

# AX8

AMP MODELER + MULTI FX

# OWNER'S MANUAL



Manual Version 1.00.2



Inside Front Cover

# Declaration of Conformity

Manufacturer's Name: **Fractal Audio Systems, LLC**  
Manufacturer's Address: **4 Wilder Drive, Plaistow, NH 03865 USA**

**Declares that the product:**

Product name: **AX-8** Product option: **None**

**Conforms to the following Product Specifications:**

**Safety:** EN60065:2014

**EMC:** EN55013:2013

EN55020:2007+A11:2011

EN55024:2010

EN61000-3-2:2014

EN61000-3-3:2013

**Supplementary Information:**

The product herewith complies with the requirements of the Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC.

**Clifford Chase**  
**President / CEO**  
**November 16, 2015**

## EMC/EMI

This equipment has been tested and found to comply with the limits for a Class B Digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. 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. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the equipment and receiver.
- ▶ Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

# Legal Notices

Fractal Audio Systems AX8 Owner's Manual. Contents Copyright © 2015. All Rights Reserved.

No part of this publication may be reproduced in any form without the express written permission of Fractal Audio Systems.

Fractal Audio, AX8, Humbuster, UltraRes, G3 Modeling Technology ("G3"), Multipoint Iterative Matching and Impedance Correction ("MIMIC"), Virtual Vacuum Tube ("VVT"), Quantum Amp Modeling, are trademarks of Fractal Audio Systems. Manufacturer names and product names mentioned herein are trademarks or registered trademarks of their respective owners, which are in no way associated with or affiliated with Fractal Audio. The names are used only to illustrate sonic and performance characteristics.

## Important Safety Instructions



**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.



**CAUTION:** To reduce the risk of fire or electric shock, do not remove screws. There are no user serviceable parts inside. Refer servicing to qualified service personnel.

1. Obey all warnings on the AX8 chassis and in this User Guide.
2. Keep away from sources of heat such as ducts, registers or appliances that produce heat.
3. Connect only to a standard grounded AC outlet of 100–240V, 47–63 Hz.
4. Keep the power cord in good condition. Do not kink, bend, or pinch.
5. If the cord becomes damaged, discard and replace it.
6. If not using your AX8 for extended periods of time, disconnect from AC power.
7. Protect the unit from rain and excessive moisture.
8. Refer servicing to qualified personnel only.
9. Stop operation of the unit and obtain service if:
  - Liquids or excessive moisture enter the unit.
  - The unit operates incorrectly or performance is inconsistent or erratic.
  - The unit has been dropped and/or the enclosure damaged.
10. Prolonged exposure to high volume levels can cause hearing damage and/or loss. The use of hearing protection in high volume situations is recommended.

# TABLE OF CONTENTS

<b>1 INTRODUCTION</b> .....	<b>1</b>	<b>7 BLOCKS GUIDE</b> .....	<b>41</b>
Welcome to the AX8.....	1	The Amp Block .....	42
Quick Overview .....	1	The Cab Block.....	51
If you own an Axe-Fx.....	2	The Looper Block.....	54
If you Own an FX8.....	3	The FX Loop.....	57
Quick Connect Guide.....	4	The Noise Gate .....	60
Checking and Setting Levels .....	5	The Output Mixer .....	61
Humbuster Cables.....	5	Mix Page Common Parameters .....	62
The Footswitches.....	6	<b>8 MODIFIERS</b> .....	<b>63</b>
The Footswitch page .....	7	Overview .....	63
The Grid Concept.....	8	Creating a Modifier .....	63
<b>2 HARDWARE OVERVIEW</b> .....	<b>9</b>	Modifier Example: Wah Pedal .....	64
The Top Panel .....	9	Modifier Sources Overview .....	65
The Rear Panel .....	11	Modifier Tips And Tricks.....	65
<b>3 SETUP GUIDE</b> .....	<b>13</b>	Advanced Modifier Parameters .....	66
Full-Range/Direct Setup .....	13	Internal Controllers.....	69
Setup: Power Amp & Guitar Speakers... ..	14	External Controllers .....	70
Setup: Direct + Real Amp & Cabs .....	15	<b>9 TEMPO</b> .....	<b>71</b>
Setup: FX Processor Only .....	16	Preset Tempo.....	72
Checking and Setting Levels .....	17	Auto Delay .....	72
Connecting Pedals & Switches .....	18	The Metronome.....	72
Connecting a Computer .....	20	<b>10 THE TUNER</b> .....	<b>73</b>
<b>4 FUNCTION SWITCHES</b> .....	<b>21</b>	Advanced Tuner Functions.....	73
F-Switches Overview .....	21	<b>11 SETUP MENUS</b> .....	<b>75</b>
Customizing F-Switches .....	22	The Global Menu .....	75
Sample F-Switch Layouts .....	24	The I/O Menu .....	78
<b>5 CREATING PRESETS</b> .....	<b>25</b>	The Utility Menu .....	83
What Is a Preset? .....	25	<b>12 ADDITIONAL TOPICS</b> .....	<b>85</b>
The Layout Grid .....	25	Global Volume Pedal Setup .....	85
Working With Blocks.....	26	Spillover .....	86
Shunts .....	27	Up- vs. Down-Stroke Fx Switching.....	87
Connector Cables .....	27	Frequently Asked Questions .....	88
Moving Blocks.....	28	Transferring Blocks Between Products..	91
Block Inventory .....	29	Main Menu Soft Knobs Guide .....	92
Example Preset Grids .....	30	Hidden Edit Button Functions.....	92
Editing Effect Blocks .....	31	<b>13 SPECIFICATIONS &amp; DEFAULTS</b> .....	<b>93</b>
Saving Changes .....	32	MIDI Implementation.....	94
Setting Up Footswitches 1-8 .....	33	Factory Default MIDI CC Settings.....	95
X/Y Switching .....	34	MIDI Program Change Numbers .....	96
Preset CPU Limits.....	35	<b>WARRANTY</b> .....	<b>99</b>
AX8-Edit .....	36	<b>EULA</b> .....	<b>100</b>
<b>6 SCENES</b> .....	<b>37</b>		
Overview .....	37		
Selecting Scenes .....	38		
Setting Up Scenes.....	38		
Scene Revert .....	40		

# THANK YOU FOR CHOOSING THE AX8

Thank you for choosing the AX8, an all-in-one guitar processor designed for the stage and studio featuring Fractal Audio Systems' legendary amp modeling and effects processing.

Since the original Axe-Fx turned the modeling world upside-down, users have clamored for a form-factor with reduced footprint and weight. The AX8 brings the vaunted sound of the Axe-Fx II to a convenient floor package that enhances portability and usability without sacrificing all-important tone. It's perfect for "fly dates" and "corporate gigs" where space is constrained, yet equally suitable for professional performances and studio sessions.

The AX8 was purpose-designed for the rigors of the road and features a sturdy steel chassis with aircraft aluminum side panels. An integrated power supply eliminates the clumsy and failure-prone "wall wart" commonly used in other products. Our exclusive, proprietary "Silent Switching Technology" uses no mechanical contacts so there are no switches to fail in the heat of battle. As with all Fractal Audio products only the best components are used in the critical signal path, featuring audiophile-grade converters and linear components.

If you are an experienced Axe-Fx user you will be right at home with the AX8. We've packed all our revolutionary technologies into this little box: Quantum amp modeling, UltraRes™ cabinet technology, Humbuster™ I/O, and more, along with our renowned effects and usability features.

As with all our products, firmware updates and a software editor are offered free-of-charge. Our Fractal-Bot utility is also compatible with the AX8 to facilitate firmware updates and backups of your precious presets.

Most importantly, the AX8 continues our tradition of "no corners cut". Our unique company structure along with our direct sales model means higher quality at a lower price. We don't answer to share-holders and corporate bean-counters so we don't cut corners on the quality of the components going into our products. This, along with our obsession with "being the best" leads to stellar reliability, performance and, most importantly, that "legendary Fractal Audio sound".

So grab your guitar and get ready for a journey into tone-land...

**Fractal Audio Systems**

November 2015

# 1 INTRODUCTION

## WELCOME TO THE AX8

The AX8 is an advanced amp modeler and multi-effects pedalboard processor, perfect for guitar, bass, and other instruments. The unit is “built like a tank” with a steel chassis and aircraft aluminum end panels, featuring eleven quiet, durable, solid-state footswitches with no mechanical contacts to fail, 27 LEDs in three colors, a brilliant LCD display, six buttons including SHIFT for extra functions, five soft knobs, and eight dedicated LED-indicator knobs for essential amp functions. It has an instrument input, XLR, Humbuster and S/PDIF main outputs, a stereo effects loop (which also doubles as a auxilliary input/output for special applications) and four jacks for external switches or expression pedals.

Like every Fractal Audio Systems product, the AX8 puts sound quality first. It uses high quality D/A and A/D converters for a pristine signal path and ultra-low noise levels. The on-board dual processors run the same high-quality effect algorithms made famous in the Axe-Fx II.

We hope you find the unit easy to use and this manual easy to read. The most important sections are those which introduce the basics of how the unit works. If nothing else, be sure to review this section, plus [“Hardware Overview”](#) and [“Setup Guide” on p. 13.](#)

## QUICK OVERVIEW

- The AX8 contains 512 different **presets** arranged in 64 numbered **banks**.
- Each preset is like an entire rig, with its own amp, speaker cab, and effects.
- The AX8 features over 222 “Quantum” amp models utilizing the same technology as our flagship Axe-Fx II.
- Ultra-Res™ Speaker Cab simulation provides a level of accuracy that only Fractal Audio Systems can offer. AX8 is also compatible with our entire library of Cab-Packs.
- Presets are extremely flexible with the familiar “Layout Grid” from the Axe-Fx II.
- Most blocks offer **X/Y** switching for twice as many sounds from the same number of blocks.
- Each preset contains eight **scenes**. Think of a Scene as a preset within a preset. Scenes eliminate “tap dancing” by turning multiple effects on or off with a single tap, switching X/Y states, and more.
- Every preset can have its own custom footswitch 1-8 assignments.
- There are over 16 different useful “Footswitch Blocks” such as “Scene 1/2 Toggle” or “Looper Control Mode”.
- Footswitches can also be designated as “GLOBAL”, which gives them the same assignment across ALL presets in the AX8.
- 3 assignable **Function Footswitches** offer over a dozen options so you can create the perfect layout of “modes” for your musical performances.
- On-board jacks for four external **footswitches or expression pedals** make it easy to remote-control sound functions.
- **MIDI** and **USB** also provide powerful options for control, editing, and more.
- **AX8-Edit**, a free software editor, makes it possible to edit presets, effects, and more when connected to a Mac or PC.
- And much more! Please take the time to familiarize yourself with this manual.
- Should you need any assistance with the AX8, please visit <http://www.fractalaudio.com>

# IF YOU OWN AN AXE-FX...

The AX8 is a dream come true for many Axe-Fx owners. Whether it is your backup rig or your new main unit, we hope you will be pleased with what many are already calling the “Axe-Fx Junior on the Floor.” This convenient grab-and-go unit contains the very best features of the Axe-Fx II, including the latest Quantum Amp models, Ultra-Res™ Cabs, loads of effects, the 4x12 grid, and more.

Here are some quick tips that you as an Axe-Fx owner may find helpful as you get to know the AX8.

1. ALL of the amps are here! ALL of the factory cabs are here! All of your existing Axe-Fx II Cab-Packs and user cab files are 100% compatible. All of the effects are basically the same as their counterparts in the Axe-Fx, but the inventory is different. Review [“Block Inventory” on p. 29](#)
2. The AX8 has an impressive amount of CPU power—but not as much as the flagship Axe-Fx II. In comparison to the Axe-Fx, it also **disables** blocks automatically if CPU usage gets too high. See [“Preset CPU Limits” on p. 35](#) to learn more.
3. Instead of a **RECALL** screen, the AX8 boots to the **Footswitch Page**—the first page of its main menu. Think of this like the MFC-101 (our MIDI foot controller): as you edit it, the Footswitch Page doesn’t ever change what you hear, just what the footswitches do. Review [“Setting Up Footswitches 1-8” on p. 33](#) and [“Function Switches” on p. 21](#)
4. Instead of a **LAYOUT** button, the **Grid** is accessed as the second page of the main menu. Press **PAGE>** from the Footswitch Page to access it. Press **EXIT** to return to the Footswitch Page.
5. Instead of four NAV buttons, you will primarily use the **E/NAV** knob to get around menu pages. One noteworthy exception is that when you want to assign a modifier to a knob, you will need to select it using the **NAV** left and right buttons accessed as **SHIFT + ENTER** and **SHIFT + EXIT**.
6. There is no main “**VALUE**” knob; instead you’ll use **A,B,C,D**, and **E** knobs as indicated in the display. DON’T FORGET about the eight dedicated LED-ring amp controls!
7. Instead of dedicated X and Y buttons, you’ll typically **press and hold** a footswitch to toggle X/Y for an effect, or if no footswitch is assigned, select or edit the effect and double-tap EDIT.
8. When used to create an Auxilliary Output, the FX Loop Block must be placed in parallel rather than series. (Unlike the Axe-Fx, the AX8 does not detect when a plug has been inserted into INPUT 2.)
9. In comparison to the MFC-101, BYPASS/ENGAGE footswitches execute on the switch up-stroke instead of the down-stroke. Learn more, (including how to change this if you wish) in [“Up- vs. Down-Stroke Fx Switching” on p. 87](#).
10. **AX8-Edit** is so similar to Axe-Edit that using it overcomes the above front panel differences with ease.
11. The Axe-Fx II and AX8 cannot share presets, but you CAN transfer individual block settings from one product to another using our editor software applications, Axe-Edit and AX8-Edit. See [“Transferring Blocks Between Products” on p. 91](#).
12. The AX8 has FOUR jacks for external switches or pedals, not one or two.
13. All of the 1/4” outputs use **Humbuster™ Technology**, compatible with all existing Humbuster cables.
14. **Fractal-Bot** is fully supported. Use it for firmware updates, backup/restore operations, and more.



## IF YOU OWN AN FX8...

The AX8 looks very similar to the FX8, but there are some important differences. The FX8 is intended for use with a tube amp, while the AX8 is primarily intended for going “direct.” Later you’ll learn how it can also be used with real amps and guitar speakers, but at first you’ll surely want to connect the unit to some studio monitors, full-range guitar speakers, or a high-quality PA system.

Here are some quick tips that you as an FX8 owner may find helpful as you get to know the AX8.

1. Instead of **STOMPBOX MODE**, the AX8 boots to the **Footswitch Page**—the first page of its main menu. The Footswitch page is very different from Stompbox Mode in that it only changes footswitch assignments. It does NOT determine which effects are in the preset, or what order they are in. Think of the Footswitch Page almost like a separate foot controller. The three right F-Switches are also fully programmable, allowing you to decide what you want each one to do by choosing from a menu. Review [“Setting Up Footswitches 1-8” on p. 33](#) and [“Function Switches” on p. 21](#).
2. Again, the Footswitch Page has no effect on what you hear. Instead, effect blocks are placed and must be connected using the **Layout Grid** on the second page of the main menu. To display the grid, press **PAGE>** from the Footswitch Page. Press **EXIT** to return to the footswitch screen. Review [“The Layout Grid” on p. 25](#).
3. The AX8 uses a flexible architecture that does NOT designate separate “Pre” and “Post” chains. It is still possible to use a four-cable method hookup, but this needs to be set up manually in each preset using the FX Loop block ([p. 57](#)) to insert your preamp.
4. In addition to using Press-and-Hold footswitches to toggle X/Y, you can also select or edit an effect and double-tap EDIT. (This is good to know because some blocks may not have footswitches assigned.)
5. Unlike the FX8, the AX8 is NOT specifically designed for unity gain, but when you’re using it “direct” this really should not be a concern.
6. The effects of the AX8 are mostly the same as those in the current FX8 firmware, but there are a few changes. Review [“Block Inventory” on p. 29](#).
7. There are no RELAYS. Instead, the AX8 has four jacks for external switches or pedals.
8. The AX8 Looper is not “global,” meaning it needs to be inserted as a block on the grid for every preset where you want to use the Looper. Review [“The Looper Block” on p. 54](#).
9. Once you understand the Grid, AX8-Edit is remarkably similar to FX8-Edit.
10. The FX8 and AX8 cannot share presets, but you CAN transfer individual block settings from one product to another using our editor software applications, FX8-Edit and AX8-Edit. See [“Transferring Blocks Between Products” on p. 91](#).
11. All of the 1/4” outputs use Humbuster™ Technology. All existing Humbuster™ cables are compatible.
12. Fractal-Bot is fully supported. Use it for firmware updates, backup/restore operations, and more.

# QUICK CONNECT GUIDE

The best and most flexible way to enjoy your AX8 is through a full range system. In comparison to traditional guitar speakers, the extended range of such a system is able to reproduce the very broad spectrum of frequencies produced by all of the different amp models, speaker sims, and effects. Think of it this way: a 1x12" open-back guitar speaker is never going to sound like a 4x12 stack, but full range monitors or PA speakers are designed to reproduce the sound of anything you throw at them—right down to an entire band.

If you do NOT plan on “going direct” with a full range system, please see [“Setup Guide” on p. 13](#) for instructions about how to use the AX8 in other configurations (but do also make a point of looking into the many options available for full range guitar systems).

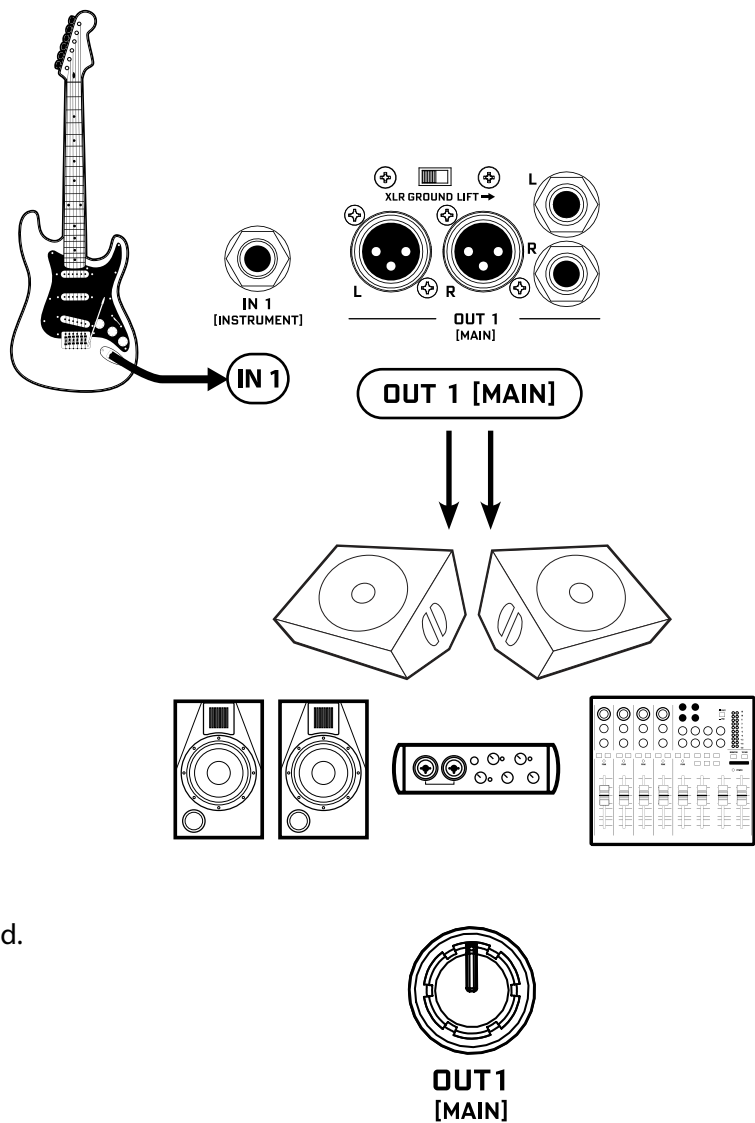
**1** Begin with all level knobs turned down. Connect your guitar to **IN 1 [INSTRUMENT]**.

The AX8 is also perfect for bass and other instruments.

**2** Connect **OUT 1 [MAIN]** to a mixer, studio monitors, audio interface, PA system, full-range speakers, amp inputs, etc.

- For a mono rig, use the LEFT output only.
- Use **XLR Outs** to feed balanced Inputs. You can find high quality XLR and other cables at <http://btpa.com/fractal-audio>
- Use the 1/4" Outs when connecting to unbalanced Inputs.
- Use **Humbuster™ cables** with 1/4" outs to reduce hum from ground loops. (See next page.)

**3** Turn up the **OUT 1 [MAIN] LEVEL** knob and adjust the level on your monitors as desired. Out 2 is not used in this setup.



Find additional setup diagrams in [Section 3: Setup Guide on p. 13](#).

# CHECKING AND SETTING LEVELS

Setting proper levels is critical. Two meters (one mono and one stereo) plus two front panel LEDs inform you about levels on the AX8. Setting levels is easy.

## INPUT 1 [INSTRUMENT] LEVELS

The AX8 comes ready-to-use for the typical guitar with passive pickups. Connect a guitar to INPUT 1. Choose your loudest pickup setting and set all the guitar controls to “wide open.” Play loud, open chords to push the levels as you watch the **IN 1 [INSTRUMENT]** meter LEDs. It’s OK to tickle the red LED once in a while, but if you push too hard, the input will clip and you’ll need to pad the input as follows:

- ▶ Press **SETUP** followed by footswitch **2** for the “I/O” menu. It should open to the “**LEVELS**” page.
- ▶ Turn E/NAV to select **INSTRUMENT INPUT PAD**. Turn the “**A**” knob to Increase this setting beyond 6dB, 12dB or 18dB. Be aware that as you increase this PAD setting you also increase the noise floor, so set it as low as possible. Conversely, if you can set this to 0dB for a guitar with quiet output, you’ll get even better signal-to-noise performance.

