular, we appreciate the selection of the various synthesis types and the ability to optimize a synthesis for acceleration, velocity, or displacement. We also find the VR9500 easy and intuitive and we make use of the comprehensive report generation features.*
>
> *–Vibration Research Customer*

HARDWARE

VR9500	VR10500	OBSERVR1000
Up to 128 simultaneous channels for control or monitor usage.	Up to 512 simultaneous channels for control or monitor usage.	Up to 128 available channels for control or as an analyzer & autonomous DAQ.
Each 4-channel I/O unit can run independently on separate shakers or together in a single stack (up to 128 channels). The VR9500 also functions as a DAQ device. This economical solution allows for data acquisition, analysis, and vibration control and creates substantial cost savings for our customers.	Each 16-channel I/O unit can run independently on separate shakers or together in a single stack (up to 512 channels). The VR10500 also functions as a DAQ device. This economical solution allows for data acquisition, analysis, and vibration control and creates substantial cost savings for our customers.	Each 16-channel I/O unit is a portable DAQ device and analyzer (up to 128 channels). The ObserVR1000 also functions as control hardware and can run independently on separate shakers or together in a single stack. This economical solution allows for data acquisition, analysis, and vibration control and creates flexible options for our customers.

HARDWARE WARRANTY

The VR9500 controller hardware includes a three-year hardware warranty that can be extended to a lifetime warranty with continual renewal (no lapse) of a VR upgrades & support agreement. VR warrants the controller hardware to be free of defects in material and workmanship.	The VR10500 controller hardware includes a three-year hardware warranty that can be extended to a lifetime warranty with continual renewal (no lapse) of a VR upgrades & support agreement. VR warrants the controller hardware to be free of defects in material and workmanship.	The ObserVR1000 hardware includes a one-year hardware warranty. VR warrants the ObserVR1000 hardware to be free of defects in material and workmanship.

GENERAL SPECIFICATIONS

▪ Up to 128 channels, 4-channel units (mix-n-match) ▪ Control sine, random, or shock vibration to 50,000Hz ▪ 26,000 lines of resolution ▪ Total harmonic distortion < -100dB THD+N ▪ Digital Inputs/Outputs ▪ Emergency stop ▪ Gigabit Ethernet	▪ Up to 512 channels, 16-channel units (mix-n-match) ▪ Control sine, random, or shock vibration to 50,000Hz ▪ 26,000 lines of resolution ▪ Total harmonic distortion < -100dB THD+N ▪ Digital Inputs/Outputs ▪ Emergency stop ▪ Gigabit Ethernet	▪ Up to 128 channels, 16-channel units (mix-n-match) ▪ Control sine, random, or shock vibration to 20,000Hz ▪ 26,000 lines of resolution ▪ Total harmonic distortion < -100dB THD+N ▪ Digital Inputs/Outputs including Tachometer ▪ WiFi connection 802.11 b/g/n ▪ GPS ▪ Emergency stop ▪ Gigabit Ethernet
Power 90VAC to 250VAC 50/60Hz 1.2/.7Amps	**Power** 100VAC to 250VAC 50/60Hz 2/1Amps	**Power** Internal Lithium-Ion battery 18VDC @ 2.5Amps AC adapter included (90VAC to 264VAC, 50/60Hz)
Operating Temperature Range 35˚ to 122˚ Fahrenheit 2˚ to 50˚ Celsius	**Operating Temperature Range** 35˚ to 122˚ Fahrenheit 2˚ to 50˚ Celsius	**Operating Temperature Range** -4˚ to 131˚ Fahrenheit -20˚ to 55˚ Celsius

