



D2 Acoustical Measurement System Quick Start Guide

Version 1.6

AcoustX LLC
122 Calistoga Road #318
Santa Rosa, CA 95409
Tel: 707-537-1310
Fax: 707-537-1320
www.acoustx.us
www.acoustxllc.com

D2 Acoustical Measurement System: *Quick Start Guide*

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. The Quick Start Guide serves as 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 online and through separately offered training seminars. Contact AcoustX regarding availability of training seminars.

The *Quick Start Guide* is organized as follows:

System Diagram (p.3)

This diagram provides a general overview of all the elements of the D2 Acoustical Measurement System, including a description of their function, and their relation to other system components.

Connection Diagram (p.4)

The connection diagram depicts in detail the physical connections necessary to operate the D2 as described in this and other documents. Included are connector and cable types, and special notes regarding conditions that must be met for proper system operation.

D2 Plexer Panel Diagrams (p.5)

These diagrams describe in detail the location and function of all connectors, controls, and indicators on the D2 Plexer.

D2 Controller Panel Diagrams (p.5)

These diagrams describe in detail the location and function of all connectors, controls, and indicators on the D2 Controller.

USBPre Panel Diagrams (p.6)

These diagrams describe in detail the location and function of all connectors, controls, and indicators on the USBPre Digital Audio Interface.

Software Installation and Startup (p.7)

This section describes the steps necessary to successfully install the **win|RTA** software from the distribution disk, and run the installed software.

win|RTA Software Screen (p.8)

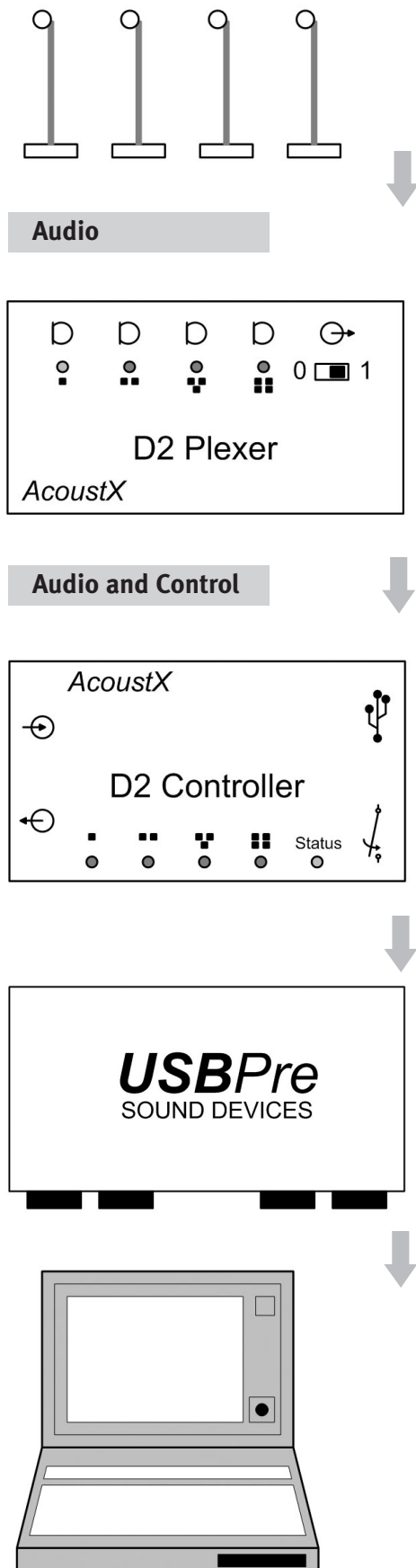
This diagram provides an overview of the main software window of the **win|RTA** operating software, with labels indicating the function and usage of all user-interface elements.

win|RTA Config Screen (p.9)

win|RTA X-Y Scope Screen (p.10)

win|RTA Dual Trace Scope (p.11)

D2 Acoustical Measurement System: *System Diagram*



Microphones

The D2 utilizes rugged, low diffraction, electret condenser microphones for accurate repeatable measurements. Each microphone is calibrated against a Bruel & Kjaer® 1/4 inch laboratory microphone and matched to a specific input (1, 2, 3, or 4) of the D2 Plexer. Microphones include an thin 40' cable for attachment to the D2 Plexer.

