

DESKTOP AUDIO INTERFACE SD CARD RECORDER AD/DA CONVERTER

USER MANUAL



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MESA USER MANUAL

Table of Contents

1 Introd	uction	. 1
1.1	Overview	. 1
1.2	Features	. 1
1.3	In the Box	. 2
1.4	Power and Safety Information	. 2
1.5	Operation Requirements	. 2
1.5	1 Audio Equipment Requirements	2
1.5	.2 Computer requirements	3
1.6	Registration	. 3
2 Gettin	g Started	. 4
2.1	Unpacking	. 4
2.2	Set up	. 4
2.3	Back Panel	. 5
2.4	Front Panel	. 6
2.5	Initial Setup	. 7
2.6	Computer Set Un	7
2.0	1 Driver Installation for Windows 10/11	. /
2.6	2 Mesa Driver Devices – Windows Operating Systems	7
2.6	3 Driver Installation for macOS	9
3 Using	Mesa	11
3.1	On Power Up	11
3.1	1 All I/O Meters page	11
3.1	2 Top Infographic Bar	11
3.1	3 Input meters	12
3.1	.4 Output meters	12
3.1	.5 microSD card controls	12
3.1	.6 Rotary Encoder/ Volume Control	12
3.2	Main menu	14
3.2	.1 Outputs Page	15
3.2	2 Monitor Source (Output Source Page)	16
3.2	3 Phones Source	18
3.2	4 Preamp	19
3.2	5 Settings menu	20
3.2	.6 All I/O Meters	22
3.2	./ Horizontal Meters	23
3.2 2.2	0 About Maga	24
3.2	10 SD Card Menu	24
4 Mesa 1	Remote	29
	A danter Dane	30
4.1 1	Audput 1 die	33
4.2 1.2	SD Dlay	33
4.5	Dlay	25
4.4	r lay	25 26
4.5	Input	20
4.0	Loopback	3/
4./	Iviesa Keinote Keyboard/mouse conventions	38
4.8	Kouting examples	38
5 Firmw	are Updates	40
5.1	Update via computer	40
5.2	Update via microSD card	41
6 Suppo	rt	42
6.1	Lynx Website Support Resources	42

6.2	Telephone Support	
6.3	Registering your Mesa	
6.4	Return Policy	
7 Trou	bleshooting & User Tips	
8 Speci	fications	
9 Certi	fications	
9.1	FCC DECLARATION OF CONFORMITY	
9.2	CE EMI / EMC DECLARATION OF CONFORMITY	
9.3	CE SAFETY DECLARATION OF CONFORMITY	
10	Warranty Information	
	Ŭ	

Introduction

Mesa is a departure from the rest of the Lynx line, but also a continuation of the tradition of uncompromising quality. A departure because it is a small footprint desktop piece, well suited for travel, with a fixed feature set. Most external Lynx devices are modular, and expandable. Mesa was designed to be the perfect combination of features to address a need that has been expressed by our customers; Lynx quality conversion in a form that you can take with you. Use it in a hotel room, songwriter suite, or as a sidecar in a fully-stocked commercial studio. It is also a standalone SD card recorder and standalone AD/DA converter, so whatever your audio production needs are, Mesa was designed to be indispensable. Like its closest cousin, the Hilo, we foresee it being an audio tool that once you've integrated it into your workflow, will become central to how you work.

1.1 Overview

Many products in this category are part of a quality hierarchy, and are marked by inferior audio performance to the rack mount products in a manufacturer's line. We took a different approach. Mesa uses the same quality conversion and clocking as our standard-setting Aurora⁽ⁿ⁾ product. The preamps are the same quality as our LM-PRE4 module. Despite its diminutive and portable profile, Mesa is no compromise in audio quality. The tracks you capture with it are ideal for your most demanding projects.

Mesa is well suited to a vast array of contexts: songwriting and demo construction, full studio recording with low channel count, portable computer-free location recording, mastering, broadcast, audiophile playback, installation sound and, we're sure, many uses we had never thought of! Connect your best quality mics, synths and instruments, phones, digital devices, multi-channel effects units, diagnostic equipment, and monitoring equipment, knowing you are making no compromises in quality.

An exciting innovation we've deployed in Mesa's design is the use of "smarts". Plug in a guitar and it knows you want that channel set to Hi-Z. Connect to a computer and the driver recalls which play and record channels go to the inputs and outputs you are using. When you wish to record to SD card, Mesa automatically enables record channels that correspond to live inputs, and will play back all tracks at appropriate levels through headphones or monitor outs. Mesa thus becomes not just a tool for seasoned professionals, but even new recordists will find Mesa easy enough to use that a manual like this may prove completely unnecessary.

In addition to smart, self-configuration, Mesa does allow a very extensive degree of routing flexibility, for the cases where something off the beaten path is necessary to get the job done. Controls can be accessed from the high-resolution front panel touchscreen, or from the Mesa Remote software application for macOS and Windows computers. Mesa has built in Thunderbolt connectivity to integrate with even the very latest computer systems. Need a high-quality computer interface? A standalone AD/DA converter? Portable recorder? Either way, Mesa's got you covered.

1.2 Features

Mesa is loaded with I/O. Take a look at the back panel - every square millimeter is occupied!



Four analog inputs that can be set to Mic (with or without phantom power), Hi-Z Instrument in, or Line level. Inputs can be controlled as linked stereo devices or Mono.

Monitor Outputs with de-thump relays. Designed for either connection to speakers, or outboard gear that require line out. S/PDIF I/O for expansion to any digital devices.

Optical I/O that can be configured for 2-channels of S/PDIF, or 8-channel ADAT light pipe.

Dual headphone outputs.

In total, Mesa has 14 inputs and outputs.

A loopback channel allows you to capture play streams into your recording software.

Micro SD card recording up to 16 channels of audio, at sample rates up to 192kHz.

Sample rates from 44.1k to 192k supported for all I/O.

Word clock I/O for integration with other digital devices.

Thunderbolt 3 connection for Windows or Macintosh computers. Latencies start at under 1ms roundtrip.

High-resolution capacitive touchscreen allows easy front panel control of parameters, routing, recording controls and provides high quality meters for all channels.

Integrated help pages for output and routing pages.

Easy, firmware updates to evolve the Mesa feature set.

Mesa Remote Control software allows routing and configuration from a Windows or Mac computer.

1.3 In the Box

Before proceeding with the Mesa setup, let's make sure that you received everything that was included with the purchase. In the Mesa box, you should find:

- Mesa Desktop Interface
- 12V DC Power Adapter
- Country Specific AC Power Cord
- QuickStart Guide
- Factory Checklist

1.4 Power and Safety Information

To prevent fire or shock hazard, do not expose this equipment to rain or moisture. Do not block any of the ventilation openings. Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. Protect the power cord from being walked on or pinched, particularly at the plugs, convenience receptacles, and the point where they connect to the Mesa. Unplug this device during lightning storms or when unused for long periods of time.

Mesa utilizes a state-of-the-art universal power supply. The power supply will auto-detect the voltage from 100V to 240V and conform appropriately. No manual voltage adjustment is necessary.

1.5 Operation Requirements

To operate Mesa successfully with your existing equipment, first let's verify that you have compatible elements for best results.

1.5.1 Audio Equipment Requirements

Mesa features a wide variety of audio I/O formats. Compatibility with these formats are, of course, only important for I/O ports that you intend to use.

- **2 Headphone jacks:** The two headphone jacks (PHONES) are suitable for driving stereo headphones through a ¹/₄" TRS connection. Any standard set of headphones should work with Mesa.
- 4 Analog Inputs: Mesa has combo jacks that can accept XLR or ¹/₄" sources.
 - Mic Level Sources (XLR): Microphone or devices (like direct boxes) that output Mic Level signals. Mesa can be switched to power devices that require 48V phantom power, like condenser mics.
 - Hi-Z instrument sources (1/4" TRS): Guitars or keyboard that output Instrument level signals
 - Line sources (XLR): Balanced or unbalanced Line Sources. When Line is selected, the microphone preamp is completely bypassed.

- 2 Analog Outputs (1/4" TRS): Mesa's Monitor Outputs send Line Level signals that can be balanced or unbalanced. Monitor Outs are calibrated for use with professional devices where 0dBFS = +20dBu.
- S/PDIF Inputs and Outputs: Mesa supports coaxial (electrical) S/PDIF connections on RCA jacks, or S/PDIF Optical signals on TOSLINK connections.
- **TOSLINK Optical Inputs and Outputs:** Mesa's TOSLINK Optical connector (S/PDIF/ADAT OPTICAL) can be software switched between 2-channel S/PDIF operation and 8-channel ADAT light-pipe operation. When ADAT is selected, each input and output port support up to eight channels at sample rates of 44.1 kHz and 48 kHz, four channels at sample rates of 88.2 kHz and 96 kHz.
- Word Clock I/O: Use Mesa as a clock master, or slave, to other digital devices in your studio. As a clock slave, Lynx proprietary SynchroLock 2 technology ensures exemplary clock performance no matter what the source might be.

1.5.2 Computer requirements

Mesa is designed to operate with Macintosh or Windows computer systems that have Thunderbolt 3, 4 or 5 connectivity.

It also is important to note that most professional audio applications place significant demands on your computer's resources, and it is therefore recommended that you meet or exceed the recommended system requirements for your Digital Audio Workstation or audio playback software, which will likely be greater than those listed for Mesa. Please refer to your audio software's documentation for more information.

- Processor: 64-bit, 1.6 GHz or higher.
- Memory: At least 4GB of available RAM.
- One functional Thunderbolt 3, 4 or 5 port. Also compatible with Macintosh computers that have Thunderbolt 1 or 2 ports. An adapter cable will be required in that case.
- Windows 10 or Windows 11, or macOS 12.xx or higher

1.6 Registration

Lynx is committed to providing you with the best service possible. To help us serve you better, please be sure to register your Mesa.

Register on the web at: https://www.lynxstudio.com/register/

2 Getting Started

Mesa was designed to be a product that is so easy to use that this section of the manual would scarcely be necessary. However, it is quicker to learn how the device works in one go, then to spend precious minutes figuring things out by randomly pressing buttons. We recommend reading this section thoroughly, before putting Mesa to serious use, if you can manage it.

2.1 Unpacking



Before setting up Mesa for use, remove it from the box and verify that the box contents described in section 1.3 are all present. If all items are present. Attach the 12V DC Power Adapter to the included IEC AC power cable. Connect the AC power cable to a grounded AC Outlet, or power distribution unit. Connect the power cable to the 12VDC port on the Mesa. Switch on the power switch on the back of Mesa (Note: the "]" position on the power button is "On" and the "O" is "Off".)

2.2 Set up

Start with Mesa on a flat surface, where you have access to the rear panel connections, as well as the front panel touch screen and headphone outputs.

2.3 Back Panel

Mesa features a multitude of I/O types, suitable to accommodate whatever audio devices you wish to integrate.



1 Power switch

2 12V DC power port: This is where the AC power supply connects. For field work, Mesa can also be connected to a 12V battery power supply

- Thunderbolt 3 port: Mesa has been tested with standard copper and optical Thunderbolt cables. For Copper cable lengths up to 3 meters (9.8 feet) is supported. Optical cables, while somewhat more difficult to acquire, do promise operation with much longer cable lengths, up to 100 meters. Note: Using a Macintosh Thunderbolt 1 or 2 computer will require an additional adapter cable like the <u>Apple Thunderbolt 3 to Thunderbolt 2 Adapter</u>. For Windows systems, Thunderbolt 3 devices will not always work with Thunderbolt 1 or 2 systems. Check with your computer manufacturer to confirm.
- Word Clock In/Out: Use standard 75Ω word clock cable with BNC connectors. Recommended maximum length is 9 meters (30 feet).
- S/PDIF Coaxial In/Out: Use 75Ω S/PDIF cable with RCA connections. Recommended maximum length is 6 meters (20 feet)

6 S/PDIF / ADAT Optical In/Out: Use standard TOSLINK optical cables, of lengths up to 9 meters (30 feet).

Monitor Out: Use standard ¼" cables. TRS if balanced, standard ¼" TS if unbalanced. Cable Concerns: For unbalanced cables 4.5 meters (15 feet) is the maximum recommended length. For balanced, up to 100 feet is acceptable, with high-quality cables.

Analog Inputs: Mesa's Inputs are on combo jacks, and can support XLR or ¼" connectors. These inputs can be used for Mic level sources (with or without phantom power), Hi-Z Instrument level, or Line Level. ¼" source will automatically be switched to Hi-Z. XLR sources can be set to Mic or Line on the Mesa front panel, or in the Mesa Remote software. Use standard XLR cables (i.e. microphones cables) to connect to Line level or Mic sources. TS ¼" for Instrument sources. For balanced Line Sources, cable lengths up to 4.5 meters (15 feet) can be used. For Mic Sources maximum cable length should be 100 feet, 30 feet for Hi-Z/Instrument sources.

