



# D2 Acoustical Measurement System

## QuickStart Guide

Version 2.4

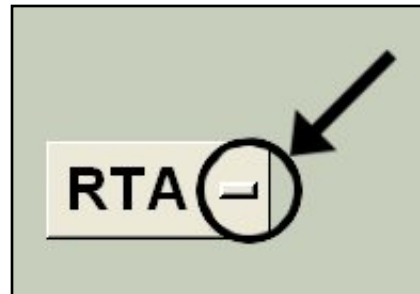
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<http://acoustx.us>

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Welcome to the AcoustX D2 Acoustical Measurement System 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.

Note on the software:

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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## NOTICE

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Version 2.4

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## 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.

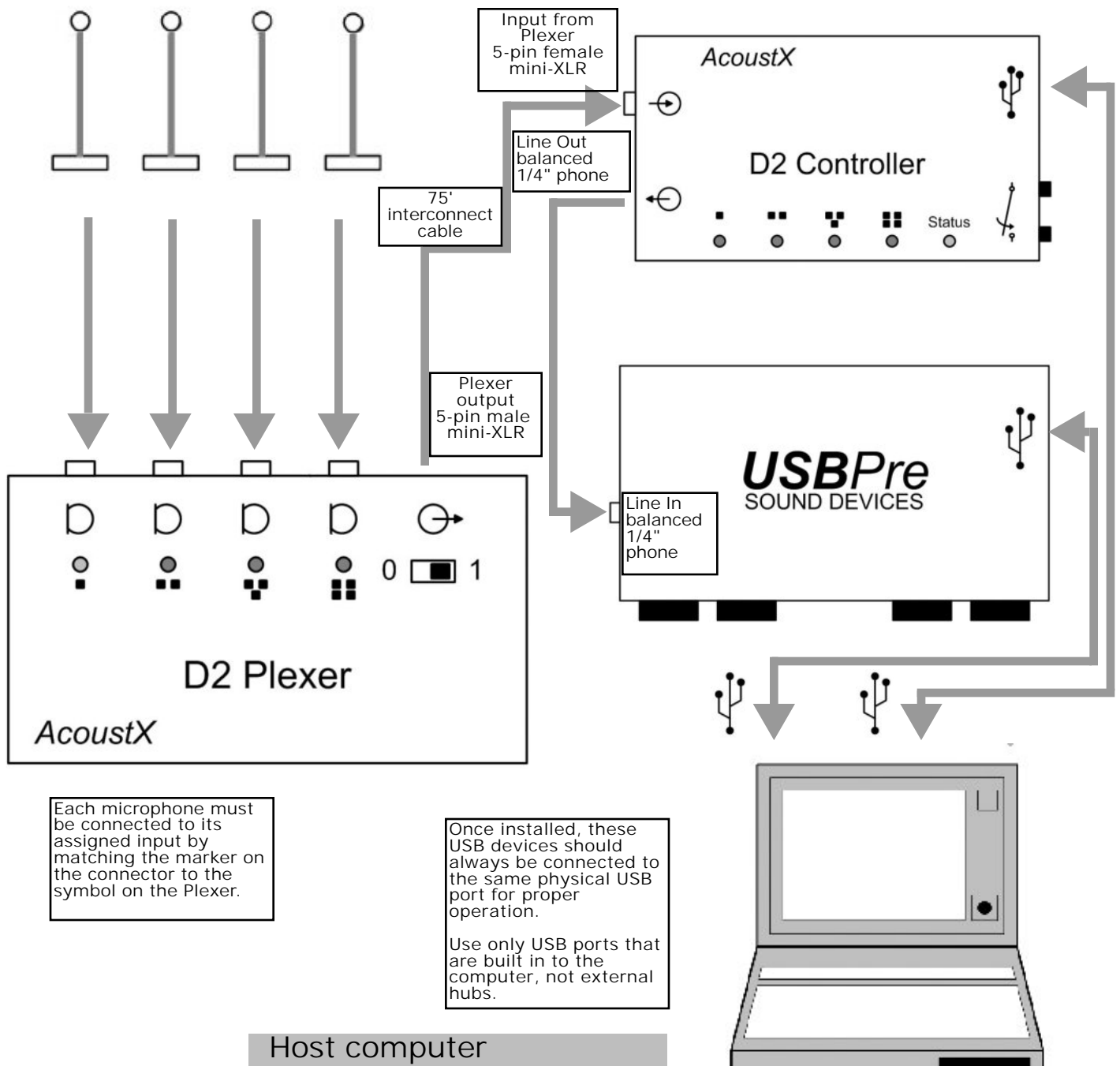
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# CONNECTION DIAGRAM