D2 Plexer

The D2 Plexer is a compact, 4-channel microphone preamp that provides remotely-controllable microphone selection. The selected microphone signal is relayed to the D2 Controller via a lightweight, 75' interconnect cable. Remote control is via win|RTA Software and the D2 Controller.

D2 Controller

The D2 Controller is a USB device that remotely controls microphone selection on the D2 Plexer, and that provides a relay closure to control pink noise for reverberation measurements. The audio signal from the selected Plexer channel is amplified and sent to the USBPre Digital Audio Interface.

USBPre Digital Audio Interface

The Sound Devices USBPre Digital Audio Interface is recognized throughout the industry for its quality and reliability. It is used to convert audio signals from the D2 Plexer to digital signals that are relayed to a remote computer via the Universal Serial Bus (USB).

Host Computer with win|RTA Software

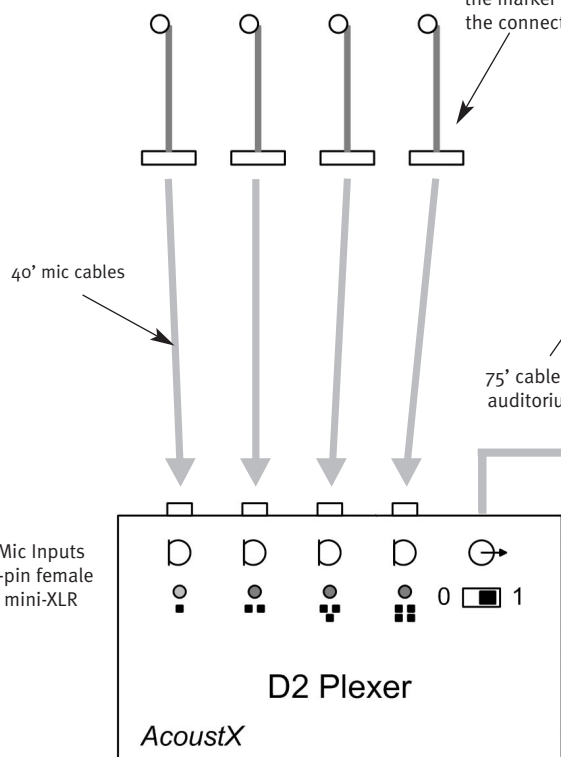
The **win|RTA** software provides high resolution audio measurements of frequency response (1/1, 1/3, 1/6, 1/12 octave), background noise (NC), and reverberation time (RT60). It includes the **Comprehensive Theatre Test**, which organizes all necessary tests in an easy-to-follow sequence. **win|RTA** requires a Microsoft® Windows XP computer with 2 USB ports (USB hubs are not acceptable).

D2 Acoustical Measurement System: *Connection Diagram*

Equipment in Auditorium

Microphones

Each microphone must be matched to a specific input as indicated by the marker on the connector



D2 Plexer

Equipment in Projection Booth

D2 Controller

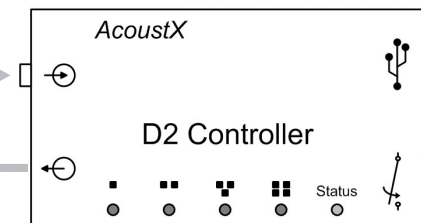
Mic input from Plexer 5-pin female mini-XLR

Line Out 1/4" Phono

Plexer Output 5-pin male mini-XLR

Line 1 in 1/4" Phono

USBPre



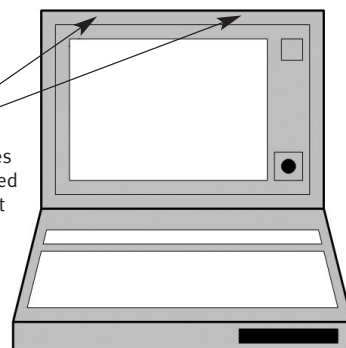
USB Port 1

2 separate USB ports must be used (USB hubs are not acceptable)

