



D2 Acoustical Measurement System

Studio QuickStart Guide

Version 1.8

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Welcome to the **AcoustX D2 Acoustical Measurement System**, Studio Version, and **win|RTA** software. This guide will provide you with an overview of setting up and connecting the hardware, and installing and running the software. The QuickStart Guide serves as a basic reference for the **D2** system, but is not intended as a detailed guide to operation of the system. More detailed reference information regarding system operation and the performance of acoustical tests is provided through separately offered training seminars. Contact AcoustX regarding the availability of training seminars.

IMPORTANT NOTES

- Be sure to plug in the Firewire connector on the back of the Traveler in the proper orientation. It is possible to force it in upside down.
- If you want to power the Traveler by bus power, your computer must have a built-in 6-pin Firewire port. You can run on bus power from a card adaptor, but you must add external power to your adaptor card.

When you see a button with a bar on the right side, this indicates that when you click on it, a drop-down menu will appear.



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Version 1.8

Limited Warranty

AcoustX warrants the D2 Acoustical Measurement System hardware and its parts against defects in materials or workmanship for a period of one (1) year from the original date of purchase. During period, AcoustX will repair or replace a defective product or part without charge to the customer. The customer is responsible for delivering the defective component (or the entire D2 Acoustical Measurement System, if requested) to AcoustX. The customer must pay for all shipping and insurance charges transportation of the defective component(s) to AcoustX for repair. AcoustX will assume responsibility for shipping and insurance charges involved in returning the component(s) to the customer. The win|RTA software is distributed on an "as is" basis, without warranty. AcoustX makes no representation or warranty, either expressed or implied, with respect to the software programs, their accuracy, quality, or fitness for a specific purpose. AcoustX shall have no liability to the purchaser, or to any other person or entity with respect to any liability, loss, or damage caused, or alleged to have been caused either directly or indirectly by the software contained on the distribution disk. This includes, but is not limited to, interruption of service, loss of data, time, or profits, or consequential damages resulting from the use of the software. If the distribution medium is defective, you may return it for a replacement within the warranty period.

HARDWARE CONNECTION



- 1) Used to configure the Traveler. See Installation Procedure below.
- 2) These controls set the microphone input gains. When using the D2 Studio Version, the gains should be set to +12 dB. The 48V switch should be to the right, enabling phantom power to the microphones.
- 3) The optical I/O and ADAT SYNC IN are not used.
- 4) Not used in most situations.
- 5) Firewire connection to computer. Use either connector. **BE CAREFUL TO PLUG THE FIREWIRE CONNECTOR IN CORRECTLY. IT IS POSSIBLE TO FORCE IT IN UPSIDE DOWN!**
- 6) AES/EBU I/O used to measure dBFS and to generate test signals in the digital domain.
- 7) Used to configure the Traveler. See Installation Procedure below.
- 8) Panel readouts for Traveler configuration and signal indication.
- 9) S/PDIF I/O used to measure dBFS and to generate test signals in the digital domain.
- 10) Analog I/O
 1. There are 8 balanced outputs. For correct output levels, you must indicate whether or not you are terminating the outputs balanced or unbalanced. There is a 6 dB difference between these settings.
 2. In normal operation, Traveler Inputs 1-4 are reserved for microphones, so the Traveler Input #5 is Channel 1 on the win|RTA software. Input #6 is Channel 2. Your Traveler will have a label to correctly identify the inputs as 1 & 2.
- 11) Phantom powered microphone inputs.
- 12) Rack ears (not typically used with the D2).
- 13) Not used.
- 14) Power – three ways of powering the Traveler
 1. Bus power from 6 pin Firewire connector. Note that most laptops have 4-pin connectors, and thus are unable to utilize this option. Pcmcia cards cannot supply power without themselves being externally powered.
 2. The Traveler can be powered from standard lighting battery packs utilizing 4-pin xlr connectors (optional).
 3. External power adaptor (supplied).

Installation Procedure

First install the Traveler software from the MOTU cdrom by following this procedure:

- 1) Insert cd into computer cd drive and click on My Computer to open the cd.
- 2) Open "Firewire, USB2 Audio" folder, then 32-bit firewire folder.
- 3) Double-click on Setup.exe.
- 4) Five drivers will be installed.
- 5) Remove the cd from the computer and reboot.
- 6) Connect the Traveler and then turn it on.
- 7) The "Found New Hardware" window will pop up. (If the hardware wizard does not recognize the hardware as MOTU, then the software may not have been installed properly.)
- 8) The wizard will ask "Can Windows connect to Windows Update to search for software? Answer "No, not this time".
- 9) In the next window, click "Install software automatically".
- 10) If you get a warning that the driver is not digitally signed, click continue anyway.
- 11) Three drivers will be installed.
- 12) Configure drivers by opening the MOTU Audio Console. Select "Enable full Wave support for legacy (MME) software". Set Sample Rate to 48000.