## OUT 1 LEVELS

**OUT 1 [MAIN]** XLR and 1/4" Humbuster™ jacks are ready to be connected to professional line-level +4dBu inputs. If you are connecting to consumer-grade equipment operating at -10 dBV, please set the nominal output level as follows:

- ▶ Press **SETUP**; Press footswitch **2** for the I/O menu; Turn to the **LEVELS** page.
- ▶ Turn E/NAV to select **MAIN OUT NOMINAL LEVEL** and change this setting to “-10 dBV”.

## FRONT PANEL “CLIP” LEDS

If the **MAIN OUT CLIP** or **FX SEND CLIP** LEDs light, see [“Checking and Setting Levels” on p. 17](#) for more information about the various controls and settings used to solve clipping problems.

# HUMBUSTER CABLES

Standard 1/4" guitar cables are fine for all audio connections to and from the AX8, but there is a better option for connecting its **outputs** to your amp, modeler or other device. **Humbuster™ technology** on all AX8 outputs can significantly reduce unwanted noise due to the common problem of a ground loop. For this to work, you need to use a special Humbuster™ cable you can buy or make yourself.

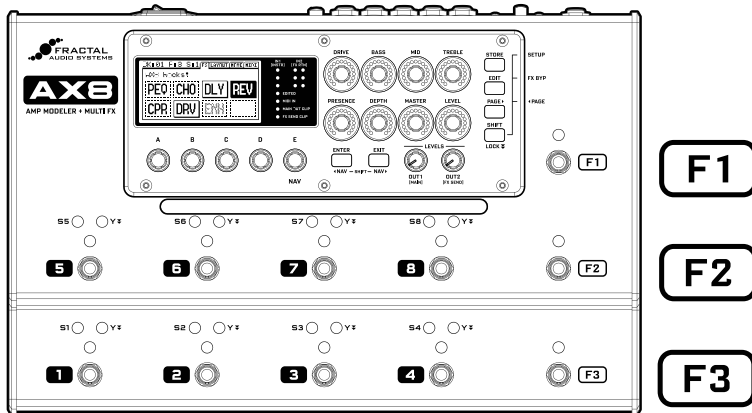
A Humbuster™ cable has one **TRS** end (like a balanced cable) and one **TS** end (like a guitar cable). The TRS end connects to the AX8. The TS end connects to your amp.

Humbuster™ cables are available from <http://www.fractalaudio.com/cables> or you can make your own by following the diagram below. Be sure to use high-quality connectors and shielded cable.



# THE FOOTSWITCHES

Once you have set up your AX8 with speakers/amps/monitors, you can begin to audition the factory preset sounds. The AX8 has eleven footswitches divided into two groups: “F-Switches” and numbered footswitches. Their default functions—detailed here—are perfect for how most players will use the AX8.



## FOOTSWITCHES 1-8



Footswitches **1–8** perform the functions shown in the display (see next page). They are also used for other functions in modes activated by the F-Switches (like selecting Presets or Scenes).

## TO CHANGE PRESETS WITH THE FOOTSWITCHES...

The AX8 has 512 Presets, each a complete rig containing Amp, Cab, effects, and more. When you power it on, the unit loads whichever (non-empty) preset was loaded when you powered it off.

To change presets:

- ▶ Tap the **F1** Switch to enter **Preset Select Mode**.
- ▶ Press **F2** for BANK UP or **F3** for BANK DOWN.
- ▶ Select from switches **1–8** to load a preset within the bank shown, or press **F1** to cancel.

## TO CHANGE PRESETS WITH THE KNOBS...

On the main Footswitch Page, you can also fast-scroll through presets or scenes:

The “B” knob fast-scrolls through **PRESETS**.

The “C” knob fast-scrolls through **SCENES**. (Say it to remember it: “C... Scenes.”)

## THE F-SWITCHES

Tap **F1** for **Preset Select Mode**  
 F2 and F3 work as **Bank Up/Down**.  
 Select a preset with footswitches 1–8.

Press and hold ▼ **F1** to enter “Sticky”  
 Preset Mode which remains active until  
 you tap **F1** again to exit.

Learn about Presets in [Section 5](#).

Tap **F2** for **Scene Select Mode** then  
 Select a Scene with footswitches 1–8.

Press and hold ▼ **F2** to enter “Sticky”  
 Scene Mode which remains active until  
 you tap **F2** again to exit.

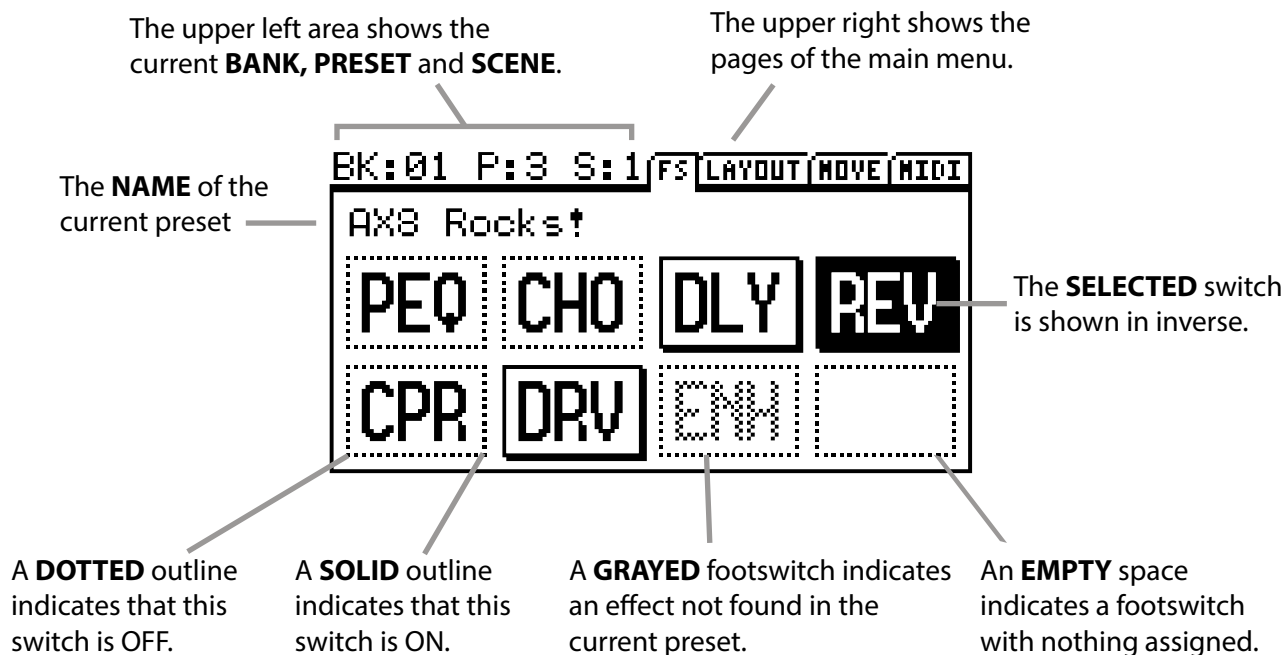
Learn about Scenes in [Section 6](#)

Tap **F3** to set the Tempo. Some effects  
 use times or rates controlled by Tempo.  
 Learn more in [Section 9](#)

Press and hold ▼ **F3** to display the Tuner.  
 Learn about the Tuner in [Section 10](#)

# THE FOOTSWITCH PAGE

When you power on the AX8, it defaults to **the Footswitch Page** of the main menu (as indicated by “FS” in the menu tab). The current functions of footswitches 1-8 are displayed here. The diagram below provides a basic understanding of what you’re seeing on the Footswitch Page.



A **>BLINKING<** footswitch indicates an effect disabled for CPU reasons. See [p. 35](#) for more on this.

## FOOTSWITCH 1–8 ASSIGNMENT QUICKSTART GUIDE

Footswitches **1–8** can be assigned to any effect in the current preset. To change a footswitch in a preset:

- ▶ Select the footswitch you want to change. (Stomp it or turn the **E/NAV** knob to select it in the display.)
- ▶ Turn the **A** knob to cycle through the list of blocks.
- ▶ When you find what you’re looking for, press **ENTER** to confirm, or press **EXIT** to cancel.
- ▶ Save your changes by pressing **STORE, ENTER, ENTER**.

You will also notice various “Footswitch Blocks” in the list of blocks. These perform a variety of functions like selecting presets in the current bank, changing scenes in the current preset, displaying the Looper, and more.

Learn more about this in in [“Setting Up Footswitches 1-8” on p. 33](#)



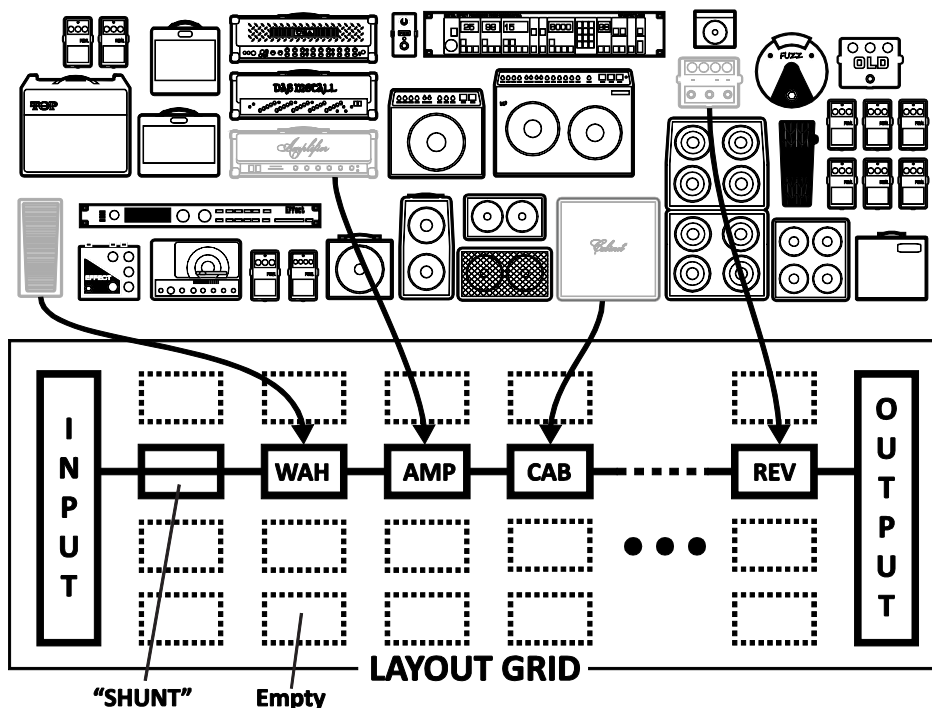
**IMPORTANT!** Footswitch assignments do not change which effects are (or are NOT) in your preset. If you think of the AX8 as a separate guitar processor and foot controller, this would be the foot controller portion. The **Layout Grid** (see next page) determines which effects are in the signal path.

# THE GRID CONCEPT

Behind the scenes of every AX8 preset is the **Layout grid**. Learn it. Love it. Live it. Here's the concept.

In the world of traditional gear, most of us have very limited options, and building a rig requires making hard choices and commitments. With the AX8, these limitations are removed and you have a vast, ever-growing "**inventory**" of virtual amps, cabs, effects, and more. Virtual gear is selected from the inventory and placed as "**blocks**" into the slots of a 12x4 "**layout grid**." As you might expect, blocks must be wired up using cable-like "**connectors**"—again, virtual ones in this case—and you can create splits or merges as needed. Passive "shunts" are used to carry signal through otherwise empty spaces on the grid.

The following illustration shows various pieces of gear from an inventory, all interconnected on the grid. Signal flow begins at the INPUT on the left. Signal is routed through a SHUNT to feed a Wah block. The shunt has no effect on the sound and is shown only to introduce the concept of its use. The Wah block is connected to an Amp block (we might set its type to "Plexi 100W High"), which in turn feeds a Cab—one of the many "4x12" options, perhaps. This is connected to a reverb ("REV") and then to the OUTPUT. Many grid spaces are empty. The size of a preset is limited only by the grid structure, block inventory, and total processing power or "CPU". The AX8 has enough CPU power to create countless incredible virtual rigs.



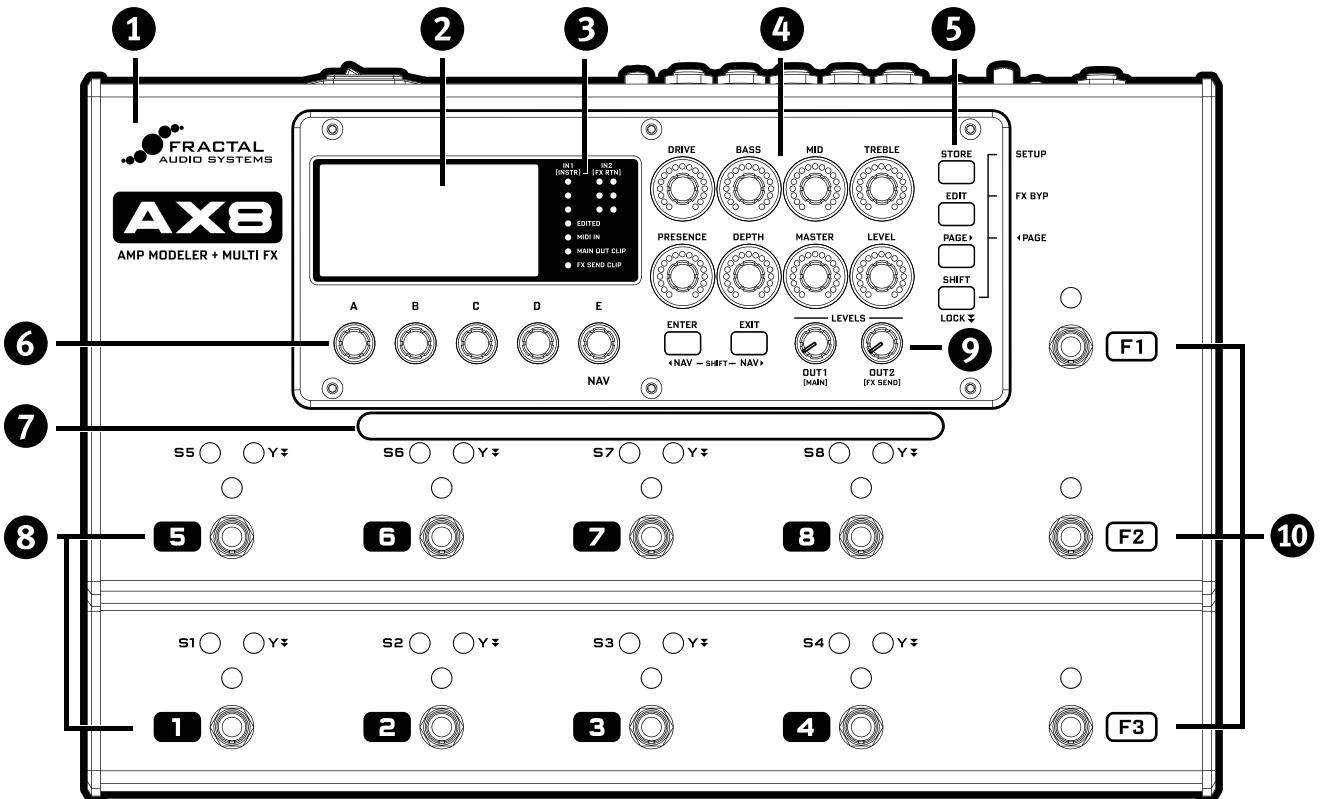
## GRID AND BLOCK EDITS QUICKSTART GUIDE

You'll learn all about the grid in [Section 5: Creating Presets on p. 25](#), but here's a quick primer:

- ▶ From the main Footswitch page, press **PAGE RIGHT** to show the grid ("Layout" tab).
- ▶ Turn the **D** or **E** knobs to **navigate** the grid.
- ▶ Turn the **A** knob to cycle through blocks at the current grid location.
- ▶ Press **ENTER** to insert or change the effect. Press **EDIT** to access its parameters.
- ▶ Use all five knobs to edit on-screen parameters. Use E/NAV to navigate menu pages.
- ▶ To save changes, press **STORE, ENTER, ENTER**.
- ▶ Press EXIT to switch from the Layout Grid to the Footswitch Page.

# 2 HARDWARE OVERVIEW

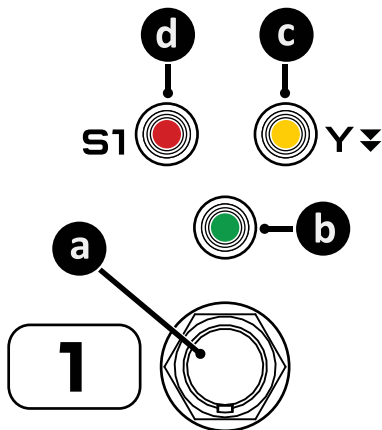
## THE TOP PANEL



- 1 The AX8 is housed in a powder-coated **steel chassis** with an aircraft aluminum bezel and end-caps.
- 2 The 160 × 80 pixel **LCD** is where all menu screens are displayed.
- 3 **METER and STATUS LEDs** communicate important information:
  - **IN 1 [INSTR]** and **IN 2 [FX RTN]** meters show input levels. Signal can “tickle the red” before clipping.
  - **EDITED** – This LED is lit when the current preset has been altered but not stored.
  - **MIDI IN** – This LED is lit while MIDI messages are being received at the MIDI IN port.
  - **MAIN OUT CLIP** – This LED is lit when signal overloads OUT 1 (MAIN) and causes clipping.
  - **FX SEND CLIP** – This LED is lit when signal overloads OUT 2 (FX SEND) and causes clipping.
- 4 Eight **AMP CONTROL KNOBS** adjust **DRIVE, BASS, MID, TREBLE, PRESENCE, DEPTH, MASTER** and **LEVEL** for the current preset. LED rings show values as they change, updating automatically when you select a new amp **TYPE**, change presets, or toggle between X and Y (see [“X/Y Switching” on p. 34](#)).

## 2 HARDWARE OVERVIEW

- 5 Six Buttons** provide access to the various functions and menus of the AX8.
- **STORE** – Stores the current preset to memory so it can be recalled in the future.
  - **EDIT** – Opens the Edit Menu for the currently selected effect block.
  - **PAGE ▶** – Steps to the right through menu pages, shown as “tabs.”
  - **ENTER** – Executes commands, commits changes, accesses sub-menus, and more.
  - **EXIT** – Works as cancel, escape, and more.
  - **SHIFT** – The SHIFT key gives every button a second function. Press and hold ▼ for **SHIFT LOCK**.
    - **SETUP** (Shift+Store) – opens the SETUP menus (which you select from using footswitches).
    - **FX BYP** (Shift+Edit) – bypasses the selected effect without using a footswitch.
    - **◀ PAGE** (Shift+Page>) – steps to the left through menu pages, shown as “tabs.”
    - **◀ NAV** (Shift+Enter) – moves the onscreen cursor or focus to the left.
    - **NAV ▶** (Shift+Exit) – moves the onscreen cursor or focus to the right.
- 6 A,B,C,D, and E SOFT KNOBS** (aka “Multifunction Endless Rotary Encoders” for you slide-rule types...) perform different functions depending on which screen is shown in the display. Most screens show five (or fewer) knobs for easy 1:1 operation. Knob E is also used for **NAV**, which navigates on-screen menus.
- 7** The **HANDLE** also serves as a GUARD to protect the knobs of the AX8 from being kicked and broken.
- 8** There are eight main **FOOTSWITCHES** corresponding to the eight effect slots. Each has three **LEDs**.



a. **FOOTSWITCH** – *Step on it!* Footswitches are used to toggle effects, select scenes, etc. The AX8 utilizes our fast, quiet Solid State Switches (SSS™) with no mechanical contacts to break or fail.

b. **BYPASS LED** – The **green** LED above the footswitch shows whether the effect assigned to this footswitch is ON or OFF.

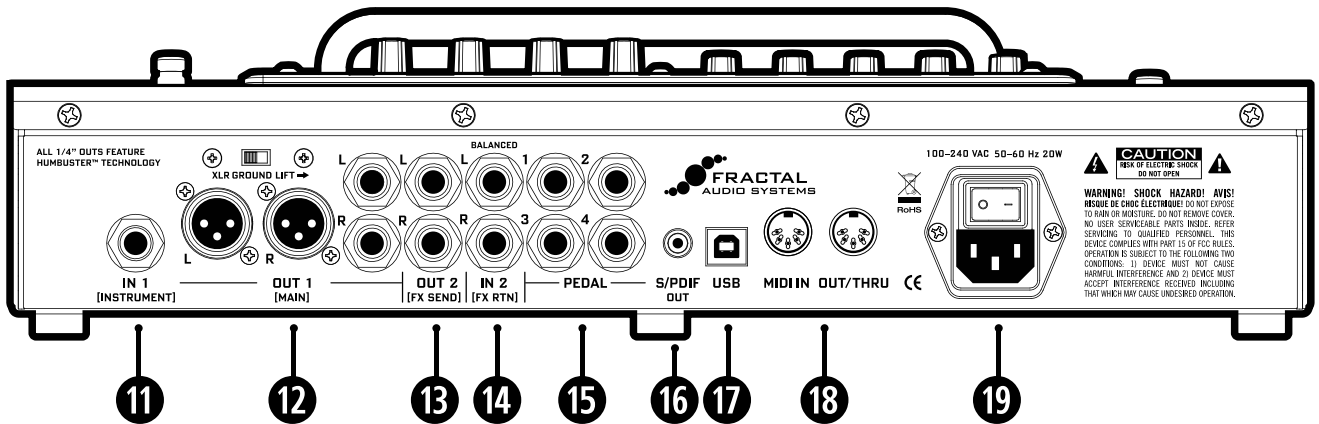
c. **Y LED** – Many effects on the AX8 offer X/Y switching for two different sound settings from a single block. By default you press and hold ▼ the footswitch to toggle the X/Y state of the corresponding effect, though certain settings change the way you toggle X/Y. The **amber** LED indicates that an effect has been switched to its Y setting.

d. **SCENE LED** – Eight **red** LEDs labeled S1, S2, etc. indicate which Scene is loaded within the current preset. (See [Section 6](#) for more on Scenes.)