USB Port 2

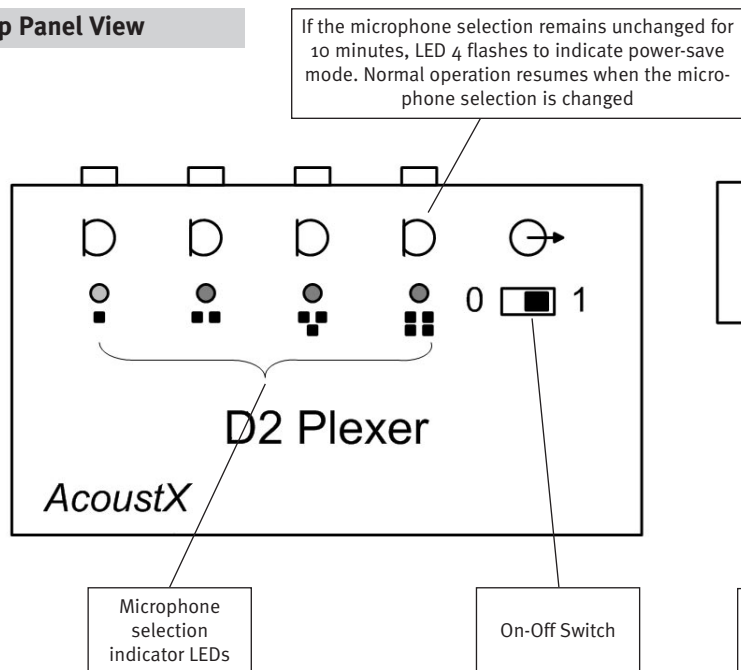
Once installed, the devices should always be connected to the same physical port for proper operation