2.4 Front Panel

The front of Mesa is what you will be interacting with. The touchscreen allows you a deep level of control with a minimal footprint. We will explore the touchscreen navigation system in Section 3. Here we just want to look at each element.



- **Touchscreen:** The touchscreen is where the user can set up Mesa, set levels, initiate recording, update firmware, do routing, and change parameters. The touchscreen also provides high-resolution metering.
- Record/F1 button: A user definable function button that defaults to initiating recording through the microSD card. The background of this button will be blue if a microSD card is not present, and red if it is.
- **9** Play/F2 button: A user definable function button that defaults playback for audio on the microSD card. The background of this button will be blue if a microSD card is not present, and green if it is.
- Menu button: For navigation in the touchscreen environment. Pressing the Menu button when on a meter page will bring up the main menu. Pressing the menu button when on a menu page will go back to the previous page.
- Mute button: Defaults to muting all outputs when pressed. This can be user assigned to some other output profile from Menu > Rotary Encoder Settings. The button is blue when mute is off, and red when mute is on.
- 6 Rotary Encoder: Used for setting monitor out volume, record levels and parameter selection in conjunction with the touchscreen. Pressing the rotary encoder can have a user-defined function, such as dimming the monitor output or muting the monitor output.
- Headphone volume controls.
- **3** microSD Card slot: For playback, recording, saving scenes and firmware updates.
- **9** Phone Jacks: ¹/₄" stereo jacks. Both headphone outputs are served by the same DAC, so they will both have the same signal sources. Each headphone output has its own analog volume control.

2.5 Initial Setup

It is important to set up Mesa in the proper order to avoid any speaker damage. Follow these steps for the best results:

- Connect the AC power supply to Mesa and to a quality, surge-protected AC power source. Check the Power and Safety section of this manual for additional information.
- Connect cables from Mesa to whatever audio devices you will be using it with. These could include powered speakers, mixing consoles, power amps, microphones, instruments, etc.
- Make sure volumes are turned down on connected equipment to avoid excessive level being sent to the equipment during setup.
- If the context of use is as a standalone AD/DA converter that will not be connected to a computer, skip ahead to Section 3.
- If using Mesa with a Macintosh or Windows computer, follow the installation procedure below.

2.6 Computer Set Up

Lynx drivers are updated regularly. The most current versions can be easily downloaded from the Lynx Website: <u>www.lynxstudio.com</u> > Downloads > Mesa > Drivers

2.6.1 Driver Installation for Windows 10/11

Lynx provides two different drivers for Windows 10/11: The Version 2 and Version 3 driver. The Version 2 driver will provide the absolute lowest latency, but generally can only be used by a single application at one time. The Version 3 driver adds one buffer in latency, but allows multiple applications to have the driver open and streaming at the same time. Since both drivers are bit-perfect, audio performance between the two are identical.

Once the driver is selected and downloaded from the Lynx web site, double-click on the driver installer and follow the on-screen prompts to install the driver. No reboot is needed after the driver installer is complete and the Mesa is ready to use immediately. It should show up as a usable audio device from recording software and the Sound section of Windows Control Panel. Mesa presents 8 stereo play and 8 stereo record devices to the computer, which allows discrete access to the 14 inputs and 14 outputs the Mesa has, as well as a stereo loopback channel.

NOTE: The driver installation process installs both the Windows driver and the Mesa Remote Control application. The Mesa Remote Control application is installed into the Lynx Studio Technology program group.

For step-by-step instructions, please see: <u>www.lynxstudio.com</u> > Support > Mesa > Installation

2.6.2 Mesa Driver Devices – Windows Operating Systems

Mesa was designed to provide maximum compatibility with the most popular audio and multimedia applications that use the Windows WDM (which includes both DirectSound and MME) and ASIO driver standards. It is crucial that applications are set up correctly for optimal operation.

WDM was developed by Microsoft and is used most typically by media playback applications, such as Windows Media Player as well as the default driver model for web browsers and most other standard productivity applications.

ASIO was developed by Steinberg, and was designed to address the low-latency and high channel count needs of Pro Audio and Music Production. ASIO is an option for Audio Production applications such as Pro Tools, Cubase/Nuendo, Ableton Live, Studio One, Samplitude/Sequoia, etc. These applications may also support MME or DirectSound, but when the option exists, we recommend using ASIO for the best performance.

2.6.2.1 WDM/Multimedia Applications

Mesa can be used as a playback device for most popular multimedia, home theater and consumer audio applications. Some such applications allow selection of specific playback devices. In these cases, a Mesa output device can be selected from the appropriate device selection menu. When output device selection is not an option, it can be assumed that the application uses the Windows default audio device. To use the desired Mesa output as the system default: With Windows 10 or 11, right click the Start button and choose Control Panel > Hardware and Sound > Sound > Playback. Right-Click the desired Mesa output device and choose "Set as default device". The first pair of outputs will appear as (Speakers) Mesa. That driver device defaults to streaming to both the Monitor and Phones outputs.

Mesa's play devices are labeled as Mesa Speakers (this is equivalent to Main Out), Mesa Play 3+4, and the record devices as Mesa Record 1+2, Mesa Record 3+4, etc. These are pre-configured to connect to appropriate hardware I/O on the Mesa by default, although this can be user altered in Mesa Outputs page or from the Mesa Remote software.

2.6.2.2 ASIO Application

When using an application that supports the ASIO driver standard, one must specify the Lynx ASIO driver as the active audio device from within the audio software. Once that is established, eight stereo input and output devices will be available for use within the application.

When using an ASIO compatible program, the appropriate ASIO device must be selected from a settings or options menu in the application. The correct choice would be "Lynx ASIO".

2.6.2.3 ASIO Control Panel

Many ASIO applications provide access to the driver's ASIO Control Panel. For Mesa, this button will launch the Lynx ASIO Control Panel.

From the Lynx ASIO Control Panel, the ASIO buffer size and system latency can be established conveniently within the audio software application. The following parameters can be altered from the Lynx ASIO Control Panel:

Lynx ASIO Control Panel X	
Buffer Size: 512 5.33ms @ 96.000 kHz Application Settings Enable MMCSS Ignore Direct Monitor Requests	
Maximum Channels: Unlimited 🗸	
OK Cancel	

Buffer Size: Allows the size of the ASIO buffer, in samples, to be set. The buffer size is the primary factor in the amount of latency that a user will experience when using the Hilo 2-TB3. See <u>section 2.6.2.4 Controlling Latency by Changing the Buffer Size</u> below for details.

Latency: Displays the amount of latency in milliseconds that is the result of the selected buffer size at the active sample rate.

Enable MMCSS: Stands for Multimedia Class Scheduler Service. This is a feature in Windows that gives the ASIO driver highest priority to prevent dropouts, and is enabled by default. Disabling it is a work-around for some ASIO applications (Cakewalk, Studio One, Ableton Live) that set the priority of the driver thread incorrectly. Can improve performance with those apps

- **Ignore Direct Monitor Requests:** When checked, the ASIO driver will disregard Direct Monitor commands from an ASIO software application. Since Direct Monitor calls can assign and mute monitor sources in the Routing page and the Hilo Remote, checking this box can prevent unintended changes to the monitoring scheme when an ASIO application is launched.
- Maximum Channels: This switch determines how many ASIO device channels will be available to the application. This is an application specific parameter, meaning setting this value will be unique to each application. The default state is "unlimited", which means that all channels are available to the ASIO application. Most audio software allows the user to specify how many ASIO devices are used, generally in a settings or options menu. There are some applications however that grab control over ALL of the ASIO devices in the system. For example, ProTools will open all available channels regardless of the number of tracks being used in a project. This can be problematic because it uses more CPU power than is necessary, and also because there are no driver devices available to be used by another application (multi-client operation).
- In these cases, setting the <u>Maximum Channels</u> control to the desired number of channels may free up some CPU overhead and allows another application to access the channels that the ASIO application is not using. As an example, if you are only using two pairs of outputs from your ASIO application, it would be appropriate to set this parameter to "4 channels".

2.6.2.4 Controlling Latency by Changing the Buffer Size

Latency in an audio interface can be defined as the time required to process a sample from an application to the interface's audio output. A number of factors determine the achievable latency performance of a Mesa system: processor speed, operating system, sample rate, number of utilized record or play channels, system efficiency, etc.

Latency can be manipulated by changing the size of the buffers used to transfer data to and from Mesa. The higher the buffer size, the less work the computer has to do to stream audio to the hardware. However, a higher buffer results in more latency. Also, the higher the sample rate, the higher the buffer size needs to be. For instance, a buffer size of 128 samples at a sample rate of 44.1kHz results in 2.9 milliseconds of latency. However, at 96kHz, a buffer size of 128 = 1.33 milliseconds. Therefore, the buffer size needs to be increased as the sample rate increases to maintain the same level of performance. If the buffer size is too low, you can experience clicks, pops or distortion in the audio. This is the result of buffer under-runs or over-runs, when the audio buffer is momentarily depleted because the computer cannot deliver samples quickly enough to keep it filled.

Why is latency important? It isn't in every case. Here are the main conditions where low latency is important:

- **Software input monitoring**. This is where you are monitoring through your audio software the input signals to be recorded. The software is re-directing the input signal back out to a play device. If the buffer is too high here the performer will hear a noticeable delay between the notes they are playing and hearing the sound back through the computer. Note that with the Mesa, zero latency hardware monitoring is available as an alternative to software monitoring.
- **Virtual Instruments.** Generally, this would involve using a software synthesizer or other virtual sound source as an alternative to dedicated hardware like a keyboard or tone module. Frequently one would play these instruments with some sort of MIDI controller. The delay between a key being struck and hearing the resulting note from the virtual instrument is a function of latency.
- **Mix Automation.** Virtually all DAW applications feature some sort of Mix Automation, and most allow an external Mix surface or MIDI controller to facilitate mixing within the software environment. Whether using onscreen faders or a MIDI surface of some sort, latency will determine the delay between manipulating a fader or knob, and that move being reflected in the project.

2.6.3 Driver Installation for macOS

Mesa uses the new Audio Driver Kit model, and works in macOS 12 (Monterey) and up. This ADK driver works well with both Intel-based and Apple Silicon-based computer systems.

Once the driver is downloaded from the Lynx web site, double-click on the driver installer and follow the on-screen prompts to install the driver. No reboot is needed after the driver installer is complete and the Mesa is ready to use immediately. It should show up as a usable audio device from recording software and the Audio/MIDI Setup application. Mesa presents 8 stereo play and 8 stereo record devices to the computer, which allows discrete access to the 14 inputs and 14 outputs the Mesa has, as well as a stereo loopback channel.

NOTE: The driver installation process installs both the Core Audio driver and the Mesa Remote application. Mesa Remote is installed in the "Applications" folder.

For step-by-step instructions, please see: <u>www.lynxstudio.com</u> > Support > Mesa > Installation

2.6.3.1 macOS Audio Applications

Mesa can be used as a playback device for most popular multimedia, home theater and pro audio applications. Some such applications allow selection of specific playback devices. In these cases, a Lynx Mesa output device can be selected from the appropriate device selection menu.

		Audio Dev	ices
LG HDR 4K		1: Lynx Mesa Clock Source: Default Input Or Stream: 1: Play 1 6	? utput
		Source: Default	
		Format: 44,100 Hz 😒 2 ch 24-	bit Integer
		Channel Volume	Value dB Mute
		✓ 1: Play 1	
		Primary	
		10	
		2	
		√ 1: Play 2	
		3 (
			Configure Speakers
- Q V			

In cases where the playback software does not provide access to output selections, the default output devices for the operating system will be used. In macOS, the audio out default device can be established from Applications > Utilities > Audio MIDI Setup.

When Mesa is selected as the output sound device, channels 1&2 are active by default. In this state, audio will be sent the Mesa Monitor Out and Phones Out simultaneously. If you wish to mute a stream to a particular output, you can do that from the Outputs Page, as described in Section 3.2.1

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Latency can be manipulated by changing the size of the buffers used to transfer data to and from Mesa. The higher the buffer size, the less work the computer has to do to stream audio to the hardware. However, a higher buffer results in more latency. Also, the higher the sample rate, the higher the buffer size needs to be. For instance, a buffer size of 128 samples at a sample rate of 44.1kHz results in 2.9 milliseconds of latency. However, at 96kHz, a buffer size of 128 = 1.33 milliseconds. Therefore, the buffer size needs to be increased as the sample rate increases to maintain the same level of performance. If the buffer size is too low, you can experience clicks, pops or distortion in the audio. This is the result of buffer under-runs or over-runs, when the audio buffer is momentarily depleted because the computer cannot deliver samples quickly enough to keep it filled.