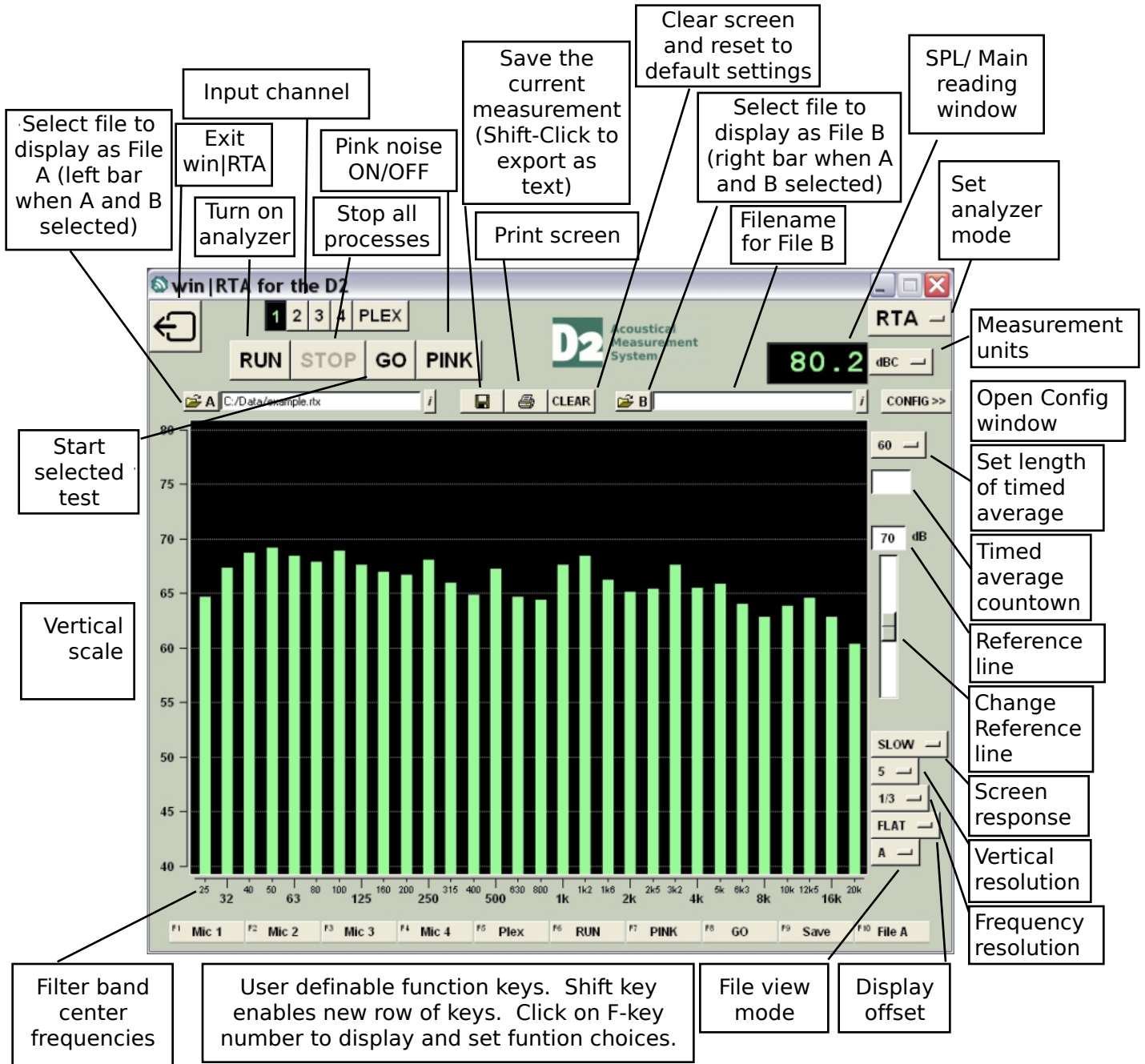
Then install the win|RTA software for the AcoustX cd. Insert the cd and double-click on the Setup icon. Follow the instructions during the installation.

