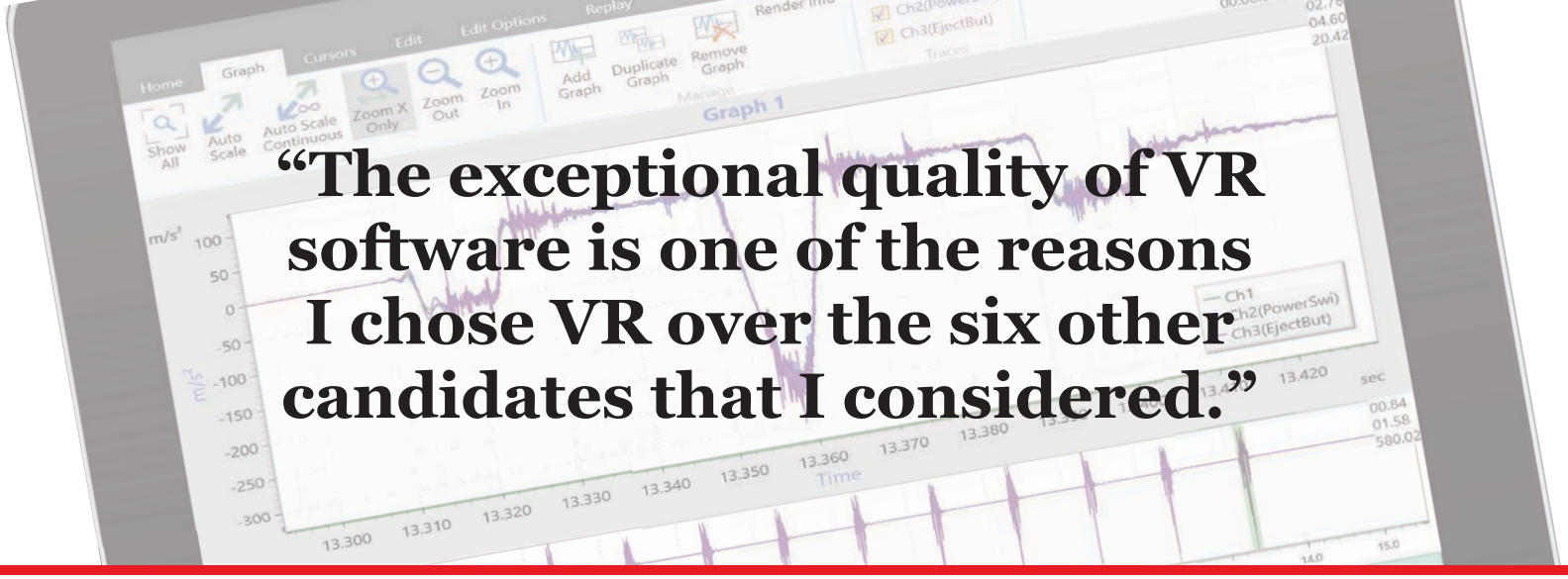
ObserVR1000

Portable Data Acquisition and Analyzer

The Innovator of Sound and Vibration Technology

VIBRATION RESEARCH



ObserVR1000

Vibration Research’s fully autonomous *ObserVR1000* data collection and analyzer is specially designed and engineered to provide superior value, including reliable performance, accurate testing, and user-friendly features.

USER FRIENDLY

The *ObserVR1000* does not require special boards, PC drivers, or even a PC. Ready to get started? Simply connect a smartphone, laptop, or PC and set up the *ObserVR1000*. Once set up, data can be collected with a simple press of the record button.

Available Inputs

- 4 or 16 channels
- 2 encoder/tachometer channels
- Microphone - record verbal annotations with your data
- GPS - record all location data automatically during signal recording

Customizable Reporting

All *ObserVR1000* systems can be used with VibrationVIEW software which includes our full, robust reporting package. This automatically produces presentation-ready, sophisticated reports at the end of a testing sequence. Our customers have the choice of using one of our pre-packaged report templates – enabling users to enter important data such as technician, customer name, time, date, test parameters and more – or creating their own custom, branded reports.

Drag and Drop

With drag and drop capabilities, *ObserVR1000* enables customers to quickly load any graph or data into Microsoft® Word or Excel.