- 9** Two **OUTPUT LEVEL CONTROL KNOBS** adjust the levels at the MAIN OUT (12) and FX SEND (13) jacks.
- 10** The three **FUNCTION FOOTSWITCHES**, also known as “**F-Switches**” are used to change modes and access various features of the AX8. Each of them has a primary function activated when you **tap** the footswitch, and a secondary function activated when you **Press and hold ▼** it. Learn more in [Section 4 Function Switches](#).



# THE REAR PANEL



## 11 IN 1 [INSTRUMENT] – (Mono, unbalanced 1/4" Jack)

Connect your guitar, bass, or any instrument-level source here using a regular guitar cable. You can also connect the output of other guitar pedals or effects.

## 12 OUT 1 [MAIN] L+R – (Two XLR-M and Two 1/4" Humbuster™ Jacks)

The main output of the AX8 appears at these jacks. Use the XLR jacks to connect to a mixer, studio monitors, PA, or other device with balanced inputs. Use the ground lift switch if necessary to reduce hum from ground loops. Use the 1/4" unbalanced Humbuster™ jacks to connect to unbalanced inputs such as those on power amps. Both the XLR and the 1/4" jacks always output exactly the same signal and may be used simultaneously. The OUT 1 MAIN level knob (9) controls both at the same time.

## 13 OUT 2 [FX SEND] L+R – (Two 1/4" Humbuster™ Jacks)

Connect to the input(s) of outboard equipment when using the FX Loop block (p. 57). This block can also be used to turn OUT 2 into a *utility output* so you can send signal with and without cabinet simulation at the same time. See [“Setup: Power Amp & Guitar Speakers” on p. 14](#) for more information on this type of setup.

If the FX Block is not used, a special system parameter called **OUT 2 (FX SEND) ECHO** can be used to specify the source for OUT 2. Applications include recording raw, dry, direct guitar for re-amping or using the OUT 1 and OUT 2 level knobs for separate Front of House and onstage FRFR levels. See **OUT 2 FX SEND ECHO** under [“I/O: Audio Page” on p. 79](#).

## 14 IN 2 [FX RTN] L+R – (Two Balanced 1/4" Tip-Ring-Sleeve Jacks)

These jacks feed the FX Loop block (p. 57), wherever it is placed in your presets. Aside from the obvious use of inserting outboard equipment, the FX Loop block can also be used to turn IN 2 into a *utility input* to feed a given preset a second input signal such as that from the piezo output of a dual-output guitar.

### QUICK TIP

**Humbuster™ Technology** on all OUT 1 [MAIN] and OUT 2 [FX SEND] 1/4" jacks can significantly reduce hum from ground loops when used with special Humbuster Cables available at <http://shop.fractalaudio.com>. See also [“Humbuster Cables” on p. 5](#).

## 2 HARDWARE OVERVIEW

### 15 PEDAL 1–4 – (1/4" Tip-Ring-Sleeve Jacks)

These jacks are used to connect up to four external expression pedals or switches to control various functions of the AX8. Use the PEDAL page in the I/O menu under **SETUP** to calibrate each connected pedal, and the CTRL page of the I/O menu under **SETUP** to assign pedals to various functions or modifier sources. For more on using these jacks, see ["Connecting Pedals & Switches" on p. 18.](#)

16 **S/PDIF OUT** – This outputs a digital copy of the Main Output. The S/PDIF clock is fixed at 48kHz.

17 **USB** – This provides the AX8 with two-way "MIDI-over-USB" capabilities when connected to a compatible Mac or PC. No driver is required. The AX8 does *not* have USB audio capabilities.

18 The **MIDI IN** port of the AX8 allows you to control various MIDI functions including preset and Scene selection, effect bypass, X/Y changes, parameter changes, and more.

*The **MIDI** page of the I/O menu under **SETUP** is used to configure MIDI Channel and other options. See ["I/O: Midi Page" on p. 80.](#)*

The **MIDI OUT** jack transmits MIDI data to connected devices.

*MIDI data can be programmed to be sent automatically when you select a **Scene**. To learn about Scenes, see [Section 6.](#)*

19 **Main Power Input and switch** – Insert the supplied power cable and connect the other end to a grounded AC power receptacle. The AX8 has a universal power supply, which means it can be used around the world by simply changing the cable. The main power switch is built in to the receptacle. We recommend switching the AX8 off when it will not be in use for an extended period of time.

# 3 SETUP GUIDE

## FULL-RANGE/DIRECT SETUP

The [“Quick Connect Guide” on p. 4](#) covers using the AX8 “direct” with full-range studio monitors, FRFR Guitar Speakers, or a PA System.

This type of setup takes full advantage of the ability of the AX8 to simulate not only different amps, but power amps, speakers, microphones, and extended-frequency-range effects as well. It is the most versatile and popular setup.

The pages which follow are provided for those who want to use the AX8 in a different type of setup.

# SETUP: POWER AMP & GUITAR SPEAKERS

A full-range system is the most flexible and versatile, but it is not for everyone. Another great way to use the AX8 is through a power amp connected to traditional guitar speakers.

**⚠ IMPORTANT:** For this setup, please disable **CAB MODELING** under **GLOBAL SETTINGS**.

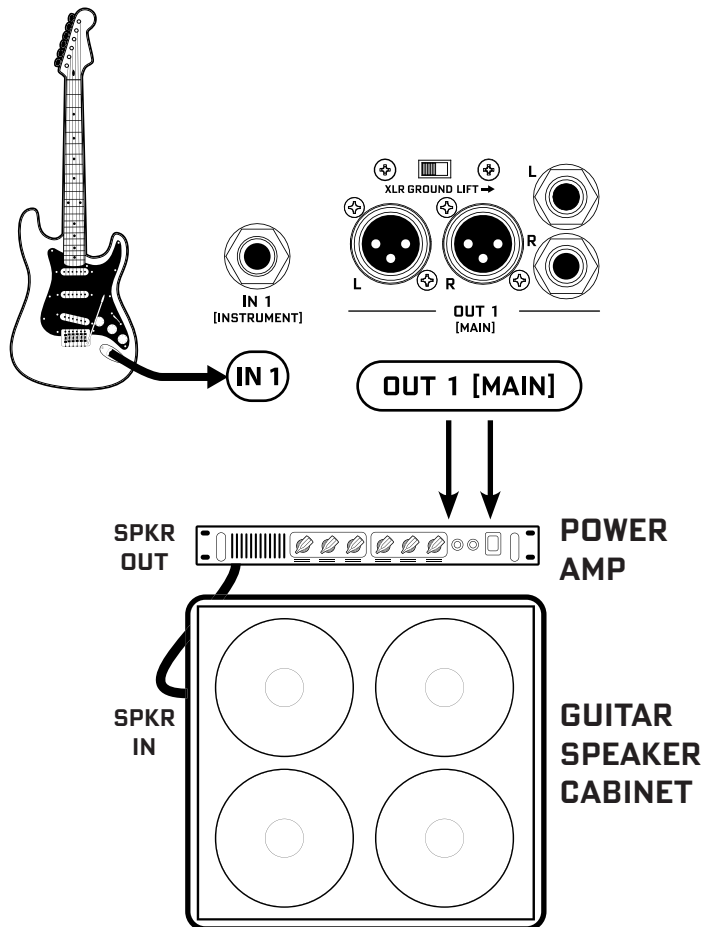
- Open the **GLOBAL** menu (press **SETUP** followed by **Footswitch 1**) and find the **SETTINGS** page.
- **NAV** to **CABINET MODELING** and then use **VALUE** to select “OFF”.
- Depending on your amp, you may also wish to set **POWER AMP MODELING** to “OFF”. Let your ears decide.
- Press **EXIT** twice to return to the Footswitch Page.

NOTE: Instead of disabling cab modeling, you could also bypass or remove the CAB block in every preset.

**1** Begin with all level knobs turned down. Connect your guitar to **IN 1 [INSTRUMENT]**.

**2** Connect your power amp to your speakers. Connect **OUT 1 [MAIN]** to the input of your power amp.

- Use the XLR Outs if your amp has balanced Inputs. You can find high quality XLR and other cables at <http://btpa.com/fractal-audio>
- Use the 1/4" Outs when connecting to unbalanced Inputs.
- For a mono rig, use the LEFT output only.
- Use Humbuster™ cables (p. 5) with 1/4" outs to reduce the hum from ground loops.
- Adjust levels by turning up the Out1 Level knob and your amp.



**FAQ: WHAT KIND OF POWER AMP?** There are two categories to consider. A sonically neutral or “flat” power amp designed for a PA or made specially for full-range guitar is generally considered the best choice. These amps (almost always solid-state) allow the power amp simulation in the AX8 to vary the tone and dynamics appropriately as you select from different virtual amp types. The second category contains tube amps specifically made for guitar. This type can also be used, but you’ll be “stuck” with one “flavor” of power amp all the time— one tonal color, one feel, though this can be great if it’s what you like. There are no wrong answers in any case. Use your ears!

# SETUP: DIRECT + REAL AMP & CABS

In this setup, custom presets simultaneously send two different signals—one WITH and one WITHOUT speaker sims—to front-of-house and backline.

The **MAIN** outs connect to a full-range system—typically the house PA—sending a complete virtual rig tone, including simulated speakers. This provides all the benefits of going direct: versatile, consistent tone without “bleed” at very controllable volume levels for a better overall mix. (*Ask a live mix engineer how much they love a really loud guitar amp on stage. I dare you.*)

**OUT 2** sends a separate signal, almost identical to the first, but without speaker sims. This connects to a power amp and real guitar speakers on stage for a familiar “backline” experience that players enjoy, enhancing natural sustain, “moving air,” filling the soundspace in a traditional way, and even providing “front fill” for venues where the PA is at a distance from center stage.

How is this possible? Enter the FX Loop block. This powerful utility block is normally used for inserting outboard gear in the signal path of the AX8, but can also be used to turn OUT 2 into a “utility out”, allowing us to tap signal at any point in the chain to feed our onstage amps.

You’ll learn more about blocks and presets in [Section 5 Creating Presets](#). For now, just recognize that the FX Loop block will be needed in every preset you want to use for this type of setup, and that the order and placement of blocks is critical. The FX Loop needs to output a signal that is tapped BEFORE it hits the Cab block or the Main Output at the right of the grid. An example preset is shown below.

Learn more in [“The FX Loop” on p. 57](#).

Begin with all level knobs turned down. Connect your guitar to **IN1 [INSTRUMENT]**. Connect **OUT 1 [MAIN]** to your mixer or PA. Connect **OUT 2 [FX SEND]** to your power amp. Adjust levels independently by turning up the Out1 and Out2 Level knobs.

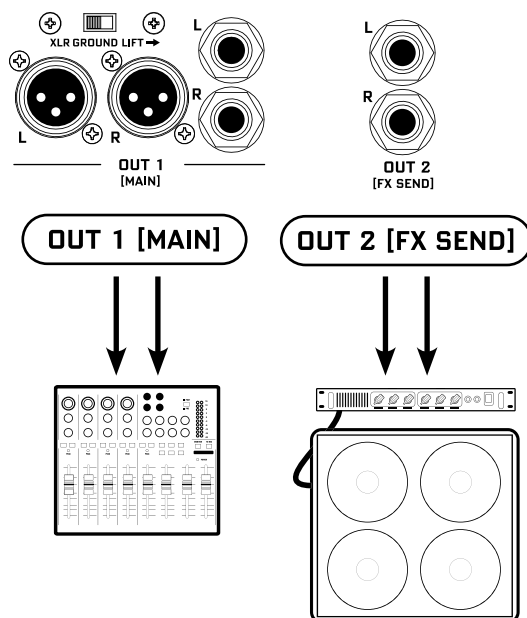


Use the 1/4" outs with Humbuster™ cables ([p. 5](#)) to reduce the ground hum in this setup.



Signal which enters the FX Loop block is transmitted directly to OUT 2 [FX SEND]

Signal from the output of the Grid is transmitted as usual to OUT 1 [MAIN]



## SETUP: FX PROCESSOR ONLY

While its sister product the [FX8 Multi-FX Pedalboard](#) is designed specifically for use as an effects processor for use with (tube) amps or third-party modelers, the AX8 can also be used as an effects processor only.

In comparison to the AX8, the FX8 offers no amp or cab modeling, but is designed for unity gain, with dedicated “PRE” and “POST” paths for four-cable-method hookups, plus true bypass, relays for amplifier control, a global looper, and more.



**IMPORTANT:** For all “FX Processor Only” setups, please use presets with **NO AMP or CAB block**. See [Section 5](#) for more on creating and modifying presets. Using Humbuster™ cables ([p. 5](#)) is highly recommended when using the AX8 as an effects processor only.

You may also need to adjust OUTOUT 1 MAIN NOMINAL LEVEL for these setups. See [“I/O: Levels Page” on p. 78](#)

### IN FRONT OF A GUITAR AMP

You can use the AX8 in front of an amplifier by connecting your guitar to the Instrument input of the AX8 and Out 1 Main L of the AX8 to the amp’s input. For stereo, connect Out 1 Main R to a second amp. Set the AX8 OUT 1 level knob as high as possible to lower the noise floor.

### IN THE LOOP OF A GUITAR AMP

Some may wonder whether the AX8 can also work in the effects loop of a tube amp. The AX8 instrument input can be padded up to 18dB, which should work to accommodate the Effect Send level of most amplifiers. Watch for clipping, however, and lower the FX Send level of your amp if required. Set the AX8 OUT 1 level knob as high as possible to lower the noise floor.

### THE FOUR-CABLE METHOD

The AX8 FX Loop ([p. 57](#)) can also be used to create a four-cable-method (“4CM”) rig. This highly integrated setup places the AX8 both “in front of” your amplifier’s preamp section (where it replaces traditional stompboxes) and in its effects loop, where “post” effects can be used.

To use the four-cable-method, you will need to create special presets where AMP and CAB blocks are replaced by the **FX LOOP** block. With your guitar connected to **IN 1 INSTRUMENT**, signal hits the AX8 first and passes through any effects that you want in front of the amp—compressor, drive, wah, and the like. Then, the **FX LOOP** block is used to “insert” the preamp of the actual amplifier on the grid. After a round trip out and back, the preamp signal is then processed by your “Post” effects on the grid—typically chorus, delay, reverb, etc.—before finally appearing at the **OUT 1 MAIN /L** of the AX8 which is connected to the FX Return (Power Amp Input) of your amp. To extend this configuration for optional stereo, connect **OUT 1 MAIN /R** of the AX8 to the RETURN of a second amp, or use a separate stereo power amp for both left and right signals.

For best signal-to-noise performance, set the AX8 OUT 1 and Out 2 level knobs as high as possible, and adjust the OUT 2 (FX SEND) BOOST PAD ([p. 78](#)) as high as possible without clipping out 2.

# CHECKING AND SETTING LEVELS

Setting proper levels is critical. Two meters (one mono and one stereo) plus two front panel LEDs inform you about levels on the AX8. Setting levels is easy.

## INPUT 1 [INSTRUMENT] LEVELS

The AX8 comes ready-to-use for the typical passive pickups guitar. Connect your guitar to **INPUT 1**. Choose your loudest pickup and set all the guitar controls to wide open. Play loud open chords to push the levels as you watch the IN 1 [INSTRUMENT] meter LEDs. It's OK to "tickle" the red LED once in awhile—it actually has five levels of brightness with only the brightest indicating actual clipping—but pushed too hard, the input will clip and you'll need to pad the input as follows:

- ▶ Press **SETUP**; Press footswitch **2** for the I/O menu; Turn to the **LEVELS** page.
- ▶ Turn E/NAV to select **INSTRUMENT INPUT PAD**. Change this setting to 0dB, 6dB, 12dB or 18dB based on the output level of your guitar. Be aware that as you increase this PAD setting you also increase the noise floor, so set it as low as possible.

## OUT 1 LEVELS

**OUT 1 [MAIN]** XLR and 1/4" Humbuster™ jacks are ready to be connected to professional line-level +4dBu inputs.

If and ONLY if you are connecting to consumer-grade equipment operating at -10 dBV, please set the nominal output level as follows:

- ▶ Press **SETUP**; Press footswitch **2** for the I/O menu; Turn to the **LEVELS** page.
- ▶ Turn E/NAV to select **MAIN OUT NOMINAL LEVEL** and change this setting to "-10 dBV".

Learn more about these controls in ["I/O: Levels Page" on p. 78](#).

## FRONT PANEL "CLIP" LEDS

If the **MAIN OUT CLIP** LED lights, the problem is almost certainly that your preset itself is too loud. The easy way to correct this is to turn down the Amp block using the dedicated Level knob on the top panel of the AX8. If you're not using an amp block, the level of any other block in your chain can be lowered instead. (Note that blocks in front of a compressor or drive have an indirect effect on levels.)

The Output Mixer ([p. 61](#)) on the grid is another option. Its four LEVEL controls correspond to the four ROWS of the grid and can be used to lower preset levels. Its MAIN fader also works to adjust levels, but needs to be set for every Scene.

The Global EQ ([p. 77](#)) can also be a "quick fix" until you can adjust blocks or scenes as described above. Adjust the main GAIN fader downward to reduce levels to OUT 1.

If the **FX SEND CLIP** LED lights, the problem is the levels going in to the FX Loop block ([p. 57](#)) or the settings of the FX Loop block itself. Its four LEVEL controls correspond to the four rows of the grid and can be used to adjust preset levels. Its **MAIN** fader controls the overall send level, and like that of the Output Mixer it needs to be set for every Scene. Learn more about ["Scenes" on p. 37](#).

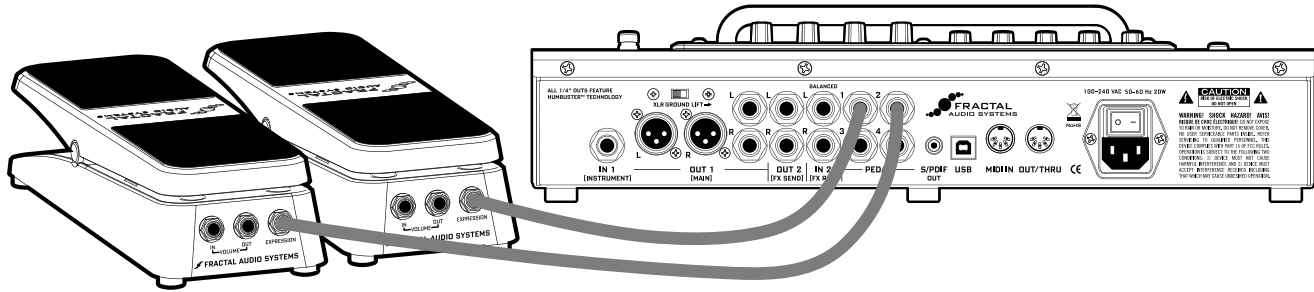
# CONNECTING PEDALS & SWITCHES

Each of the four on-board PEDAL jacks of the AX8 allows you to connect one expression pedal or one external footswitch. You can use a connected pedal or switch to change effect parameters or to operate any of a long list of global functions, and many factory presets are ready for one or even two pedals.



Learn to assign pedals and switches to sound parameters in [Section 8 Modifiers](#).

Learn to assign pedals and switches to global functions under [“I/O: Controllers Page”](#) on p. 81.

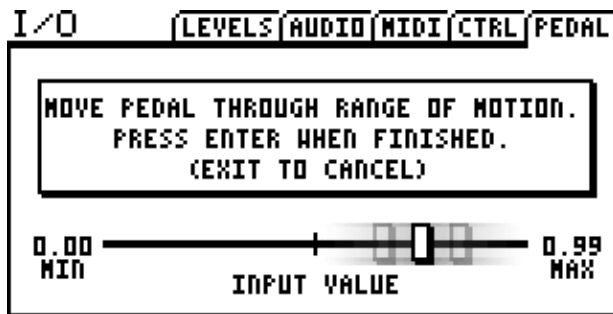


The Fractal Audio Systems EV-1 Expression/Volume Pedal (sold separately) is ideal for the AX8.

## TO CONNECT & CALIBRATE AN EXPRESSION PEDAL...

The best expression pedals for the AX8 have a linear resistance taper and a max resistance of 10kΩ to 100kΩ. Expression pedals must be used with Tip-Ring-Sleeve (TRS) cables. (If you are not familiar with TRS cables, see the FAQ on the next page.) Connect your expression pedal to the desired PEDAL jack (1–4) with a TRS cable, then follow these instructions to calibrate:

- ▶ Press the **SETUP** button, followed by the **#2 footswitch** to select the **I/O** menu.
- ▶ Press the **PAGE** button until you reach the **PEDAL** page.
- ▶ Ensure that the pedal **TYPE** is set to “CONTINUOUS”.
- ▶ Navigate to the **PEDAL # CAL** function and press the **ENTER** button.
- ▶ Follow the on-screen instructions to perform calibration.



During calibration, you should see the “slider” move on-screen as you move the pedal. It does not need to reach “MAX”, but a good quality pedal should demonstrate a wide range of motion.



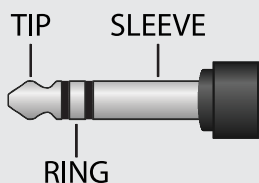
## TO CONNECT AND SET UP AN EXTERNAL FOOTSWITCH...

Footswitches are less versatile, but sometimes all you need is an on-off stomp. Any type of external switch may be used—momentary or latching—as long as its contacts make and break the connection between tip and sleeve on a regular 1/4" guitar cable. You do not need a TRS cable for a footswitch.

**Calibration** is not necessary, but you do need to set the **TYPE**:

- ▶ Press the **SETUP** button, followed by the **#2 footswitch** to select the **I/O** menu.
- ▶ Press the **PAGE** button until you reach the PEDAL page.
- ▶ Set the **PEDAL TYPE** for your selected pedal (1–4):
  - When a *latching* (aka *toggle*) switch is connected, set TYPE to “LATCHING”.
  - When a *momentary* switch (such as a sustain pedal) is connected, you have two options:
    - ♦ Set TYPE to “MOMENTARY” and the AX8 will recognize alternate stomps as ON and OFF, creating a “virtual” latching footswitch.
    - ♦ Set TYPE to “CONTINUOUS” if you want the switch to turn on when you press, and off when you release it.