## Equipment in Auditorium

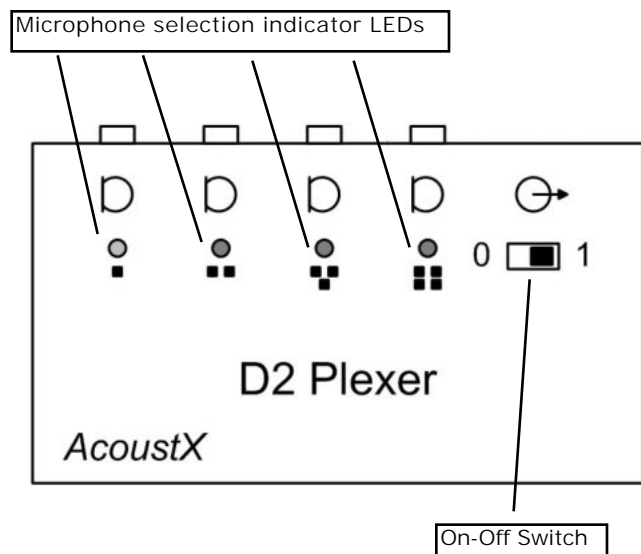
## Equipment in Projection Booth

### Microphones

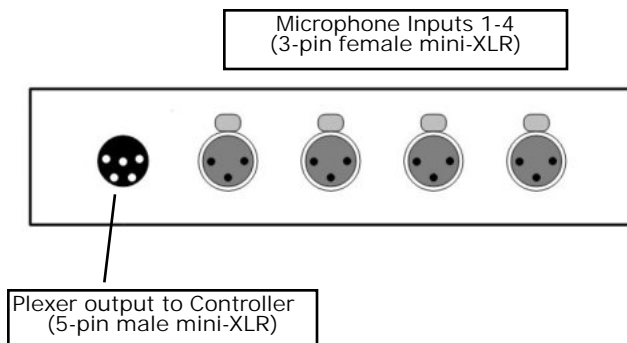


# Plexer Panel Diagrams

Front Panel View

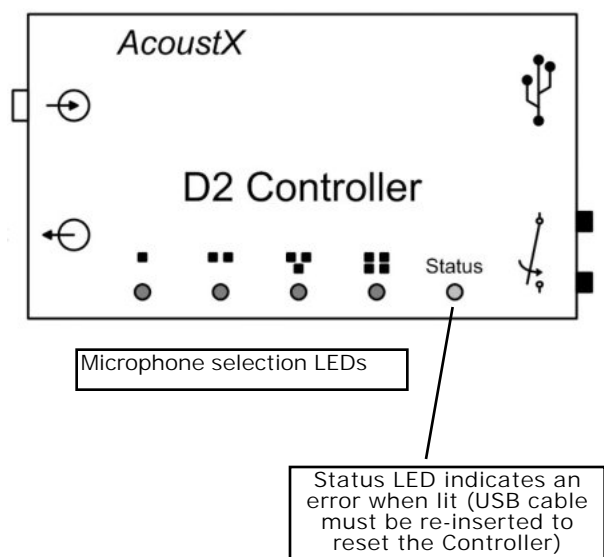


Top Panel View

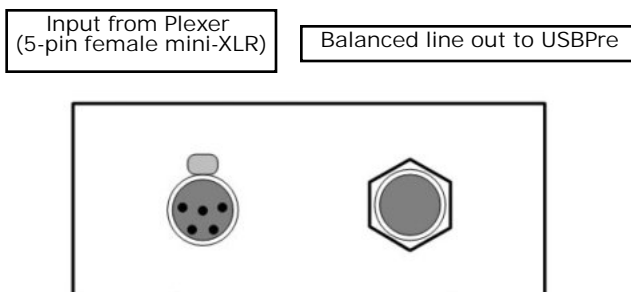


# Controller Panel Diagrams

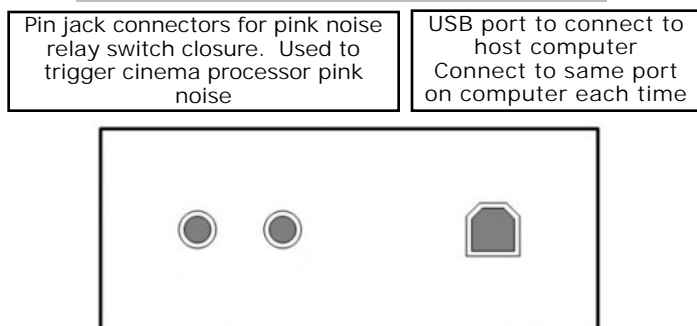
Top Panel



Left Panel

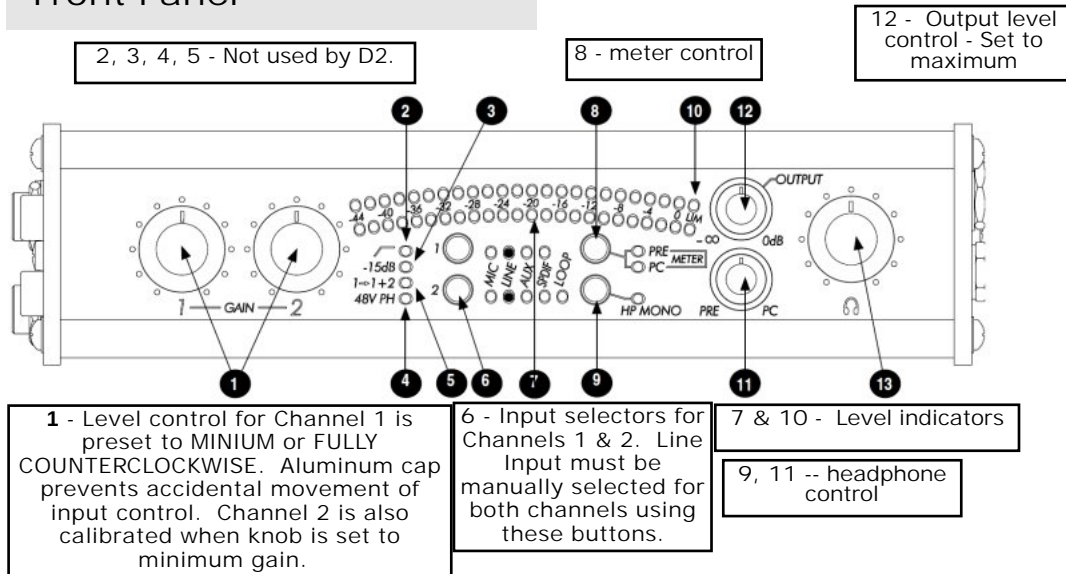


Right Panel

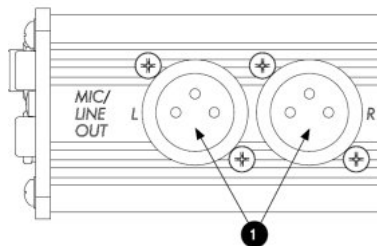


# USBPre2 Panel Diagrams

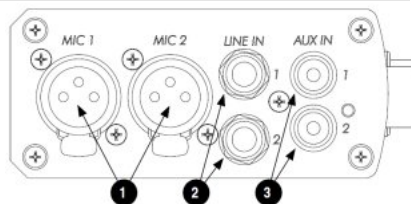
## Front Panel



## Back Panel



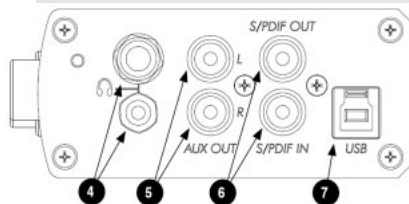
## Input (Left) Panel



2 - The D2 uses the Line 1 input by default. Line 2 can be selected in software. Both channels are active in X-Y modes.

1 & 3 - Not used by the D2.