Easy Integration

Easily interface by way of Active-X functions with applications such as Microsoft® Excel, LabVIEW, Matlab, and more.

TIME-TESTED RELIABILITY

Vibration Research guarantees your satisfaction. Our *ObserVR1000* is meticulously designed and engineered for a high degree of reliability.

- All analyzers include a one-year hardware warranty
- Each analyzer is individually tested before shipping
- Analyzers utilize a common hardware platform and built-in hardware self-diagnostics, making troubleshooting a snap
- We actively solicit customer feedback – 90% of our enhancements originate from customer suggestions

Economic Solution

Additional software may be acquired to add analysis functionality via an e-mailed key.

PC and Windows Integration

The *ObserVR1000* integrates seamlessly with the Microsoft® Windows operating system. Simply connect the *ObserVR1000*, load *ObserVIEW* software, and you are ready to collect and analyze data.

Wireless Connection

A wireless connection allows setup and monitoring of the *ObserVR1000* without any wires. A handheld device becomes a remote interface into *ObserVIEW*.

HARDWARE FEATURES

The *ObserVR1000* control system uses state-of-the-art hardware including:

Specifications At-A-Glance

- 4 or 16 simultaneous channels
  (1 BNC input channel, 15 triaxial input channels)
- 108kHz sample rate
- IEEE 1451.4 TEDS class 1
- IEPE signal condition (2.1mA)
- WiFi connection
- 6+ hour battery life
- GPS
- Tachometer inputs
- Gigabit Ethernet WiFi 802.11 b/g/n
- +/- 10V range
- < -100dB THD+N
- 24-bit Digital to Analog (DAC) converter
- > 100dB dynamic range
- 40V tolerant inputs protects from transients
- Intuitive software set-up allows for:
  - Per channel selection of transducer sensitivity
  - 0 to 20 volt range allows measurement to true DC constant current type accelerometers with full ADC range

Output Channels

- 1 analog output standard
- 24-bit Digital to Analog (DAC) converter
- < -100dB THD+N
- < -130dB Digital filter attenuation
- Analog multiple pole filter plus a digital filter
- Capability of up to 50,000Hz output frequency

Input Channels Expansion

System can be expanded from 4 to 16 inputs simply through purchasing a software key.

HARDWARE WARRANTY

Vibration Research warrants the *ObserVR1000* to be free of defects in materials and workmanship for a period of one year from the date of purchase. This warranty covers hardware failure under normal conditions and does not cover damage due to customer neglect or mistreatment.

PC Configuration

Current Windows® operating system and an Ethernet port (or WiFi) are the only PC configuration requirements. Microsoft® Word and Excel are recommended.

Digital Inputs/Outputs

- Connector enables the digital level signals – one input and one output – can be interfaced with your product or other systems
- Microphone
- Low-noise design with a dedicated high-speed processor for signal processing (410nV/√Hz spurious free)
- Front BNC connectors for single input connections and triaxial accelerometers (requires breakout cables to BNC)
- Rear panel connectors include signal output
- Connects with a digital input, a digital output, and 2 tachometer channels

Other

- Size: 9.82" L x 6.33" W x 2.18" H
- Weight: 1.5kg
- Power: 90-250VAC, 50/60Hz, 1.2/.7Amps
- Operating temperature range: 35°-122°F (2°-50°C)

Hardware Buttons

- Start/Stop Recording
- Event Marker

ObserVIEW SOFTWARE

Intuitive, flexible and powerful, *ObserVIEW* is Vibration Research's software that is used in conjunction with the *ObserVR1000* analyzer. It runs on all current versions of Microsoft® Windows.

SOFTWARE FEATURES

RecorderVIEW (Standard)
Record your field acceleration measurements directly to the *ObserVR1000* hard drive.

Transient Capture (Standard)
Capture a transient waveform for post processing. Use alone for data acquisition, or with SRS for Shock Response Spectrum analysis.

Analyzer (VR1607)
Standard: FFT, PSD, ESD
Optional: Cross Spectrum, Transfer Function, Coherence

Fatigue Damage Spectrum (VR1209)
Measure your product environment, characterize the severity, and generate a test profile accelerated to represent a lifetime of fatigue in a lab run test.