## FAQ:

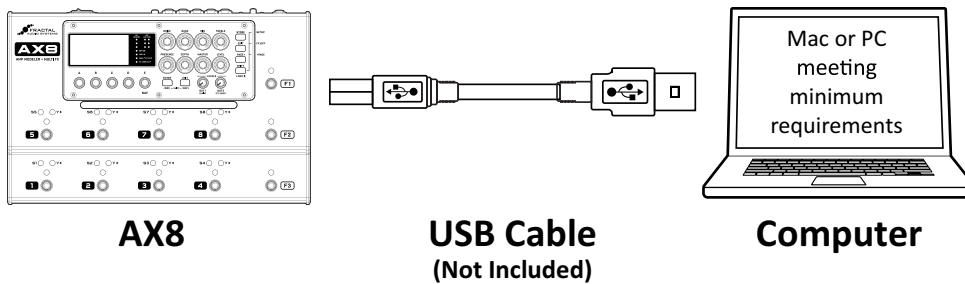


**WHAT IS TRS?** “TRS” stands for TIP-RING-SLEEVE and describes the configuration of a 1/4" endplug or jack with three connectors. Normal guitar cables are TS (Tip-Sleeve) since they lack the ring required for a third contact. Expression pedals require TRS cables because full control voltage is transmitted to them on one contact (the tip), while less than full voltage is returned to on another (the ring) so the host device is able to sense and utilize the pedal position. The third contact (sleeve) is connected to ground.

# CONNECTING A COMPUTER

Connecting the AX8 to a computer via USB is optional, but it does provide some great benefits. Our free **utilities** are a great way to take your experience to the next level. A USB connection is also required to install firmware updates and make or restore backups.

- ▶ The first step is to connect your AX8 to the computer with a **USB cable** (not provided).
- ▶ No driver is required. The AX8 is plug and play.
- ▶ Install **Fractal-Bot™** for firmware updates or to send and receive Presets, Banks, User Cabs and System files.
- ▶ Install **AX8-Edit™** for a graphical way to work with AX8 presets and settings.
- ▶ Find both programs at <http://www.fractalaudio.com>



### Mac Minimum Requirements:

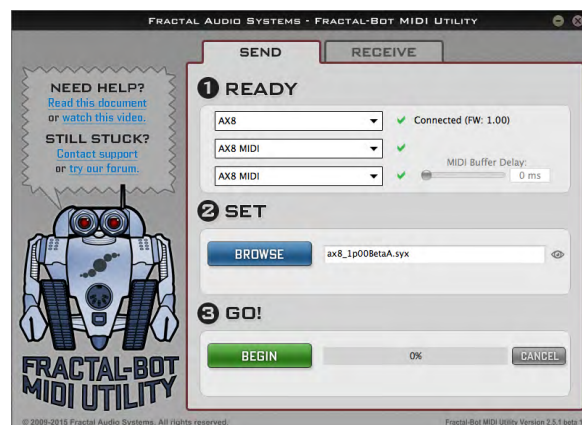
- OS X 10.6.8 or newer
- CPU: Intel Processor
- Memory: 512MB minimum
- USB 2.0 Support required

### Windows Minimum Requirements:

- OS: WinXP (SP3), Vista (SP2), Win7 (SP1) Win8
- x86 or x64 versions supported
- CPU: Intel Core 2 @1.6 GHz or better, or AMD equivalent
- Memory: 1GB minimum
- USB 2.0 support required



**AX8-Edit**



**FRACTAL-BOT**

# 4 FUNCTION SWITCHES

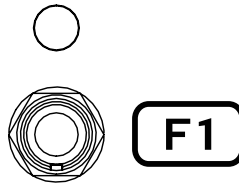
## F-SWITCHES OVERVIEW

The AX8 features three assignable **Function Footswitches**, also known as “**F-Switches**” because they are labeled F1, F2 and F3. Each F-Switch can be assigned TWO functions: one for when you **TAP** the switch and the other for when you **press and hold** it. Default settings are detailed below:

### F1 TAP

#### SINGLE PRESET/BANK SELECT

- Use F2 and F3 to select Banks
- Use 1–8 to select a Preset
- After selecting a Preset, the AX8 Returns to the **Footswitch Page** for your current Preset.



F1

### F1 PRESS & HOLD ▼

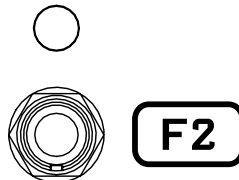
#### STICKY PRESET/BANK SELECT

- Same as **Single Preset/Bank Select** (described at left) except that you need to TAP the footswitch again to exit Preset/Bank Select Mode.
- The LED blinks while engaged.

### F2 TAP

#### SINGLE SCENE SELECT

- Use 1–8 to select a Scene
- After selecting a Scene, the AX8 returns to the **Footswitch Page** for your current preset.



F2

### F2 PRESS & HOLD ▼

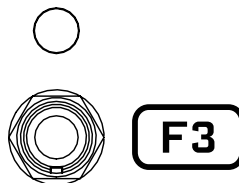
#### STICKY SCENE SELECT

- Same as **Single Scene Select** (described at left) except that you need to TAP the footswitch again to exit Scene Select Mode.
- The LED blinks while engaged.

### F3 TAP

#### TAP TEMPO

- Used to set the AX8 Tempo.
- Displays the **Tempo** menu, where you can change various settings.
- This menu exits automatically.
- The LED blinks the tempo.



F3

### F3 PRESS & HOLD ▼

#### TUNER MODE

- Shows the AX8 Tuner.
- Tap this switch again to exit Tuner Mode.
- The LED blinks while engaged.

# CUSTOMIZING F-SWITCHES

Over a dozen custom functions are available for the F-Switches. They're easy to change so you can put the perfect set of switchable modes at your feet. If you never use Tap Tempo, get rid of it! If you've got boots so big you keep accidentally pressing when you only meant to tap, disable HOLD functions. Flexibility is power.

## **ASSIGNING FUNCTIONS...**

You can assign two functions to each F-Switch: one for when you TAP the switch and one for when you press and HOLD it down.

- ▶ Press **SETUP**, select the **Global** Menu by pressing footswitch 1, and turn to the **FUNCTIONS** page.
- ▶ Select one of the available F-Switches using the **E/NAV** knob. Assign a function using the A knob.
- ▶ Press EXIT two times when you're done.

## **AVAILABLE FUNCTIONS...**

**NONE** – This disables the selected TAP or HOLD function for the selected F-switch.

### **SINGLE PRST/BANK**

- Activates **Single Preset/Bank Select Mode**.
- The F-switch LED remains lit until you select a preset.
- The F2 and F3 switches step UP and DOWN through BANKS.
- Footswitches 1 through 8 select a PRESET in the currently selected bank.
- To exit this mode, select a preset or tap the F1 switch.
- Because this mode also requires F2 and F3, it can ONLY be assigned to the F1 switch.

### **STICKY PRST/BANK**

- Activates **Sticky Preset/Bank Select Mode**.
- The F-switch LED blinks as you select any number of presets.
- The F2 and F3 switches step UP and DOWN through BANKS.
- Footswitches 1 through 8 select a PRESET in the currently selected bank.
- To exit this mode, tap the F1 switch.
- Because this mode also requires F2 and F3, it can ONLY be assigned to the F1 switch.

### **STICKY PRST +/-**

- Activates **Sticky Preset "Plus/Minus" Mode**.
- The F-switch LED remains lit while you step up or down (in order) through presets.
- F2 becomes "Next Preset" and F3 becomes "Previous Preset."
- To exit this mode, tap the F1 switch.
- Because this mode also requires F2 and F3, it can ONLY be assigned to the F1 switch.

### **PRESET UP, PRESET DN**

- Actually two different functions, these can be used to create one or two dedicated F-Switches to step up or down through your presets. In use, these are similar to the up/down switches from Sticky Preset +/-, except that they are always active without needing the F1 switch to turn this mode ON or OFF.

### **BANK UP, BANK DN**

- Actually two different functions, these can be used to step UP or DOWN through banks.
- The currently selected preset number within the bank will be maintained when the bank changes.

**SINGLE SCENE**

- Activates **Single Scene Select Mode**.
- The F-switch LED remains lit until you select a Scene.
- Footswitches 1 through 8 select a SCENE within the current preset.
- To exit this mode, select a Scene or tap the F1 switch.

**STICKY SCENE**

- Activates **Sticky Scene Select Mode**.
- The F-switch LED blinks as you select any number of scenes in the current preset.
- Footswitches 1 through 8 select a SCENE within the current preset.
- To exit this mode, stomp the F1 switch again.

**SCENE 1/2 TOGGLE**

- Switches between Scene 1 and Scene 2.
- The F-switch LED is off for Scene 1 and on for Scene 2.

**TEMPO TAP**

- Allows you to tap a tempo into the AX8. (See [Section 9 Tempo](#).)
- Also briefly displays the Tempo Menu where you can set various options.
- This function cannot be assigned to HOLD.

**TUNER** - Activates the Tuner ([p. 73](#)). The F-Switch LED blinks. To exit the tuner, tap the assigned F-Switch. You can also open the tuner through the CONFIG page of the main menu.

**LOOPER CONTROL** - Activates Looper Control Mode ([“The Looper Block” on p. 54](#)).

**SINGLE XY**

- Activates **Single X/Y Select Mode**.
- The F-switch LED remains lit until you toggle one X/Y setting.
- Footswitches 1 through 8 toggle X/Y for the assigned blocks of the current preset.
- To exit this mode, toggle any X/Y setting or tap the assigned F-switch.

**STICKY XY**

- Activates **Sticky X/Y Select Mode**.
- The F-switch LED blinks as you toggle any number of block X/Y settings.
- Footswitches 1 through 8 toggle X/Y for the assigned blocks of the current preset.
- To exit this mode, tap the assigned F-switch.



**IMPORTANT:** If you assign an X/Y mode to any F-Switch, footswitches 1–8 will no longer use Press & Hold ▼ to toggle X/Y. However, their main Engage/Bypass function is then able to happen on the footswitch DOWN-STROKE instead of the UP. Learn more about [“X/Y Switching” on p. 34](#).



If you set the “HOLD” function of any F-Switch to “NONE”, its TAP function switch will execute on the switch down-stroke instead of the up.

This is useful for switches assigned to PRESET UP and PRESET DN because you’ll often want to make this kind of change right on the downbeat.

# SAMPLE F-SWITCH LAYOUTS

Rather than leave this page blank, we thought it might be interesting to include a few different example layouts for the F-Switches based on what the AX8 development team members set up for themselves.

TAP		HOLD	
<b>F1</b>	Single Preset	<b>F1</b> ▼	NONE
<b>F2</b>	Single Scene	<b>F2</b> ▼	NONE
<b>F3</b>	Tempo	<b>F3</b> ▼	Tuner

*No "Sticky Modes"*

TAP		HOLD	
<b>F1</b>	Single Preset	<b>F1</b> ▼	Sticky Scene
<b>F2</b>	Single XY	<b>F2</b> ▼	NONE
<b>F3</b>	Tempo	<b>F3</b> ▼	Tuner

*Here we're using an XY F-Switch. This disables X/Y press and hold, and all effects fire on the "down-stroke"*

TAP		HOLD	
<b>F1</b>	Single XY	<b>F1</b> ▼	Single Preset
<b>F2</b>	Single Scene	<b>F2</b> ▼	Sticky Scene
<b>F3</b>	Looper Control	<b>F3</b> ▼	Tuner

*Looper Control Mode & NO Tap Tempo. Tempo can be programmed per-preset so you don't technically NEED it on the floor.*

TAP		HOLD	
<b>F1</b>	Single XY	<b>F1</b> ▼	Tuner
<b>F2</b>	Preset +1	<b>F2</b> ▼	NONE
<b>F3</b>	Preset -1	<b>F3</b> ▼	NONE

*Bare bones for a performance "on the rails." Scene 1/2 Toggle was globally set to switch 4.*

TAP		HOLD	
<b>F1</b>	_____	<b>F1</b> ▼	_____
<b>F2</b>	_____	<b>F2</b> ▼	_____
<b>F3</b>	_____	<b>F3</b> ▼	_____

*Record your favorite setups here.*

TAP		HOLD	
<b>F1</b>	_____	<b>F1</b> ▼	_____
<b>F2</b>	_____	<b>F2</b> ▼	_____
<b>F3</b>	_____	<b>F3</b> ▼	_____

# 5 CREATING PRESETS

## WHAT IS A PRESET?

The AX8 contains 512 PRESETS arranged in 64 numbered BANKS of eight presets each. Every preset is a fully independent rig with its own amp, cab, effects, settings, controllers, and more. You create and store presets using the AX8 front panel or the optional AX8-Edit software. Every preset is a “USER” preset which can be edited or overwritten. Every preset has its own name that you can change any time you store it. Some players will use a lot of presets—perhaps several per song. Others may use fewer, perhaps leveraging Scenes to extend their use (see [Section 6](#)). However you use presets, understanding them really unlocks the creative potential of the AX8.

To change presets, turn the "B" knob on the Footswitch Screen, or press **F1** to enter **Preset/Bank Select Mode**. Select **BANKS** using **F2** or **F3**, and select a **PRESET** within the bank shown by pressing **footswitches 1 through 8**.

Here, a sample bank of eight presets is shown as BANK : PRESET NUMBER : PRESET NAME.

<b>01:1</b>	<b>Double Verb</b>	<b>01:5</b>	<b>Plexi Treble</b>
<b>01:2</b>	<b>Deluxe Verb</b>	<b>01:6</b>	<b>Wrecked Express</b>
<b>01:3</b>	<b>Top Boost</b>	<b>01:7</b>	<b>Friedman HBE</b>
<b>01:4</b>	<b>JTM45</b>	<b>01:8</b>	<b>5153 Red</b>

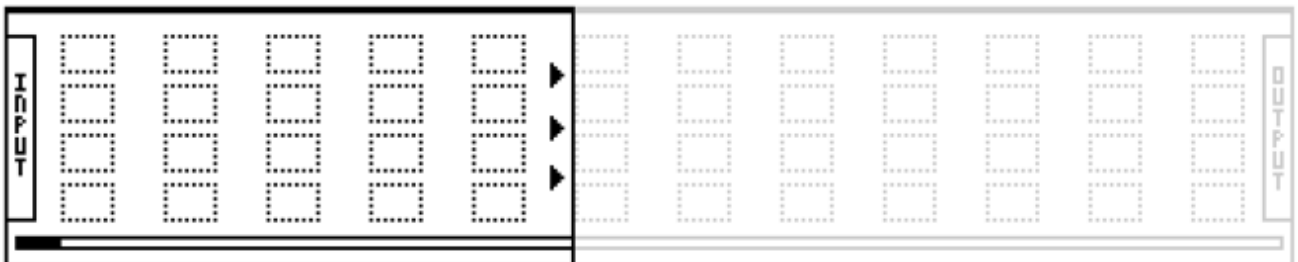
Presets can also be loaded using MIDI program change commands from external devices. See ["MIDI Program Change Numbers" on p. 96](#).

## THE LAYOUT GRID

The grid is the structure that presets are built on a  $12 \times 4$  framework where “blocks” are inserted and connected to determine signal path. Each grid space is stereo. You don’t need separate left and right paths!

To open the grid when you are in the main Footswitch Page, press the **PAGE RIGHT** button.

At any moment, the AX8 display can show only a  $5 \times 4$  section of the  $12 \times 4$  grid. Navigate to off-screen areas using the **D** or **E** knobs, or the **NAV** buttons (**SHIFT + ENTER**, **SHIFT + EXIT**). A bottom scrollbar indicates where you are in the overall left-to-right layout.



*In this image of an empty grid, off-screen areas are grayed.*

## WORKING WITH BLOCKS

As explained in ["The Grid Concept" on p. 8](#), the AX8 grid must be populated with blocks—components pulled from a large inventory of amps, cabs, stompboxes, studio effects, mixers, and more. To interact with the grid you must move its **cursor**, a solid rectangle controlled by the **D** or **E/NAV** knobs, or the **NAV** buttons. For simplicity, we'll refer simply to these controls as "**NAV**" going forward.

### UNDERSTANDING WHAT YOU SEE...

Like blocks on the main Footswitch page, grid blocks have several states, illustrated at right:

- Dashed Outline = Bypassed
- Solid Outline = Engaged
- Inverted = Selected

Every grid block has a 3-letter code. You'll learn more about these later.

### TO NAVIGATE THE GRID...

- ▶ The **E/NAV** knob selects grid spaces.
- ▶ Use **D** for quick left-right moves.

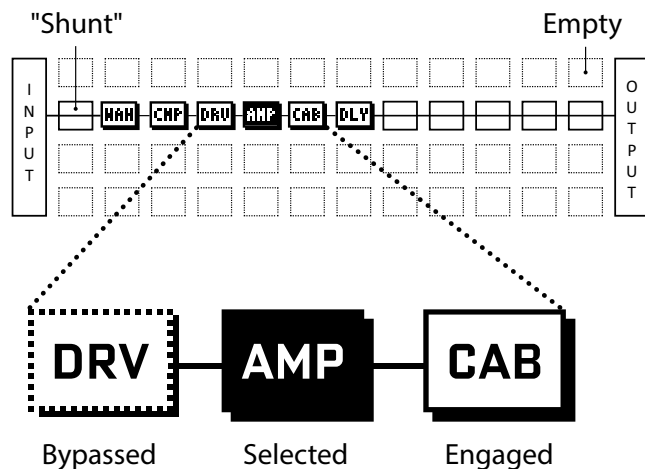
### TO INSERT A BLOCK

- ▶ **NAV** to the desired grid location.
- ▶ Turn **A** to step through the list of blocks, including options for **SHUNT** (see below) and **NONE**.
- ▶ Press **ENTER** to confirm or **EXIT** to cancel changes.
- ▶ As you insert blocks, they are removed from the list, but every preset has its own complete inventory.

The total number of blocks is limited by CPU usage, which must not exceed 90%. Each block has a CPU "cost," and when you tip the limit, a warning message prevents you from adding additional blocks. See ["Preset CPU Limits" on p. 35](#) for more information.

### TO CHANGE THE TYPE OF AN EXISTING BLOCK...

- ▶ Use **NAV** buttons to select the block.
- ▶ Turn **A** to display change it to the desired type.
- ▶ To REMOVE a block, change its type to "NONE".
- ▶ Press **ENTER** to confirm or **EXIT** to cancel changes.



**FAQ: WHY AM I GETTING A CPU LOAD WARNING?** The AX8 has a lot of CPU power to run its high-quality amp models and effects. As you add blocks or increase their CPU needs, however, you will inevitably reach the limit. When this happens, a warning message prevents you from adding more blocks until you reduce the load by removing blocks or reducing the load by other means. See ["Preset CPU Limits" on p. 35](#) for more information.



# SHUNTS

A shunt is a sonically transparent block—a mere utility to carry signal through otherwise empty grid locations. Your preset will be silent unless you make a complete connection from the INPUT to the OUTPUT, so place a shunt wherever you don't use another block like an Amp, Cab, or effect.

Like grid spaces, a shunt is stereo; you don't need two for left/right.

## TO INSERT A SHUNT

- ▶ Navigate to the desired grid location.
- ▶ Turn **A** until **SHUNT** is displayed.
- ▶ Press **ENTER** to confirm or **EXIT** to cancel changes.

# CONNECTOR CABLES

Just like physical gear, the blocks in the AX8 need to be connected together for signal to flow. This is done using connectors, or cables. With even one connector missing, your preset may be totally silent!

Like shunts, connectors are *totally* transparent. There is zero degradation from long runs of AX8 "cable"!


## TO CREATE A CONNECTOR CABLE...

- ▶ **NAV** to select the block where you wish the cable to BEGIN. You can't start from an EMPTY grid space!
  - The first and last grid columns are automatically connected to the INPUT and the OUTPUT.
- ▶ Press **ENTER**. The selected block and its neighbor to the right will alternately flash as "selected."
- ▶ **NAV** to the desired destination block, which must be in the next column to the right.
- ▶ It is possible to select an empty location. A shunt will be added there if you complete the cable.
  - Be sure to select a destination that is not already connected to the block you started from, or you will REMOVE that cable (see below).
- ▶ Press **ENTER**. To cancel without connecting, press EXIT instead.

## TO REMOVE A CABLE CONNECTOR...

Cables are removed in much the same way as they are created.

- ▶ **NAV** to the block where the cable begins.
- ▶ Press **ENTER**. The selected block and its neighbor to the right will alternately flash as "selected."
- ▶ **NAV** to select the "other end" of the cable you wish to remove.
- ▶ Press **ENTER**. To cancel without removing, press EXIT instead.

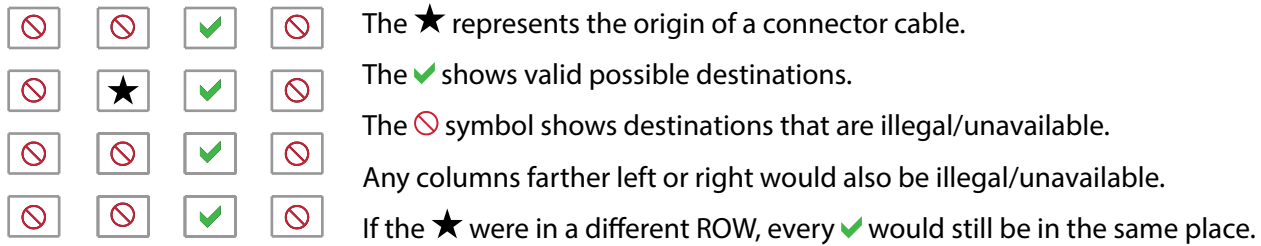
 **SHORTCUT:** To span multiple empty grid columns with a series of shunts and cables, select any block that is followed by a series of empty spaces, then **press and hold** the **ENTER** button. The intervening spaces will be automatically filled with shunts and connected with cables. Careful: any *existing* cables encountered along the way will be REMOVED!

