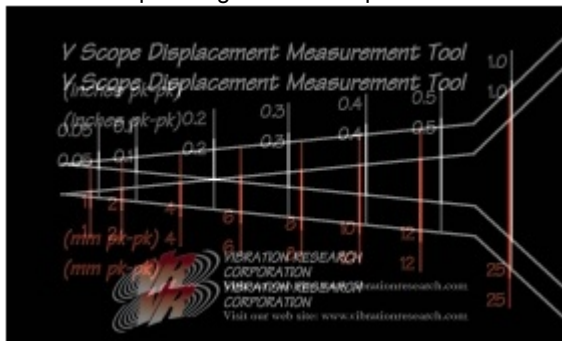


- This example image show a displacement of 0.2 in pk-pk.



- Use the V-Scope to provide a inexpensive independent verification of the accelerometer calibration.
- If the Displacement indicated does not match the displacement measured on the [channels toolbar](#)^[334] your accelerometer calibration is probably not entered correctly. Use menu command [Config .. Inputs](#)^[107] to verify the sensitivity is entered properly for your accelerometer.

1.2.16 How to set the shaker system limits

The controller checks the system specifications to determine if the shaker is able to perform the current test. The shaker force, velocity and displacement limit values only need to be entered once when the system is first configured. The fixture and product masses that are required to properly compute the acceleration limits of the shaker must be entered every time the fixture or product mass is changed.

To set the system limits, select the [Configuration..System Limits](#)^[113] menu command. In the dialog box, select either the system matching your setup or enter the specifications of your system. These specifications should be listed in the manual for your shaker system.

To enter the system mass, select the [Configuration..System Mass](#)^[114] menu command. Enter the masses for all the shaker parts on your system. If your system does not have one of the listed parts, enter zero for that item's mass. The sum of these mass values is used to calculate the maximum operating acceleration for your system using Newton's law:

$$\text{Force} = \text{mass} * \text{acceleration}$$

1.2.17 How to calibrate the controller

The controller calibration should be verified annually. It may not require adjustment annually. If approaching tolerance limits the controller can be adjusted using this procedure.

Note: If you just received your system from Vibration Research this calibration does not need to be done until the due date on the Calibration Certificate in the front of the manual.

Calibration ensures continued accuracy and reliable operation of your control system. The gains and offsets for each sample frequency are calibrated to an external DC source. Calibration is an optional feature of *VibrationVIEW*. If you did not purchase calibration the Configuration .. Calibration menu is not available and the system must be returned to a qualified lab for calibration. Contact Vibration Research to purchase the calibration option, or to arrange to have your system calibrated.

This procedure adjusts calibration of your controller matching a known voltage reference. This procedure will **not** give uncertainties or tolerances of your controller prior to adjustment, or after adjustment. [VR-669 Calibration and Verification Software](#)^[494] is available for this application.

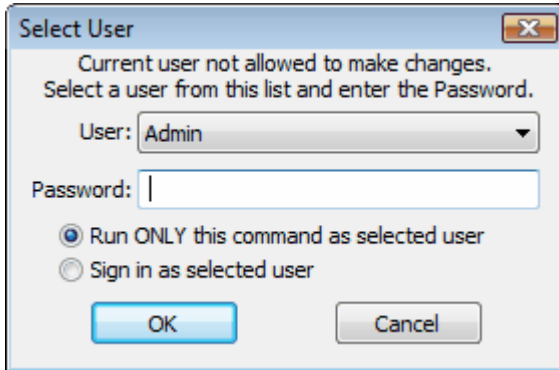
Required for Calibration

- (4) BNC cables
- (3) BNC T-connectors
- (1) Stable calibrated DC voltage source

To access previous calibration data, right-click on the Next button at the first screen of the Calibration screen and select Report.

Procedure requires approximately 30 minutes.

1. Connect a power cord to the VR8500.
2. Turn the unit on.
3. Run *VibrationVIEW*, and allow 1 hour for the temperature to stabilize before performing calibration..
4. Select the [Test..Test Type..System Check](#)^[132] menu command.
5. Select the [Configuration..Calibration](#)^[127] menu command
6. Click the "Next >" button on the calibration wizard



7. You must enter a administrator password to proceed. The Administrator account defaults are Username:Admin, Password:Control. These values can be changed using the 'Config .. Users' command You must enter a administrator username and password to proceed. The administrator account default username is 'Admin'. The default password for 'Admin' user is 'Control'. These values can be changed using the 'Config .. Users' command.
8. Connect four coaxial cables together with the three T-connectors.
9. Connect one end of the cable to a stable DC reference voltage source (1.000-2.000 Volts DC).
10. Connect the T-connectors and the end of the cable to channels 1-4 of the VR8500.



11. Enter the Calibrated DC reference voltage from the power source into the dialog box and click the "Next >" button.
12. The VR8500 will cycle through all the sample frequencies and calibrate all four channels to the reference source.
13. Connect one BNC Cable between the Drive output connector and channel 1 and a second cable between the COLA/AUX output connector and Channel 2. Click the "Next >" button.



14. The VR8500 will cycle through all the sample frequencies and calibrate both outputs to the inputs.
15. When the calibration is complete click the "Next >" button one more time to make calibration permanent. Warning!! This will overwrite the previous calibration information in the VR8500, so be sure that you have properly calibrated the unit before making these changes permanent. The EEPROM password to make these changes permanent is BurnEE (case-sensitive). Click the "OK" button in the password dialog box after entering the password.
16. Click the "Report" button to save the gain factors and offsets to a text file. This report documents that each sample rate was calibrated to the reference and serves as a diagnostic tool in case of calibration issues.
17. Click the "OK" button in the System Calibration Parameters dialog box to apply the new settings.
18. Calibration is now complete.

1.2.18 How to generate a report of calibration gains and offsets

1. Connect a power cord to the VR8500.
2. Turn the unit on.
3. Select the [Test..Test Type..System Check](#)^[132] menu command.
4. Select the [Configuration..Calibration](#)^[127] menu command
5. Click the "Next >" button on the calibration wizard with the **RIGHT** mouse button.
6. Click the "Report" button. The saved file lists gains and offsets of current calibration values.

1.2.19 How to use the Accelerometer Calibration option

The VR-632 Accelerometer Calibration option measures the sensitivity level of an accelerometer connected to the Channel 2 input, using an accelerometer on the Channel 1 input as the calibrated reference accelerometer. After measuring the sensitivity level, a frequency sweep is run to measure the frequency response of the accelerometer.

In the following we will use the following definitions:

UUT: Unit Under Test is the accelerometer connected to the channel 2 input, which is the accelerometer to be calibrated

REF: Reference Accelerometer is the accelerometer connected to the channel 1 input, which is your measurement standard.

The sample test "Calibrate Channel 2.vsp" demonstrates the use of this option. It is assumed that your shaker has both the REF and UUT accelerometers connected such that they both measure the same acceleration. This is typically done using a piggy-back mount at the center of the shaker. If you run the Ch2 calibration feature with alternate units enabled on channel 1, then the same input configuration will be copied to channel 2. Load this test by selecting the 'Open Test' toolbar button, or select Test .. Open Test from the menu.



OpenTest

Select the "Calibrate Channel 2.vsp" test from the list of tests. Note that it may be necessary to change the "Files of type" setting to "*VibrationVIEW* Sine Profiles".