## Output (Right) Panel



# Installation

1. Install the USBPre2 Digital Audio Interface first. Please refer to the documentation accompanying the USBPre for complete installation and operating instructions. Refer to the connection diagram and to the USBPre panel diagrams in this document for information on proper connection of the device. (Note: The USBPre must be connected directly to a USB input on the computer instead of through an external USB hub.)

When using WMME drivers under Windows Vista, 7, & 8 you must set the sampling rate to 48 kHz 16 bit for Recording and Playback for the USBPre in the Windows Control Panel. You may also use the SoundDevices ASIO drivers available on their website. When using ASIO, you do not need to set the sampling rate.

2. Connect the D2 Controller as shown in the connection diagram. The Controller must be connected directly to a USB input on the computer instead of through an external USB hub. When the Controller is connected, the computer should prompt for drivers for the device. The necessary drivers are found on the D2 CD. With Windows 8 & 10 you must enable unsigned drivers.

3. Insert the D2 software CD into an available drive on the host computer. Open the CD and double click on "mysetup". Follow the instructions and prompts of the installation procedure to install the win|RTA software onto the host computer. A short-cut icon for win|RTA can be placed on the desktop during the installation procedure.

4. Connect the remaining components of the D2 Acoustical Measurement System (D2 Plexer and microphones) as shown in the connection and panel diagrams.

5. Install the 9V alkaline battery in the Plexer opening the battery cover on the back panel. If you want to use a rechargeable battery, a 9V NiMH battery with a 250 mAh or greater rating is recommended.