## 5 CREATING PRESETS

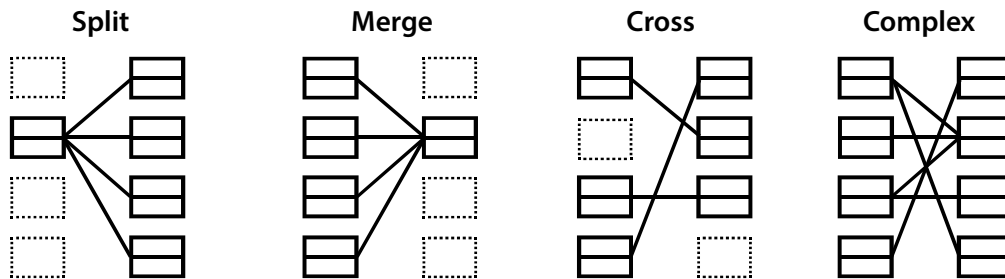
### THE RULES OF AX8 CABLES...

- ▶ No cables = No sound. Even one missing link will break the chain.
- ▶ Signal flows from LEFT to RIGHT.
- ▶ A cable MUST originate from a BLOCK or a SHUNT. Empty locations are not viable origins.
- ▶ If you try to connect to an EMPTY location, a SHUNT will be created there.
- ▶ You can ONLY connect to blocks in the next column to the right.

The illustration below reinforces some of the ideas above:



- ▶ Cables are created AUTOMATICALLY between the INPUT and any blocks in the first column.
- ▶ Cables are created AUTOMATICALLY between the OUTPUT and any blocks in the last column.
- ▶ You may freely SPLIT or MERGE up to four ways at any point. This is sonically transparent and there is zero risk of degradation or phase problems. CROSSING is also possible. Here are some examples:



## MOVING BLOCKS

The main menu also includes a **MOVE** page with tools to move individual blocks or entire rows or columns UP, DOWN, LEFT, or RIGHT. When a block or a grid row/column is moved, it changes places with the item in the space it is moved to. This can result in certain connector cables being modified or removed, so be sure to observe how the elements of your preset are interconnected before proceeding with a MOVE operation.

- ▶ In the Main menu, use the **PAGE>** button to select the MOVE page.
- ▶ Select a function with the **A** knob: Move Effect/Column/Row, Left/Right/Up/Down
- ▶ Use the **NAV/E** knob to select the target effect block or row/column you wish to move.
- ▶ Press **ENTER** to execute the move.

# BLOCK INVENTORY

The following table contains an overview of every effect available to every preset.

Effect		Description	#
<b>Amp</b>	AMP	This is the money shot. 222+ Quantum amp models in one block!	1
<b>Cab</b>	CAB	Speaker Cab simulation using our patented Ultra-Res™ Technology.	1
<b>Chorus</b>	CHO	Create classic mono and stereo modulation effects including vibrato.	1
<b>Compressor</b>	CMP	Control dynamics and add sustain.	1
<b>Delay</b>	DLY	Up to 8000 ms of delay, with types for analog, digital, tape, and more.	2
<b>Drive</b>	DRV	25+ types including boost, overdrive, distortion, fuzz, and many more.	2
<b>Enhancer</b>	ENH	Classic and Modern modes to create and control spatialization.	1
<b>Filter</b>	FLT	Includes Low Pass, High Pass, Band Pass, and many other types.	2
<b>Flanger</b>	FLG	Various types cover everything from subtle modulation to extreme jet.	1
<b>Formant</b>	FRM	Create dynamic vowel sounds with this multi-mode formant filter.	1
<b>FX Loop</b>	FXL	This block connects directly to IN 2 and OUT 2 on the rear of the AX8.	1
<b>Gate/Expander</b>	GTE	Useful for everything from subtle control to extreme effects.	1
<b>Graphic EQ</b>	GEQ	A variety of modes allow easy, flexible tone sculpting.	2
<b>Looper</b>	LPR	A powerful Looper with automatic "Looper Control Mode" footswitches.	1
<b>Multidelay</b>	MTD	A variety of special delays including plex, diffusor, quad-tap, and more.	1
<b>Parametric EQ</b>	PEQ	The 5-band Parametric Equalizer allows precise control of tone.	2
<b>Phaser</b>	PHA	A variety of vintage and cutting edge phaser effects, including 'vibe.	1
<b>Pitch Shifter</b>	PIT	Includes detune, harmonizer (intelligent/custom), whammy, and more.	1
<b>Reverb</b>	REV	World-class recreations of vintage springs, rooms, halls, and more.	1
<b>Ring Modulator</b>	RNG	The extremely flexible ring modulator provides for a range of cool effects.	1
<b>Rotary</b>	ROT	Simulates a classic rotary speaker with multiple microphones.	1
<b>Synth</b>	SYN	A 3-voice monophonic synth that tracks what you play.	1
<b>Tremolo/Panner</b>	TRM	Creates classic trem, plus auto-pan or extreme psycho acoustic effects.	1
<b>Volume/Pan</b>	VOL	Simple volume block also offers channel input/output tools.	2
<b>Wahwah</b>	WAH	The classic wah, with multiple types based on classic originals.	1

In addition to the blocks listed above, each preset also includes an **Input Noise Gate**, an **Output Mixer**, and a set of **Controllers** for parameter automation.

# EXAMPLE PRESET GRIDS

**Ex 1:** Sweet and Simple. Wah. Drive pedal. Amp and Cab. Delay and Reverb post.



**Ex 2:** Here some more effects are added, and the reverb is run in parallel to the delay for a different sound.



**Ex 3:** An entire parallel chain for a shimmering, filtered effect with a VOLUME block for its own "Send" control.



**Ex 4:** A complex preset with "Pre" and "Post" effects and stereo cab sim to OUT 1 (Front of House), plus an "FX Loop" block to tap signal with NO cab sim to OUT 2 for use with a real power amp & cab (On-Stage backline). The Cab Block is set to "Stereo UltraRes" mode. It emulates the real speaker setup in that it follows the FX.



# EDITING EFFECT BLOCKS

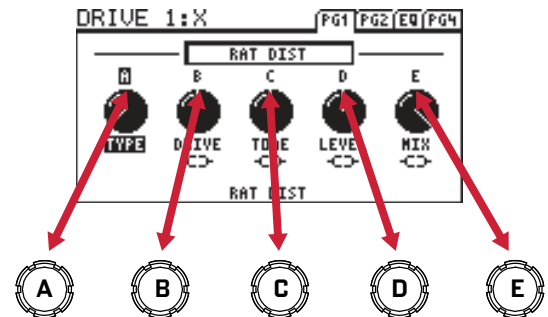
Blocks are fully programmable, allowing you to dial in every setting ("parameter") as desired. A block's **Edit Menu** contains one or more **pages**, each with multiple **parameters** to control sound functions. Here's a quick guide covering how to access and work with the different types of Edit Menu pages.

## OPENING THE EDIT MENU

- ▶ From the grid, use the **NAV** knob to select the desired block.
- ▶ OR... from the main Footswitch page, use **NAV** or stomp the effect ON or OFF to select it.
- ▶ Press **EDIT** to display the Edit Menu.

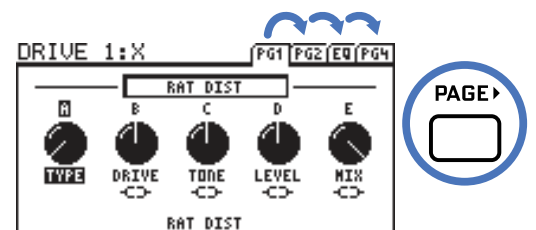
## USING VIRTUAL KNOBS

- ▶ Most Edit Menu pages show five virtual knobs. To make changes, use the five physical knobs of the AX8.
- ▶ Above each on-screen knob is an indicator showing which of the five knobs to use: **A, B, C, D, or E.**
- ▶ You will hear all sound changes in real time.
- ▶ A few pages have SIX knobs... to edit these, use the NAV buttons (SHIFT+ENTER/EXIT) to move the focus of A,B,C,D and E.



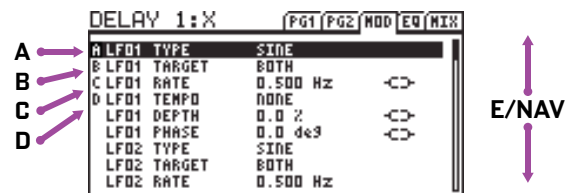
## TURNING PAGES

- ▶ Most block Edit Menus have multiple pages.
- ▶ Tap the **PAGE ▶** button to page forward.
- ▶ Tap **PAGE ◀ (SHIFT + PAGE ▶)** to page backward.
- ▶ The last page "wraps" to the first and vice versa.



## USING TEXT MENUS

- ▶ Use the **E** knob to move up and down and the **A** knob to edit the highlighted parameter.
- ▶ **B, C, and D** knobs are mapped dynamically, as indicated on-screen.
- ▶ Press **EXIT** at any time to leave editing and return to the Footswitch Page.
- ▶ Press **EDIT** repeatedly to step in sequence through the **EDIT** Menus of every block in your preset.



## SAVING CHANGES

After editing a preset, you will undoubtedly want to save the results.

Every preset in the AX8 can be modified. There are no permanent "factory" presets.

When you change the current preset, the front panel "EDITED" LED lights until you STORE or load a new preset.

### TO STORE A PRESET...

- ▶ Press **STORE** to show the STORE screen.
- ▶ Press **ENTER** to display "OVERWRITE PRESET?"
- ▶ Press **ENTER** again to confirm, or EXIT to cancel.
- ▶ The message "PRESET SAVED" is shown when saving is complete.

### TO CHANGE THE PRESET NAME OR LOCATION...

The AX8 has 512 preset memory locations grouped in 64 numbered banks. Each bank contains 8 presets. You can save any preset to any location at any time. You can edit the name of any preset while storing.

- ▶ Press **STORE** to show the STORE screen.
- ▶ Use the **NAV** knob to select LOCATION or NAME.
  - Turn the **A** knob to move the cursor.
  - The **B** knob selects **upper case** letters.
  - The **C** knob selects **lower case** letters.
  - The **D** knob selects **numbers** and **symbols**.
  - You can use up to 24 characters in a preset name.
- ▶ Press **ENTER** to Store, then press **ENTER** again to confirm.
- ▶ The message "PRESET SAVED!" is displayed and the new location (if any) is loaded.



PRESET SAVED: 01:1

# SETTING UP FOOTSWITCHES 1-8

The eight numbered footswitches of the AX8 offer tremendous flexibility. As you learned in Chapter 1, the display shows what each of the footswitches is currently programmed to do, but that's just the beginning...



Remember, footswitch assignments do not change which blocks are in the preset. If you think of the AX8 as a separate guitar processor and foot controller, these assignments represent the foot controller portion. (You can think of the Grid—explained on [p. 25](#)—as the processor itself.)

## PROGRAMMING A FOOTSWITCH...

- ▶ From the main **Footswitch** Page, turn **NAV/E** to select the desired footswitch, or, just stomp it!
- ▶ Turn the **A** knob to scroll through the list. If the footswitch is set to PER-PRESET, only those effects actually placed on the current grid are available. If the footswitch is set to GLOBAL, ALL effects will be available—but the switch will be disabled unless the block it controls is present on the grid.
- ▶ Press **ENTER** to assign the effect or press **EXIT** to cancel.

## ABOUT EFFECT AND FOOTSWITCH BLOCKS

Footswitches can be programmed for many different uses. Perhaps the most common will be switching effect blocks ON or OFF—the classic "Instant Access" scenario—but as you scroll through the list of available effects, you will also find various special options called "**Footswitch Blocks**":

- **Scene 1-8** – Use these to select a given SCENE within the current preset.
- **Scene 1/2 Toggle** – Use this to toggle between Scenes 1 and 2. You get two scenes from one button!
- **Preset 1-8** – Use these to select a given PRESET within the current BANK.
- **Bank Up, Bank Down** – These do just what they say, and can be quite useful if you have removed "preset select mode" from the F1 Switch.
- **Amp X/Y Toggle** – Provided to simulate the channel select footswitch as found on many amps.
- **Looper Control Mode** – This enters Looper Control Mode. TIP: No matter which numbered switch you assign this to, **FOOTSWITCH 8** is always used to exit Looper Control Mode.
- **NONE** – This disables the footswitch.

Remember also that a footswitch assigned to an effect can also be used to **switch X/Y** for the block it controls. This is done either by PRESS & HOLD or in conjunction with one of the special X/Y modes that can be assigned to an F-Switch.

## TO SET EACH FOOTSWITCH AS "PER-PRESET" OR "GLOBAL"...

Each individual footswitch can be set to either PER-PRESET or GLOBAL.

**Per-Preset** footswitches can be programmed to perform a different function in every preset.

**Global** footswitches do the same thing across all presets. To set a footswitch as Per-Preset or Global:

- ▶ Press **SETUP** (SHIFT+STORE) to show the SETUP menu. Tap footswitch **1** to select **GLOBAL**.
- ▶ Page to the **GLOBAL FOOTSWITCH** page ("GBL FS").
- ▶ Use **NAV/E** to select the desired footswitch and knob **A** to set it to GLOBAL or PER-PRESET.
- ▶ Press **EXIT** twice when you're finished.

## X/Y SWITCHING

In the same way that many amplifiers have two fully independent channels, so do many effects on the AX8. Each block with X/Y switching stores two complete sets of settings—an “X” set and a “Y” set. This makes it possible to switch between two different effect sounds while using only one block.

Most blocks support X/Y. These include Amp, Cab, Chorus, Compressor, Delay, Drive, Filter, Flanger, Gate/Expander, Multitap Delay, Phaser, Pitch Shifter, Tremolo/Panner, Relay, Reverb, Rotary and Wah.

### TO USE A FOOTSWITCH...

- ▼ By default, you can press and hold the footswitch assigned to an effect to change its X/Y state.
- ▼ The amber “Y” LED lights when the Y state is selected.

Certain special F-Switch modes and one global setting change the way X/Y footswitches work. See ["Up- vs. Down-Stroke Fx Switching" on p. 87](#)

### TO SWITCH X/Y ON THE GRID...

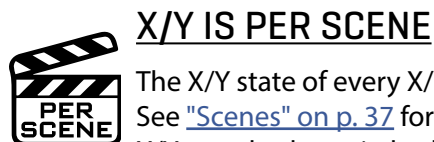
To switch between X and Y, select the desired block and quickly DOUBLE-TAP the **EDIT** button. A message at the top of the grid area shows the X/Y status of the currently selected block. For example: **DRY X** or **DRY Y** for the Drive block (DRV).

### TO SWITCH X/Y FROM INSIDE A BLOCK'S EDIT MENU...

To toggle between X and Y, quickly DOUBLE-TAP the **EDIT** button.

### TO DIAL IN X AND Y FOR A GIVEN BLOCK...

- ▶ Open the desired block for editing. Dial in all parameters for X.
- ▶ Switch to Y using any of the methods described above. Dial in all parameters for Y.
- ▶ Save the preset by pressing **STORE, ENTER, ENTER**.



### X/Y IS PER SCENE

The X/Y state of every X/Y-capable block is saved in the current Scene. See ["Scenes" on p. 37](#) for more information.

X/Y can also be switched via MIDI CC#. See ["/O: Controllers Page" on p. 81](#)

### X AND Y SHARE THE SAME MODIFIERS

Modifiers allow you to control sound parameters in real time (with an expression pedal or LFO for example.) It is important to understand that any modifier you place on X will also apply to Y.

**FAQ: WHY WOULD I USE X/Y?** For a feature with such a short name, the benefits of X/Y are immense. For two amp model sounds in one preset, use X/Y! When you've already placed both DRIVE blocks but need a 3rd drive sound, use X/Y! When you have space for only one DELAY but want both wobbly TAPE ECHO and pristine STEREO DIGITAL, use X/Y! To go from “a touch of reverb” on rhythms to “spacious” during a solo, use X/Y! When you consider that scenes can also perform X/Y switching for you, the feature is even more powerful.



## PRESET CPU LIMITS

Each block you place in a preset contributes to the total CPU load. You can check the current load at any time by pressing **SETUP**, opening the UTILITY menu (#3), and switching to the STATUS page. A thermometer-like meter on the right side of the screen shows CPU % usage (and provides a specific numeric readout above). Load is also displayed in the upper right corner of AX8-Edit.

As the load increases, certain functions can become slower, but priority is given to the audio quality whenever possible. There are safeguards to prevent you from pushing the AX8 too far. First, you are stopped from inserting any block which might cause an overload by the message "INSUFFICIENT CPU". The AX8 assumes that a block will be used to its limits when making this determination.

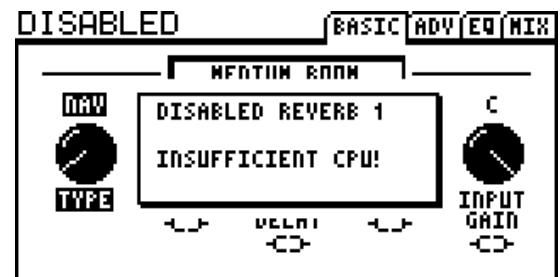
If you are prevented from inserting an effect, you can make changes to reduce the current CPU load and try again. You might remove an effect that is less important. Adjusting certain parameters can also help. Here are a few of the common block parameters whose settings have a measurable effect on CPU usage:

- Amp: **OUTPUT COMP** (Set to "0.00" for the least CPU usage).
- Cab: **MODE**, stereo uses more CPU.
- Reverb: **QUALITY** and **ECHO DENSITY** (Lower = less CPU). Spring type uses the least CPU.
- Compressor: Set **TYPE** to one of the "PEDAL" options to use less CPU.
- Phaser: **STAGES** (Lower = less CPU).
- Filter: **ORDER** and **Q** (Lower = less CPU).
- Multi-Delay: **TYPE** (Different types have different requirements).
- **Modifiers** also affect CPU usage.

### AUTOMATIC BLOCK DISABLING

As a second safeguard, the AX8 may disable one or more blocks if load gets too high due to changes after a block has been inserted. Changing Reverb to HIGH QUALITY, for example, increases CPU utilization. If the preset can't handle this, you will see an error message.

When this happens, you'll need to take steps to get back below the limit. The most likely solution will be to change back whatever setting you had just made, but it is also possible to remove or edit other blocks to address the issue. Disabled blocks blink on the Footswitch Page and grid, and show DISABLED (upper left) in the Edit Menu. Be warned that "living on the edge" is not recommended. The AX8 uses slightly more CPU when it is processing audio, so give yourself a margin to prevent unwanted block bypass at inopportune moments. A recommended safe target is about 80%.



### CPU & USB

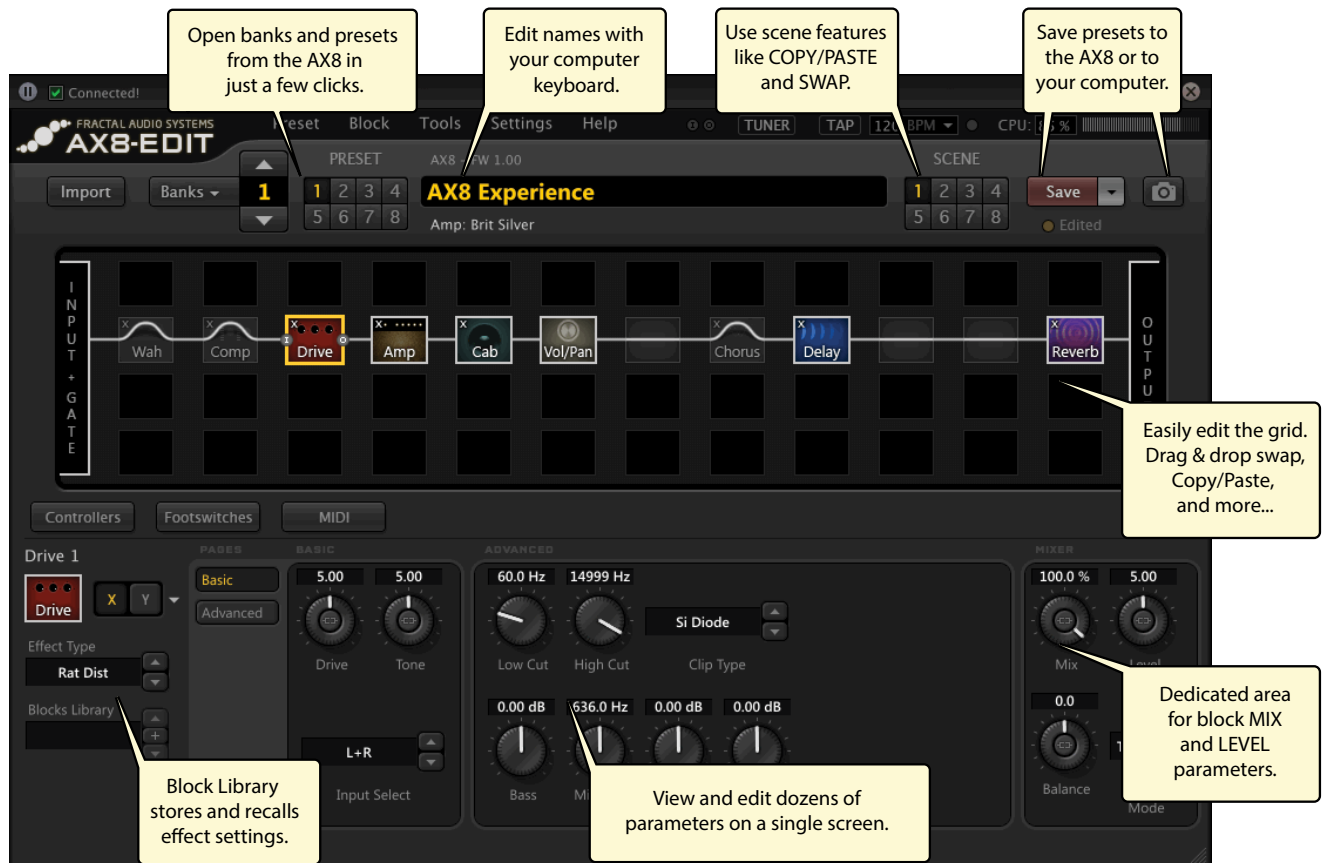
The AX8 dedicates a small percentage of CPU resources to USB processing. Large presets may run fine while USB is disconnected, but a USB connection may push them over the limit. In this case, try to reduce CPU load or avoid using these presets while USB is connected.