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- **Virtual Instruments.** Generally, this would involve using a software synthesizer or other virtual sound source as an alternative to dedicated hardware like a keyboard or tone module. Frequently one would play these instruments with some sort of MIDI controller. The delay between a key being struck and hearing the resulting note from the virtual instrument is a function of latency.
- **Mix Automation.** Virtually all DAW applications feature some sort of Mix Automation, and most allow an external Mix surface or MIDI controller to facilitate mixing within the software environment. Whether using onscreen faders or a MIDI surface of some sort, latency will determine the delay between manipulating a fader or knob, and that move being reflected in the project.

Usina Mesa 3

Mesa's touchscreen gives it a key advantage over other audio interfaces and converters, as all of the functions are immediately available using the touchscreen. Mesa is not locked into just one way to work. We add features over time, and can change the graphics, adding different metering types and features. The Mesa user interface you see today will continue to evolve, adding more value to the unit.

Mesa was designed to adapt itself to the context of use automatically. Additionally, it allows controls to be manipulated by the user to customize the interface. For instance, there are two Function buttons on the front panel that can be programmed by the user to control whichever operations are most important for them. This pairing of automatic adaptation to the context, and user customization, are a potent combination to make Mesa an indispensable audio tool.

The heart of the Mesa front panel is the touchscreen. This is where settings, routing, volume control and meters are displayed and managed. The Mesa display responds to capacitance, the natural electrical charge from your fingers, rather than pressure. As a result, it is very responsive, and will behave comparably to the screen on a modern smart phone. Like any such device, Mesa employs navigational conventions that, although designed to be intuitive and require little or no explanation, may require a small learning curve initially.

On Power Up 3.1

Let's start by exploring the screen you will see when you first power up the Mesa. Detailing what you will see here is a good start to understanding the User Interface conventions in the Mesa.

3.1.1 All I/O Meters page



Mesa powers up to what is called the All I/O Meters page. This page is designed to reveal, at a glance, where there is signal present for the Mesa's inputs and outputs. The top row of meters represents inputs, and the bottom row outputs. In the default state, only the physicals ins and outs are represented here. The user can choose to have this page also reveal signals to and from the computer. This option is detailed in Section 3.2.5.

Note: You can quickly change from the All I/O Meters to the Horizontal Meters by pressing right-hand side of the All I/O Meters page. Touching the output meter pairs will switch to the Output Source page corresponding to that output meter pair.

3.1.2 Top Infographic Bar

In addition to the in and out meters, let's take a look at the display elements at the top of the screen. These are not merely informational displays, when you press one of these elements, the Mesa will instantly switch to the appropriate page so you can change the relevant parameters.



U Current Sample Rate: Press to open the Clock Setup page, where Sample Rate and Sync Source can be set. See Section 3.2.5. If this text changes to red, then the select Sync Source is not valid and the Mesa has automatically switched back to Internal.



2 Function Keys: This displays what operation will be done when the F1 or F2 Function keys are pressed. The role of these buttons can be determined by the user when a microSD card is present, and when a microSD card is not present. The default is Record and Play when the microSD card is inserted, and Monitor Source / Phones Source

when the microSD card is not present. Press to launch the Function Setup where the role of these buttons can be set. See Section 3.2.5 for details.



3 Current Page: Shows the current page name. Press to switch to the Main menu (same as pressing the dedicated Menu button on the front panel).

Analog Input State: These icons represent the 4 analog inputs on the Mesa. The status will be a blue circle for Mic, yellow circle for Hi-Z or a green circle for Line. For Mic and Hi-Z, the gain setting number will be displayed in the center of the circle. Input meter activity is displayed in the bar graph underneath each channel. This is useful for seeing if meter activity is present on these inputs, no matter which menu page you are on. Press to launch the Preamp page. See Section 3.2.4.

5 Monitor and Phone Out levels: for Phone volume, this displays the digital levels. If the volume pots for the phones are attenuated, that would not be reflected in these meters.

6 Thunderbolt indicator: The Thunderbolt icon will turn green when a computer connection is detected and the driver is connected.

3.1.3 Input meters



The Input meters show the instantaneous level (with peak-hold) of the corresponding input, along with any overloads. An overload condition on the input is determined by three consecutive full-scale samples. Overloads will count up to 99. Three seconds after the overload condition subsiding, the overload indicator will go out and the overload counter will reset.

Under each meter is the name of the physical input. The name will highlight when that input is connected.

3.1.4 **Output meters**



The Output meters show the instantaneous level (with peak-hold) of the corresponding output, along with any overloads. Touching and output meter pair will switch to the Output Source page corresponding to that output pair.

3.1.5 microSD card controls

If a microSD card is present, you will see the extra controls on the left side of the screen:



- **O** Session name: The current session name. Touching the session name, take name, current position or time remaining will immediately switch to the Session Take Management page.
- **2** Take name: The current take name. When multiple takes are present, you can use the **I** or **D** buttons to skip to the take you wish to play.
- **3** Current position: This counter shows the current record or play position.
- **• Time remaining:** If recording is active, this shows remaining record time available based on the current settings and microSD card capacity. If playback is active, this shows the amount of time remaining to play in the selected take.
- **5** Transport controls: Record, Play, Previous Take and Next Take.

Rotary Encoder/ Volume Control 3.1.6

While on the All I/O page, any other meter page, and most menu pages, the rotary encoder will function as a volume control. By default, it will control the levels for Monitor Out. You can change that to any other output, from the Main Menu > Settings menu > Rotary Encoder Settings page.

The Rotary Encoder also has a click function when you press down on the knob. Be default, this activates the Dim function, which attenuates the selected output by 20dB. From the Rotary Encoder Settings page, you can change that to Mute, or Output advance, where you can toggle through volume control for multiple outputs. See Section 3.2.5 for details.

Caution: Be sure to check the volume level of the selected output before playing audio. You can do this by simply turning the Rotary Control counter-clockwise. A level indicator will appear at the top of the screen.

3.2 Main menu

To get into the heart of the Mesa front panel controls, let's start by pressing the menu button. This will open the Main menu page.



Below are examples of where each menu item will lead to, in the same order as the Main menu.



Now let's look at each menu item in order.



This page is where you get a bird's eye view of the Mesa outputs, where you can attenuate outputs, assign sources, and control other parameters. Many users will monitor input signals through their recording software, and, likely, will not need to make changes from the defaults. However, if users want to do zero-latency hardware monitoring, or set up mirroring of signals to multiple outputs, or other more advanced functions, this is a good starting place to make those changes.

Mesa has an output driven routing structure. Whenever making routing changes the sequence is always the same: select the output, un-mute the sources you want to go to that output.

0 Output Select Menu: The Mesa has 14 outputs plus loopback. 8 channels (4 output pairs) can be displayed at one time. When the output label button is pressed the output selection menu will pop up and a different output pair may be selected for display. ADAT Out 3-8, and Loopback. Loopback allows play signals to be directed to record channels. It's a way to play audio from one application and capture it in another application without any physical cabling. For more information, see section Error! Reference source not found.. Users that do not use ADAT or Loopback, will be able to accomplish everything they need to do from the 4 output pairs displayed by default.

	Monitor out L&R		Ph	ones	Coa out L	ax _&R	Loopba out L&	.ck R
	Optical		Oj	ptical	Opti	ical	Optica	մ
	out 1-2		ou	It 3-4	out	5-6	out 7-	8
Mo	n	Mon	Phones	Phones	Coax	Coax	Optical	Optio
out	: L	out R	Left	Right	out L	out R	out 1	out

2 User defined button: Can be set to mute, dim or link. This is selected in the Settings page. Mute is the default state. When set to mute it will mute the output when pressed. Dim will attenuate the output by 20dB. Link is for toggling between having the channel pair linked or unlinked. Outputs are linked by default. In that state, the mute, volumes, dims, etc. will apply to both channels. If an output is un-linked, then these controls can be applied to individual outputs.



3 Meters: Pre-fader peak/hold meters for associated output.

9 Faders: Volume control for associated output. When an output has been "selected' it will have a white line around the faders and meters. In this state, you can attenuate that output using the rotary encoder, or by press-dragging with your finger. Double tapping the faders resets to unity. Pressing in the rotary encoder, causes the selected output to mute.

6 Output volume value: Shows of the amount of attenuation in dB.

6 Source select: press this button to reveal a page showing input sources that can be routed to the selected output. We will explore this page in detail in section Error! Reference source not found..

Output label: Indicates selected output. When you select different outputs, this label will change accordingly.

3 Dim: Pressing this button will attenuate the selected output by 20 dB. The fader position will not change, just the output level

9 Mute: Pressing this button will the selected output. If the user defined button is also set to mute, this is simply a duplicate control showing the mute status for the selected output.

O Channel link: Outputs are linked by default. In that state, the mute, volumes, dims, etc. will apply to both channels. If an output is un-linked, then these controls can be applied to individual outputs.

1 Help: Displays a help page describing the features of the outputs page.

1 Settings page: Allows customization of the following parameters:



User defined button: allow selection of the controls to appear under the faders on the Outputs page. Mute is the default, Dim and Link are options

Source Routing: allows copy and paste of routing settings from one output to another. Press "copy" here from the currently selected output. Press menu button to exit back to the Outputs page and select another output. Return to this page and the selected output will appear in the Paste row. Press "paste" to complete the process. This can be a real time saver, especially with commonly paired outputs like Monitor Out and Phones

To exit this page, and all other pages, press the Menu button

3.2.2 Monitor Source (Output Source Page)



There are two ways to access this page. From the Outputs page, if you press "Source" from the Monitor Out strip, this page will launch. It is also available directly from the main menu. The label is a bit deceptive: from this page you can set sources for ANY outputs, but it simply defaults to Monitor Outs. Let's take a look at what you can do here.

This page is for no-latency hardware monitoring. You can monitor an input signal through any outputs in your Audio Recording software; however, you are doing software monitoring. Because of this there will be some latency, relative to the current buffer size and sample rate. Routing here instead is done at the hardware level and is without perceivable latency.

The page title shows the output you are routing signals to, in the screen shown above it is the Monitor source. When you unmute an input here, it will route to the selected output. Same is true for the fader levels, pan positions, etc. These settings only impact the signal being delivered to that output. They do NOT impact the signal delivered to the computer or the SD card to be recorded. For instance, if you route Input 1 to Monitor out, and pan it to the center and attenuate it by 10dB, you will hear the level change and pan position through the Monitor out. But Input 1 also shows up in your computer recording software as Mesa Record 1. The attenuation here will have no impact on the record level in your software. It is only the monitor level you have adjusted with the fader on this page. Not the recording level.

0 Source select: As with the outputs page, here we see four pairs of input sources to select. Since Mesa has more than four inputs to choose from, pressing an input label button pops up a page to select any of the other inputs available for display.

192k	F1 F2	: Record : Play		Мо	nito	r sou	rce		000	0 ^M ≡;
			0	dB	0	\mathfrak{D}	MU	JTE		
In 1-2				TB 1	Play -2	TB F 3-	'lay 4		SD Play 1-2	SD Play 3-4
Coax in L&R	L .	Loopbac in L&R	:k	TB 5	Play -6	TB F 7-	'lay 8		SD Play 5-6	SD Play 7-8
Optica In 1-2	ul 1	Optical in 3-4		ТВ 9-	Play 10	TB F 11-	lay 12		SD Play 9-10	SD Play 11-12
Optica in 5-6	ul i	Optical in 7-8		ТВ 13	Play -14	TB F 15-	lay 16		SD Play 13-14	SD Play 15-16
In 1	In	2 In 3	i 1	n 4	Coax	L Coa	x R (Optio In 1	cal Optical In 2	ŝ

For each of these sources you have options at the top of the page:



Pressing the button will set the selected source to unity gain



Pressing this button will link or unlink the channel pair of the selected source

MUTE This mutes or un-mutes the selected source

The remainder of the buttons on this popup page allow you to select which source is displayed for the selected source channel pair.

2 User defined button: This button can either be a mute control or a link control. This is selected in the Settings page. Both the mute and link functions can also be changed in the source selection menu. Un-muting this source is how it gets routed to the selected output. In the page as displayed, un-muting In 1+2 will cause that source to stream to Monitor Out.



3 Source VU: The peak level meter shows the instantaneous level of the source signal pre-fader. The maximum peak level is held and shows for 2 seconds.

9 Source volume slider: Controls the source volume for the selected stereo output pair. If "Rotary encoder follows source" is selected in the Settings page, a white box will appear around the volume slider to indicate the rotary encoder may also be used to change the volume. You may also press-drag the slider to adjust the level. Doubleclicking the slider handle will set the volume to 0dB. Pressing in the rotary encoder would cause the source to mute.

5 Source volume value: Shows the volume in decibels of the signal going from the source to the selected output pair. The source may also be affected by the source mute and output volume, dim and mute.

