

TerraLink

Audio Toolbox Link Software

User Manual

Version 1.02



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Quick Start

No time for manuals? Read this section to jump-start TerraLink!

- **Install it.** On the Mac, just copy the TerraLink folder to your hard disk. Then run the TerraLink program. On the PC, run the Install program.
- **Connect the Toolbox.** Plug the Toolbox computer interface cable into the MIDI in and Out ports on the Toolbox, and into the computer's serial port. Most Macs require a USB to serial interface device.
- **Enter the Registration code.** A registration code is required to fully use TerraLink. If you do not have a registration code, you will be able to run the program as a viewer. To enter the code, use the Registration Codes function on the Edit menu.
- **Play around.** Since you don't like manuals, just try on your own. It's pretty easy. Just know that basically, you will open a new project, and Upload the memories from the Toolbox. Or, if you don't have a registration code, just open the example file. The rest should be obvious. For the real-time interface, just run that function after selecting a port. The Toolbox will need to be in the RTA, FFT, or Energy-Time Graph function.
- **But I want to do more...** Well, read on. You will learn how to cut and paste project files, save multiple project files, store them back into the Toolbox, do advanced graphing and math tricks, and print graphs.

Computer Requirements

An Apple power PC running OS 8.5 to OS 9.2 is required. If you are running OS X, you will need to run TerraLink in Classic mode.

Serial Communications

Apple computers are no longer made with serial ports, so a USB to Serial adapter is required to use TerraLink on a Mac (and on some PCs). We have tested several interfaces and have had good luck with the single serial port versions of the Belkin brand of adapters.

Also, a copy of the Serial Tool (a Mac operating system component) is required to use this program. If your Mac does not have the Serial Tool installed in the System folder, you can download a copy of one from the Apple web site, or contact us for a copy. (They are free).

Registration Codes

TerraLink uses Registration Codes as a means of licensing the software. If you do not have a Registration Code, the program will work as a viewer. Also, the functions that interact with a Toolbox will only work if a Registration Code was obtained for that Toolbox. Separate Registration Codes are required for every Toolbox that you wish to work with.

Registration codes are stored on the computer's hard disk, in a preference file (Mac) or the Registry (PC). You can purchase as many Registration Codes as you wish, if you need to work with more than one Toolbox. You can install TerraLink on as many computers as you like, and as long as you have the correct Registration Codes it will communicate with the connected Toolbox.

If the software is un-registered, you will be able to open Project Files and examine graphs, and print, but you will not be able to create or save Project Files, or communicate with a Toolbox (upload or download memories or use the real-time interface). You can send the TerraLink program to a client with your project file so that the client can view and print data.

Note that the registration codes are also stored in the preference file, so if you delete it, you will need to re-enter the codes.

Preferences

TerraLink stores a set of preferences in a normal Apple preference file. This file can be found in the Preference folder in the System Folder.

Serial Connection

You need to set the serial connection before using TerraLink. If you do not set it, you will be prompted to set it. This setting will be stored in the preference file.

Colors

Screen colors can be set and stored here.

User Information

You can enter information about your company and the project that will be printed on each graph.

You can enter a company name and address, phone number, person's name, project (or customer) name.

You can also select whether or not to print the current date and time on the graph.

Project Files

The basis for TerraLink is the Project File. A Project File can hold 40 memories (just like a Toolbox). Usually, you will start a new Project File, load the memories from a Toolbox, and go from there. You can save the file to your hard disk, email it to someone else, and store it back into your Toolbox or a different Toolbox.

You can open several Project Files at once, and cut, copy and paste memories from one to another, creating a Project File that is a composite of memories created at different times, even from different Toolboxes.