## 5 CREATING PRESETS

# AX8-EDIT

Every function and parameter of the AX8 can be conveniently operated from the front panel of the unit. Another way to edit presets and parameters is to use AX8-Edit. If you are at all accustomed to working with audio software or plug-ins, you will enjoy AX8-Edit.

Here's a quick look at some of its features:



AX8-Edit also includes a manager which allows you to reorganize presets in the unit.

Find AX8-Edit at <http://www.fractalaudio.com>

# 6 SCENES

## OVERVIEW

Every AX8 preset contains eight **scenes**. You don't need to add or create scenes—they're already there, ready and waiting to be used. Think of a Scene like a "mini-preset within a preset". Scenes can control which blocks are on, which blocks are off, which blocks are set to X or Y, overall preset level, and other settings too.

There are many benefits to using scenes. Selecting a Scene allows you to recall with one tap what would otherwise require "tap dancing" on the footswitches. Scenes load instantly, they can easily be gapless and seamless, and they offer the easiest way to ensure perfect "spillover" of time-based effects like delay and reverb. That's just the beginning... this incredibly powerful feature may soon become one of your favorites.

## WHAT SCENES INCLUDE...



### Each Scene stores all of the following:

1. The ON/OFF state of every block in the current preset.
2. The X/Y state of every X/Y block in the current preset.
3. The preset's Output Mixer Main level. This is useful for creating a BOOST, or to normalize the level across scenes.
4. The preset's FX Loop block Main level (if any).
5. The setting for two virtual "Scene Controller" knobs, which can in turn be assigned to control sound parameters.
6. A MIDI Program Change message (on any channel) that is sent to the MIDI OUT port of the AX8 when the Scene is loaded.

## WHAT SCENES *DO NOT* INCLUDE...

In short? Everything else! A Scene **ONLY** contain the items listed above. If you change anything that is not part of the Scene, the change will affect ALL scenes in the entire preset.

You cannot change which effects are on the grid, or change the grid routing. You cannot tweak effect parameters per Scene (but remember, you can switch effect X/Y). You cannot change the preset NAME (scenes do not have names.)

**FAQ: WHY NOT JUST CHANGE PRESETS?** Preset changes give you total flexibility. You can change anything and everything in every preset, but there are also drawbacks. Synchronizing multiple presets is tedious, it takes care to get levels and spillover just right, and while preset changes are fast, Scene changes are even faster and can be seamless.

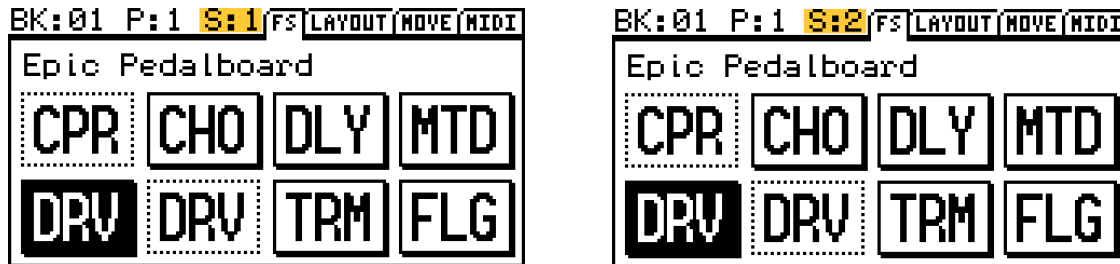
## SELECTING SCENES

There are three ways to select a Scene on the AX8:

1. **USE THE FOOTSWITCHES** – By default, **F2** enters Single Scene Select Mode. (The LED will remain lit.) The next press of any footswitch 1–8 will select a Scene within the current preset. For example, to select Scene 4, press **F2** and then #4. You can also easily create dedicated Scene Select footswitches as detailed on [p. 33](#).
2. **USE THE C KNOB** – If you are on the Footswitch Page, the Grid, or the MIDI page of the main menu, knob **C** changes scenes. (*Repeat after me: “C for Scene. C for Scene.”*)
3. **USE MIDI** – Incoming MIDI messages can be used to select scenes. By default, CC#34 is mapped to the **SCENE SELECT** function. The value of CC#34 determines which Scene is loaded. 0 = Scene 1; 1 = Scene 2; 2 = Scene 3, etc. See [p. 98](#) for a table of these values.

The best way to tell which Scene is loaded is to look at the red Scene LEDs.

The number of the current Scene is also shown on the Footswitch page as highlighted below:



## SETTING UP SCENES

Remember that you don't need to do anything special to “create” or “enable” scenes. Every preset has eight scenes built in and ready to use. Even if you don't plan on switching scenes during a performance, you'll always be using **Scene 1**, which is selected automatically when you load any new preset. (You can even set every preset to load a different Scene initially by changing the “Default Scene” – see [p. 76](#).)

Programming scenes is easy. Select the desired Scene and use the footswitches or the grid controls as you normally would to turn effects ON/OFF and select X/Y states. Repeat this for each Scene in the preset and then STORE your changes. Here are some step-by-step instructions for setting up scenes.

### TO TURN EFFECTS ON OR OFF IN A SCENE...

The on/off state of every block in your preset can be programmed per Scene as follows:

1. Load the desired preset and select the desired Scene.
2. Use the footswitches to turn each effect on or off.

OR... if a footswitch is not assigned to the block:

- Press **PAGE** to change from the Footswitch (“FS”) page to the “LAYOUT” page.
- NAV to the desired block and press **FX BYP** (Shift+Edit) to toggle its state.

3. **IMPORTANT:** Remember to **STORE** your preset to save Scene changes.

NOTE: All blocks in scenes 2-8 will be ON until you turn them off. Careful... this can make things loud!

## TO SET EFFECT X/Y STATES IN A SCENE...

After selecting a given scene, the states of X/Y blocks in your preset can be programmed as follows:

1. Load the desired Scene.
2. Press and hold the footswitch for an X/Y block to switch it.
  - Or, use an assigned F-Switch to enable your chosen X/Y Switching mode.

If NO footswitch is assigned to the block, or if you have disabled X/Y foot switching completely:

1. Load the desired Scene.
2. Press **PAGE** to change from the Footswitch Page to the “LAYOUT” page.
3. **NAV** to the desired block and double-tap the **EDIT** button.

TIP: You can also double-tap **EDIT** to toggle X/Y from inside any block’s Edit Menu.

## TO SET THE MAIN OUTPUT LEVEL FOR A SCENE:

The main output level of your preset can be programmed into every Scene.

1. Load the desired Scene.
2. Press **PAGE** to change from the Footswitch (“FS”) page to the “LAYOUT” page.
3. Turn knob “D” fully clockwise to select the **Output Mixer**.
4. Press **EDIT**.
5. **NAV** to the **MAIN** fader and use “A” to set it as desired.

NOTE: The “FX Loop” Block also has a MAIN fader whose level can be set for every scene. This controls the overall output level for OUT 2 [FX SEND].

## TO SET THE MIDI PROGRAM CHANGE MESSAGE FOR A SCENE...

Every AX8 Scene can send one **MIDI Program Change Message** (“PC”) on any channel. You can use this feature to change presets on a connected Axe-FX, FX8, or any other MIDI device.

1. Load the desired Scene.
2. Press **PAGE** 3x to change from the Footswitch “FS” page to the “MIDI” page.
3. **NAV** to MIDI PC and use “A” to select the desired MIDI PC by its number (0–127, or “OFF”).
4. **NAV** to MIDI CH and use “A” to select the desired channel for your MIDI PC by its number (1–16).

SHORTCUT: To disable MIDI for a selected scene from this page, press SHIFT, then double-tap EDIT

## TO SAVE CHANGES TO ONE OR MORE SCENES:

- ▶ Press **STORE, ENTER, ENTER** to save any and all changes to one or more scenes.

Always test ALL scenes in your preset—even those you think you might not use.

Ensure that there are no unpleasant volume jumps or other surprises in case of an accidental mis-step later.

# SCENE REVERT

Scene changes are normally *retained* until you change the preset. With SCENE REVERT turned on, Scene changes are discarded as soon as you change to a new Scene.

Here are two examples so you can compare how Scene changes work in both modes:

## Ex 1: SCENE REVERT OFF (default)

1. You load SCENE 1. DRIVE 1 is OFF.
2. You turn DRIVE 1 ON.
3. You change to SCENE 2.
4. You change BACK to SCENE 1.
5. Drive will be ON as you last left it.

## Ex 2: SCENE REVERT ON

1. You load SCENE 1. DRIVE 1 is OFF.
2. You turn DRIVE 1 ON.
3. You change to SCENE 2.
4. You change BACK to SCENE 1.
5. Drive will be OFF as it was last saved.

## TO ENABLE/DISABLE SCENE REVERT:

1. Press the **SETUP** button (Shift+Store).
2. Press footswitch 2 to load the I/O menu.
3. Turn to the MIDI page.
4. Use the **NAV** knob to select "SCENE REVERT".
5. Use the **VALUE** knob to select "OFF" or "ON".
6. Press the **EXIT** button twice to finish. (You do not need to STORE changes in SETUP.)

# 7 BLOCKS GUIDE

## UNDER CONSTRUCTION

The AX8 has over 25 different effect blocks with many different types.

We're currently working on a universal Effect Parameters Guide for all Fractal Audio Systems products which will detail every parameter of every type for every block.

Until this is released, the Axe-Fx II manual has all of the information you will need to understand effect parameters in the AX8. Find it at [www.fractalaudio.com/support](http://www.fractalaudio.com/support).

The pages which follow cover the all-important **Amp** and **Cab** blocks, the **Looper**, the **FX Loop**, the **Noise Gate**, the **Output Mixer**, and **Common Parameters** found on the **MIX** page of every effect.

# THE AMP BLOCK

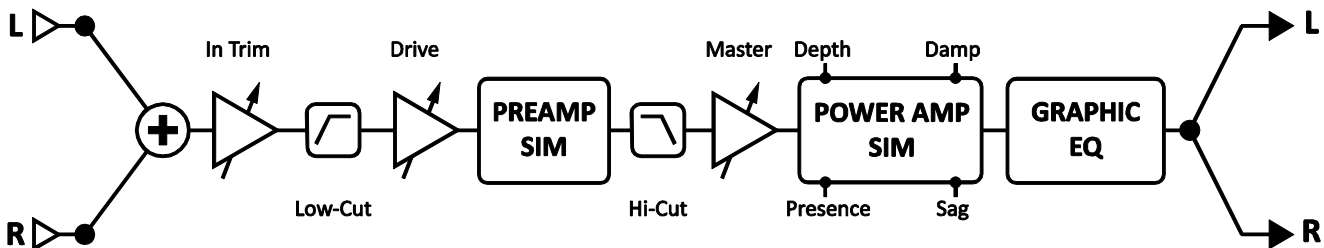
Supports X/Y Switching!



The Amp block reproduces the sounds of an impressive array of vintage and modern guitar and bass amplifiers, with 222+ different “types” based on stock, custom, and hybrid models. It uses our newest Quantum Amp Modeling technology with the very same algorithms used in our flagship Axe-Fx II processor, including proprietary multi-stage nonlinearity generators to create ultra-realistic distortions. Separate virtual preamp and power amplifier stages create rich, cascaded drive tones that cannot be obtained using lesser modeling methods.

You can get great tone from the AX8 using only the basic amp controls on its top panel. Should you desire to dig deeper, you’ll find many exciting parameters that allow you to tweak and adjust the deepest aspects of your amp’s sound. These are detailed below. AX8-Edit also makes using the amp block easier, with a few simple pages organized with common parameters grouped together.

Don’t be daunted by the available depth. Trust your ears, gain knowledge, and recognize that tone is also very much “in the hands.” It is also vital that you recognize the role of the Cab block ([p. 51](#)) in creating an overall tone. To learn about how amp and cab work together, try playing different amps through the same cab, or testing different cabs with the same amp. Even if you choose to not edit advanced parameters, the amp’s built Graphic EQ is definitely worth getting to know.



*A stylized block diagram of the amp block.*

## THE TYPE PAGE

Amp types are presented in an alphabetical list. Make selections using the **D** and **E** knobs.

A complete list is provided at [http://wiki.fractalaudio.com/axefx2/index.php?title=Amp: all\\_models](http://wiki.fractalaudio.com/axefx2/index.php?title=Amp: all_models)



**NOTE:** As you change the amp type, you will notice that **MASTER**, **PRESENCE** and **DEPTH** LED-ring knobs change to different “starting values” for each type of amp. Other advanced parameters may also change behind the scenes as you select types. This is perfectly normal and it helps ensure that a model sounds right when selected.

For example, if an original amp has no Master Volume control, its power amp runs “wide open”. Therefore, AX8 will set its MASTER control to 10—fully up—when these models are selected. Of course, you can still adjust it as desired from the recommended starting point.



## THE PREAMP PAGE

**INPUT DRIVE** – (aka “Drive”) sets the amount of preamp gain/distortion. Used in conjunction with the **MASTER** (see below), **INPUT DRIVE** determines whether the sound will be clean, slightly broken up, moderately overdriven, or completely distorted. The AX8 faithfully reproduces the sound of the treble peaker circuit on the **INPUT DRIVE** control found on many amps. This can be heard as the low frequencies are attenuated more than the highs when the **INPUT DRIVE** is turned down (and vice versa). For amps which have no **MASTER VOLUME**, the **INPUT DRIVE** functions as the amp’s **VOLUME** control.

**OVERDRIVE** – Adjusts preamp overdrive. The **OVERDRIVE** control appears only for certain amp types. Note that **DRIVE** and **OVERDRIVE** are applied to the appropriate points in the circuit for the amp being modeled, i.e. prior to the last triode stage or prior to the third triode.

**INPUT TRIM** – Adjusts preamp input gain. Amps without **OVERDRIVE** will display the **INPUT TRIM** instead. This allows you to adjust for more or less preamp gain than the actual circuit being modeled. This is different than the Input **DRIVE** control because **DRIVE** interacts with the surrounding circuitry, changing frequency response as it is varied.

**BASS, MID, TREBLE** – Adjust these as you would the controls on any amp.

While other modelers use simple filters to approximate amp tone controls, the AX8 recreates the exact frequency and phase response characteristics of a classic passive tonestack.

Some AX8 models have tone controls NOT offered on the original amp. For example, many amps have no “Mid” control. To faithfully simulate such amps, set controls they are missing to “noon” (or “0.00” if you are using the “ACTIVE” **TONESTACK TYPE**). Of course, you may still adjust these “bonus” controls to achieve tones the original amp does not have.

Please note that extreme tone and high gain settings can cause pickup squealing or excessive noise. This is especially true with **TONESTACK TYPE** set to “ACTIVE.”

**BRIGHT SWITCH** – Many amplifiers contain a “treble peaker,” included as a pull or toggle switch, or even hard-wired. Every amp **TYPE** on the AX8 includes this control (even if the original mode does not). The effect may be subtle or quite pronounced depending on the amp **TYPE**. This is also affected by the **BRIGHT CAP** setting (p.54). If the original amp had no bright circuit, **BRIGHT** is OFF by default but can still be turned on to apply circuit values suited to an amp of that general type. If the amp has a hard-wired treble peaker, the default **BRIGHT** state is ON.



*Bright Switch  
OFF and ON.*

To turn the **BRIGHT SWITCH** ON or OFF, use the **NAV** keys (SHIFT+ENTER or EXIT) to select the **TREBLE** knob and press **ENTER**. The switch beneath the knob will fill to indicate that the circuit is engaged.

**CUT SWITCH** – Reduces the amount of low frequencies coming into the amp simulation. This can be used to achieve a “tighter” tone or to reduce low-end “flub”. To turn the **CUT SWITCH** ON or OFF, use the **NAV** keys (SHIFT+ENTER or EXIT) to select the **BASS** knob and press **ENTER**. The switch beneath the knob will fill to indicate that the circuit is engaged.

**FAT SWITCH**– Emphasizing midrange and adds “body” by shifting the tonestack center frequency down. To turn the **FAT SWITCH** ON or OFF, use the **NAV** keys (SHIFT+ENTER or EXIT) to select the **MID** knob and press **ENTER**. The switch beneath the knob will fill to indicate that the circuit is engaged.

## THE POWER AMP PAGE

**PRESENCE/HI-CUT** – Boosts (or cuts) the upper frequencies from the power amp by varying the negative feedback frequency response. Increased presence can help a sound cut through.

Settings for **PRESENCE** don't necessarily correspond to knob positions on the amp being modeled.

Amps with no negative feedback circuits in their design cannot utilize the presence control. Therefore, if **NEGATIVE FDBK** is set (manually or automatically) to "0.00", **PRESENCE** becomes a negative high-shelf equalizer at the output of the power amp, and its label changes to "**HI-CUT**." This allows you to control power amp high end even for models that don't have any negative feedback. When changing to a model with no negative feedback (i.e. Class-A, Mr. Z, Recto Red), be sure to check your **HI-CUT** settings as settings higher than zero might darken the sound undesirably.

**DEPTH** – Boosts low frequencies from the power amp simulation by varying the negative feedback frequency response. The **DEPTH** control is set by default to an appropriate value when the amp **TYPE** is selected, but this setting may be overridden.

**TUBE TYPE** – Changes the characteristics of the tubes in the power amp. Power amp includes modeling of the plate impedance of the power tubes. Plate characteristics are adjustable via **DYNAMIC DAMPING**, an advanced parameter. The **TUBE TYPE** parameter sets **DYNAMIC DAMPING** automatically for you, allowing you to select from common power tube types: EL34, EL84, 6L6, 6V6, KT66, KT88, 6550, 6973, 6AQ5 and 300B (triode) are offered, as well as an "ideal tetrode" and an "ideal pentode". The power tube type defaults to the appropriate type when the amp type is selected but can be changed at any time.

**NEGATIVE FEEDBACK** (NEG FDBK) – This controls the amount of negative feedback, or damping, in the power amp simulation. Higher values give a tighter and brighter sound but can sound harsh at very high master volume levels. Lower values give a loose and gritty sound and feel. Like many other power amp parameters, **NEGATIVE FEEDBACK** is set to an appropriate value whenever you change the amp **TYPE**, but it can then be changed as desired. For example, you might dial in some negative feedback on a "Top Boost" to give the power amp a more "American" sound while still retaining the preamp voicing.

**MASTER VOLUME** – The almighty Master Volume is a very important control. It determines the distortion and dynamics characteristics of the power amp simulator, and its setting at any moment can dramatically change an amp's sound. As the Master is turned up, the tone controls will have less influence, and the sound will have more "bloom" and touch sensitivity. Settings for **MASTER** don't necessarily correspond to knob positions on the amp being modeled, but with a little experimentation, you will learn to dial in different great sounding **DRIVE** and **MASTER VOLUME** combinations.

When you select an amp **TYPE**, the **MASTER** will change to an appropriate/typical setting for that amp. If a real amp doesn't have a Master, the "correct" setting for **MASTER** is 10.0—aka, "wide open."

- At high Master settings, less drive is usually required, especially for high-gain types.
- Amps designed for preamp distortion will typically sound great with the **MASTER** set low to prevent the tone becoming muddy or noisy. This includes the **USA Lead** types, **SOLO 100**, and others.
- Amps with negative feedback tend to have a "crunchier" power amp distortion, which can get "raspy" if driven too hard. You can experiment with the interactivity of **NEGATIVE FEEDBACK** and **MASTER** to achieve desired distortion timbres.
- Setting **SAG** (aka **MAINS IMPEDANCE**) to zero will disable Power Amp simulation, at which point the **MASTER** becomes a simple level control with 40 dB of range.
- If more power amp gain is desired, **MASTER VOLUME TRIM** can be used for increased range.

**OUTPUT LEVEL** – This is a copy of the **LEVEL** control on the **MIX** page for easy volume adjustment without page turning. This only affects volume. It has no effect on tone! For many people, this is the "go to"

parameter for setting the output level of a preset.

## AMP SPEAKER PAGE

These parameters shape the virtual speaker impedance curve and the resulting resonances in the virtual power amp. Amp/Speaker interaction affects tone by causing an increase in power amplifier response at certain frequencies. Note that setting **NEGATIVE FEEDBACK** greater than “0” flattens the response curve.

**LOW FREQ, LOW Q, LOW RES** – Guitar loudspeakers have strong low-frequency resonance, typically at about 100 Hz. This shifts up slightly when the speaker is mounted in an enclosure. This resonance causes an increase in the power amplifier response due to the finite output impedance of the power amp.

**HI FREQ, HI RES** – A loudspeaker voice-coil presents an inductive load to the power amp at high frequencies. This inductive load, in conjunction with the output transformer capacitance, creates a high-frequency resonance at the specified frequency.

**SLOPE** – This parameter allows fine adjustment of the high-frequency impedance of the virtual voice coil (which affects the slope of the impedance curve). A speaker voice coil is “semi-inductive” due to eddy current losses in the motor. This presents an impedance to the power amp that is neither fully inductive nor fully resistive. The amount of resistive loss varies by brand and type. Reducing the Slope simulates a speaker that is less inductive, increasing Slope simulates a speaker that is more inductive. Typical speakers range from 3.0 to 4.5 with the median being about 3.7. Lower values yield greater midrange while higher values are more scooped and sizzly.

**XFRMR LF, XFRMR HF** – These set the output transformer bandwidth.

**SPEAKER DRIVE** – This parameter simulates distortion caused by pushing a speaker too far. It interacts with the **MASTER** which determines how hard the actual power amp is pushing. Don’t overlook this when striving for “vintage” tones as helps make edge-of-breakup tones sound like an old, well-played amp.