Open the Config menu in win|RTA. Select the "Mics" button and load the microphone calibration files. The serial numbers are assigned in ascending numerical order (see Config screenshots later in this document). Next, with the Traveler connected and turned on, select the "Interfaces" button and click on "Select". Choose MOTU Traveler from the list of available interfaces. Click "Save Configuration".

The Traveler contains all the necessary parameters for proper operation with win|RTA. If you want to verify that the Traveler is set correctly, you can reload the Studio Preset. There are two ways to do this. First, you can use the Cuemix software that is automatically installed. From the File menu, select Load Preset, then select Studio. The preset can also be loaded from the Traveler front panel. Push Mix/Setup. Turn this knob to "Load Preset". Push Select "[1]Studio". Press Mix to exit.

The Studio Preset can be created from the the Traveler default settings. First, using Cuemix, set all faders to minimum. Then set the mic input channels, inputs 1-4, to +12 dB gain. This can be verified by pressing the input gain for each channel once. The gain setting will appear on the Traveler display. Save the Preset as "Studio".

Main Software Screen



SPECIAL KEYS AND FUNCTIONS

- ESC key kills all processes
- PgUp/PgDn or mouse wheel moves reference line
- Shift shows new row of function keys
- Shift-click on Save button to export as text (.TXT)
- Click and drag mouse on display to zoom view in RTA mode
- Right-click displays edit menu when in comment
- Hold cursor over filename field to see full pathname

CTT MODE KEYS

- Up/Down arrow moves among menu selections
- Left/Right arrow moves in or out of current menu
- Alt-Left Arrow moves up one level when in a data entry field
- Shift-click on Home CTT Coverage test button to rename

X-Y

- Shift-click-drag moves both channel gains together

Configuration: Profile

Configuration Options

Profile | Display | Mic

Interfaces | Input | Output

Save Configuration

Operator

Company

Room ID

Data Dir

System Personality

Cinema Mix Home

Length Units

Feet Meters

Window Size

Normal Netbook

Write configuration data to disk

Select data directory

Set default units for measurements

Technician name

Organization

Name of theatre

Selected data directory Defaults to "My Documents"

Set software options for type of room under test

Normal is for displays 1024x768 or larger. Netbook is for the smaller netbook screens, typically 1024x600. Save Configuration and restart win|RTA to take effect.

Configuration: Display

Configuration Options

Profile **Display** Mic

Interfaces Input Output

Save Configuration

Octave Grid

Show Values

Balloon Help

Cell Uniformity

User Avg Time

X-Curve Position

Variable X-Curve

202M # Seats

Sliding Knee Room Length

Data Averaging

File #1	<input type="text"/>	Clear
File #2	<input type="text"/>	Clear
File #3	<input type="text"/>	Clear
File #4	<input type="text"/>	Clear

Gain Leveling

Calculate

Display octave markers

Show bar values when cursor is moved over a bar

Enable balloon help

Set display for Cat. No. 566 test film (film projectors)

Set length of User Average

Change the vertical position of the X-Curve

Enable Variable X-curve

The variable X-Curve can either change the slope of the curve (according to SMPTE 202M) or the frequency at which the slope begins (the knee).

Average data from previous measurements. This is useful if you wish to use one microphone and get results similar to using the multiplexer. Make measurements at four different positions, load the four files, and click Calculate. For best results, load the data taken at reference position into File #1 and enable Gain Leveling.

Configuration: Microphones and Interfaces

Configuration Options

Profile | Display | **Mic**

Interfaces | Input | Output

Save Configuration

Apply Mic Calibration

Mic 1 S/N	1001	Clear
Mic 2 S/N	1002	Clear
Mic 3 S/N	1003	Clear
Mic 4 S/N	1004	Clear

Mic Bump Adjustment (dB)

Mic 1

Mic 2

Mic 3

Mic 4

Mic Disable

Mic 1

Mic 2

Mic 3

Mic 4

Enable and load microphone calibration files.

Adjust the gain of individual microphones.

