



DATS V3.1

Quick Start Guide

DATS runs under Windows (Vista • 7 • 8 • 10)
DATS Hardware and Software are Designed and Engineered in the USA
Software updates at: trueaudio.com/dats

***** VERY IMPORTANT SAFETY NOTE *****

NEVER connect the DATS test leads to a speaker that is connected to any other equipment or to an equipment ground! Severe damage could occur to the DATS unit or to the other equipment! Only connect DATS to an unconnected loudspeaker.

Congratulations on your purchase of the Dayton Audio DATS V3 Test System! DATS V3 is the third generation of the popular DATS loudspeaker test system. Here are step-by-step instructions to get you going quickly. Later, as you wish to learn more about using DATS, you can **see the User's Guide under the Help menu.**

1) Install the DATS software.

Locate the downloaded file named "DATS_V3_setup.exe". Double-click on the file to start the installation process. Follow the on-screen instructions to complete the software installation. **Don't launch the DATS application software yet.**

2) Connect the DATS hardware unit to any convenient USB port on your computer.

Any USB port on your PC can be used with DATS and normally no setup is required. Windows may take a moment to install a driver when the unit is connected for the first time.

3) Launch the DATS application software.

From the Windows "Start" button select "All Programs" then select "DATS". The DATS software will launch.

4) Calibrate at 1k Ohms.

Connect the test leads to the metal calibration terminals at the DATS V3 front panel. Select "Impedance Calibration..." under the "Impedance Analyzer" menu and follow the instructions to calibrate the system at 1k Ohms using the built-in $\pm 0.1\%$ calibration resistor. The software will test the reference resistor and plot the results. Verify that the value displayed in the R_E field at the right side of the screen is very close to 1000 Ohms. If not, repeat the calibration procedure. A value between 995 and 1005 Ohms is normally expected.

5) Calibrate the test leads.

From the DATS "Impedance Analyzer" menu select "Test Leads Calibration...". Short the test leads by clipping them together and click OK to calibrate the software for the test lead resistance. The test lead resistance should be less than 1 Ohm as seen at the bottom right of the typical DATS screen shown in Figure 1. If the test leads fail to calibrate select "Impedance Calibration..." under the Impedance Analyzer menu click on "Restore Default Calibration" and repeat the test leads calibration procedure.

6) Test a Speaker...connect the DATS alligator clips to the terminals of a speaker.

The speaker **MUST NOT BE CONNECTED** to anything else such as an amplifier, other electrical equipment or ground. For best results clamp the driver in place and allow adequate clearance for any rear pole piece vents.

7) Click on the "Measure Free Air Parameters" button at the left of the DATS window.

You should hear the sweep and then see the impedance response plotted on screen similar to Figure 1. The impedance magnitude is shown as a blue plot with the phase response shown in red. Several of the speaker's free air parameters are displayed in the Parameters Bar at the right side of the screen. The bar at the left side on the window is where you set the impedance and frequency limits for the current display.

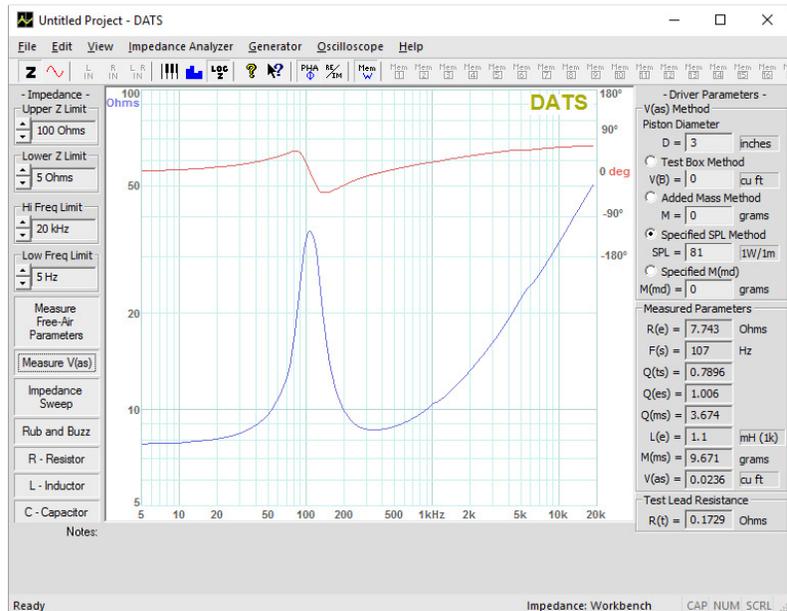


Figure 1: A Typical DATS V3 screen

8) Measure the driver's V_{AS} .