Host Computer

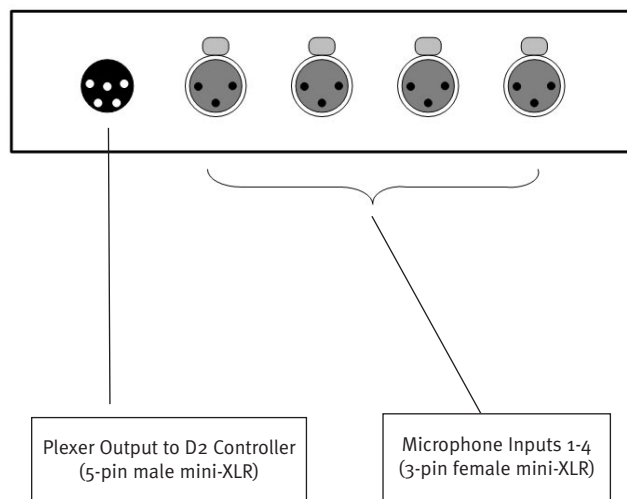


D2 Acoustical Measurement System: *D2 Plexer Panel Diagrams*

Top Panel View

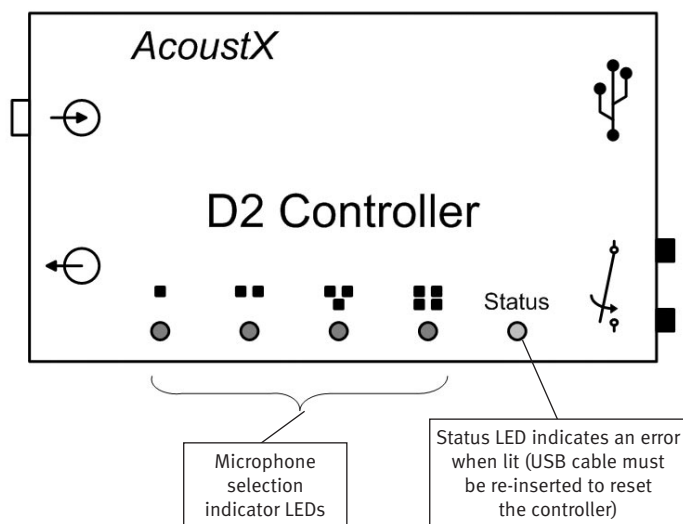


Rear Panel View

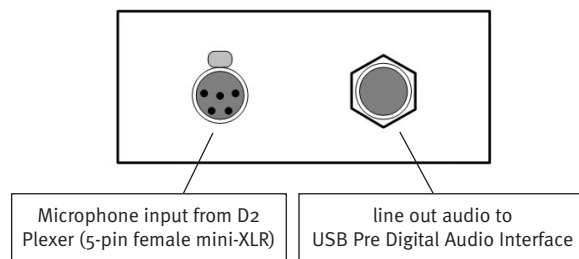


D2 Acoustical Measurement System: *D2 Controller Panel Diagrams*

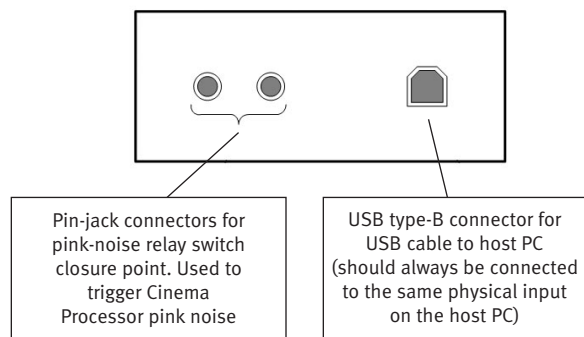
Top Panel View



Left Panel View

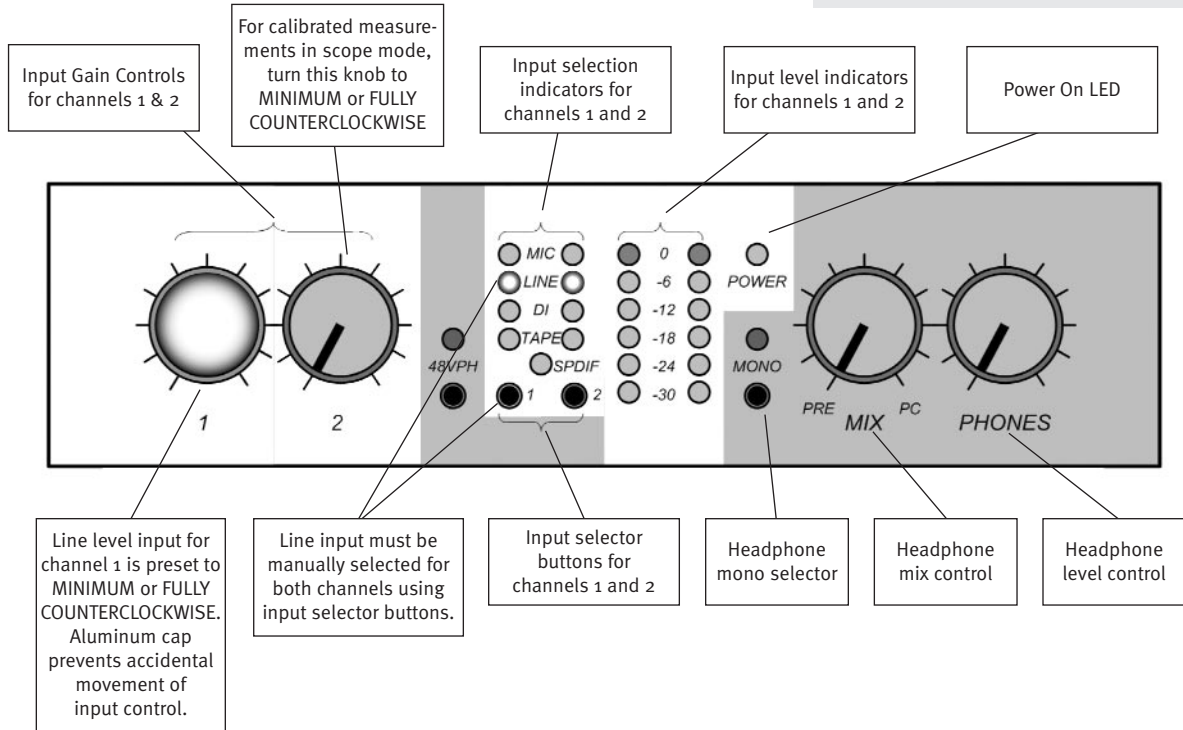


Right Panel View

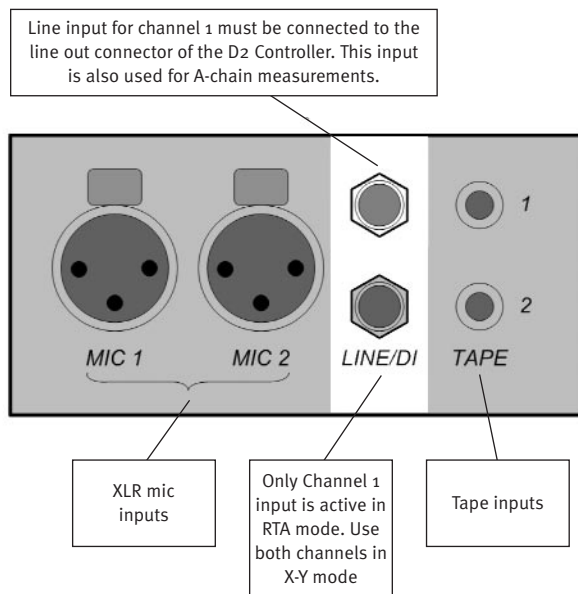


D2 Acoustical Measurement System: *USBPre Panel Diagrams*

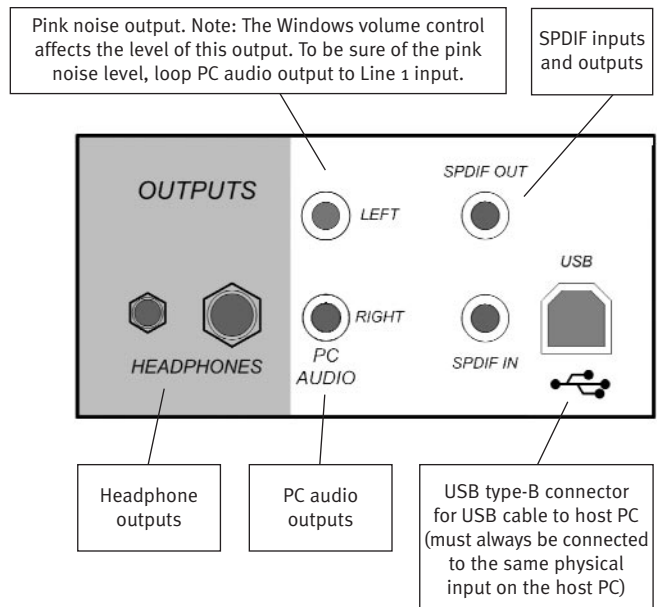
Front Panel



Input (Left) Panel



Output (Right) Panel



D2 Acoustical Measurement System: *Installation and Startup*

1. Install the **USBPre Digital Audio Interface** first. Please refer to the documentation accompanying the USBPre Digital Audio Interface for complete installation and operating instructions. Select “Preferred Installation” after inserting the USBPre software CD. Refer to the connection diagram on page 4, and to the USBPre panel diagrams on page 6 for information on proper connection of the device. (Note: The USBPre device must be connected directly to a USB input on the computer instead of through a hub).