Shock Response Spectra (VR1302)
Perform Shock Response Spectrum analysis:

- SRS Pseudo Velocity
- SRS Acceleration plots
- Acceleration for primary (+), primary (-), or Maxi-Max. 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

Field Data Replication (VR9400)
Take your field acceleration measurements and reproduce them on the shaker in your test lab with the VR9500 controller.

Graphs
ObserVIEW 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.

Data Plots
ObserVIEW software allows for many graphical display options:

- Acceleration spectral density
- Historical data logging
- Real-time channel acceleration

Data Cursors

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

Data Storage
All of the test data can be stored to any disk, including the built-in SD Card or network drive, for later retrieval.

VFW Editor
Functions with or without hardware (Standard)

GPS Hardware
Record all location data automatically during signal recording.

ADDITIONAL FUNCTIONS

Our Customer Always Comes First
The *ObserVR1000* offers the same Vibration Research support you have grown accustomed to. Ongoing support is just as important to us as the initial installation. Based on customer feedback we have developed new data acquistion software and hardware to further expand our capabilities.

Confidence in Your Field Recording
Leave doubt behind with the TEDS capable *ObserVIEW* software. Your confidence level will be at an all-time high during your day-to-day recording.

HALT/HASS
- Data acquisition
- Compare to ED shaker testing
- Compare end use environments
- Compare HALT/HASS RMS Levels

Controller Verification
Using the drive and inputs, the *ObserVR1000* can be utilized to verify the shakers' output.

Shaker Health
Gather real-time shaker recordings to compare with previously recorded shaker data.

Compare Field Environments
- Single to multiple imported time histories
- Single, combined, or enveloped Damage Spectrum
- Gaussian PSD
- Introduce Kurtosion® to reflect actual peaks
- Compress test times
- Re-create known failures

Relative Damage Analysis & Comparison
- Specifications
- Test systems of same or different technologies
- End-use environments
- Product strengths

FURTHER APPLICATIONS

SOFTWARE HIGHLIGHTS

RecorderVIEW (Standard)

The *ObserVR1000* does not require special boards, PC drivers, or even a PC. Ready to get started? Simply connect a handheld device or PC to set up the *ObserVR1000*. Once set up, data can be collected with a simple press of the record button. Stream all the inputs and outputs to the SD card while running other test modes, or use independently as a field data recorder.

Long Waveforms
Collect waveforms up to 4 billion samples per channel. Waveforms can be over 22 hours long at a 52,000Hz sampling rate, over 100 hours long at a 10,000Hz sampling rate, and over 1 year long at a 100Hz sampling rate!

Complete Integration with Field Data Replication
Use the test wizard in VibrationVIEW's optional Field Data Replication software (VR9400) to proceed directly from field measurements to a test reproducing these measurements in your lab. No additional calibration or translation steps are required. Simply record the data and immediately run it on the shaker in your test lab.

Integration with Random
Collect your field acceleration measurements, and automatically convert the time waveforms into a random spectrum using VibrationVIEW's optional Random Import function (VR9204).

Data Plots
Many graphical display options are available, including all of the graphs available within the standard *ObserVIEW* software packages.

Waveform Editor
Edit your collected data - especially useful when the data has long "quiet" periods that are unwanted in the final data file.

FATIGUE DAMAGE SPECTRUM (VR1209)

Measure your product's environment, characterize the severity, and generate an accelerated test profile to represent a lifetime of fatigue in a lab run test. For years, people have used methods to calculate the lifespan of a product based on the material s/n curve. Rainflow cycle counting is applied to the actual measured vibration experienced by your product, lifetime fatigue damage is estimated, and an accelerated test is generated to reproduce a lifetime of damage in a short period of time.

Custom Frequency Axis
Normally Random Import is calculated linearly based on number of lines. Typically, FDS is calculated on a logarithmic frequency axis. You can set the frequency axis spacing and the start/end frequency on the user interface. User is in control of how many points and which points to calculate.

Time Domain Calculation
Calculation through time domain – not frequency domain – to account for kurtosis you will likely see in the real world. The Fatigue Damage Spectrum is based on the response of single degree of freedom systems rather than FFTs.

Includes Random Import
Compare multiple methods of generating a Random profile.

Display Imported File Statistics
Displays peak acceleration, velocity, and displacement, as well as the kurtosis of the time history file. This provides a quick and easy way to determine the statistics of a waveform.