INPUT CHANNELS

▪ Single-ended with 100kΩ impedance ▪ Differential with 200kΩ impedance ▪ Custom units can be defined for other sensor types	▪ Single-ended with 100kΩ impedance ▪ Custom units can be defined for other sensor types	▪ Single-ended with 100kΩ impedance ▪ Custom units can be defined for other sensor types
Software set-up allows for: ▪ Per channel selection of transducer sensitivity ▪ Coupling (AC or DC) ▪ Support differential inputs ▪ Accelerometer constant current supply (4mA IEPE) ▪ TEDS transducer interface ▪ A unique DC offset removal that allows measurement to true DC with constant current type accelerometers with full 10V range	Software set-up allows for: ▪ Per channel selection of transducer sensitivity ▪ Coupling (DC) ▪ Accelerometer constant current supply (4mA IEPE) ▪ TEDS transducer interface ▪ A unique DC offset removal that allows measurement to true DC with constant current type accelerometers with full 10V range	Software set-up allows for: ▪ Per channel selection of transducer sensitivity ▪ Coupling (DC) ▪ Accelerometer constant current supply (2.1mA IEPE) ▪ TEDS transducer interface ▪ A unique DC offset removal that allows measurement to true DC with constant current type accelerometers with full 10V range
Protected 200V tolerant inputs protect your device from transients	**Protected** 200V tolerant inputs protect your device from transients	**Protected** 40V tolerant inputs protect your device from transients
Sample Rate 200kHz simultaneous sample rate	**Sample Rate** 256kHz simultaneous sample rate	**Sample Rate** 128kHz simultaneous sample rate
Voltage Range ±1V, ±10V, ±20V: 100kΩ input impedance	**Voltage Range** ±1V, ±10V: 100kΩ input impedance ±0.5V, ±5V: 10MΩ input impedance	**Voltage Range** ±1V, ±10V: 100kΩ input impedance ±0.25V, ±2.5V: 22MΩ input impedance
Resolution 24-bit	**Resolution** 24-bit	**Resolution** 24-bit
Dynamic Range >110dB dynamic range >130dB with tracking filters	**Dynamic Range** >110dB dynamic range >130dB with tracking filters	**Dynamic Range** >110dB dynamic range >130dB with tracking filters
Noise Floor <70nV/√Hz spurious free	**Noise Floor** <50nV/√Hz spurious free	**Noise Floor** 90nV/√Hz
Filtering Analog multiple pole anti-aliasing filter and digital anti-aliasing filter with >92dB attenuation	**Filtering** Analog multiple pole anti-aliasing filter and digital anti-aliasing filter with >105dB attenuation	**Filtering** Analog multiple pole anti-aliasing filter and digital anti-aliasing filter with >95dB attenuation

VR9500	VR10500	OBSERVR1000
OUTPUT CHANNELS		
Frequency Range 50,000Hz 200,000 samples per second	**Frequency Range** 50,000Hz 216,000 samples per second	**Frequency Range** 20,000Hz 128,000 samples per second
Filtering Analog multiple pole filter plus a digital filter Analog reconstruction filters	**Filtering** Analog multiple pole filter plus a digital filter Analog reconstruction filters	**Filtering** Analog multiple pole filter plus a digital filter Analog reconstruction filters
Output Channels Two (2)	**Output Channels** Four (4)	**Output Channels** One (1)
Voltage Range ±1V, ±12V	**Voltage Range** ±10V	**Voltage Range** ±10V
Resolution 24-bit	**Resolution** 32-bit	**Resolution** 24-bit
Other ■ 1 analog output (drive) standard; COLA output is standard with the Sine testing module ■ Optionally drive a differential input device ■ Independent or phase controlled 2nd output optional ■ Safety relay prevents shaker, amplifier, and product damage from transients	**Other** ■ 1 analog output (drive) standard; COLA output is standard with the Sine testing module ■ Optionally drive a differential input device ■ 4 independent or phase-controlled outputs to drive multiple shakers ■ Safety relay prevents shaker, amplifier, and product damage from transients	**Other** ■ 1 analog output (drive) ■ Safety relay prevents shaker, amplifier, and product damage from transients
DIMENSIONS		
Length: 15.125in 384mm Width: 10.5in 267mm Height: 1.75in 45mm Weight: 7.5lbs 3.4kg	Length: 17in 432mm Width: 11in 279mm Height: 1.75in 45mm Weight: 9.25lbs 4.1kg	Length: 9.82in 250mm Width: 6.33in 161mm Height: 2.18in 55mm Weight: 3.3lbs 1.5kg

FOR EVERY FAILURE, THERE IS A TEST THAT WILL FIND THE FAILURE.

BECOME THE GO-TO VIBRATION EXPERT

Vibration testing is a unique industry. Whether examining basic theory or advanced techniques, a collective resource for vibration test engineers can be valuable. VR is committed to providing content that is useful to engineers in all stages of product development.