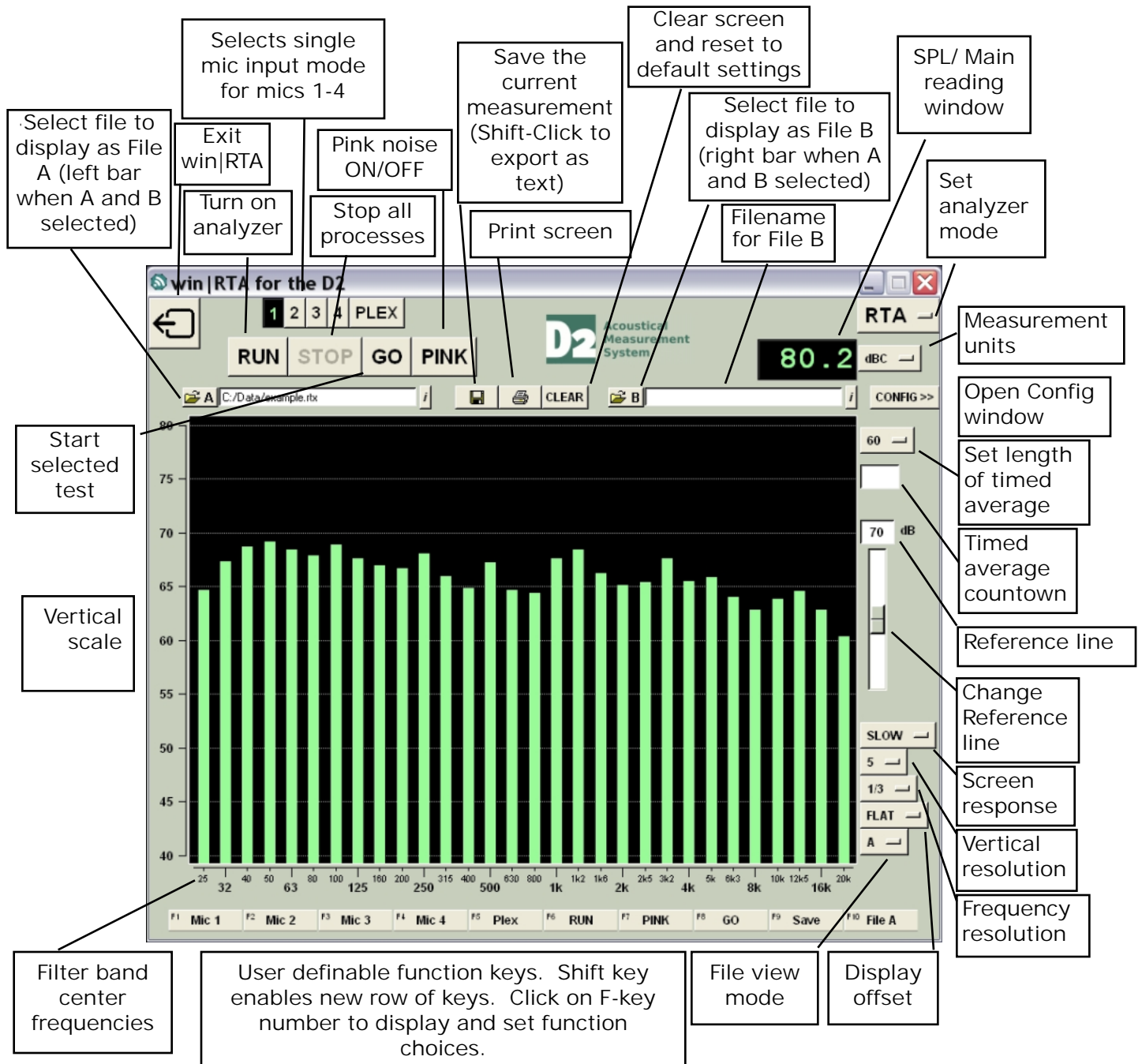
6. Double-click on the short-cut icon placed on the desktop to start the win|RTA software. Note that a default configuration (preferences) will be created the first time the program is executed. The user should customize this information as appropriate in the Config panels.

7. After installation, enable microphone calibration by selecting mic cal numbers in the Config menu. (See the Config diagrams later in this document.) The microphone serial numbers are assigned with Mic 1 as the lowest serial number through Mic 4 as the highest serial number. The "Mic Cal" checkbox must be selected to enable mic calibration.

8. With the USBPre2 connected, select the "Interfaces" window in Config. Press "Select" and choose USBPre2 from the list of available interfaces.

9. Finally, click "Save Configuration" to store the preferences to disk.

# Main 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)
- Shift-click and drag mouse on display to zoom view in RTA mode. Click to restore.
- 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 and Interfaces

**Configuration Options**

Profile Display Mic

Interfaces Input Output

Save Configuration

Operator

Company

Room ID

Data Dir

Edit Mode Menu

CTT Profile

☒ Cinema ☐ Mix ☐ Home

Length Units

☒ Feet ☐ Meters

Window Size

☒ Normal ☐ Compact

Select data directory

Set items to show on Mode menu

Set default units for measurements

Write configuration data to disk

Technician name

Organization

Name of theatre

Selected data directory Defaults to "My Documents"