6 Source pan button: This button controls the routing of the source input channel to the selected stereo output pair. It can be set to [L]eft, [C]enter or [R]ight. When input sources are linked and you press into the pan field, the selection will toggle between both sources panned center, right channel panned left and left channel panned right. and then back to the original state of left channel panned left and right channel panned right. If the sources are unlinked (mono), the single channel will toggle between left, center and right.

Output Select button: This button changes the currently selected stereo output pair. From here you can choose ANY of Mesa's outputs. All source routing pan, volume and mute states will be specific to the current selected output. Since Mesa's routing is entirely output driven, as you check different outputs, the source states can be different. For instance, you may have In 1 un-muted for Monitor Out, but when you click Phones Out, it may be muted. The source states are output specific.

Monitor out L&R	Phones	Monitor out L&R
Coax out L&R	Loopback out L&R	DIM
Optical out 1-2	Optical out 3-4	MUTE
Optical out 5-6	Optical out 7-8	2

Output dim button: Reduces the selected output by 20dB. When the rotary encoder is following the output, pressing the rotary encoder down will also activate the output dim. Note: The fader position will not change when dim is activated.

9 Output mute button: Mutes the selected output.

• Output tone button: Turns on a 1kHz tone at -40dBFS. The far right source channel pair is temporarily assigned to the tone source while the output tone is active. This is a useful troubleshooting tool.

Help button: Pressing this button provides context specific assistance to explain what controls on this page do. Note: This is a handy way to access content from this manual when learning how to use the device. Either touch the control you want additional help on, or press the Previous Control or Next Control to step through each control's help text. A QR code link to this manual can also be found on this page.



O Settings button: Pressing this button shows the settings popup page where individual settings for the output source page can be made.



Rotary encoder follows: choose between Source or Output. Determines whether the rotary encoder controls the input source monitoring volume or the selected output volume from the Output Source page.

User defined button: Select between mute (the default) and channel link.

Pan law button: When a source is panned to the center, this determines how much additional attenuation is added to the source to output volume. Pan law is a principle in audio engineering that adjusts the perceived loudness of a sound as it is panned between the left and right channels in a stereo system. It helps maintain a consistent volume level when moving sounds across the stereo field, typically applying a reduction in level when panned to the center to avoid a sudden increase in loudness.

Source Routing: The copy and paste buttons allow copying of source routing settings from one output to another. This works is a similar way to copy and paste in a word processing application. Start by selecting the output you wish to copy from then press the "Copy" button here, exit this page and select the Output you wish to past the routing to. Return to this page and press the "Paste" button to complete the process. This can be a real time saver, especially with commonly paired outputs like Monitor Out and Phones. The copied output routing is displayed next to the paste button as a reminder which output routing is currenting being held in the paste "clipboard".

3.2.3 Phones Source

This is the same page as the Monitor Source page, but defaults to Phones as the active output.



This page is where the four analog inputs can be controlled. You can select what type of input you wish to use, set input gain, link inputs, etc.

On this page, the rotary encoder will adjust the gain of the selected input channel(s). The value, in dB, will be displayed in the middle of the virtual knob for that channel. These channels can be linked or unlinked. When linked, all of the settings are applied to a channel pair.

1 Level meter: With peak hold and overload. Will show two meters when channels are linked.

2 Input selector control: Switches between Mic / Line / Hi-Z. Mic and Line are both on the XLR jack, Hi-Z is on the TRS ¹/₄" jack. When a TRS source is plugged in, this control will set to Hi-Z automatically.

3 Pad control: When selected, 13.6dB of attenuation is applied.

48V control: When selected, 48V phantom power is applied to this input. Appropriate selection for most condenser microphones.

• Preamp 48V Lockout: When selected, 48V cannot be applied to the selected input for microphones that should never have 48V phantom power applied, such as certain ribbon microphones. This setting cannot be disabled by the Mesa Remote application.

6 Link control: Enables linking of channel pairs. When linked, controls for both channels will be changed together and level meter will show both channels instead of a single channel.

Phase control: when selected, phase reversal is enabled.

8 Hi-Pass filter control: when selected, an 80Hz, 12 dB / octave hi-pass filter is enabled.

9 Channel number.

Gain display: in dB and relative position indicator. Adjust this value with the rotary encoder. When set to Line input levels cannot be set. Instead of a dB value, "Line" will appear here.



When Hi-Z is the selection for an input, pad and 48V do not apply and will be grayed out.

When Line is the selection for an input, pad and 48V do not apply and will be grayed out. Input levels cannot be set for Line signals, so instead of a gain value, the virtual knob will say "Line"

192k	F1 : Record F2 : Play	Setting	s menu	
F	Restore de	faults	B	lacklight
	Date & Ti	ime	Fun	ction Setup
	Talkback s	etup	Rotary E	ncoder Settings
	Digital I	/0	All I/O Sh	ow Thunderbolt

This is where you get under the hood and customize Mesa for your needs.

Restore Defaults: Press this menu option to return Mesa to factory settings. Sync source, Source to Output routing, preamp values will all be returned to defaults. Scenes, SD card take and session names will not be changed. Monitor output volume and sample rate will not be changed.

192k	F1:Record F2:Play	Backlight	<mark>©®®®</mark> ⊳ ∕
		100%	
		_	
		Display	

Backlight: This page provides a slider to control the amount of backlight in the Mesa display. The default is 100%, but can be adjusted down to reduce the brightness. While the backlight page is active, the rotary encoder changes the backlight slider.



Date & Time: Set the Internal Mesa clock, which is used to timestamp microSD card recordings. When using Mesa Remote, you can have the computer date and time sent down to the Mesa to set this value. See section 4.1.

44.1k	F1: Mon Src F2: Phs Src	Function S	etup 🔘	000 ^M
	When SD Ca	rd is present	When SD Card	is NOT present
F1 Kau				Outputs
FIKey	Monitor source		Preamp	Talkback
E2 Koy				Outputs
F2 Key		Phones source	Preamp	Talkback

Function Setup: where the user can determine what the two Function buttons do when pressed. The user can choose what these operations will be with an SD card is present, or when an SD card is NOT present.

When an SD card is present: The F1 key can be used to start recording to the SD card or to launch Monitor Source, Scenes, or Phones Source pages

The F2 key can be used to start playback of the current track on the microSD card, or to launch the Monitor Source, Scenes, or Phones Source page.

The default is F1 = Record and F2 = Play

When an SD card is NOT present: The options for F1 are open the SD card Takes folder, Outputs or Preamp page, or engage Talkback if that had been set up from the Talkback Setup page. The same choices are available for F2.

192k F1 F2:	Record Play	Ta	lkback se	tup 🧕	0000	P= /
Talkback So	urce:			In 3	in 4	
Talkback Ou	tput:	Monitor out L&R	Phones	Coax out L&R	Optical out 1-2	
Talkback 1	ype: L	atching.	Momentary			

Talkback Setup: This is where you can dedicate a single input channel for a mic, so that a recording engineer can communicate directly to talent who is being recorded. You can also assign a Function button for this task from the Function Setup menu. On the Talkback Setup page, you can choose between the following options:

Talkback Source: Which of the four preamp inputs to use for the talkback mic channel.

Talkback Output: Which outputs it applies to. Choices are Monitor Out, Phones, Coax or Optical.

Talkback Type: This can be Latching or Momentary. Latching is where you engage talkback by pressing the Talkback Active button, and it remains engaged until you press the button again. With Momentary selected, talkback is only active while you are pressing and holding the Talkback Active button. When you release the button, talkback disengages.



Rotary Encoder Settings: Mesa allows a high degree of customization, so that the controls you use the most are easily accessible. This page allows control over the behavior of the rotary encoder knob on the Mesa, as well as the behavior of the Mute button on the front panel.

Volume: Controls what Mesa does when you turn the rotary encoder. It defaults to controlling the volume to the Monitor out. You can change this to any other available output.

Click: Determines what occurs when you press down on the rotary encoder. This can cause the output which is selected under Volume (on this page), to Dim or Mute. The third option, Output Advance, will change which output the rotary encoder controls when you press it. You can select which outputs this applies to. For instance,

you could have the controls toggle between Monitor Out and Phones. Turn the encoder and it attenuates Monitor Out. Press to click. Now it controls Phones volume. When Output Advance is selected, you are able to make multiple selections in the Volume row. For instance, in the example described above, the page would look like this:



Mute Button on the front of the Mesa defaults to muting all outputs. Some users may wish for this to behave differently, and here you have control over that. You can exclude individual outputs from this global mute, or have mute only apply to the "Current Output". When Click (above) is set to "Output Advance", the mute button will also follow whatever output is the current output for the rotary encoder.

192k	F1 : Record F2 : Play	Digit	al I/O) <u>@</u> [⋈] ⊒ ∕			
Ec	Coax Ir	ו nsumer	Optical In Format: S/P DIF				
Sample Rate: 44.1k			Sample Rate: 192k Status: Locked				
	Optic						
	Format:	S/P DIF	ADAT	Follow Input			

Digital I/O: This page shows the status of the Coax In and Optical In.

For the Coax In, the format may show Professional (AES/EBU) or Consumer (S/PDIF) source. The sample rate of a connected device will be displayed. The input can display Unlocked, indicating that the digital receiver is not locked to a valid digital signal, or Locked, if it is attached to a valid digital device.

For the Optical In, the format may show S/PDIF or ADAT.

S/PDIF: 2-channel operation, used on many consumer devices. Supports sample rates up to 192kHz. ADAT: Supports up to 8 channels on a single optical connection. This format is more typical of pro audio equipment. ADAT channel count scales with sample rate: 8 channels at 44.1/48kHz, 4 channels at 88.2/96kHz, 2 channels at 176.4/192kHz.

The Optical Out section allows you to select what format the Optical output will use. It can be S/PDIF, ADAT or Follow Input, where the Mesa will auto-detect the format of optical input devices and will switch the optical output to the same format.

All I/O Show Thunderbolt: by default, the All I/O meter page just shows Mesa's physical I/O. When this option is selected, you can also see the Thunderbolt play and record streams from the computer. This can be a helpful troubleshooting tool, or a way to determine where clipping is coming from.



3.2.6 All I/O Meters

The All I/O page is the ideal place to get a "wide-angle" view of where signals are coming from and going to in the Mesa system. This will reveal audio activity for all physical inputs and outputs. You can also see meters for signals to and from the computer here by selecting "All I/O Show Thunderbolt" from the Settings Menu.

When you touch one of the Output channel pairs, it will launch the Output Source page for that output.

When you touch one of the analog inputs, it will launch the Preamp page.

When you touch any other input, or any blank space on this page, it will cycle through to the next meter type.



These meters give a much more detailed and accurate picture of the audio coming into, and going out of, the Mesa. The horizontal meters are designed to show accurate level information with Peak Hold on two input and two output sources simultaneously. In the primary view, the I/O is pre-selected as Analog In 1-4 on the input meters, and Monitor Out and Phones Out for the output meters. If you wish to select different I/O to observe, press into the horizontal meter to launch the alternate view.

192k	F1: Mon Src F2: Phs Src	Horizo	ntal Meters	<u>000</u>	35 P
-39 38 37	7 36 35 34 33 32 31 30 29	28 27 26 25 24 23 22 2	1 2019 18 17 16 15 14 13 1	21110-9-8-7-6-5-4-3-4	2 -1 0 OL
	In 1-2			Monitor out L&R]
-39 38 37	7 36 35 34 33 32 31 30 29	28 27 26 25 24 23 22 2	1 2019 18 17 16 15 14 13 1	21110-9-8-7-6-5-4-3-2	2 -1 0 OL

On this page, you can select any two sources you wish for the horizontal meters. Pressing the Source Select button will launch the page on the right, where all active inputs and outputs are available including thunderbolt I/O and SD card play channels.

192k	F1 F2	: Mon Src : Phs Src	AI	All I/O		<mark>33</mark> 32	9 35 P	4	
In 1-2		In 3-4	TB Play 1-2		TB Play 3-4				
Coax in L&R	ŧ	Loopback in L&R	TB Play 5-6		TB Play 7-8				
Optica In 1-2	d	Optical in 3-4	TB Play 9-10		TB Play 11-12				
Optica in 5-6		Optical in 7-8	TB Play 13-14		TB Play 15-16				
		Monitor out L&R	Phones		Optical out 1-2		Optical out 3-4		
		Coax out L&R	Loopback out L&R		Optical out 5-6		Optical out 7-8		

3.2.8 Clock Setup



This page is where we set the **Sync Source**, and can manually change the sample rate. Sync Sources are only selectable here when they are valid. For instance, unless the SPDIF coax input is connected to a device's SPDIF output, SPDIF Coax will not be a selectable option. The same is true for Wordclock and Optical. Internal is when the Mesa operates from its own high-quality crystal oscillator clock. That is the default, and, in most cases, the ideal choice.