2. Connect the D2 Controller as shown in the connection diagram on page 4. The Controller must be connected directly to a USB port on the computer, instead of through an external hub. When the Controller is connected, the computer should prompt for drivers for the device. The necessary drivers are found on the **win|RTA** CD.
3. Insert the **win|RTA** software CD into an available drive on the host computer. Open the CD and double click on “Setup”. Follow the instructions and prompts of the installation procedure to install the **win|RTA** operating software onto a disk drive of the host computer. A short-cut icon for the **win|RTA** software will be placed on the desktop of the host computer during the installation procedure.
4. Connect the remaining components of the D2 Acoustical Measurement System (D2 Plexer and microphones) as shown in the connection diagram on pages 4 and the panel diagrams on pages 5-6.
5. Install the 9V alkaline battery in the Plexer by opening battery cover on the back panel. If you want to use a rechargeable battery, a NiMH battery with 9V battery with 250 mAh or greater rating is recommended.
6. Double-click the short-cut icon placed on the desktop in step (3) to start the **win|RTA** software. Note that a default configuration (preferences) file will be created the first time the program is executed. The user should customize this information as appropriate to the location or facility where the software is installed (see the “CONFIG” button on the **win|RTA** software screen diagram on page 8).
7. After installation, enable microphone calibration by selecting mic cal numbers in the config menu. (see the “CONFIG” diagram on page 9) The mic serial numbers are assigned with Mic 1 as the lowest serial number through Mic 4 as the highest serial number. Then click on “Mic Cal” in the Config menu. Finally, click “Save Configuration” to store the configuration.

NOTICE

© Copyright 2006 AcoustX LLC. All rights reserved.

This manual contains confidential and proprietary information protected by copyright laws. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of AcoustX.

The information furnished herein is believed to be accurate and reliable. However, AcoustX assumes no responsibility for its use, or for any infringements of patents or other rights of third parties resulting from its use.

AcoustX reserves the right to modify at any time the product functionality and features where appropriate, without notice.