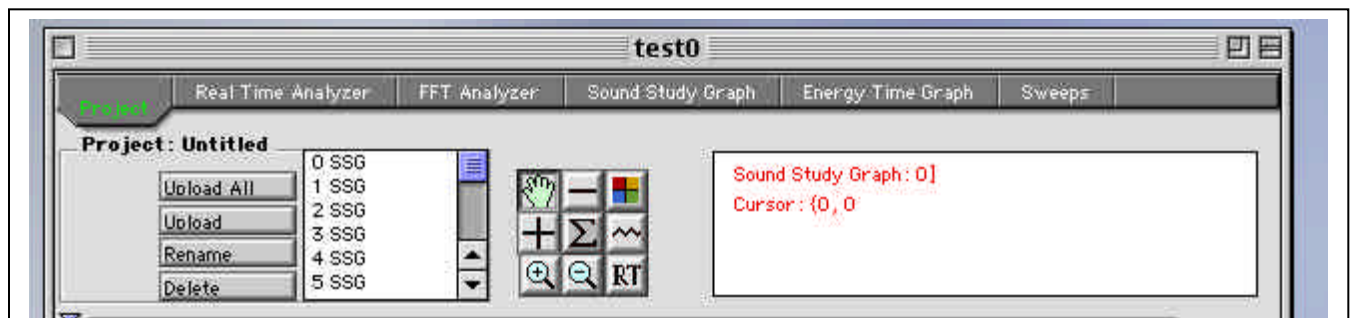
In some cases you can sum several graphs of the same type and store the results back into the Project File as a new memory. This memory can then be used as the basis for a difference mode display.

You can also capture real-time data into a memory and copy the new memory into a Project File.

Manipulating Project Files

The Project Tab

Each open Project File window contains a Project tab. This is the place where you can modify the project file's contents.



Project Tab Screen

The first thing you will probably want to do is to get the memories from the Toolbox into TerraLink.

Importing Memories

To import memories into a project file:

- Connect the Toolbox to the Mac using the TerraSonde interface cable
- Change to the Computer Interface function on the Toolbox Utilities menu
- If you have not yet selected your serial port connection, open the Preferences file on the Edit menu, and select your serial connection
- On the Mac, select File, New to create a new empty project file
- Click on the Projects tab to bring it to the front
- Click on the Import All button to transfer all 40 memories from the Toolbox to the project file, or click on Import to transfer only one memory.

Once the memories have been transferred into the Project File, you can click on the tabs to view the memories.

You can rename individual memories with descriptive tags, re-order the memories in the file, and delete memories. To make it easier to work with multiple Project Files, you can close the graph window on the lower part of the Project File Window while leaving the upper part of the window open. Thus, each Project File will take up the least room on the screen.

To move or copy memories from one Project File to another, just open both Project Files (to get two Project File windows), select the Project tabs, and use the mouse to drag memories from one file to another. Note that you must have room in the destination Project File, so you may need to delete memories from it if the file is full.

Or, create a New Project File, and drag memories from other Project File windows into the new Project File to make a new Project File.

The memories from any Project File can be transferred to a Toolbox by using the Export Memories button on the Project Tab.

Exporting Memories

To export the memories from a project file to a Toolbox:

- Connect the Toolbox to the Mac using the TerraSonde interface cable
- Change to the Computer Interface function on the Toolbox Utilities menu
- If you have not yet selected your serial port connection, open the Preferences file on the Edit menu, and select your serial connection
- On the Mac, click on the Projects tab to bring it to the front
- Click on the Export All button to export all 40 memories, or click on Export to transfer one specific memory to the Toolbox.

The memories will be transferred into the Toolbox and will be available for recall in the functions.

Tools available to all graphs

The Tools available for each graph vary, but some tools are used by all graphs. These are:

Edit Colors Tool

This tool pops open a window that lets you change the color of any of the graphs on the screen.

Graph Scale & Range

To change the vertical graph scale, use the scrollbar on the left of the window to drag the graph up and down, and use the small arrows at the top of the scrollbar to change the range (max and min) of the graph. You can also change the grid to show lines every 10 dB, 5 dB, or 1 dB.

Zooming

Selecting the + magnify tool lets you use the cursor to draw a box around an area that will become the new graph area. This lets you zoom in to examine any part of the graph in detail. To get the graph back to full size, click the – magnify tool.

Readout Cursor

Selecting the Readout Cursor (Large +) lets you click on points on the graph and display the actual values of those points in the data window.

Print Tool

To print the current graph, just click the Print tool. Note that graphs are always printed without the Readout Cursor, fully zoomed out.

The Real Time Analyzer Tab

To look at the RTA memories in the Project File, click the RTA tab. Now, use the Select Memories button to see a list of all RTA memories in the Project File. If you click on the memory name, a check mark will appear in front of the memory name, and the graph will be displayed on the screen. Click again to remove the check mark and erase the graph from the screen.

You can display as many RTA graphs as you like on the screen. Each will show up in a new color.