Configurable Process Parameters
The user can define the slope of the s/n curve (beta) and quality factor (Q).

Reduce Test Time
User sets test item target life, based on product specifications, as well as test duration. The VibrationVIEW software automatically accelerates the profile to produce the same amount of fatigue damage in shorter test time.

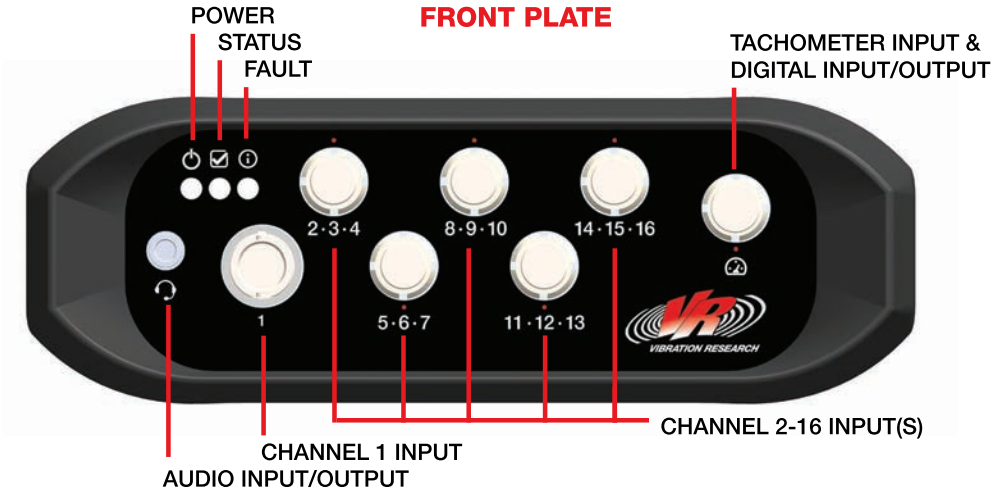
Analysis to Control
Transform your new Random breakpoints into a control profile with one mouse click. Go from a time waveform to a breakpoint profile and record, create, and control that profile all in one program.

OTHER FEATURED OPTIONS

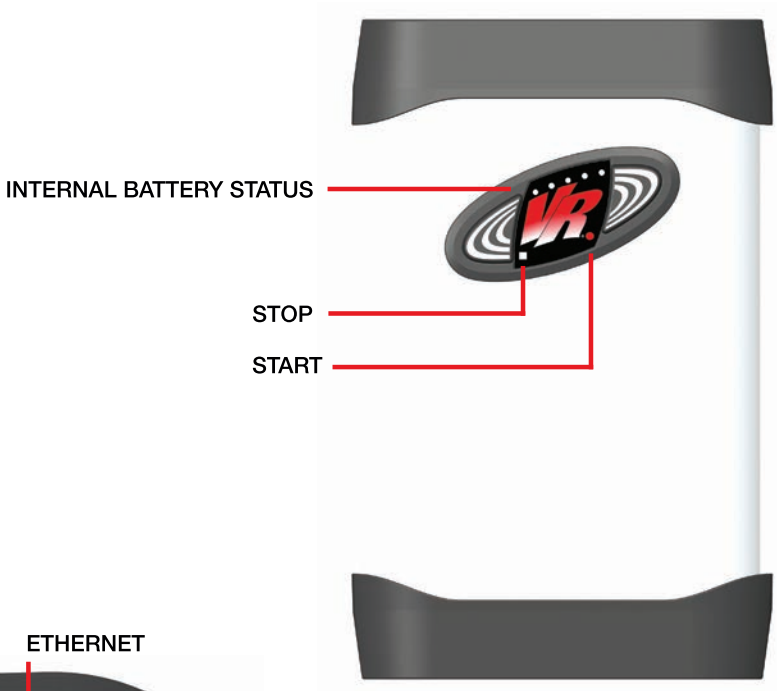
FDS Stand Alone Software (VR9209-SA)
Perform fatigue analysis and profile generation. Includes Random Import (VR9204) and ability to adjust kurtosis of overall random profile.

ObserVIEW HARDWARE

FRONT PLATE



TOP



BACK PLATE