Set CTT configuration for type of room under test

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

**Configuration Options**

Profile Display Mic

Interfaces Input Output

Save Configuration

Audio Interface Selection Mode

☒ Normal ☐ WMME ☐ ASIO

Select

Show Connection Diagram

D2 Controller Present ☒

Set the interface type

Select audio interface

Enable D2 Controller



# Configuration: Microphones

**Configuration Options**

Profile

Display

Mic

Interfaces

Input

Output

Save Configuration

Apply Mic Calibration ☒

Mic 1 S/N	<input type="text" value="5001"/>	Clear
Mic 2 S/N	<input type="text" value="5002"/>	Clear
Mic 3 S/N	<input type="text" value="5003"/>	Clear
Mic 4 S/N	<input type="text" value="5004"/>	Clear

Microphone response conversion

☒ None

☐ Pressure to Free

☐ Free to Pressure

Export comma delimiter ☐

	Bump	Disable	EAI
Mic 1	<input type="text" value="0.0"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mic 2	<input type="text" value="0.0"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mic 3	<input type="text" value="0.0"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mic 4	<input type="text" value="0.0"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Adjust the gain of individual microphones.

Enable and load microphone calibration files.

Change the response type of the microphone. For a discussion of this topic, see the AcoustX website.

When exporting a mic cal file using Shift-click Clear (Export), insert a comma after the frequency.

Disable one or more microphones

If the loaded mic cal files are configured for EAI, a check will appear in the EAI checkboxes. To use EAI, either these boxes must be checked, or one of the mic cal files must be exported (SHIFT-click Clear) and loaded into the external software. For more information on EAI, see <http://acoustx.us/eai.html>.

# Configuration: Display

**Configuration Options**

Profile

Display

Mic

Interfaces

Input

Output

Save Configuration

Octave Grid

☐

Show Values

☐

Show EAI Msg

☒

Balloon Help

☒

Show Pass/Fail

☒

Cell Uniformity

☐

User Avg Time

20

☒ Variable X-Curve

☐ ST202

500

# Seats

☒ Sliding Knee

50

Room Length

X-Curve Position

0

Data Averaging

File #1

Clear

File #2

Clear

File #3

Clear

File #4

Clear

☒ Gain Leveling

Calculate

- Display octave markers
- Show bar values when cursor is moved over a bar
- Show EAI mic config warning message
- Enable balloon help
- Show Pass/Fail in CTT
- Set display for Cat. No. 566 test film (film projectors)
- Set length of User Average
- Enable Variable X-Curve
- The variable X-Curve can either change the slope of the curve (according to SMPTE ST202) or the frequency at which the slope begins (the knee).
- Change the vertical position of the X-Curve
- 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: Input and Output

**Configuration Options**

Profile Display Mic

Interfaces **Input** Output

Save Configuration

Input

**Line** S/PDIF

Channel

**1** 2

Plex Rate (per second)

**1** 2 3

High Pass Filter ☐

0 dBFS Reference

☒ Full scale square wave

☐ Full scale sine wave

Select Input

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

Set Plex rate

Apply 22 Hz high pass filter to FLAT, Line In, S/PDIF

Select 0 dBFS reference. There is a 3 dB  
difference between settings.