Average Tool

Select the Average Tool (looks like a summation symbol) to algebraically average all of the graphs currently being shown. Note that since this is a true algebraic average, 60 dB and 80 dB do NOT average to 70 dB.

The resulting average curve may be stored as a new memory by using the Copy function on the Edit menu.

Difference Tool

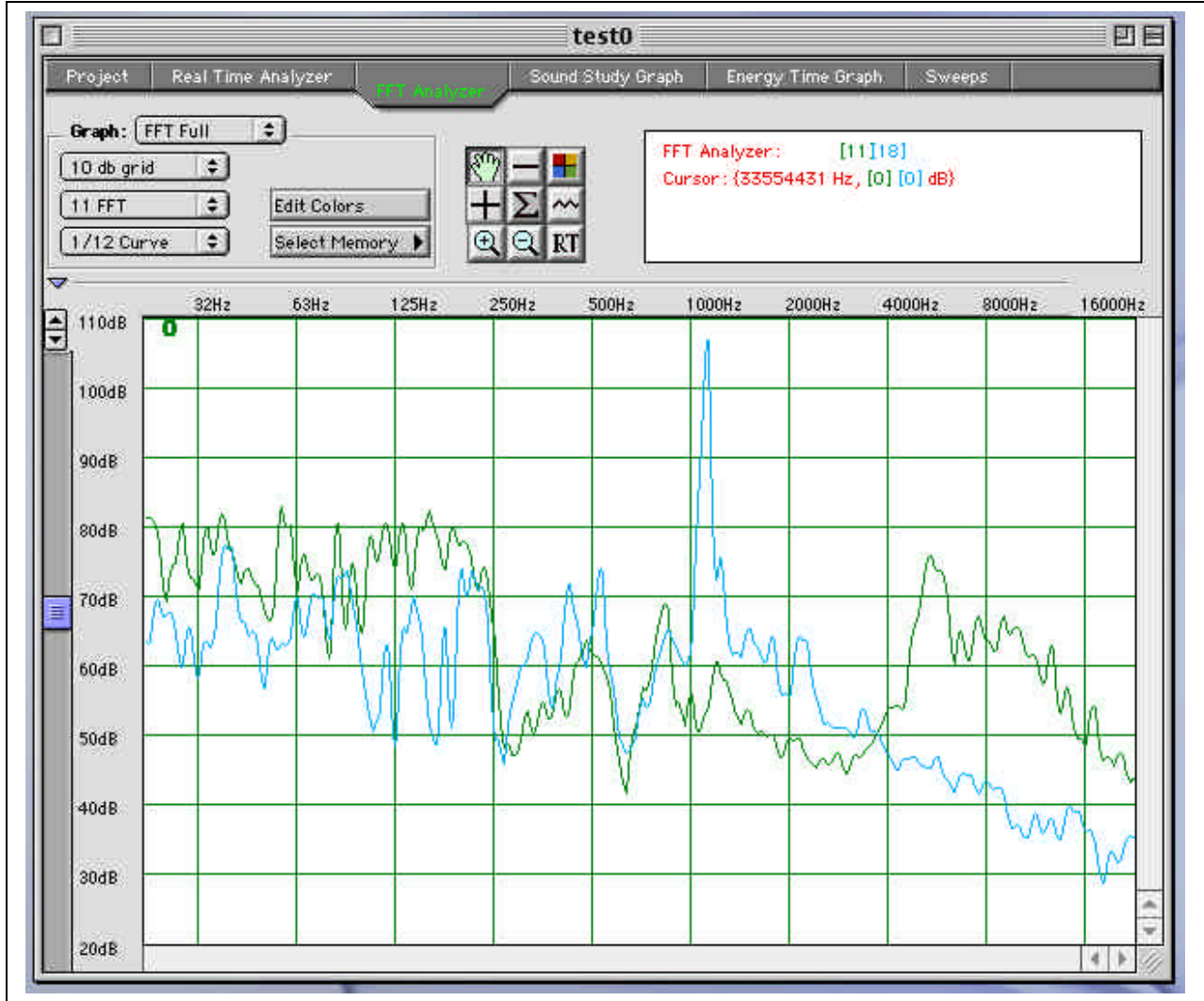
Selecting the Difference Tool (looks like a large minus sign) lets you see how one or more graphs compare to a reference graph. The reference graph is selected on the pull-down menu to the left of the Difference Tool button. In this case, as is customarily done, the difference is in dB, so 70 dB minus 60 dB is 10 dB.