The **Sample Rate** selections are only applicable when Internal is the active clock source, or when Optical is active and the Optical in is receiving an ADAT signal at 2X or 4X rates. This is especially useful when Mesa is operating independently of a computer, as a standalone SD card recorder for instance. When used with a computer, and clocked internally, it is generally preferable to allow the audio software to choose the project sample rate, and Mesa will follow automatically. For multimedia software playback (i.e. Spotify, YouTube, Apple Music), the sample rate can be set from Audio Midi Setup in macOS, or Control Panel > Sound Settings in Windows computers

3.2.9 About Mesa

192k	F1 : Mon Src F2 : Phs Src	About	Mesa	
	Ser Firmw Firr Sele	rial number are version nware date ected PROM	612515220 1.0 May 12 202 PROM1	1 25
	Dri	Driver ver version Driver date	Windows V3 Release May 12 202	14 25

This is an information only page. It shows the Serial number, Firmware version, Firmware date and Selected PROM. Mesa has two PROMs on its main board, as a failsafe. By default, PROM 2 is active. PROM 1 is only used in the unlikely event the firmware update is unsuccessful.

When connected to a computer, once the driver has loaded an established a connection with Mesa, the Driver type, version and date are also displayed as a confirmation that the driver is connected. This is the same information provided on the Mesa Remote About page.

3.2.10 SD Card Menu

192k	F1 : Record F2 : Play	SD Car	d menu 📴 🚳 🚳 🛤				
	Record Se	etup	S	D Card Info			
Ta	ake Manag	ement		Playlists			
	Scene	s		Format			
F	irmware u	pdate					
F	irmware u	pdate					

There are a few things going on here. The Mesa microSD card slot has several potential functions: Recording multichannel audio, saving and recalling user configuration "scenes", and performing firmware updates. All of these abilities are configured on this page.

192k F1 F2:	Record Play	ł	Re	cord	Setup	þ	<u>©©@</u> ₽ <u></u> ≠			4
Preamp li	n	1	2	3	4		8 of 8 channe		ls	
SPDIF Coax	: In	1	2							
Loopbac	<									
Optical Ir	ı	1	2							
Auto Sele	ct									

Record Setup: Mesa will default to automatically select which channels to record on the microSD card based on whatever inputs are connected at the time of the recording. If one wishes to manually specify which input channels are to be recorded, that can be selected on the Record Setup page. Choose from any combination of Preamp, SPDIF Coax, Loopback and Optical channels.

Pressing the input label in the far-left column will select all the channels in that row.

Auto Select allows the Mesa to choose channel count based on the number of inputs that have signal sources connected to them. If you had signal sources connected into all 4 preamp inputs, and the SPDIF coax input, then it would automatically set up for a 6-channel recording using those sources. microSD card recording can have 2, 4, 8 or 16 channels. If you were, for instance, recording 12 channels, it would create a 16-channel interleaved recording where the last 4 channels were silence.

192k	F1 : Record F2 : Play	Take Management							
Sessio	าร	+ -	1	Takes	• ►	- /			
Session (Take 01					
Session (Take 02					
				Take 03					
Created	2025-May-0	7 12:31:4	5 Len	: 00:11:34 Ch					

Take Management: Mesa's microSD card recordings are organized into Sessions. This is a handy way to separate recordings by song, night, venue, etc. Each new recording, creates a "Take" within the active Session.

On this page we can create, name and delete Sessions, and also manage the takes within them. To create a new Session press the + button over the Session column.

192k	F1:Record F2:Play	Create	Session	ו 🧕	<mark>@@</mark>	<u>@</u> №Ξ. /
	Se	ssion-02		×		
~ !	@#	\$ % ^	& *	()	- +	Back
	Q W E	RTY	l i i	O P	T T	
Сар	A S	DFG	нJ	K L	: -	Сар
Shift	z x	C V B	NM	< >	?	Shift
	Cance			Sa	ave	

A virtual keyboard will pop up, allowing you to name the session. Press "Save" to complete, or "Cancel" to start over. When viewing the Sessions list, highlight a Session and press the pencil icon to edit the name, or the – icon to hide it.



Note: Sessions and Takes can be hidden but not deleted, as deleting them would corrupt the directory structure on the microSD card. This is also true when using the microSD card on a computer. If a file is ever deleted on the microSD card, it must be formatted on the Mesa before another recording can be done.

When a Session has been selected on this page, whenever a new microSD card recording is done, the Take will be placed into this Session folder. When you have Takes within a Session, you can edit their names, or hide them, in the same way that you do with sessions. There is also a record and play icon above the Takes column for quick access to those functions for the selected Take. Additional Information about the selected Take is available at the bottom of the screen.

Creation date and time.

Duration.

Number of Channels.

Each time the Record button is pressed, a new take is created in the current session using the settings from the Record Setup page This is true whether the Take Management page is open or not.



Scenes: The "Scenes" page is where scenes can be recalled, saved, hidden and have their names edited. Scenes are simply a collection of all of the control values (pan, source volume, mute and so on) preserving the routing setup of the Mesa and stored in the "Scenes" folder on the microSD card. The scene file is the same XML format as Mesa Remote, so a scene created on Mesa Remote can be saved to the "Scenes" folder and then applied to the Mesa⁻ without the computer connected. In this way, multiple scenes (customized routing) can be created then recalled in the field without the need of a computer.

Scenes can be created by pressing the "+" icon. The virtual keyboard will appear where the scene can be named. Once the "Save" button is pressed, the scene is immediately created in the Scenes folder on the microSD Card.

When a scene is highlighted, it can also be hidden with the "-" icon, or renamed by pressing the pencil icon.

To recall a scene, simply press it from the list on this page then press the open icon. This recalls the scene and sets all routing back to how it was when the scene was created.

If you wish to save multiple scenes for difference contexts, you would set up the desired Mesa parameters, add a scene, name it, then save it. Then, set up new parameters, create a new scene, name it and save that. In this way, you can have different scenes for categories like: field recording, installation playback, mixing, etc.

Scenes can also be saved from the Mesa Remote software. Some users like to save scenes in Mesa Remote when the scene is computer dependent, and save scenes to the microSD card for contexts without a computer. However, feel free to work in whichever way feels natural.

It is also possible to set one of the Mesa Function buttons to quickly jump to the Scenes page, so you have a quick way to save and recall scenes. This is done from the Settings > Function Setup page. When you select a scene, its creation date and time will appear at the bottom of the display.



Firmware Update: Lynx regularly releases firmware updates for Mesa. Firmware updates add features and improve performance. It is possible to apply these Firmware updates from the computer via Thunderbolt or from the microSD card using the Firmware Update page. Firmware Updates can be loaded to a microSD card on a computer, and the update can be applied directly to the hardware without needing a computer. To perform a Firmware Update using only the Mesa and a microSD card, first, obtain the firmware "BIN" file from the Lynx Studio Technology Download page. Next, place that file in the root directory of the microSD card. Place the microSD card into the Mesa microSD Card reader. From the Firmware Update page, the downloaded update will appear and, when selected, reveal its creation date and version number from the bottom of the display. Press the Firmware Update File to begin the process. The next screen will prompt to confirm the update.



While the update is being applied, the display will indicate not to turn off the Mesa or the computer. When complete, you will be prompted to turn off the Mesa with the power switch on the back. After power cycling, the new firmware will be active.



Playlist: A Playlist is a collection of Takes that can be played in a specific order. Once the first Take on the playlist is done with playback, the Mesa will automatically start playing the next Take on the playlist, and so on until the entire Playlist has been played. Playlists conform to the standard XSPF format (<u>xspf.org/spec</u>) and are stored in the "Playlists" folder on the microSD card.

The Playlists page is where Playlists can be selected, created, renamed or hidden.

Create a new Playlist by pressing the "+" button. This will create a playlist based on all of the Takes in the current Session. Once the Playlist is created, simply pressing the "Play" button will start the playback of the Playlist. Once each track is finished playing, the next track will immediately start playing until the Playlist is complete. While a playlist is active, pressing the "Next" button on the touch-screen meter page will move to the next track and pressing the "Previous" button will move to the previous track. Playback can be stopped by pressing the Play button, and the playlist can be resumed once again by pressing the Play button.

Unselecting the Playlist or pressing the Record button will revert to "Session" mode, making the playlist no longer active.

Hide a Playlist by selecting it and pressing the "-" button.

Edit the name of a Playlist by selecting it and pressing the pencil icon.

Playlist Files: As noted above, the Playlist file conforms to the standard XSPF format. Please note that the location of the track must be from the root of the microSD card. This means if the playlist is being copied from a computer, drive letters and volume names must not be included. Playlists may include tracks in different locations on the microSD card (not just a single folder), so a microSD card with multiple albums of music can all be played while still having each album in its own folder.

Here is an example playlist file:

Note that all of the <location> entries start with the root folder "/" and tracks from multiple sessions can be in the same playlist. Changing the repeat="false" to repeat="true" will cause the playlist to repeat playing until manually stopped.

If the playlist is renamed to "AutoStart", each time the microSD card is inserted in the Mesa and powered on, the Playlist will automatically start playing from the first track.



Format: This is a handy place to format a microSD card using the recommended ex-FAT formatting method. It is recommended to re-format the microSD card after transferring audio from the card to a computer. Many current operating systems write files to a card when data is pulled off of it, and these files can corrupt future recordings. After transfer, reformat before starting a new recording in the Mesa.

4 Mesa Remote



The Mesa Remote application is a convenient place to adjust Mesa parameters, set levels, and route signals with a generous amount of screen real estate. Not all Mesa front panel controls have equivalents here, but most do. Some users find it more convenient to use Mesa Remote while recording with the computer, and using the front panel controls when using Mesa standalone. However, we designed the system for maximum flexibility, so you can make Mesa adapt to your preferred working style, rather than be forced into a single approach that does not make sense for you. When changes are made in Mesa Remote, they will immediately be reflected on the Mesa hardware, and vice versa, In fact, it is best to think of Mesa Remote as a way to control the Mesa hardware, rather than a standalone mixing app.

Mesa Remote gets installed automatically with the Mesa driver. In macOS it will appear in Applications, and in Windows systems it will be in the Lynx Studio technology program group.

Let's take a look at the Mesa Remote settings. Mesa Remote is divided into 5 general sections:

Adapter: Menu system, sync source, scenes and SD card controls.

Inputs: Control of Preamp inputs, as well as the digital inputs.

Play: Control of Play streams from the computer.

SD Play: Control of SD card playback channels.

Outputs: Control of levels and routing of Mesa's output channels.

4.1 Adapter Pane



First up on the Adapter pane is the Menu. Let's take a look at each item on the menu.

Open scene and Save scene: Like on the Mesa front panel, users can save and recall scenes that are a snapshot of all routing parameters and volumes of the Mesa.

Further down the adapter page there are Quick Scenes, easily recallable from the Mesa Remote with a single click. The Scenes from the Menu differ in that the user can specify where the scene files are saved. Specify a name and location for the scene when you save it, and navigate to that location when you choose Open scene.



Scenes are stored on your computer's permanent storage (hard disk or SSD) in the Documents folder by default. You may choose to use a different folder to store scenes and Mesa Remote will remember that folder. There is no limit to the number of scenes that can be stored. After "Save Scene" is selected, A File Name will need to be created and a directory selected for the mixer scene file to be written to. The current state of all of the Mesa parameters will be stored into scene memory. Selecting an existing scene name and clicking the Save button will overwrite that scene with the current parameters.

To delete a scene simply delete the scene file from the hard disk. Please note that scenes saved from the Mesa Remote application are independent from the scenes saved on the Mesa itself.

Since the Mesa stores a startup scene, that will be the scene loaded when Mesa starts up.

Restore Defaults: This returns the mixer (and Mesa hardware) to its factory default state. Routing, sync source, source levels, all can be impacted. Output levels and sample rate will NOT be impacted. Restore defaults is an excellent troubleshooting tool. When things are not going as expected, this is a good first step to try.

Windows Zoom: Allows the user to adapt the Mesa Remote to their screen resolution or preferences. Zoom from 50% to 300%. "Auto" sets to an appropriate level for your current screen resolution. 66% is the inverse of 150% and 80% is the inverse of 125%. If your operating system is enlarging text 125% and you would like to have Mesa Remote displayed without any operating system zooming artifacts, you would pick 80%.

Advanced: This is the portal into deeper performance options. There are specific settings for both Windows and macOS. Let's go over each item in the Advanced menu.





Adapter Settings: This page gives the user control over device order and number of channels that appear to the OS. Device order is generally only applicable when multiple Lynx interfaces are connected to the computer. The order in which they appear to the OS will be set automatically by the order in which they were installed. For instance, if a single Mesa is connected, it will automatically be labelled as #1. Add a second one, or a Hilo or Aurora⁽ⁿ⁾, and they will automatically be labelled as #2. This indicator is stored in the hardware, so if you move the #2 interface to a different computer, it will remain as #2. A user may want to change this order. For instance, if you have a Hilo and Mesa, you may want the Hilo to appear as the #1 device. Here's where you can change that. Select the unit in question, and use the Move Up and Move Down buttons to set the device order.