Once you have measured the speaker's free air parameters the "Measure V(as)" button becomes enabled. Select one of the four methods to measure the V_{AS} at the upper right side of the DATS screen. The four V_{AS} measurement methods are:

- | | |
|-------------------------------|------------------------------------|
| 1.) Test Box Method | - requires a suitable test box |
| 2.) Added Mass Method | - requires you to add a known mass |
| 3.) Specified SPL Method | - requires the SPL be known |
| 4.) Specified M_{MD} Method | - requires the M_{MD} be known |

Enter the required data and then press the "Measure V(as)" button to start the measurement procedure.

9) After measuring the speaker you can:

- Save the data to one of 20 project memories (Alt+1 saves to Memory 1 for example)
- Save a DATS project file (file extension .tzz) which includes your test setup and all 20 memories
- Export the parameters and impedance data in either ".txt" or ".zma" formats
- Overlay plots of various measured impedances from the 20 memories for detailed comparison
- Print a report showing the impedance and parameters of the displayed memories

10) Quit DATS.

Quit the DATS application software by using "Ctrl+Q" from the keyboard or by selecting "Exit" under the "File" menu.

11) Future sessions with DATS.

In the future when you want to use DATS you only need to connect the DATS hardware unit and launch the DATS software. The software will retain its calibration and user settings from session to session, but it is still a good idea to verify the calibration occasionally using the supplied calibration resistor. For full details on using DATS see the User's Guide under the Help menu.

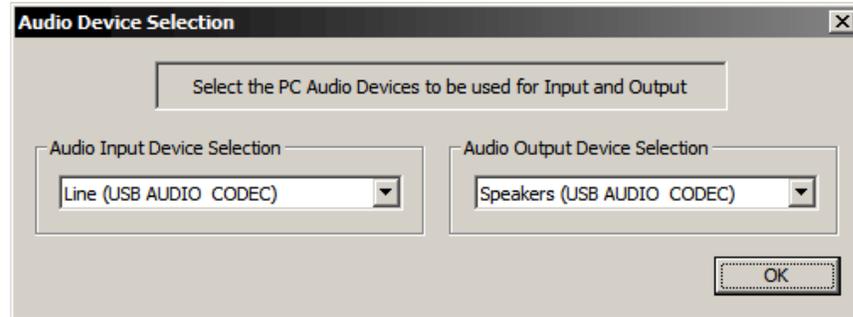


DATS V3 Troubleshooting:

Normally the DATS V3 software automatically detects the DATS hardware, uses the default settings with no adjustments being necessary. However, if there is a problem, these are the settings you should verify. This guide assumes that you are using DATS V3 software with DATS V3 hardware.

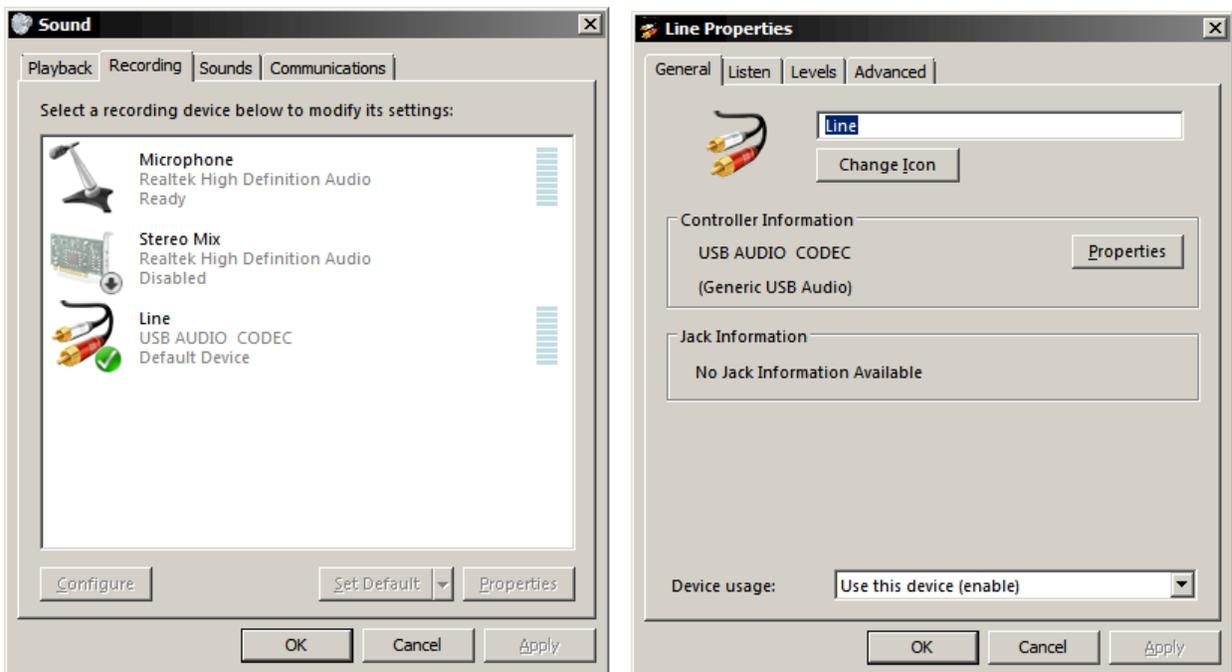
1. Make sure the correct hardware device is selected.