**XFRMR DRIVE** – Models core saturation in the virtual output transformer. Higher values simulate a smaller, more easily saturated transformer. The distortion produced by an overdriven output transformer isn’t particularly pretty but it does play a role in the tone and without it the distortion would not be authentic.

## AMP EQ PAGE

The amp block includes a built-in graphic EQ, eliminating the need to use a separate block for tone-shaping. You can achieve different results by changing **EQ LOCATION** or **EQ TYPE** in the Amp’s **ADVANCED** menu. To reset the EQ to flat, tap **ENTER**.

To operate the Graphic EQ, turn the **E/NAV** knob to select a range of faders controlled by **A,B,C**, and **D**.

## POWER AMP DYNAMICS PAGE [“PWR DYN”]

**SUPPLY SAG** – This controls power amp dynamics. Higher settings simulate higher power supply impedance, and thus greater tube plate voltage “droop,” for a more compressed feel. This control interacts with the **MASTER** and will have little effect if the power amp is not being “pushed hard”. As **MASTER** is increased, the power amp draws more current from its power supply and **SAG** control will have more effect.



**IMPORTANT:** Turning **SUPPLY SAG** fully counterclockwise defeats power amp simulation, allowing one preset to be used into a real (presumably tube) power amp *without globally disabling power amp simulation*. (See [“Global: Settings Page” on p. 75](#) for more on this.) In this mode, **MASTER** works as a simple volume, **DEPTH** is deactivated, and **PRESENCE** turns into a simple shelving filter.

**OUT COMP** – The Output Compressor parameter controls the ratio of a compressor specifically tailored to reduce the output dynamic range of the Amp block. A bar graph beneath the knob shows gain reduction. Setting this parameter above zero increases CPU load.

**COMP TYPE** – Sets the type of output compression. The “Output” type compresses the block’s output. The “Feedback” type likewise compresses the block output, but also applies dynamics to the input of the block, so you will get more distortion as you play harder and less when you play softer or roll back the volume.

**COMP THRESH** – Sets the threshold of the output compressor.

**COMP CLARITY** – Adjusts bass response of the input dynamics and can increase clarity in the low end.

**XFRMR MATCH** – Transformer Match is an extremely powerful parameter. Lower values cause power tubes to clip later and therefore the phase inverter and grid clipping becomes more predominant. At higher settings, power tubes clip sooner and the resonance settings on the **SPEAKER** page become more pronounced. For optimum results bring up the **MASTER** until the desired amount of power amp distortion is achieved, then adjust matching until the character of the distortion is as desired. The various LF and HF resonance parameters interact strongly with this parameter, so be sure to experiment with those as well when crafting a tone.

## PREAMP DYNAMICS PAGE [“DYN PRE”]

**PREAMP COMPRESSION** (“PREAMP COMP” aka “CF COMP” aka “CF THRESH”) – Sets the threshold to determine the amount of compression in the virtual cathode follower.

**PREAMP COMPRESSION TYPE** (COMP TYPE) – Selects between “Authentic”, which accurately models the compression in a tube amp, and “Ideal”, which is an idealized distorting compressor. The idealized type is more focused and has tighter bass whereas the authentic type is bolder and looser. High gain players may prefer the ideal type due to its tight character.

**DYNAMICS** – Sets the strength of an input dynamics processor that can be used to alter the response of the amp. When set below zero the amp *compresses* resulting in a smoother, less dynamic sound. When set greater than zero the amp *expands* resulting in a punchier, crunchier and more dynamic sound. Note that extreme values can have undesirable side-effects such as pumping and clipping.

**CRUNCH** – Adds crunch, as in Cap’n...

**PREAMP BIAS** – Sets the bias point of the last triode (not counting the cathode follower). Depending on the bias points of the previous stages, increasing or decreasing this value can alter both harmonic content and attack characteristics. Typically, if the previous stage has a *negative* bias then increasing this value will be more noticeable (and vice-versa). This value is set automatically when amp **TYPE** is changed, but can be altered any time as desired.

## DYNAMIC EQ PAGE [“DYNEQ”]

**DYNAMIC PRESENCE** – This models output transformer leakage inductance that results in a brightening of the tone when the power amp is pushed. This control is set to a default value when the model is selected corresponding to the real amp, if applicable. Increasing this value results in a brighter response as the virtual power amp is pushed. When playing softly or at lower gains, the influence of this control is lessened. Note that this only affects the power amp modeling and is dependent on the degree of power amp overdrive. This control can also be set negative to cause the tone to darken when playing hard. This control can also be used to help “dial in” the sweet spot of an amp model. As the **MASTER** is increased an amp becomes more liquid, compressed and easier to play. However, the highs may get overly compressed, causing the amp to sound too dark. The Dynamic Presence control allows you to get the desired power amp drive and liquid feeling and then bring the highs back without affecting the rest of the spectrum.

**DYNAMIC DEPTH** – Analogous to the Dynamic Presence control, this increases low frequencies when the virtual amp is being pushed. While real amps don’t display this behavior, it is a valuable tone-shaping tool.

**CHARACTER TYPE, CHARACTER FREQ, CHARACTER Q, CHARACTER AMOUNT** – These parameters control a powerful “inverse homomorphic” filter which adjusts tone dynamically in a very musical way. When playing softly these dynamic filters have little effect on the sound. As the amount of distortion increases, the influence of these filters increases. **CHARACTER FREQUENCY** and **Q** set the center frequency and slope of the filter while **CHARACTER AMOUNT** sets how pronounced the effect is. For example, to darken the tone when playing harder, one might set the frequency to 10000 Hz and the amount to -5. Setting the amount to +5 will make the tone brighter when playing hard. The amount defaults to zero whenever an amp type is selected. This control is similar to **DYNAMIC PRESENCE** and **DYNAMIC DEPTH** but the frequency is adjustable. **CHARACTER TYPE** determines the filter type used. “Dynamic” engages an exciting mode of tone control that can be used to fatten or scoop the tone as a function of picking strength. For example, set the **TYPE** to Dynamic, **CHAR FREQ** to 450.0, **CHAR Q** to 0.7 and **CHAR AMT** to 4.0 for a tone that gets fatter and thicker as you play hard but is not “honky” when playing soft.

## ADVANCED PAGE [“ADV”]

**INPUT SELECT** – The AMP block processes audio in mono. This control determines how incoming stereo signals will be processed. You can input only LEFT or RIGHT channels, or SUM L+R (the default setting).

**BOOST** – Toggles an additional 12 dB of gain at the input of the Amp.

**INPUT TRIM** – Allows you to adjust the relative gain of the preamp. Increasing the value will cause the amp to have more gain than designed and vice versa. It is simply a linear gain applied at the input to the block. You can use it to give a typically clean amp a bit more “oomph” or decrease the gain of a very high-gain amp. Note that this is different from the Input Drive control because the Drive control interacts with the surrounding circuitry and changes the tone as it is varied.

**MASTER VOLUME TRIM** – (“MSTR VOL TRIM”) Allows you to adjust the range of the MASTER. Increasing the value above 1.0 will cause more gain in the virtual power amp and vice versa.

**MSTR VOL CAPACITOR** – (“MSTR VOL CAP”) sets the value of the bright cap across the Master Volume.

**MSTR VOL LOCATION** – (“MSTR VOL LOCATION”) – Sets the location of the Master Volume. Most amps have the Master Volume before the phase inverter (“Pre PI”). On some amps (like the “Class-A” types) the Master Volume is after the phase inverter (“PI”). A third option, “pre-triode,” is the default for amp types based on Hiwatt® models.

**BRIGHT** – The **BRIGHT SWITCH** appears on the PRE page, but is offered here with a “modifier” option.

## 7 BLOCKS GUIDE

**BRIGHT CAP** – Sets the value of a virtual capacitor to determine the sonic effect of the BRIGHT switch (above). Increasing this will make the preamp brighter and vice versa.

**SAT SWITCH** – The Saturation Switch engages a popular mod between the preamp and the tonestack for a thicker, more aggressive distortion character. The “ON (AUTH)” and “ON (IDEAL)” settings differ only in volume. “IDEAL” gives you the hotter output you wish a real amp had with saturation engaged ;-)

**SAT DRIVE** – Controls the amount of **SAT SWITCH** saturation. The default value differs for each model.

**LOW-CUT FREQ** – This control filters the lows at the input to the amp. This defaults to a value for each type but can be overridden if desired.

**HIGH-CUT FREQ** – This filters the highs at the very end of the preamp simulation. It defaults to a preset value for each amp type but can be overridden if desired. Experiment with this to fine-tune your tone. For example, some of the higher-gain amp types are characterized by fairly heavy filtering after the preamp stage. Increase for a brighter tone or decrease for a darker tone.

**DEFINITION** – This control is a basic “tilt EQ” which adds highs/cuts lows, or vice versa. It is located at the amp input, so its effect is heard before preamp distortion or a front-end tone stack.

**TONESTACK TYPE** – The BASS, MID and TREBLE controls of the Amp block operate by default like a “passive” tonestack. That is, they simulate exactly the frequency and phase response of the classic passive tonestacks found in the original amplifiers our simulations are based on. The TONESTACK TYPE control lets you change this behavior from PASSIVE to ACTIVE, or to substitute the passive tonestack of another amp.

- Selecting the “ACTIVE” type gives each tone control +/- 12 dB boost/cut operation for up to twice the range of a typical amplifier. Since the active tone controls are more sensitive, small adjustments have bigger effects. For example, full PASSIVE treble for a high-gain British amp would be equivalent to only +5.0 dB ACTIVE, leaving 7 dB of additional headroom! Active tone controls do not interact like those of a typical amplifier, so when you adjust the treble, the mid and bass are not affected. This can make dialing in a certain tone easier and quicker than it might be with a PASSIVE tonestack.
- Selecting a substitute tonestack allows you to mix and match amps and tone stacks to create your own hybrids. This allows you to use, for example, a Plexi-type tonestack on a Blackface amp model, or a modern German tonestack in a British Preamp.

**TONESTACK FREQ** – Sets the center frequency of the tone controls to determine their effect on the sound. This control works whether you are using ACTIVE, PASSIVE, or substitute tone stacks. This parameter defaults to an appropriate value whenever you change the amp **TYPE**, but it can then be changed as desired. However, if you subsequently change the **TONESTACK TYPE**, the **TONESTACK FREQUENCY** will not necessarily be correct anymore.

**TONESTACK LOCATION** – This control lets you change the location of the tone stack. “PRE” places the tone stack at the input to the preamp, “POST” places the stack between the preamp and power amp. “MID” places it between the last two triode stages, and “END” places it after the power amp (which is physically impossible with a real amp). Defaults to an appropriate value whenever you change the amp **TYPE**.

**EQ TYPE** – This determines the number of bands for the amp block’s built-in graphic equalizer, and whether it will be variable Q, constant Q, passive or console type.

**EQ LOCATION** – This sets the position of the Amp’s Graphic EQ. The default value of “Post PA” places the EQ at the output of the power amp. “Pre PA” places the EQ between the preamp and power amp.

**PRESENCE FREQ** – This multiplier alters the center frequency of the amp’s PRESENCE control. This setting changes as you select an amp TYPE but can be altered at any time.

**DEPTH FREQ** – Alters the center frequency of the amp’s DEPTH and DYN DEPTH controls. This parameter defaults to an appropriate value whenever you change the amp TYPE, but can then be changed as desired.

**POWER TUBE BIAS** – Sets the bias point of the virtual power amp. Lower values approach pure Class-B operation. Higher values approach pure Class-A operation.

**NEG FEEDBACK** – This is a duplicate of the same control on the amp’s POWER page.

**POWER SUPPLY TYPE, AC LINE FREQUENCY** – These select between AC and DC virtual power supply types. AC rectification and resulting supply ripple are modeled, and the line frequency is also selectable. Note that as with a real tube amp, the AC Supply can cause “ghost notes” when **SAG** is low and **B+ TIME CONSTANT** is high. Lower **B+ TIME CONSTANT** values will make the amp feel “faster,” but too low can also cause ghost notes.

**AC VOLTAGE (VARIAC)** – This sets the relative AC line voltage into the amp simulation implementing a virtual “Variac”. Note that normally the volume would vary with the Variac setting in a real amp but the simulation compensates for this.

**MAINS IMP. (SAG)** – This is a duplicate of **SUPPLY SAG** on the amp’s PWR DYN page.

**PREAMP SAG** – Turning this ON causes the Amp block to behave like an integrated tube head or combo amp as described above. Turning this OFF simulates a separate preamp and power amp.

**B+ TIME CONSTANT** – Controls the rate of change in the power tube plate supply. Lower values give a bouncier feel, while higher values give a tighter feel.

**CATHODE SQUISH** – Controls the amount of the virtual power amp’s “cathode squish”, a phenomenon that occurs in cathode-biased power amps (such as many Class-A classics). A moderate amount of squish keeps the amp from sounding stuffy and flubby. Too much and the amp can sound excessively fizzy. This is set automatically when you select an amp TYPE but can be changed anytime.

**TRIODE1 PLATE FREQ, TRIODE2 PLATE FREQ** – These parameters set the cutoff frequency of the last two triodes in the chain. Many amps have a capacitor across this triode’s plate resistor. This capacitor is used to smooth the response and reduce noise. You can adjust the amount of capacitance, and the resulting frequency, using these parameters.

**CF COMP** – This is a duplicate of the **PREAMP COMP** parameter on the amp’s DYN PRE page.

**CF TIME, CF RATIO** – These set attack time and ratio for the Preamp/Cathode Follower compression.

**PREAMP TUBE TYPE** – This selects a tube type for the virtual preamp.

- 12AX7A is the newest Quantum tube model and the default.
- 7025 and ECC83 are additional Quantum tube types.
- Short Plate, Long plate, Modern, and Vintage are pre-Quantum options, still offered.

**PREAMP HARDNESS** – Controls the asymmetry of the triode mode to determines how sharply they enter saturation, simulating “softer” or “harder” tubes. This subtle effect is most apparent at edge of breakup. Lower values give softer saturation with less even and more odd harmonics. Higher values give a more aggressive breakup. The default is set when an amp TYPE is selected but can be changed any time.

**PREAMP BIAS** – This is a duplicate of the **PREAMP BIAS** parameter on the amp’s DYN PRE page.

## 7 BLOCKS GUIDE

**POWER AMP HARDNESS** – controls the hardness of the virtual power tube grid clipping. The lower the value the softer the distortion, but this often is not noticeable because negative feedback around the power amp makes the distortion harder. Another factor which controls power amp hardness is **TRANSFORMER MATCH**: turn it up, and turn down **NEGATIVE FEEDBACK** for softer power amp distortion.

**POWER AMP BIAS** – Adjusts the offset voltage of the virtual power amp to vary the symmetry of the clipping of the virtual power amp. A value of zero produces nearly symmetrical clipping with very little even harmonics. Higher values are increasingly asymmetrical which increases even harmonics. Small amounts of even harmonics can make the power amp distortion sound “warmer” and more bell-like while higher amounts will give a “fuzzier” tone. Most amps have some amount of offset and the amp models will default to a typical value. Note that this parameter is only applicable for push-pull power amp types. For single-ended power amps the Power Tube Bias parameter sets the symmetry (as always).

Don't confuse this with POWER TUBE BIAS, which sets the quiescent operating current of the virtual power tubes.

**SPEAKER DRIVE** – This simulates distortion caused by pushing the virtual speaker too hard. It interacts with the **MASTER**, which determines how hard the virtual power amp is pushing.

**PICK ATTACK** – This parameter controls a sophisticated dynamic range processor that operates on leading edge transients. Negative values reduce pick attack while positive values enhance it.

## MIX PAGE

The Amp block has a MIX page with Level, Balance and Bypass mode parameters. See [“Mix Page Common Parameters” on p. 62](#).



# THE CAB BLOCK

Supports X/Y Switching!



The Speaker Cabinet Simulator or “Cab block” recreates the tonal characteristics of any number of speaker cabs. The AX8 contains over 175 built-in “factory” cabinet simulations, plus 512 memory locations for loading custom “User Cab” files. The Cab block also offers preamp and microphone simulations (including sub-millisecond delays for accurate inter-microphone phasing), plus basic tone controls.

Factory cabs include custom creations by Fractal Audio Systems, plus selections from 3rd-party libraries by ML Sound Labs, Buddy Gill, RedWirez, OwnHammer, TheAmpFactory, and contributions from Fractal Artists John Petrucci, James Santiago, and loudspeaker design engineer Jay Mitchell.

The cab block supports UltraRes™ format IRs, as well as the older “Standard” or “High” resolution files. UltraRes™ is a proprietary format that enhances resolution without intolerable CPU burden or latency.

## PAGE 1 PARAMETERS

**CAB (TYPE)** – Sets the cabinet type by selecting from “FACTORY” and “USER” IRs. The four SCRATCHPAD locations found at the end of the list are designed to allow you to “audition” cabs before committing them to a memory location. This capability is especially useful when user cab memory is full, or when you are using Cab-Lab (available from <http://shop.fractalaudio.com>). Please note that the contents of the SCRATCHPADs are cleared every time you restart the AX8.

**MIC (TYPE)** – Selects the microphone simulation type used. There are ten different types based on classic guitar cabinet microphones. Available microphones are listed below:

**57 DYN** (based on the Shure® SM57®)

**E609 DYN** (based on the Sennheiser® e609® Silver)

**58 DYN** (based on the Shure® SM58®)

**RE16 DYN** (based on the Electro-Voice® RE16®)

**421 DYN** (based on the Sennheiser MD 421 II®)

**R121 COND** (based on the Royer Labs® R-121®)

**87A COND** (based on the Shure® Beta 87A®)

**D112 DYN** (based on the AKG® D112®)

**U87 COND** (based on the Neumann® U87®)

**67 COND** (based on the Neumann® U67®)

“**NULL**” is a perfectly transparent mic with a PROXIMITY control (below.)

“**NONE**” disables ALL mic processing in the CAB block.

Manufacturer and product names above are trademarks or registered trademarks of their respective owners, which are in no way associated or affiliated with Fractal Audio Systems. The names are used only to illustrate sonic and performance characteristics of the MIC TYPES.

Factory Cabs whose names include the name of a microphone (ex: “M160”) or the word “MIX” in their names include microphones “baked in.” Selecting a virtual microphone while using these IRs is redundant.

**PROXIMITY** – Simulates the classic proximity effect, causing an increase in bass or low frequency response as proximity is increased. The PROXIMITY control has no effect when MIC TYPE is set to “NONE.”

## PAGE 2 PARAMETERS

**INPUT SELECT** – Selects the input mode of the Cab block. Options include inputting only LEFT or RIGHT channels, STEREO or SUM L+R.

**MODE** – Selects the output mode of the Cab block. If both **MODE** and **INPUT SELECT** (see above) is set for stereo, audio received at the left input of the block is processed by the left IR, and audio processed at the right input of the block is processed by the right IR. Output modes are detailed below.

The Cab block can load two different formats: *Standard* (2048), and *UltraRes™*—our best and most detailed IRs.

In **HI-/ULTRA-RES** mode, UltraRes IRs load in UltraRes mode and Standard IRs load in “High” mode. The block processes audio in mono.

**STEREO ULTRA-RES** mode gives you two UltraRes™ or High-Res IRs. The block processes in stereo.

**NORMAL RES** mode forces all IRs to load at a lower resolution (1024), but can save CPU. The block processes audio in mono.

**STEREO** gives you two “NORMAL” IRs and stereo processing.

When you select a stereo mode, each parameter on page 1 appears once for LEFT and once for RIGHT. PAGE 3 also appears with individual PAN and DELAY parameters for the left and right IRs.

**LOW-CUT/HI-CUT** – Adjusts the cutoff points of first-order high-pass and low-pass filters. Increase the low-cut to reduce bass boom. Decrease the high-cut to darken the tone.

**PROXIMITY FREQ** – This allows tuning the frequency range over which the proximity effect occurs.

**STEREO LINK** – Available only when the Cab MODE is set to “STEREO”, LINK turns the LEFT channel parameters into master controls, which set identical values for LEFT and RIGHT parameters. You can still override the right channel parameters values if desired.

## CAB MIX PARAMETERS

**AIR, AIR FREQ** – Adds “air” and sets the cutoff frequency to determine if it is dark or bright sounding.

The Cab block MIX page also has **LEVEL**, **BALANCE**, and **BYPASS MODE** parameters.

See [“Mix Page Common Parameters” on p. 62](#).

## WORKING WITH USER CABS

In addition to the on-board “Factory” cabs, the AX8 allows you to store 512 “User Cabs” on-board. Here’s how it works.

- ▶ First, you’ll need a user cab impulse response file in SysEx format (.syx). Don’t confuse the newer “.IR” file format, which is used only for re-mixing in **Cab-Lab** (see below). For professionally produced User Cab files, [visit our web site and check out our many Cab Packs](#).
- ▶ Using the Fractal-Bot or AX8 Edit, transmit the file to your AX8, noting which numbered Cab Slot you are sending it to (Example: “USER 1”).
  - Fractal-Bot: Lightweight and definitely the easiest to use.
  - AX8 Edit: Its powerful Manage Cabs feature lets you load multiple cabs in one action.
- ▶ Once the IR has been transmitted to your AX8, select the Cab block in your preset and press EDIT.
- ▶ Change the “Cab” parameter to the USER slot your IR was transmitted to (Example: “USER 1”).

## CAB-LAB

In addition to the free utilities mentioned above, we also offer Cab-Lab, an IR Mixer and Tools. While designed for the Axe-Fx, Cab-Lab can also create cab files that can be transmitted to the AX8.

Future direct connectivity between Cab-Lab and the AX8 is planned.