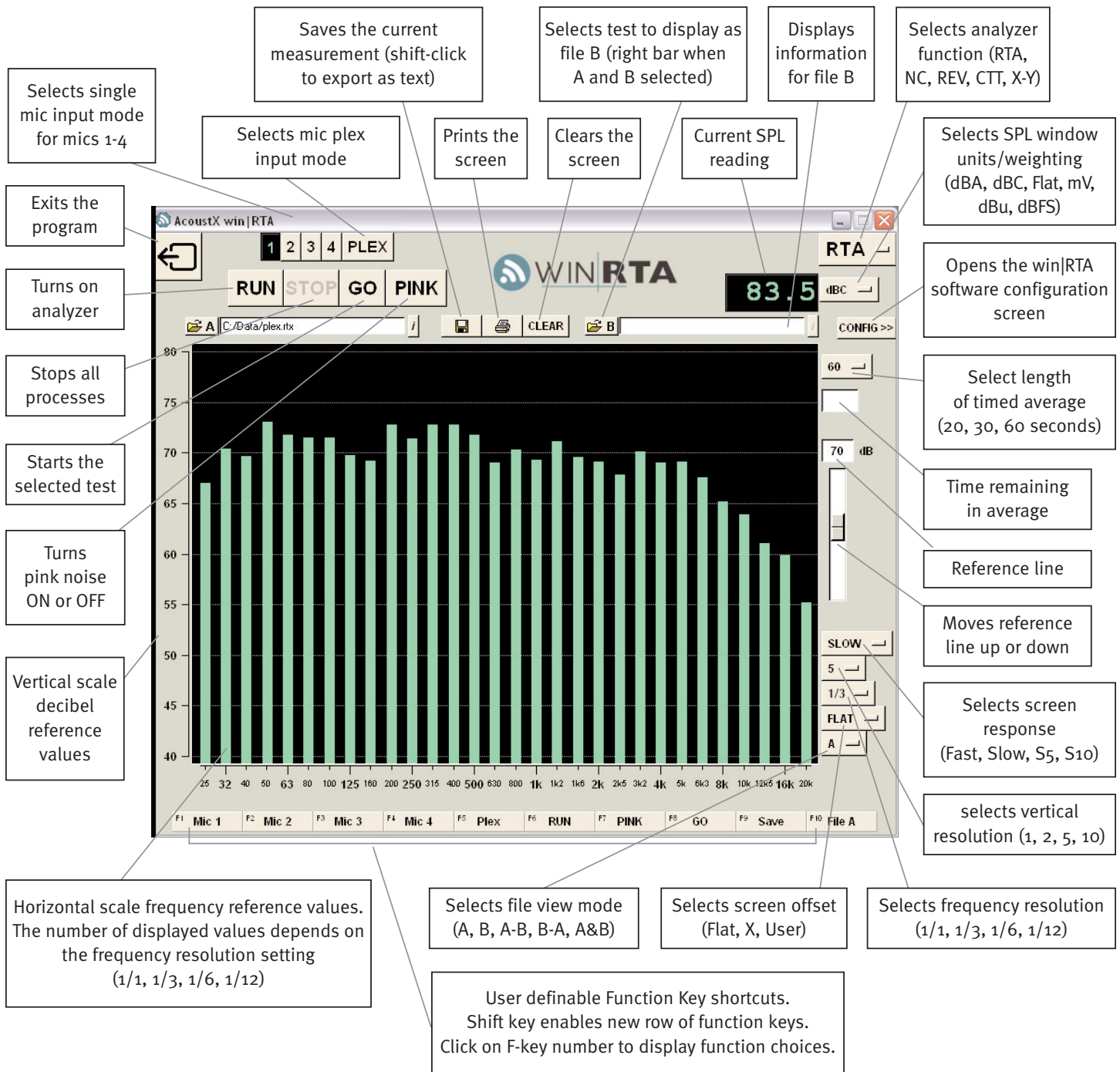
Version 1.6

Limited Warranty

AcoustX LLC 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 this 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 for 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.

D2 Acoustical Measurement System: *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 a test as text (.TXT)
- Click and drag mouse on display to zoom view in RTA mode
- Shift-click on display to un-zoom
- Right-click displays edit menu when in comment field

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
- Return executes selected test
- Shift-click on Home CTT Coverage test button to rename
- Tab or Enter completes button edit, ESC leaves unchanged

X-Y

- Shift-click-drag moves both channel gains together

D2 Acoustical Measurement System: *Main Software Screen Config*

After installation, enable microphone calibration by selecting mic cal numbers in the config menu. Mic serial numbers are typically assigned with Mic 1 as the lowest serial number through Mic 4 as the highest serial number ((Microphone calibration files correspond to the microphone serial numbers). Then click on “Mic Cal” in the config menu. Finally, click Save to store the configuration.

Configuration Options

Operator

Company

Room ID

User Avg

PINK Button ☒ Relay ☐ Generator

Input Channel ☒ 1 ☐ 2

Octave Grid ☐

Show Values ☐

D2 System ☒

Balloon Help ☒

Cell Uniformity ☐

Mic Cal ☐

Mic 1 S/N Clear

Mic 2 S/N Clear

Mic 3 S/N Clear

Mic 4 S/N Clear

Mic 1 Bump

Mic 2 Bump

Mic 3 Bump

Mic 4 Bump

Mic Disable ☐ 1 ☐ 2 ☐ 3 ☐ 4

CTT ☒ Cinema ☐ Mix ☐ Home

Variable X-curve (experimental) ☒

☒ 202M #Seats

☐ Sliding Knee Room Length

Length Units ☒ Feet ☐ Meters

Data Dir

Save Configuration

Technician name

Theatre name

Auditorium number

Set user-defined averaging time

Select input channel for audio interface

Show marker at each octave

Display bar values when mouse is moved over each bar

Uncheck when using win|RTA without other D2 components

Adjust the gain of each microphone

Select directory for stored data

Select directory for stored data. Directory defaults to “My Documents”