Look under the Edit menu and open the Audio Device Selection dialog. Make sure that “USB AUDIO CODEC” is selected for both input and output as shown below.

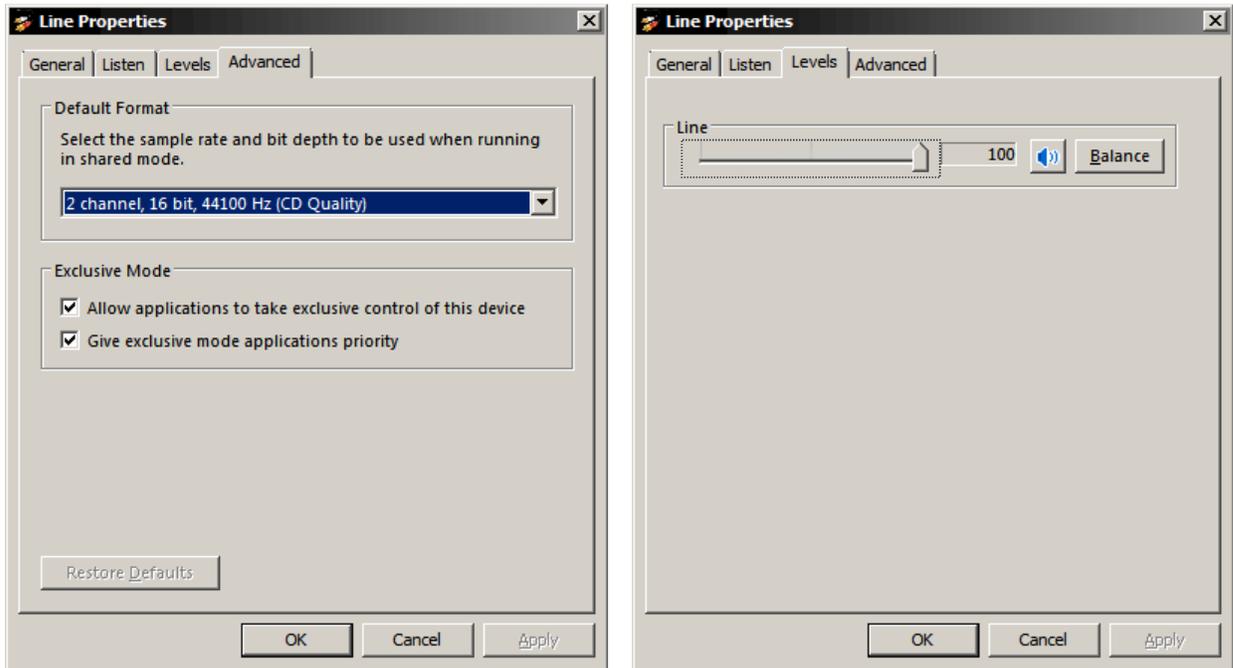


2. Examine the USB port settings to verify 2-channel input at 44.1 kHz. Verify the input level.

From the Windows “Start” button select Control Panel/Sound. Once the Sound control panel opens select the “Recording” tab as seen below (left). Next, double-click on the Line device “USB AUDIO CODEC” to open the Properties window seen below (right).



Switch to the “Advanced” tab and select “**2 channel, 16 bit, 44100 Hz (CD Quality)**” as seen below (left). *Now click Apply*. Next, select the “Levels” tab and make sure the level is set to maximum as seen below (right) and that it is not muted. DATS will not operate correctly with 1 channel input or at sampling frequencies other than 44.1 kHz.



Click the “OK” button once to close the Properties window and then click “OK” again to close the Sound Control Panel.