MONTHLY WEBINARS
vibrationresearch.com/webinar

These free courses are scheduled monthly for one hour at 9:30 a.m. EST and again at 2:00 p.m. EST. We use gotowebinar.com for training sessions via a web connection and a phone.

VR UNIVERSITY
vru.vibrationresearch.com

VRU was founded with the goal of disseminating vibration testing theory, insights, and practices within the industry. All courses are free, and additional features such as quizzes are available with an account.

- Enroll in courses, track progress, and get certified
- Access a glossary of terms related to vibration testing

RESOURCES
vibrationresearch.com/resource-archives

- Archived webinars
- Calculators and tools
- Experiments and papers
- Quick tip videos
- Technical notes

SCAN THIS CODE FOR RESOURCES

WE DO NOT STOP AFTER INSTALLATION.

Our support continues over the lifetime of your product - anytime you need us. We recognize that providing customers with high-quality support contributes significantly to their long-term success.

RESOLVE ISSUES FASTER
VibrationVIEW stores the 50 most recent tests in the navigator menu. With a simple selection, you can email or upload the test settings and results — everything our support team needs to resolve any issue you are facing.

LIFETIME HARDWARE WARRANTY
VR warrants the controller hardware to be free of defects in materials and workmanship for the duration listed below. This warranty covers hardware failure under normal conditions and does not cover damage due to customer neglect or mistreatment.

- VR9500 / VR10500 ships with a 3-year hardware warranty that can be extended for the lifetime of the product through the continual renewal of an upgrades and support agreement.
- ObserVR1000 ships with a 1-year hardware warranty.

UNLIMITED SUPPORT
VR support comes straight from our USA headquarters and is available via phone, email, and webinar. We also provide interactive training options such as:

- One-on-one web training
- On-site training and support
- Two-day training seminars

CALIBRATION SOFTWARE
Every new hardware unit arrives freshly calibrated with a Certificate of Traceable Calibration to NIST. The VR support agreement provides an Automated Calibration Verification software license and a 50% discount on standard factory calibration (Accredited to ISO/IEC 17025).
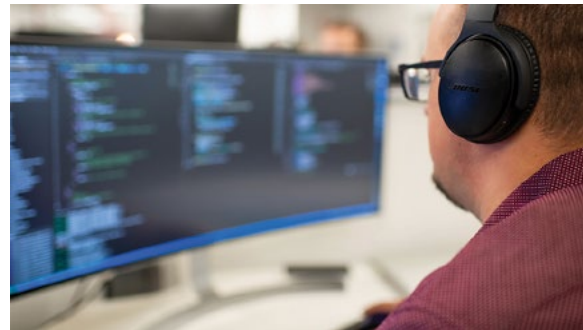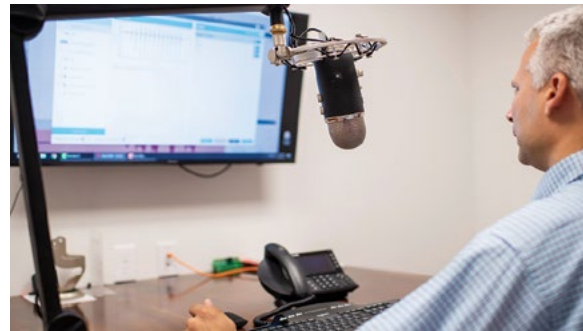
FACING A CHALLENGE? TELL US MORE.

Ninety percent of our improvements originate directly from customer suggestions. We are interested in hearing more if you face a challenge that requires new software or hardware development. All information is strictly confidential.

Learn more at vibrationresearch.com/upgrades-support-agreement

ALWAYS HERE.
ALWAYS LISTENING.
ALWAYS READY.

VR designs and assembles products at our headquarters located in Michigan, USA. We invite you to contact a representative in your area to request more information. Be sure to ask about a demo version of our VibrationVIEW software.

GERMANY / CZECH

GRAND RAPIDS, MI

WE ARE GLOBALLY AT YOUR SERVICE.

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Do what other industry leaders have already done.

PUT US TO THE TEST.
DARE TO COMPARE - FOR 30 DAYS.

VIBRATIONRESEARCH.COM