You may want to also change the number of channels that Mesa presents to the OS. By default, Mesa appears as a 16-channel device, allowing discrete computer control to 4 analog channels, stereo SPDIF coax, stereo loopback, and up to 8 ADAT optical channels. If you are a user who never intends to use the ADAT channels, you may prefer to have the Mesa appear as an 8-channel device. This is especially when combined with some other audio interface, and where you wish to control the number

of combined channels. Select the unit, then choose the desired number of channels. With both device order and channel count parameters, after making a change either Save and Exit, or select Restart to reboot the computer. Changes go into effect after the computer has rebooted.

Show PCIe latency: This option displays the time it takes the CPU to respond to transfer requests from the Mesa. This is used for trouble-shooting computer performance issues such as dropouts during recording and playback. On Windows computers, we recommend turning off C-States and EIST in the BIOS if you are noticing higher PCIe latency values (over 4 samples).

ASIO buffer size: Windows only. Most DAW applications allow setting the ASIO buffer size from within the application. This is simply another way of setting that same value without having the DAW application running.

Payload size: This is a very advanced control, and generally should only be used when suggested by Lynx Technical support. The payload size refers to how many samples are transferred into the buffer at a time. Changing this value from Auto (the default) can help with some performance problems caused by computer deficiencies. Auto works in most cases, because the payload value is determined by the context of use. Check with Lynx support if you are experiencing poor performance that is not remedied by increasing the buffer size. We will let you know if altering this value is an appropriate remedy.

Input/Output safety offset: Macintosh only. These are very advanced controls that should only be changed when suggested by Lynx Technical Support. For detailed information, please see <u>this article</u>.

Allow clock change if active: In general, the Mesa driver will not allow the Sync Source to be changed while actively streaming. Many applications can behave erratically, if the positional reference provided by the clock source changes. By default, Sync Source is grayed out when the Mesa is in use. There are some cases when it is useful to have the capability to change the sync source while the device is in use. When this switch is set to ON, the Mesa can be streaming or being used in a DAW, and the Sync Source button will allow you to change clock source. As always, only valid sources will be available to select, i.e. a sync source where a sample rate is detected.

Pan law: This is the same control that is available on the front panel of the Mesa under Menu > Monitor Out Source > Settings > Pan law. See section 3.2.2 for more information.

Set Mesa date & time: Uses the computer's date and time to set the date and time inside the Mesa. This is used for time stamping SD Card recordings.

Check for updates: Each time Mesa Remote is launched, a popup will alert you if a newer version of the driver is available. The popup will provide a link for the download. If you press "Ignore" from this prompt, the popup will no longer occur until you click *Check for updates*.



About page.

Exit/Quit: Exits the Mesa Remote program. All settings remain intact.



Sync Source: This menu shows all of the Sync Source options for the Mesa, including Internal, Word Clock, Coax and Optical. Only sources that have a valid clock source connected to them will be selectable. If no valid signal is present for a specific input, it will be grayed out. Valid clock sources will display the sample rate being received by that input.

When Internal is selected, a list of sample rates will appear in the drop-down menu to the right. Mesa supports standard sample rates between 44.1kHz and 192kHz. Please note: It is ideal to have the sample rate be established within the recording software, or from the operating system sound settings when using multi-media software, such as Spotify, YouTube or Apple Music. In Windows, the sample rate is set from the Sound section of Windows Control Panel. In macOS, it is set from Utilities > Audio Midi Setup.

By default, audio software in the system needs to be closed in order to change sync source. You can get around this by selecting "Allow Clock Change if Active" from the Advanced page.

Quick Scenes: There are several ways to store user scenes with Mesa. Scenes contain parameter and channel states, and allow for easy recall of a custom configuration. Scenes can be stored on a microSD card inserted into Mesa, in Mesa Remote from the Save Scene button off of the main menu, or in this section. Quick scenes allow the user to instantly store the current configuration, name it, and be able to recall it with the click of a single button. Quick Scenes are especially well suited to contexts where it is useful to go between scenes very quickly.

To save a quick scene with the current Mesa state, click on "Store Scene". The available scene locations will flash. Click one to select it. Once selected, you can double click the scene and change its name. To select a quick scene, simply click on it. Note: Scenes do not store the sample rate, as that is set by the DAW application.

SD Card Transport Controls: Here we can control the Mesa SD card recording and playback.



• The current SD Card Session. You cannot add a new session from here, that is done from the Mesa SD Card > Take Management page.

2 The current take. For each new recording it will automatically increment up.

• This counter displays the progress of the current take, whether you are recording or playing it back.

• This counter displays the time until end of file when playing back a track. When recording, it displays the time available on the SD card. Helpful to determine if you have adequate space for the recording in progress

5 Stops the current recording or playback

- **6** Starts recording, and will automatically create a new track
- Play the current track
- **8** Skip back to previous track
- Skip forward to next track

About: This page displays information about the Mesa, driver, and firmware as follows:

Mesa Remote Version and Build Date. Driver Version and Build Date. Mesa Serial Number and Hardware Revision. Mesa Firmware Version and Release Date. Copyright and support links.

Opening this page automatically copies the contents to your computer's clipboard. You can paste into an email to Lynx Technical Support, or, click the <u>support@lynxstudio.com</u> link which will automatically generate an email message with all of the information contained in the

4.2 Outputs



The bottom pane of Mesa Remote shows the physical outputs: Monitor, Phones, Coax, Loopback and the Optical Outputs.

The output pane is where meters can be observed, output levels adjusted, mutes and dims applied, and where channels can get custom labels. Additionally, the output row is the starting place for any routing or mirroring of signals. We'll get into that further in this section. For now, let's take a look at each of the controls you will see here:

0 **Output button:** Identifies the outputs that are applicable to the fader and mute controls, and is also used to facilitate routing. Mesa Remote uses an output-oriented approach to routing. Clicking on an output button, "selects" that output for sources to be assigned to it. When selected, the output label button is light colored. In this state, sources from the Record or Play, or SD Play sections can be un-muted, thereby set to stream to the "selected" output.

2 Volume value: Displays the amount of attenuation, in dB, performed on the associated Output.

Faders and Meters: The FADERS in the Outputs row are for attenuation of the output levels. Levels can be reduced in ½ dB increments by a click-drag of the mouse. This is the rough equivalent to turning down the faders on a mixing board. If there are several sources assigned to that output, play and record sources, all will be attenuated when the faders are brought down.

All faders can be attenuated at the same time by holding down the CTRL key on the keyboard while click-sliding any single fader.

The METERS in the Outputs section show the level strength of the signals at the associated output. The Meters are post-fader, so there will be reduction in Meter level as the signal is attenuated.



• Dim: Dim attenuates the selected output by 20dB.



5 Mutes: Mutes or unmutes the associated output.

6 Channel Link: Toggles the linked state for a pair of faders and mutes. If two channels ARE linked, then moving the fader for one of them will move both channels. Similarly, if one is muted then both will mute. If the faders between the channels are offset, when one is moved the other will snap to the same position.

Linked is the default state for pairs of inputs. To "un-link" a pair, click on the link icon and it will change to a single circle: In this state, the mute, fader and pan controls operate on a single channel independently.

O Channel Label: This allows the user to enter a custom label for the output within Mesa Remote. This label will not appear in audio software or to the OS, it is only used when Mesa Remote is open.

Routing in Mesa Remote is output driven, so the Outputs pane is where we work from. Whichever output is selected (Monitor is selected in the graphic above), is what the levels, pan and mute states for the panes above it apply to. This different from a large-format console where the input channels have faders and each input has sends to an output. With the Mesa, outputs are selected first, then the routing to that output is determined. This can be a tricky concept to absorb, but once you are comfortable with how this works, it is extremely flexible and easy to use.

You can route play streams from the computer, play streams from Mesa's microSD card, or signals from Mesa's inputs to the outputs. By default, only play streams from the computer and SD Play streams are un-muted. All other routing must be specifically initiated by the user.

To add sources to an output, click an output button to select it, which will show highlighted. Then un-mute whatever Input, Play, or SD Play sources from the upper panes you wish to have routed to the selected output. Signals from those sources will now stream from the source to that output. When multiple sources are assigned to a single output, it is often necessary to attenuate the individual sources to prevent excessive level from causing distortion to the output.

In addition to allowing signal from an input or play stream to be routed to a desired output, these monitor sources can be panned and attenuated individually. To look into these features, let's have a closer look at the other panes in Mesa Remote.



4.3 SD Play

Above the Outputs pane is the SD Play pane. This is where tracks that have been recorded onto a microSD card can be directed to any outputs on the Mesa. By default, the SD card tracks will play through the Monitor and Phones output, but you can customize it if you wish to.

You can route SD card tracks to play out of the coax and optical outputs, if you have a monitoring setup where that would be more advantageous. To route these signals, simply select the output you want the SD card audio going to, and un-mute the appropriate SD card channels. For instance, if you want SD card track 3+4 going to the coax output, you would select coax out, and then un-mute SD Play 3+4. If you need to route on a single channel basis, you can un-link the SD card channel pairs with the button beneath the Mute button. Pan, and level controls are available as well.

4.4 Play



This pane is similar to the SD Play pane, but this is where streams from the computer are controlled. In many audio systems, the outputs you select in your audio software, are hardwired to go out specific outputs in the audio interface. That is not the case here. With Mesa, you have control over where these computer streams go, even if you want some playback material to go to multiple different outputs simultaneously.

Play devices are what you use to assign outputs in your audio software. You will not have outputs labelled as Mesa Monitor Out, Mesa Coax Out, etc. Instead, you will see devices called Mesa Play 1+2, Mesa Play 3+4, etc. There will be 16 channels of Mesa I/O showing up to your audio programs. Some of these Play channels are unassigned by default, but available for use if you need discrete play channels going to separate outputs. To start, let's look at what the default relationships are between play channels, and Mesa physical outputs:

1	
Monitor Out:	Play 1+2
Phones:	Play 1+2
SPDIF Coax	Play 1+2
Loopback	Play 1+2 AND Play 7+8 Loopback is where you can record a play stream internally, without
any physical cabling	
Optical ADAT Out 1-8:	Play 9-16. When using 2 channel SPDIF $Optical$ mode, it will just be channels $9+10$

This configuration was selected as the default, because Play 1+2 will be the first channels that come up in any audio software, and we do not know which outputs you will be listening to. So that stream will go to all the outputs, except for optical.

You can change this arrangement to whatever best suits your working style. For instance, let's say you have digital monitors and you want the first pair of play channels to go to the Coax outputs, and have the Monitor Outs feed from Play 5+6. Here is how to accomplish that:

Select Coax Out in the bottom row. Verify that Play 1+2 is un-muted.

Now select Monitor Out in the bottom row. Un-Mute Play 5+6 and Mute Play 1+2.

Now Play 1+2 goes to Coax Out, and Play 5+6 goes to Monitor Out.

With this method, you can customize the system very easily.

When routing play streams to outputs, you can also adjust pan settings and levels. The Link button at the bottom of the channel strip allows you to toggle between channels linked into stereo pairs (the default) or independent. The linked state impacts the behavior of faders, pan and mutes. If two channels ARE linked, then moving the fader for one of them will move both channels. If one is muted, then both will mute. Panning will impact both channels. If the faders between the channels are offset, when one is moved the other will snap to the same position. When un-linked, fader, pan and mute controls are independent for each channel.

Note: these controls impact the Play device routed to the output which is selected at that moment. If Phones Out is selected, and you pan Play 1 to the center and decrease its level, that only impacts that stream going to phones. Anywhere else Play 1 is going would not be effected by that change. Again, all settings in the SD Play, Play and Input rows are relative to the output selected.

4.5 Input

0	PREAMP 1-2	PREAMP 3-4	COAX L-R	LOOPBACK	OPTICAL 1-2	OPTICAL 3-4	OPTICAL 5-6	OPTICAL 7-8
0	69 dB 6 dB	6 dB 6 dB	44.1 kHz		44.1 kHz	44.1 kHz	44.1 kHz	44.1 kHz
0		\odot						
0	MIC HI-Z	HI-Z HI-Z						
6	PAD PAD 48V 48V	PAD PAD 48V 48V						
ŏ	ØØ	0 0						
8								
0								
0	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0
0								
Ø	MUTE MUTE	MUTE MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE
E	0 0	0 0						0
Ø	-	-	-	-	-	-	·	

The top pane of faders show the Mesa's physical inputs: Preamp ins, Coax and Optical, as well as the virtual Loopback input. The purpose of this pane is to show input signal meter activity, adjust preamp parameters, and manage the levels, routing, and pan positions of input signals being monitored through Mesa outputs. The faders do not control record levels, just the monitoring level when an input has been routed to an output. As with the play devices, in Mesa you do routing by selecting an output in the bottom row first, and then any sources you un-mute will be routed to that output. All pan, fader, mute and link values are relative to the selected output.