3) Raise the Windows volume control to maximum.

From the task bar raise the Windows master volume control to maximum.



The DATS V3 Setup Chart:

The chart below shows a summary of the Windows Sound Control Panel settings for DATS V3.

Sound Control Panel Settings for DATS V3			
Windows Version	Default Format (input and output)	Playback Level (1 to 100)	Record Level (1 to 100)
Vista, 7, 8, 10	2 channel, 16 bit, 44100 Hz (CD Quality)	100	100

Using DATS V3.1 Software with early V3 Hardware Units

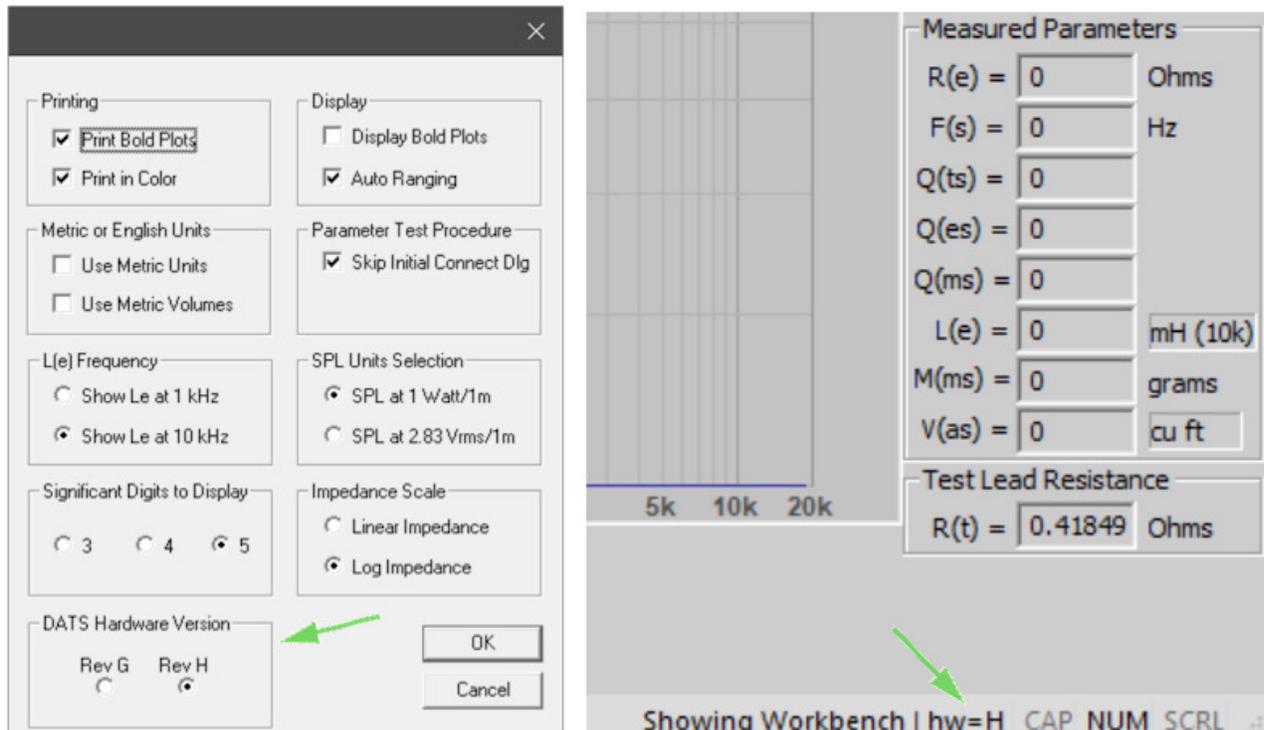
Small hardware changes between the first production batch of DATS V3 units and subsequently produced units require user selection of the correct hardware version when using V3.1.0 software. The software selection is necessary in order to achieve accurate calibration over the full impedance range. The latest versions of DATS have the revision letter “H” clearly displayed on the bottom of the unit and normally require no further action by the user when installing DATS V3.1.0 software.



Identification of DATS V3 Rev G versus Rev H hardware units

If your DATS V3 hardware unit has no revision letter on the bottom then determine which version of hardware you have as follows. Rev G units have empty screw holes on the sides with no counter sinking.

If you have a Rev G unit and are using V3.1.0 software (or later versions) open the Preferences dialog (under the Edit menu) and change the selection to “Rev G” in the hardware selection group seen below:



Your hardware selection will be remembered by the software. The selected version is shown in the status bar.