The FFT Analyzer Tab

Selecting this tab allows you to see any of the FFT graphs that are members of this Project File. Use the Select Memory button to display or erase memories from the screen.

You can display as many FFT graphs as you like on the screen. Each will show up in a new color. You can change the colors of each graph by clicking on the Edit Colors button.

FFT Analyzer Screen



Graph Type

You can select between 7 different graph formats for viewing the FFT data. These include the normal octave, 1/3 octave, 1/6 octave, and 1/12 octave bars that are the same as the bars seen on the Toolbox screen, as well as octave, 1/3 octave, and 1/12 octave graphs that have been curve-fit and smoothed. The curve-fit algorithm used is a spline, with as many output points as there are points on the zoomed-out screen.

The bars are created using algebraic summing (as on the Toolbox), so as you consolidate the data more, the level of the bar will rise. The curves that are drawn always use the 1/12 octave data, so they do not rise as the smoothing is increased.

Average Tool

Select the Average Tool (looks like a summation symbol) to algebraically average all of the graphs currently being shown. Note that since this is a true algebraic average, 60 dB and 80 dB do NOT average to 70 dB.

The resulting average curve may be stored as a new memory by using the Copy command on the Edit menu.

Difference Tool

Selecting the Difference Tool (looks like a large minus sign) lets you see how one or more graphs compare to a reference graph. The reference graph is selected on the pull-down menu to the left of the Difference Tool button. In this case, as is customarily done, the difference is in dB, so 70 dB minus 60 dB is 10 dB.

The Sound Study Graph Tab

This tab selects the Sound Study Graphs stored in the Project File. You can only display one Sound Study Graph at a time. Along with the standard tools, you can also use the Set Start Time tool.

Set Start Time

This tool lets you enter a start time of day for the graph, so that all times on the graph are shown relative to this time.

The Energy Time Graph Tab

You can see any Energy Time Graphs that are stored in the Project File with this tab. Only one ETG can be viewed at a time. There is one special tool available.

RT60 Tool

If you select the RT60 Tool (looks like a slanting line) you can set the 2 endpoints of a line that represents a slope on the ETG. This slope is translated to an equivalent RT60 time and the time is displayed in the data box. Printing the graph will print these lines and the RT60 time.

The Sweeps Tab

This tab shows the stored amplitude and impedance graphs. You can view multiple sweep graphs (of the same type) at the same time on the screen.

Average Tool

Select the Average Tool (looks like a summation symbol) to algebraically average all of the graphs currently being shown. Note that since this is a true algebraic average, 60 dB and 70 dB do NOT average to 65 dB. Impedance curves are averaged numerically in ohms.

The resulting average curve may be stored as a new memory.

Difference Tool

Selecting the Difference Tool (looks like a large minus sign) lets you see how one or more graphs compare to a reference graph. The reference graph is selected on the pull-down menu to the left of the Difference Tool button. In this case, as is customarily done, the difference is in dB, so 70 dB minus 60 dB is 10 dB.

Real-Time Interface

TerraLink provides a real-time interface that displays the RTA, FFT, and Energy Time graphs on the computer screen as the function is running on the Toolbox.

To use this feature, with the Toolbox connected to the computer, select the desired serial port, and then run the Real Time Interface function, from the ATB Link menu. Then run any of the supported functions on the Toolbox, and click the GO button on the computer screen, in the Real Time Interface window. You should start to see the computer graph immediately displaying the graphical data from the Toolbox.

This TerraLink screen is updated every time that the Toolbox screen is updated, and is smoothed between Toolbox updates with extrapolated data.

To freeze the display, click the Stop button.

You can use the Copy function on the Edit menu at any time (stopped or running) to store the current memory data on the clipboard. Then you can switch to any open Project File window and use the Paste function on the Edit menu to paste that memory into that Project File, as long as there is space available in the Project File.

The Real Time Interface window has these tools available:

Graph Scale & Range

To change the graph scale, use the scrollbar on the left of the window to drag the graph up and down, and use the small arrows at the top of the scrollbar to change the range (max and min) of the graph. You can change the grid to show lines every 10 dB, 5 dB, or 1 dB.

Zooming

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Readout Cursor

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Print Tool

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