However, there are also gain and tone controls for the 4 preamp inputs, and those DO effect record level independently of routing.

Let's break it down by each control in this pane:

1 Input Label: The name of the input channel pair.

• Gain Indicator: Gain display in dB for Pre Input. Only applies to Mic or Hi-Z Input. Will show "Line" when input is set to Line.

- **3** Gain Control: Adjusts the input gain for the Mic Pre or Hi-Z Input. Will show "Line" when input is set to Line.
- Input Selector Control: Switches between Mic / Line / HiZ. Mic and Line are both on the XLR input, Hi-Z is on the TRS input in the Mesa Combi-jacks. Hi-Z is automatically selected when using the TRS input.
- **9** Pad Control: Enables 13.6dB pad. Only available when input select is set to Mic. With the Pad enabled and the gain set to "14" the Mic input level will match the Line input level.
- 48V Control: Enables 48V phantom power for the selected input. Only available when input select is set to Mic. See the Preamp page on the Mesa to lockout 48V for specific channels as a precautionary measure.
- **Phase control:** Reverses the phase of the incoming signal.
- **8** Hi-Pass control: Applies an 80Hz, 12 dB per octave hi-pass filter.
- Panner: The Panner knob controls the pan position of the input as it is being monitored through an output. IT HAS NO EFFECT ON THE RECORDED SIGNAL. It is only pertinent to monitoring. You would only hear the results of the panning if an input signal was being monitored through Mesa's outputs.

When channels are linked, then the pan controls are linked as well. Moving the pan control to the left will make the linked channel's pan control move a corresponding value to the right. When the channels are unlinked, as when recording a mono source, then the pan control will move the signal anywhere within the stereo spectrum.

To change the pan position, click in the proximity of the pan knob and move the cursor from left to right, or right to left.

• Volume level indication: Displays the amount of attenuation performed on the associated record source. This is attenuation for the monitor level of the signal; it has NO bearing on the level being recorded through an audio application. It is applicable to monitoring level only (how loud that signal source is through the output you are listening to).

• Faders and Meters: The meters on the input section show the level strength of the signals at the associated input. The meter level will reflect the signal that will be recorded into audio software. The meter will not reflect attenuation to the input signal as it is being monitored. When you lower the fader, the meter level will not change, however the change WOULD be reflected in the meters of the output this signal was routed to.

The faders are for attenuating the signal of the input as it is being hardware monitored. For instance, if you are routing a signal from Preamp In 1, through Monitor Out, and the input signal is too loud relative to the rest of the mix, you would lower the fader under Preamp In 1 to correct that. The signal level being recorded for Preamp In 1 will not change, but the level through the outputs as you are monitoring the performance will go down.

The fader position is specific to the connection between the input and an output. So, using the example above, if you have attenuated the signal of Preamp In 1, through Monitor Out, but then you select Phones Out from the Output Row, the fader for the Preamp In 1 will return to whatever position is established for that connection.

To reiterate, the faders are for the level of a specific connection between an input and an output. It will not affect the level of the input source monitored through an output that is not selected, nor will it affect the level of the audio being recorded.

Mute: This switch Mutes or un-Mutes the input signal routed to an output. As with the faders, this control is specific to the patch point between the input source, and the selected output. It does not control whether the input signal itself is muted, or whether that input signal can be recorded.

Inputs are muted by default. When an output is selected from the outputs pane, inputs need to be un-muted to become active. When an input source is no longer being monitored, then it is good practice to mute it again so that unintended mic bleed or system noise is not corrupting the signal path.

(B) Channel Link: This control toggles the linked state for a pair of faders and mutes. If two channels ARE linked, then moving the fader for one of them will move both channels. Similarly, if one is muted then both will mute. If the faders between the channels are offset, when one is moved the other will snap to the same position. The linked state also impacts the Pan controls. If one pan pot is moved to the left the other will move a corresponding amount to the right. For instance, if the left pot is set to -25, the right channel will pan to +25.

Linked is the default state for pairs of inputs. To "un-link" a pair, click on the link icon and it will change to a single circle:

Input Label: This allows the user to enter a custom label for the input within Mesa Remote. This label will not appear in audio software or to the OS, it is only used when Mesa Remote is open.

4.6 Loopback

One of the unique and powerful capabilities of the Mesa system, is the ability to capture playback audio through a record channel. You can, for example, take audio playing from a website and capture it in your DAW, without any physical cabling. Or stream a mix from your DAW to a separate mastering program, with perfect fidelity and no signal loss.

Loopback involves a virtual output, and a record channel. Often, the most convenient use for this, is to take audio which is streaming to a physical output, Monitor Out, for instance, and simultaneously capture that stream elsewhere.

Here's how to set that up.

The default setup, is Play 1+2 will deliver audio to Monitor, Phones, coax and Loopback Outputs. To capture that play stream via loopback, do the following steps:

- 1. Stream audio to Play 1+2 and verify that you are getting meter activity for Loopback Out
- 2. Verify that you are also getting meter activity for Loopback Record in the top row in Mesa Remote
- 3. Record channel 7+8 defaults to Loopback record. Open your recording software, and choose inputs 7+8, to capture the playback audio.

Note: In the example above, if your recording software is set to monitor through Play 1+2, and input monitoring is enabled, then you could get a feedback loop. To resolve this, either choose a different play device for the track output than the one you are streaming from, or mute the track's output, or disable software monitoring in your DAW. If you want to reduce the level of the audio you are capturing, in Mesa Remote, attenuate the loopback output channel.

Play 7+8 also stream to loopback by default, for users that want to send a stream that is not also going to audible outputs.

You can also send multiple play streams for loopback capture. When selecting the Loopback output, un-mute multiple play sources. Keep in mind, that the combined level of multiple sources can cause clipping. Attenuate the individual play channels to correct that.

4.7 Mesa Remote keyboard/mouse conventions

Mesa Remote uses some time-saving key combinations and conventions

- SHIFT-CLICK on a fader that is un-linked will make both faders move together
- RIGHT ARROW or TAB on an output channel selects the next output to the right
- LEFT ARROW or SHIFT-TAB on an output channel selects the next output to the left
- MOUSE WHEEL moves fader on selected channel
- CTRL-CLICK moves all faders in a row
- DOUBLE-CLICK within a fader sets the fader position to unity
- MOUSE WHEEL on pan control moves pan knob
- UP ARROW increases the volume by 0.5dB on the selected output
- DOWN ARROW decreases the volume by 0.5dB on the selected output
- PAGE UP increases the volume by 3.0dB on the selected output
- PAGE DOWN decreases the volume by 3.0dB on the selected output

4.8 Routing examples

Many users get by just fine leaving Mesa Remote in its default state. For others, the deep and flexible routing features are the key to audio productivity. In this section, we'll look at some real-world scenarios where getting under the hood is necessary.

Example 1: Using Preamp inputs 1+2 for recording, listening through Monitor Outs. Sending same signal going to Monitor Outs to Coax Out for a spectrum analyzer.

- Set Preamp 1 and 2 to Mic
- Set 48V (if using condenser mics) and set levels appropriately
- Select Monitor Out from bottom row
- Un-Mute Preamp 1+2. If stereo source, they should be linked
- Select Coax Out in bottom row
- Un-Mute Preamp 1+2

NOTE: In its default state, Coax would also be getting signal from play 1+2, the signal coming from the computer. If you do not want the spectrum analyzer to receive the playback from the computer, with Coax Out selected, mute Play 1+2

Example 2: Recording an artist. Preamp Input 1 is a mic, Preamp Input 2 is a guitar (Hi-Z). The artists need to monitor themselves through the Phones Out, using hardware monitoring. They will not be hearing the signal from the computer while recording. The recording engineer is listening to the signal from the DAW only (Play 1+2), but not the direct

signal from the inputs. When evaluating a take, the play signal from the DAW needs to be sent to the phones for the artists to hear.

- Set Preamp 1 to Mic. Turn on 48V if applicable
- Preamp 2 should have auto-set to Hi-Z when a 1/4" jack was inserted. Confirm
- Click Phones in bottom row
- Un-link Preamp 1+2
- Un-mute both
- Pan them both to the center
- Mute Play 1+2
- The engineer is already set with Play 1+2 routed to Monitor out
- After recording a take, to get artist to hear playback select Phones, and un-mute Play 1+2

Example 3: Recording an ensemble, 4 mics. Input signals need to be sent Coax Out to outboard reverb unit. 100% wet return from the reverb needs to be blended with dry input sources, and send to Monitor Out for artists to hear.

- Set all 4 Preamp Inputs with appropriate levels and settings
- Click Coax Out
- Un-mute Inputs 1-4
- Set pan positions as desired
- Click Monitor Out
- Un-mute Coax In
- Un-mute Preamp In 1-4
- Adjust levels as desired, between Coax in and Preamps Ins, to control wet/dry balance

5 Firmware Updates

Mesa contains firmware that is field-programmable via the computer connection, or through the microSD card slot. These updates improve performance and enhance functionality.

5.1 Update via computer

Lynx provides a firmware update application in the download section of our website to program the unit via its Thunderbolt connection. The LynxFirmware application will auto-detect the Lynx product attached, and determine if there is a firmware update available for your device.

- Make sure that your computer has the Mesa drivers installed and the Mesa being recognized by the Operating System as a valid audio device.
- Visit <u>www.lynxstudio.com</u> and click Downloads > Mesa > Firmware.
- Download the appropriate firmware updater for your operating system, Mac or Windows.
- Launch the LynxFirmware application from Applications in macOS, or from the Lynx Studio Technology program group in Windows.
- The LynxFirmware application requires a valid connection to the Internet. On launch it will download a file so it knows the latest firmware versions for your product(s).



5.2 Update via microSD card

Firmware updates can be loaded to a microSD card on a computer, and the update can be applied directly without needing a computer. To perform a firmware update using only the Mesa and a microSD card, first, obtain the firmware "BIN" file from the Lynx Studio Technology website: <u>www.lynxstudio.com</u> > Downloads > Mesa > Firmware. Click the Mesa firmware updater with the latest version. The resulting page will have three options: Download, Download – Mac, Download – Windows:

Press the **Download** button, which will download the firmware update file in ZIP format. Extract the BIN file from the ZIP file. Put the resulting "MESAxxxx.BIN" file into the root directory of a microSD card inserted into the computer (this can be done using a microSD card USB adapter, or a standard SD card with microSD card adapter).

Eject the microSD card from the computer and place it into the Mesa. Mesa will indicate that new firmware is available, and prompt to do the update.

	192k	F1 : Record F2 : Play	Firmware	e update		
		New	firmware fo	und on SD (Card	
	,	Would you	like to start	the firmwa	re update?	
			<u></u>	-		
			OK	Cance	51	
After pressing the OK button, a scre	een si	milar to t	his will app	bear:		•
	192k	F1: Record F2: Play	Firmware	e update		
	_	MESA0101N	IC bin			
		MESHOTOTA	i casini			
c c	Date: 20	25-May-12	Version: 1.1			
Simply press the button showing the	e lates	st firmwa	re, and the	confirmat	ion page will be	shown:
	192k	F1 : Record F2 : Play	Firmware	e update		
		Aro		u want to be	agin	
		the	firmware up	pdate proce	ess?	
			OK	Cance		

After pressing the OK button, the firmware update will progress through the same four stages described in the previous section: Erasing, Programing, Verifying, Complete. When programming is complete, you will be prompted to power down the Mesa using the back panel power switch. After doing so, the new firmware will be active.

6 Support

We are devoted to making your experience with Mesa trouble-free and productive. If the troubleshooting and operational sections of this manual did not help resolve your questions, several support options are available to you:

6.1 Lynx Website Support Resources

Logging on to <u>https://www.lynxstudio.com</u> > Support, will provide several options for resolving your support issues:

Downloads

A library of current firmware and driver files are available for download and installation. Check back regularly to ensure that your Mesa is up-to-date.

Contact Tech Support

For direct attention from the Lynx Technical Support Staff, registered users can submit a support ticket online that details their problem and steps they've taken to resolve it. Most Support Ticket submissions are responded to within 24 hours.

Frequently Asked Questions

An extensive catalog of FAQs derived directly from our most common tech support inquiries. Our FAQ section is updated regularly and designed to allow users to find the answers to their most common questions quickly.

Support Documents and User Manuals

A library of useful "how-to" documents, troubleshooting aids and charts are available for 24/7 assistance. User Manuals are also conveniently available online for all Lynx products

Facebook Support Information Group

Like us? Then Like us on Facebook to be alerted to the latest support, product and product information.