Disable one or more microphones

Select audio interface

Enable D2 Controller (Cinema Version)

Configuration Options

Profile | Display | Mic

Interfaces | Input | Output

Save Configuration

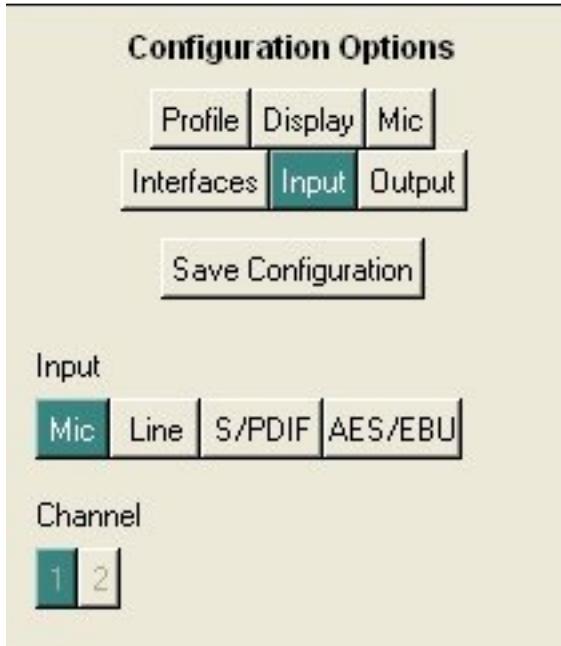
Audio Interface

Select

Show Connection Diagram

D2 Controller Present

Configuration: Input and Output



Select Input

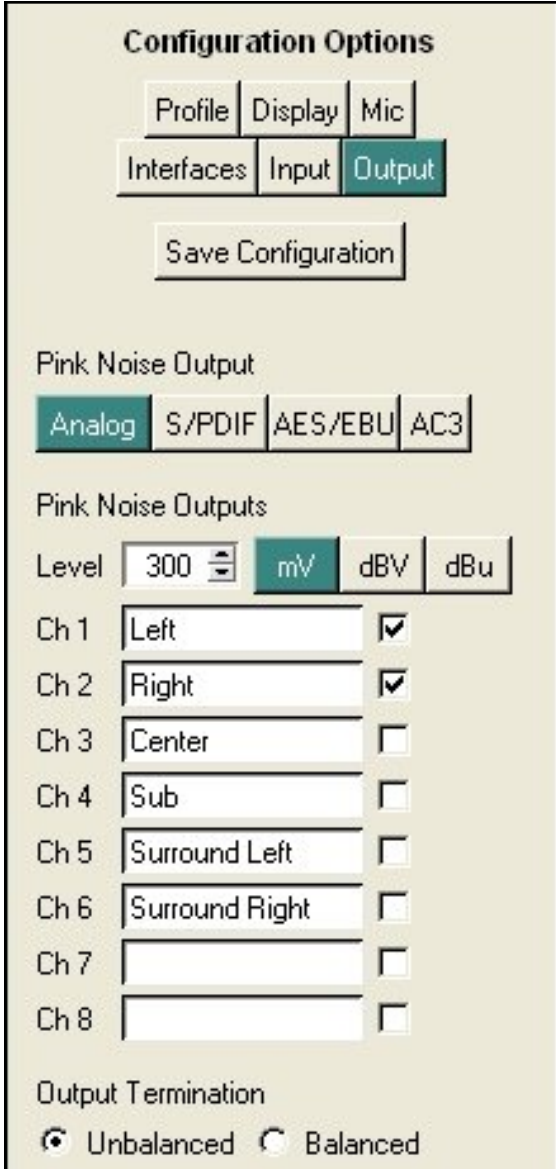
Select input channel for line input.
(Mic selection is on main screen)

Select test signal output port

Set units of measure and level for outputs

Enable outputs. In Analog mode, the channels can be named.

Set output termination for accurate readout in Level box above.



X-Y Oscilloscope

The screenshot displays the AcoustX software interface. At the top, there are window controls and a title bar. Below that, a navigation bar includes buttons for 'RUN', 'STOP', 'GO', and 'PINK'. The main display area is divided into two sections: an X-Y Oscilloscope on the left and a frequency response plot on the right. The X-Y Oscilloscope shows a green diagonal line on a black grid. The frequency response plot shows a series of green vertical bars representing the magnitude response across a frequency range from 25 to 20 kHz. The y-axis ranges from -60 to -20 dBV. The interface includes several control panels for channel selection, measurement units, gain, and position. Callout boxes provide instructions for adjusting these settings.

Mode Select

Set channel to display on RTA

Set measurement units

Adjust X gain

Move X-Y display horizontally

Adjust Y gain

Move X-Y display vertically

Dual Trace Oscilloscope