Write configuration data to disk

Enable balloon help

Set Display for Cat. No. 566 Test Film

Activate microphone calibration files

Mic Cal – You must select this checkbox to enable mic calibration

Select calibration file for each microphone

Mic S/N 1-4 – click on each button to assign microphone calibration files

Remove a mic from the plex cycle

Select CTT mode

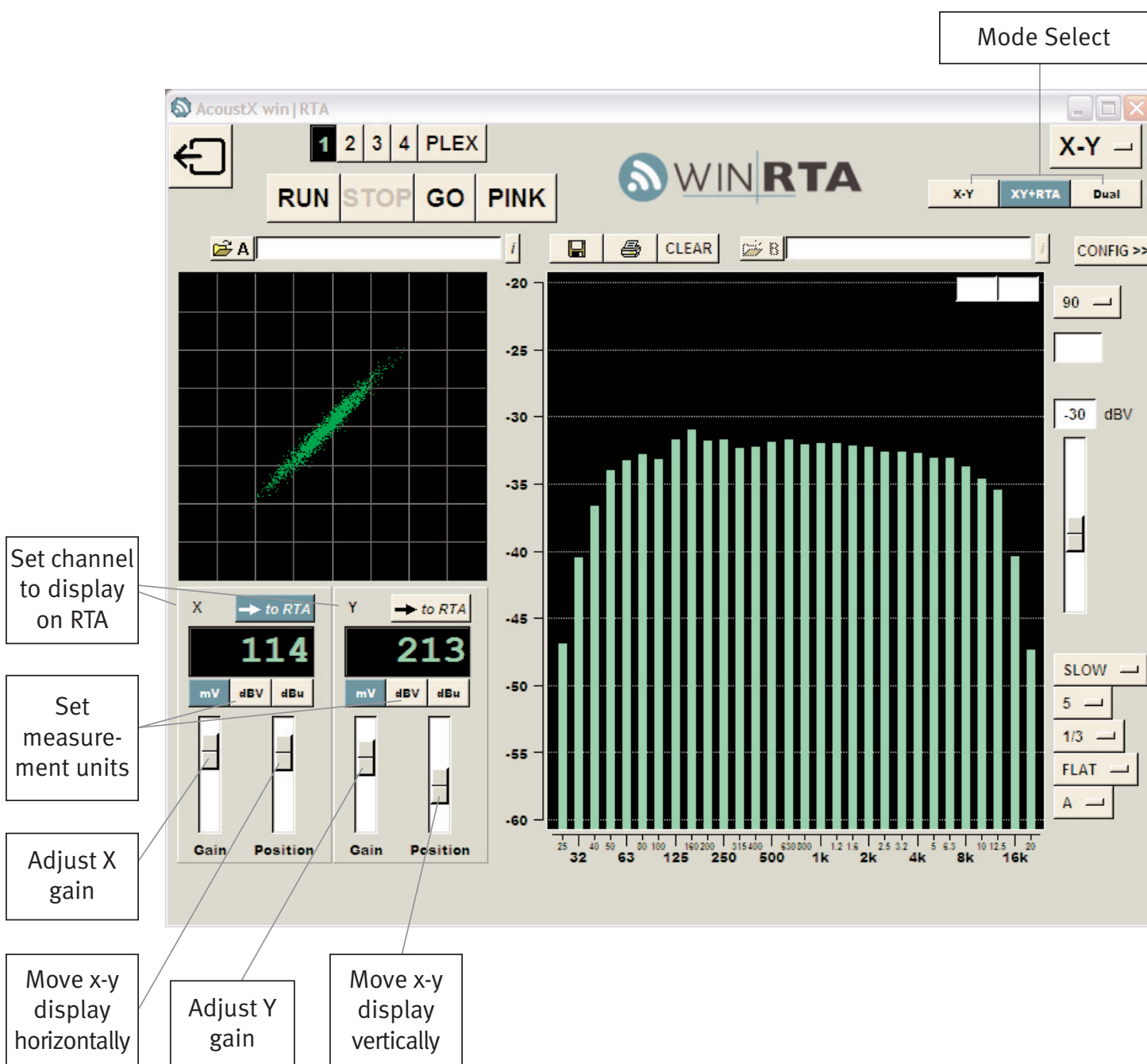
Enable variable X-curve

Adjust X-curve according to SMPTE 202M

Adjust X-curve break point based on room length

Set default length units

D2 Acoustical Measurement System: X-Y Scope



D2 Acoustical Measurement System: *Dual Trace Scope*