6.2 Telephone Support

Telephone support is available by calling +1 (714) 545-4700 extension 206 from 9AM to 5PM Pacific Time, Monday through Friday, excluding United States Holidays.

6.3 Registering your Mesa

Lynx is committed to providing you with the best service possible. To help us serve you better, please be sure to register your Mesa.

Register on the web at: https://www.lynxstudio.com/register/

6.4 Return Policy

If you have a unit that you suspect is defective or is malfunctioning contact Lynx technical support via one of the means described above for diagnosis. If the technician determines that the unit is faulty, they will issue an RMA number so you can send the unit in for repair. Units received without a valid RMA number will be refused. All RMA numbers are valid for 30 days from the date of issue.

7 Troubleshooting & User Tips

- Q. I am trying to change the sample rate in Mesa Remote, or on the Mesa front panel, but it is locked out.
- A. When Mesa is on Internal Sync Source, the Sample Rate requests are sent from a DAW (Digital Audio Workstation), usually in accordance with the active project sample rate. For Multimedia applications like Apple Music, Spotify, or YouTube, the active sample rate is set from the Sound Control Panel in Windows or in AUDIO MIDI SETUP in a Mac. In most circumstances, you do not need to change the sample rate from Mesa itself. When it is locked out, that generally means some audio application is acquiring the Mesa, so its rate cannot be changed independently of that application.
- Q. I want to change my Sync Source but it is locked out.
- A. Make sure that your DAW is closed when changing the Sync Source. Otherwise that parameter will be locked out. There is an option to "allow clock change when active" from the Mesa Remote advanced menu. When selected, you CAN change the Sync Source even when Mesa is being used by an audio application.
- Q. I am recording multiple channels to SD card. When I transfer the recording to the computer, there are tracks with no audio in them. Why?
- A. SD card recordings can be 2, 4, 6, 8 or 16 channels. In some cases, you may have chosen a number of record channels, or those channels were auto set based on active inputs, that do not fit into those channel counts. For instance, if you had chosen 14 inputs to record, the SD card recording would have 16 channels, and the last two would be blank.
- Q. I recorded SD card audio tracks, transferred them to the computer, and then went to record more tracks and they came out garbled. Why?
- A. The microSD card file structure is not as flexible as a hard drive. If files are removed or added, it can disrupt the record or playback behavior. Some operating systems will write files to the SD card when you pull files off. This can cause the aberrant behavior. In general we recommend reformatting the micro SD card after transferring files to the computer. This is the most secure way to proceed.
- Q. My phones pot is turned up but the audio is still very low.
- A. There are two volume controls that apply to the phones out. The pot on the Mesa fron panel controls the analog volume. There is also a digital volume. You can access that from the Mesa Outputs page, or from Mesa Remote. Make sure that volume is turned up full (unity), then adjust for your preferred listening level with the front panel volume pot.
- Q. Listening to playback from my DAW, and some input sources, through one of Mesa's outputs, and its distorting. All of the input levels look good.
- A. When you combine sources to a single output pair, the level of those sources combine and can cause clipping. Try attenuating the input and playback sources from Mesa Remote or the Mesa Output page.
- Q. I am using a mono input into a Line In. I have the Line In assigned to my Monitors and Phones Output but I am only hearing it one side (the side it is connected to). Why?
- A. On Mesa, go to the Monitor Source page. Make sure that the input in question is panned center. Do the same on the Phones Source page. You can also do this from Mesa Remote: select Monitor Out in bottom row, then pan the input source to the center from the top row. Repeat after selecting Phones Out.

8 Specifications

Line In

THD+N	-113dB @1kHz, -1dBFS, 20kHz filter
Full scale input level	+20dBu
Dynamic Range	119 dB, A-weighted, -60dBFS signal method
Frequency Response	$\pm 0.010 \text{ dB}, 20 - 20 \text{kHz}$
Crosstalk	-130 dB maximum @ 1kHz, -1dBFS signal
Common mode rejection	Greater than 80dB
Input Impedance	200k Ω balanced, 100k Ω unbalanced
	All line input measurements made with 40Ω source applied to input
Gain Settings	Fixed
Connectors	Female XLR on combo jack
	Bypasses Microphone preamp when in Line mode
N. T.	
Mile in	4037 Disenten Dennen 4037 I selecute De J. II: Dese Eilten Delseite Dennen le
Features Per Channel:	48 v Phantom Power; 48 v Lockoul; Pad; HI-Pass Filter; Polarity Reversal;
	Channel Pairing for Stereo Inputs $111 \text{ Jpc} (0.000289) \otimes 1111 \text{ Jpc} (0.000289) \otimes 11111 \text{ Jpc} (0.000289) \otimes 111111 \text{ Jpc} (0.000289) \otimes 11111111111111111111111111111111111$
I HD+N EIN	-111dB (0.00028%) (<i>W</i> IKHZ, -1dBFS, 20KHZ IIIter (<i>W</i> 21.0dB gam
EIN Demonie Demon	-129dBu A-weighted, -00dBFS method
Dynamic Range	110dB A-weignied, -00dBFS signal method ($(0, 21.0dB)$ gain
Frequency Response	+0.01 / -0.08dB max. Deviation over 20-20kHz band, -1dBFS (2) all gain settings
Crosstalk	-12/dB max. Adjacent channel, $-1dBFS$, $1kH2 (0) 21.0dB gain$
Evil again input level for A/D	/ Job min IdBFS, ourizi and IKHZ (001.00B gain
Coin Sotting	$\frac{2.1 \text{KM}}{5 (dD is 12 (dD is 1 dD is 1 dD is a dd is dd is$
Gain Settings	S.0dB or 15.0dB to 68.0dB in 1dB steps, pad disabled
Dad Attomstics	-oud or oud to soud in rud steps, pau enabled
Pad Auendation	13.00D 2011-12.4D /
Hign-Pass Filter	$\delta U \Pi Z$, $I \angle d B / O C d A V E$
Connectors	remaie ALK on combo jack

Hi-Z In

THD+N	-109dB (0.00035%) 1kHz, -1dBFS, 20kHz filter
EIN	-115dBu A-weighted @ 21.6dB gain
Dynamic Range	114dB A-weighted, -60dBFS method @ 21.6dB gain
Frequency Response	+0.01 / -0.05dB 20-20kHz
Crosstalk	-132dB max. adjacent channel, -1dBFS, 1kHz @ 21.6dB gain
Full-scale input level for A/D	14.9dBu @ 5.6dB gain
Input Impedance	$1M\Omega$ unbalanced (TS), $2M\Omega$ balanced (TRS)
Gain Settings	5.6dB or 13.6dB to 68.6dB in 1dB steps
Connectors	1/4" TRS on combo jack

Monitor Out

THD+N	-108dB @1kHz, -1dBFS, 20kHz filter
Dynamic Range	120dB, A-weighted, -60dBFS signal method
Frequency Response	±0.025dB, 20-20kHz
Crosstalk	-130dB maximum @ 1kHz, -1dBFS signal
Output level at max	+20dBu
Output Impedance	100Ω balanced / 50Ω unbalanced
Connectors	Two 1/4" TRS jacks

Headphone Out

THD+N	-107dB @1kHz, -1dBFS, 20kHz filter, volume at max
Dynamic Range	120dB, A-weighted, -60dBFS signal method
Frequency Response	±0.025dB, 20–20kHz
Crosstalk	-120dB maximum @ 1kHz, -1dBFS signal
Output Level	18.4dBu maximum
Output Power	68mW @ 600Ω, 135mW @ 300Ω, 383mW @ 60Ω, 212mW @ 32Ω,
	$100 \mathrm{mW}$ @ 16Ω
Connector	Two 1/4" stereo headphone jacks

Digital I/O

S/PDIF I/O coax	Transformer-coupled on RCA jacks
S/PDIF I/O optical	On TOSLINK connectors
ADAT I/O	8 channels at 48 kHz when selected on optical connectors

Sample Rates

All standard rates up to 192 kHz using SynchroLock 2 sample clock generator with better than 7ppm accuracy.

Synchronization Options

Internal	
External word clock I/O	75 Ω TTL signal on BNC connectors
S/PDIF inputs	-
Optical inputs	

LCD Display

480 x 272 IPS TFT LCD with capacitive touch

Other

DC Power	12 VDC, 3.3 amps	
AC Power	110-230 VAC, 40 watts	
Size	8 ¹ / ₂ " wide x 2 5/16" tall x 7 ¹ / ₂ " deep	216mm x 59mm x 191mm
Shipping Box	12 ½" x 10" x 6"	318mm x 254mm x 152mm
Shipping Weight	6 pounds	2.7kg

Certifications

CE and FCC Class B EMI, CE Product Safety

9 Certifications

9.1 FCC DECLARATION OF CONFORMITY

MANUFACTURERS NAME: MANUFACTURER ADDRESS:

TELEPHONE TYPE OF EQUIPMENT: MODEL NUMBER: COMPLIANCE TEST REPORT NUMBER: COMPLIANCE TEST REPORT DATE: YEAR OF MANUFACTURE: Lynx Studio Technology, Inc. 190 McCormick Avenue Costa Mesa, CA 92626, U.S.A. (714) 545-4700 Professional A/D and D/A Converter Mesa Covered by CE Report # D80420Q3 May 12, 2025 2025

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

9.2 CE EMI / EMC DECLARATION OF CONFORMITY

MANUFACTURERS NAME: MANUFACTURER ADDRESS:

TELEPHONE(714) 545TYPE OF EQUIPMENT:ProfessionMODEL NUMBER:MesaCOMPLIANCE TEST REPORT NUMBER:D80420QCOMPLIANCE TEST REPORT DATE:May 12, 2CONFORMS TO THESE STANDARDS: EN55032, EN55035YEAR OF MANUFACTURE:2025

Lynx Studio Technology, Inc. 190 McCormick Avenue Costa Mesa, CA 92626, U.S.A. (714) 545-4700 Professional A/D and D/A Converter Mesa D80420Q3 May 12, 2025 EN55035 2025

9.3 CE SAFETY DECLARATION OF CONFORMITY

MANUFACTURERS NAME: MANUFACTURER ADDRESS:

TELEPHONE(714) 5TYPE OF EQUIPMENT:ProfessMODEL NUMBER:MesaCOMPLIANCE TEST REPORT NUMBER:D80430COMPLIANCE TEST REPORT DATE:May 12,CONFORMS TO THESE STANDARDS:EN 62368-1: 2014YEAR OF MANUFACTURE:2025

Lynx Studio Technology, Inc. 190 McCormick Avenue Costa Mesa, CA 92626, U.S.A. (714) 545-4700 Professional A/D and D/A Converter Mesa D80430S1 May 12, 2025 -1: 2014





One-year Free Labor / One year Parts Exchange This product must be returned to the factory for repair. This warranty is valid in the United States of America and Canada.

Who Is Covered?

You must have proof of purchase to receive warranty service. A sales receipt or other document showing when and where you purchased the product is considered proof of purchase. This warranty is enforceable only by the original retail purchaser. To be protected by this warranty, the purchaser must register online within 14 days of purchase.

What Is Covered?

Warranty coverage beings the day you buy your product. *For one year thereafter*, Lynx shall, at its sole and absolute option, either repair or replace free of charge any product that proves to be defective on inspection by Lynx or its authorized service representative. In all cases disputes concerning this warranty shall be resolved as prescribed by law. All parts, including repaired and replaced parts, are covered only for the original warranty period. When the warranty on the product expires, the warranty on all replaced and repaired parts also expires.

What Is Excluded?

Your warranty does not cover:

- Labor charges for installation or setup of the product.
- Product repair and/or part replacement because of misuse, accident, unauthorized repair or other cause not within the control of Lynx.
- A product that requires modification or adaptation to enable it to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized, or repair of products damaged by these modifications.
- Incidental or consequential damages result from the product, damage to property, damage based on inconvenience or on loss of use of the product, and, to the extent permitted by law, damages for personal injury. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
- A product that is used for rental purposes.
- A product that is exported from the United States of America or Canada to another country.

To Get Warranty Service...

To obtain warranty service, the purchaser must first call or email Lynx at the email address or telephone number printed in Section 0 to obtain a Return Authorization Number and instructions concerning where to return the unit for service. All inquiries must be accompanied by a description of the problem. All authorized returns must be sent to Lynx or an authorized Lynx repair facility postage prepaid insured and properly packaged. Proof of purchase must be presented in the form of a bill of sale, canceled check or some other positive proof that the product is within the warranty period. Lynx reserves the right to update any unit returned for repair. Lynx reserves the right to change or improve design of the product at any time without prior notice.

For customers outside the United States of America and Canada

If you purchased your product from an authorized dealer outside the United States of America or Canada, please contact your dealer or distributor for warranty service.

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