**Configuration Options**

Profile Display Mic

Interfaces Input **Output**

Save Configuration

Test Signal Type

**Pink** Sine ☒ Norm ☐ 500-2k

D2 Relay ☐ Reverse ☐

Test Signal Output

Line **Aux** S/PDIF AC3

Output Levels

Pink 300 **mV** dBV dBu

Output Channels

Ch 1 Left ☒

Ch 2 Right ☒

Configure PINK Button behavior

Enable & configure D2 Relay

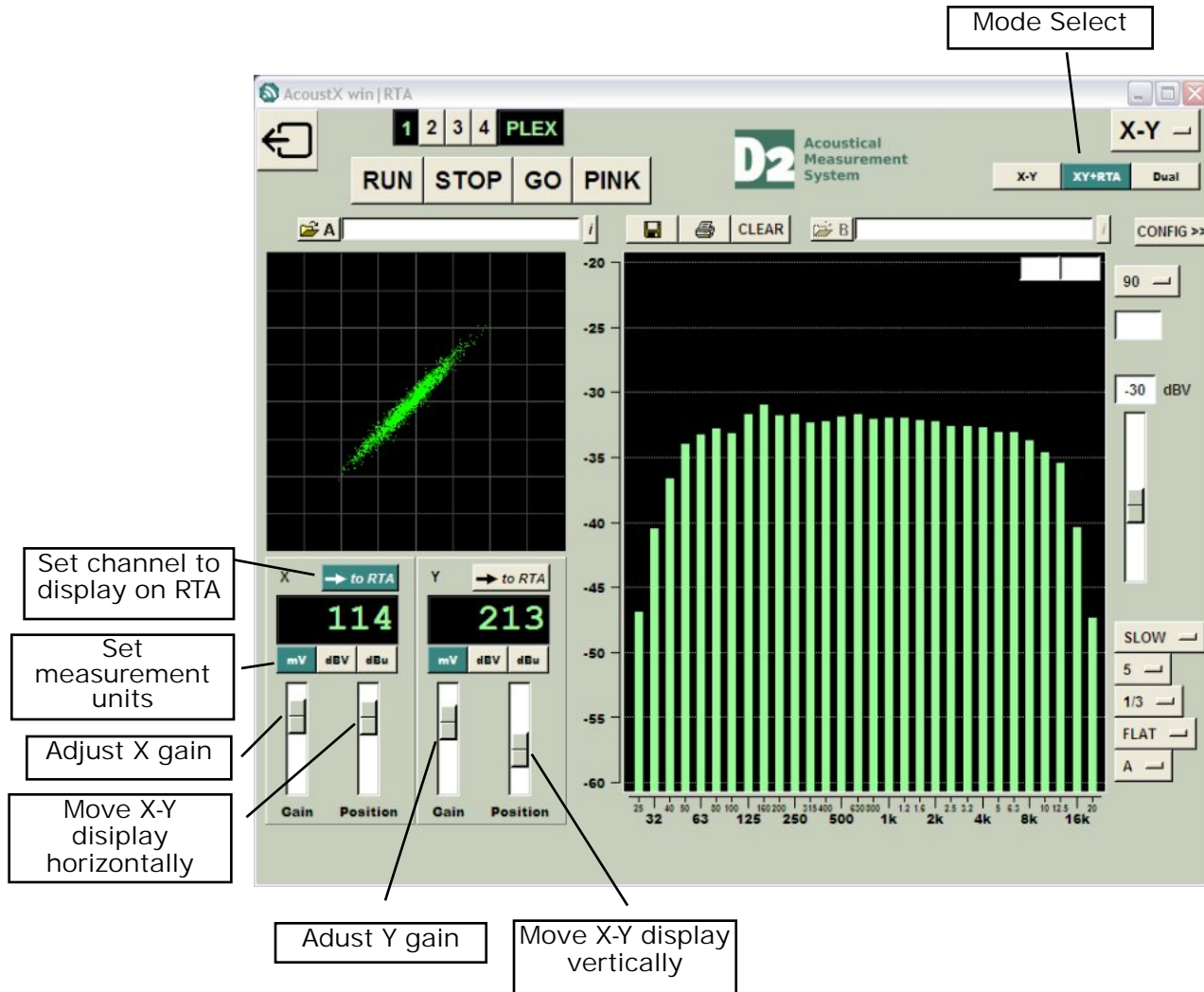
Select test signal output port  
(shown with optional AC3 encoder)

Set units of measure and level for outputs

Set output levels

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

# X-Y Oscilloscope



# Dual Trace Oscilloscope