Learn more at <http://www.fractalaudio.com/p-cab-lab-ir-mixer.php>



# THE LOOPER BLOCK

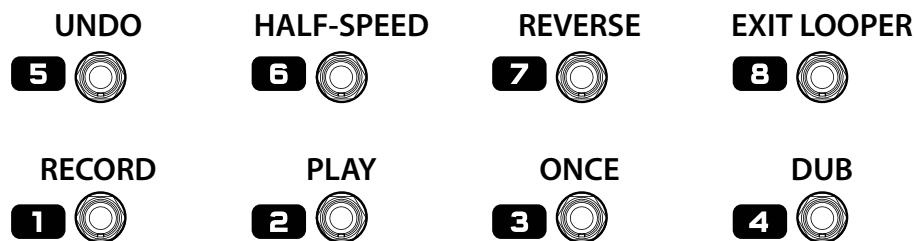
The AX8 Looper Block has a maximum loop time of four minutes in mono and two minutes in stereo (half that if optional UNDO is enabled). The Looper is placed on the grid like any other block, but when you enter its Edit Menu, the main functions are executed using footswitches 1–8 instead of the knobs that most blocks use. This is also known as **Looper Control Mode**, indicated by the letters “LCM” in the menu tab.

## LOOPER CONTROL MODE

Enter Looper Control Mode by selecting the Looper block and pressing **EDIT**. This operation can also be directly assigned to an F-Switch, or to any of the numbered footswitches. Exit Looper control mode with the #8 footswitch. Entering other footswitch modes like Preset Select Mode or Scene Select Mode, or changing a preset through other means will also exit Looper Control Mode.

TIP: **Footswitch 8** is great for engaging the Looper because it is also exits Looper Control Mode.

Here are the functions of Looper Control Mode:



**RECORD** – When you press **RECORD**, the Looper starts recording. Here’s a tip that is not quite as obvious: you can press record again to stop recording and start playback. This makes it easy to set up a loop without looking at your feet to change switches. If the Looper reaches its time limit, playback will start automatically.

**PLAY** – Starts playback—and also stops it if already in progress.


**ONCE** – When **ONCE** is toggled on, Looper playback stops automatically when it reaches the end of the loop. If playback is already stopped, **ONCE** will start playback, play through once, and then stop. You cannot go directly from **RECORD** to **ONCE**.

**DUB** – Press to overdub new material on top of an existing loop. Pressing **DUB** again stops overdubbing, but playback continues so you can “punch in and out” at will. Please note that with each pass through the loop, existing layers gradually fade. To change this, increase **DUB MIX** (see [p. 56](#)) to 100%. For a more rapidly decaying/evolving loop, set this to a lower value.

**UNDO** – This removes the most recently recorded overdub. You can only undo one layer, and it needs to be an overdub. (To throw away and re-do a first take, just press **RECORD** again).

**HALF** – Slows the Looper to half speed. For double speed playback, record at half speed and then switch to normal. You can even overdub to record audio at different speeds in the same loop.

**REV** – Reverses the direction of the Looper. Most other Looper functions work while the direction is reversed, so you can record forward and backward audio in the same loop.

 **About Looper LEDs:** Active Looper functions are indicated by the primary (green) LED. For example: the green LED for footswitch 1 is lit during recording. The red and amber LEDs continue to indicate the current Scene and X/Y states, though Press-and-Hold is disabled during Looper Control Mode.

## LOOPER PAGE 2 PARAMETERS

**MODE** – Selects the Looper mode, whether mono or stereo and with or without undo.

Whenever you change the mode, the Looper memory will be entirely cleared.

- **MONO** – Recording/playback are in mono. Maximum loop length is 4 minutes. Undo is not possible.
- **STEREO** – Recording/playback are in stereo. Maximum loop length is 2 minutes. Undo is not possible.
- **MONO UNDO** – Recording/playback are in mono. Maximum loop length is 2 minutes. Undo works.
- **STEREO UNDO** – Recording/playback are in stereo. Maximum loop length is 1 minute. Undo works.

**QUANTIZE** – With **QUANTIZE** set to any value except “OFF”, loop length is forced to some number of beats (or subdivisions): 1/4 notes, 1/8th notes, or 1/16th notes—with respect to the tempo of the AX8. If you stop recording early or late, loop length is adjusted automatically to the nearest quantize “tick” mark.

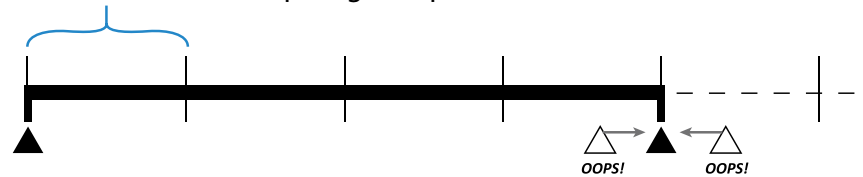
**RECORD BEATS** – This sets the loop length to some number of **QUANTIZE** beats/subdivisions, causing recording to end and playback to begin automatically after a certain time. For example, if your **QUANTIZE** unit is set to “1/4” and record beats is set to “4” the loop length is automatically set to four quarter-notes.

**PLAY IMMEDIATELY** – Turning this OFF disables automatic playback upon completion of recording.

**THRESHOLD** – The Looper can start recording automatically when the input exceeds a given level.

**THRESH LEVEL** – Sets the level that must be exceeded (at the input of the Looper) for recording to begin.

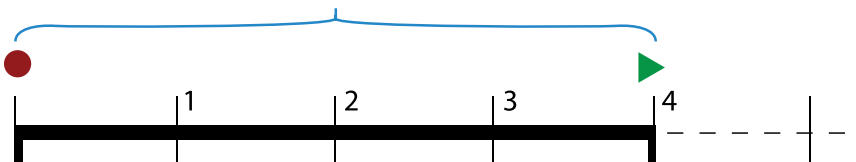
**QUANTIZE** forces loop length to precise units (1/4, 1/8th or 1/16th)



The loop begins precisely when you hit RECORD

Loop length is quantized, even if you stop recording early or late.

**RECORD BEATS** stops recording and starts playback after the designated number of quantize units (4 in this case)



## LOOPER TRIM PAGE PARAMETERS

The **START** and **END** controls on the **TRIM** page allow you to manually trim the length of the loop. This would most likely be used for extremely precise fine-tuning during recording, or for creative effects.

Hidden feature: press **ENTER** with either trim control selected to add a modifier for realtime trim control.

## LOOPER MIX PAGE PARAMETERS

The Looper has a **MIX** page with **LEVEL**, **BALANCE**, and **BYPASS MODE** parameters. See [“Mix Page Common Parameters” on p. 62.](#)

**DUB MIX** – Determines how existing layers fade when you DUB new layers. If you want old layers to NOT decay, set this to 100%, but be aware that adding additional layers in this way might cause clipping.

## LOOPER MIDI CONTROL

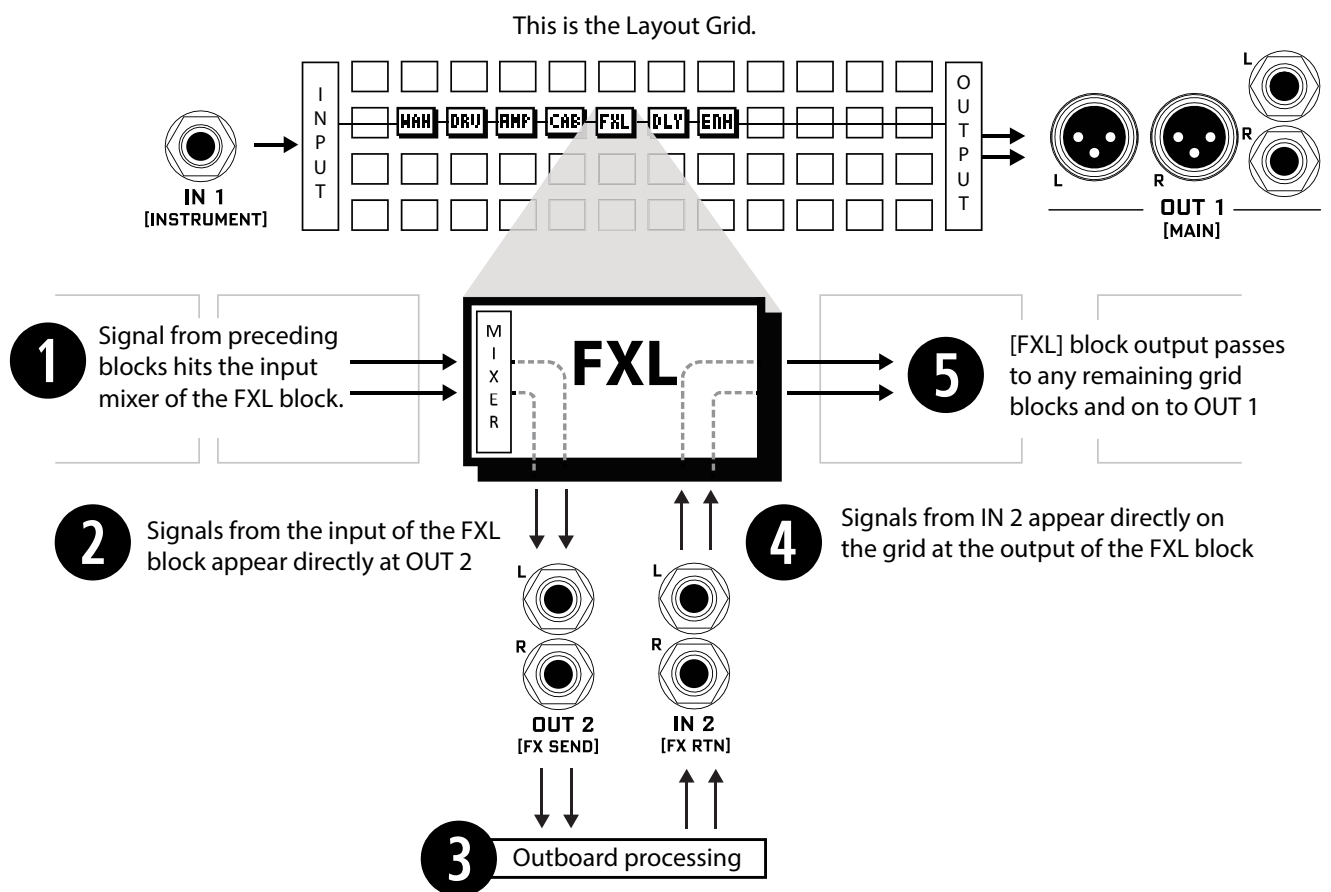
Every function of the Looper (plus its “BYPASS” feature) can be remote controlled by MIDI CC messages or an external footswitch. Here is the full list of functions and default controllers. These settings can be changed on the CTRL page of the I/O menu under SETTINGS.

<b>Looper Record</b> .....	28
<b>Looper Play</b> .....	29
<b>Looper Once</b> .....	30
<b>Looper Dub</b> .....	31
<b>Looper Rev.</b> .....	32
<b>Looper Bypass</b> .....	33
<b>Looper Half</b> .....	120
<b>Looper Undo</b> .....	121
<b>Metronome ON/OFF</b> ...	122

# THE FX LOOP

The FX Loop block works with the FX SEND and FX RETURN inputs and outputs to provide a full-stereo insert that can be used to place outboard hardware anywhere in the signal chain of any preset. Because it can be switched on and off with a footswitch or by a Scene, the Effects Loop block is a great way to insert outboard effects. It can even be used for the preamp section of an analog head or combo.

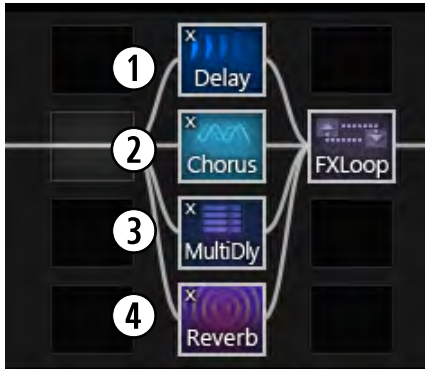
Signal that hits the input of the [FXL] block is passed directly to the physical OUTPUT 2 (“FX SEND”). Signal at the output of the [FXL] block comes directly from physical INPUT 2 (“FX RETURN”). The diagram below will help you understand its signal flow.



## FX LOOP SEND PAGE PARAMETERS

The FX Loop works just like the main Output Mixer ([p. 61](#)). “Channels” 1-4 are fed respectively by the four rows of the grid. Each channel has a LEVEL that determines the gain of the incoming signal (+/- 20dB) and a BALANCE control that determines how the LEFT and RIGHT channels are passed to Output 2. A master MAIN slider offers +/-20 dB control over the final mixed output. Its setting is memorized per-Scene.

Here’s an illustration taken from AX8-Edit showing a portion of the grid, and the output mixer parameters.



Four rows of grid blocks feeding the FX Loop block.



Four channels in the FX Loop block corresponding to the four grid rows.

### Grid Row 1 goes to Output Mixer **Channel 1**.

The DELAY in this row will reach Output 2 at Level +/- 0.00 dB with Balance centered.

### Grid Row 2 goes to Output Mixer **Channel 2**.

The CHORUS in this row will reach Output 2 at Level -6.00 dB with Balance centered.

### Grid Row 3 goes to Output Mixer **Channel 3**.

The MULTIDELAY in this row will reach Output 2 at +6.00 dB with Balance centered.

### Grid Row 4 goes to Output Mixer **Channel 4**.

The REVERB in this row will reach Output 2 at +0.00 dB.

With Balance 4 hard left, only the left channel of the REVERB will be passed to Output 2.

The **MAIN** fader is set to -2.00 dB. This setting is stored per Scene (see [Scenes, p. 37](#)).

If only the Chorus were present, it would still be **Channel 2** because it is in Row 2 of the grid.

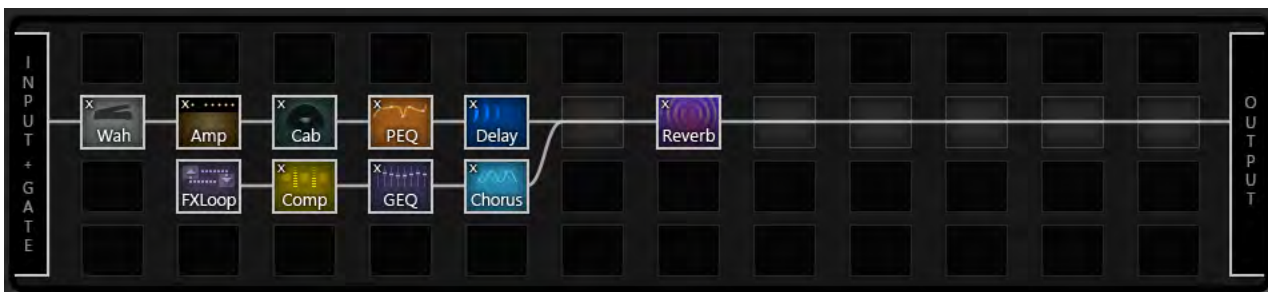


## ALTERNATE USE AS AN AUXILIARY OUTPUT OR INPUT

The FX Loop Block doubles as a means to provide an auxiliary output or input.

Signal at the INPUT of the [FXL] block is routed directly to the OUTPUT 2 jacks. This is useful for the type of rig described in [“Setup: Power Amp & Guitar Speakers” on p. 14](#) where a signal with cab sims is sent direct to front of house, and a signal without cab sims is sent to a power amp and cab on stage.

Another example is using the FX Loop to insert a second signal into layout grid at any point. One such application would be using a dual output guitar with the magnetic pickups into **IN 1 [INSTRUMENT]** and the piezo side into **IN 2 [FX RTN]**. Here’s an example:



Signal from IN 1 [INSTR] enters the grid at the INPUT. It passes through a Wah, Amp, Cab, PEQ and Delay. Signal from IN 2 [FX RTN] also enters the grid via the FX Loop block. It passes through a Compressor, Graphic EQ, and Chorus. The two lines are joined and processed by a shared Reverb before reaching the Output Mixer and appearing at physical Output 1 [Main] jacks.

### QUICK TIP

Please note that the FX Loop Block must be placed in **parallel** for use as an Auxiliary Output or input. It only passes signal in series if an outboard device is patched in.

## FX LOOP MIX PAGE PARAMETERS

The FX Loop block has a MIX page with **LEVEL**, **BALANCE**, and **BYPASS MODE** parameters. See [“Mix Page Common Parameters” on p. 62](#) for more on these.

# THE NOISE GATE

Every AX8 preset includes a Noise Gate connected directly to **INPUT 1 [INSTRUMENT]**.

To edit these parameters, open the layout grid, NAV all the way to "INPUT" at the far left, and press **EDIT**.

## PARAMETERS

**TYPE** – The Noise Gate has a "CLASSIC" type, and a variable "INTELLIGENT" type which uses filters instead of simply hard-clamping.

**THRESH** – The threshold control determines how quiet the signal must be for the gate to close. The threshold can also be adjusted globally using the **NOISEGATE OFFSET** parameter found on the SETTINGS page of the GLOBAL menu under **SETUP**.

**RATIO** – Ratio determines how much quieter the signal will sound when the gate is closed. The ratio acts as a multiplier to reduce signals below the threshold by a factor of "x." At higher settings, the gate is like a hard clamp completely silencing noise. At lower settings, noise level is reduced but not cut off.

**ATTACK** – determines how long it takes for the gate to open. You'll typically want this set low so the attack of your first notes can punch through naturally.

**RELEASE** – determines how long it takes for the gate to close. Use a slow setting for a gradual decay to prevent your notes from being clipped suddenly or a fast setting for a dramatic Djenty chopping.

**LEVEL** – Controls level at the output of the noise gate. Can be used to boost the overall preset input level which is useful, for example, when you really want to "smack" a Compressor or a Drive pedal.

# THE OUTPUT MIXER

The Output Mixer controls how the grid passes signal to **OUTPUT 1 [MAIN]**.

To edit its parameters, open the layout grid, NAV all the way to “OUTPUT” at the far right, and press **EDIT**.

“Channels” 1-4 of the Output Mixer are fed respectively by the stereo outputs of rows 1-4 of the grid.

Each channel has a **LEVEL** control that determines the gain of the incoming signal (+/- 20dB)

and a **BALANCE** control that determines how the incoming left and right signals are passed to the final mix.

A master **MAIN** slider offers +/-20 dB control over the final mixed output. Its setting is memorized per-Scene.

Here’s an illustration taken from AX8-Edit showing a portion of the grid, and the output mixer parameters.



**Grid Row 1** goes to Output Mixer **Channel 1**.

The DELAY in this row will reach the output at Level +/- 0.00 dB with Balance centered.

**Grid Row 2** goes to Output Mixer **Channel 2**.

The REVERB in this row will reach the output at Level -6.00 dB with Balance centered.

**Grid Row 3** goes to Output Mixer **Channel 3**.

The SYNTH in this row will reach the output at +6.00 dB with Balance centered.

**Grid Row 4** goes to Output Mixer **Channel 4**.

The FX Loop in this row will reach the output at +0.00 dB.

With **BALANCE 4** hard left, only the left channel of the FX LOOP will be passed to the main output.

The **MAIN** fader is set to -2.00 dB. This setting is stored per Scene (see [Scenes, p. 37](#)).

If only the Reverb were present, it would still be **Channel 2** because it is in Row 2 of the grid.

# MIX PAGE COMMON PARAMETERS

Almost every block in the AX8 has a MIX page with parameters that determine how that block contributes to the preset. All mix pages use one or more of the following standard parameters. Different blocks have different mix page parameters because they require different approaches. You may need to change more than one parameter setting to achieve a desired result.

**MIX** – This self explanatory knob sets the balance of wet between dry and wet.

**LEVEL** – As you would expect, this controls set the overall level of the block.

**BALANCE** – Every block outputs both left and right signals. **BALANCE** works like a PAN control, so as you adjust to the left or right, the opposite channel gets quieter. Both the wet and the dry are affected.

**BYPASS MODE** – Determines what happens when the block is bypassed. The different options are detailed below. Not every option is available in every block.

**MUTE IN** – When the block is bypassed, its inputs are muted, silencing the both wet and dry but allowing effect “tails” to ring out or “spill over”. Use this for time-based effects in parallel.

**MUTE OUT** – When the block is bypassed, all audio is totally silenced at the outputs. Effect tails are silenced immediately, but the input is still “listening” so tails may be heard when you engage the effect.

**MUTE FX IN** – When the block is bypassed, the inputs of its internal processor are muted, but the dry is unaffected. This allows effect “tails” to ring. LEVEL and BALANCE controls continue to operate when the block is bypassed. Use this for time-based effects in series when you want spillover.

**MUTE FX OUT** – When the block is bypassed, the outputs of its internal processor are pulled, but dry signal is totally unaffected. With this setting, signals can enter a reverb or delay before it is engaged.

**MUTE** – When the block is bypassed, both wet and dry are totally silenced.

**THRU** – When bypassed, the block is completely disengaged. None of its parameters have any effect on the sound; it behaves exactly as if it were never there in the first place.



*The observant AX8 owner will notice that the BYPASS MODE parameter allows you to attach a MODIFIER. This modifier does not actually connect to the BYPASS MODE parameter! Instead, it controls the block's BYPASS SWITCH. When a modifier is attached to this switch, it becomes the ONLY way that you can bypass or engage the effect. The footswitch will no longer work.*

**INPUT GAIN** – This parameter, available on Reverb, Pitch, Delay, and Multidelay, determines the amount of signal fed to the effect portion of the block. It has no effect on the dry signal. Within the block, this simulates the way an “Aux Send” would normally feed an effect routed in parallel.

**GLOBAL MIX** – This switch determines whether or not the MIX setting of the selected effect will be subject to an offset (+/- 50%) applied using the global EFFECTS MIX parameter found in the SETUP: GLOBAL menu.

This feature is provided so you can design presets with the built-in ability for one-touch mix compensation in playing environments that require more or less wet mix. It is offered on the following effect block types: Delay, Chorus, Flanger, Formant, Multidelay, Phaser, Pitch, Reverb, Ring Mod, and Rotary.

# 8 MODIFIERS

## OVERVIEW

Modifiers allow sound parameters to be remote-controlled or automated in real time. For example, you might use an expression pedal to operate a wah, whammy or volume, or use an LFO controller (Low Frequency Oscillator) to sweep a filter. MIDI can also control sound changes, as in the example of using a Control Change message (CC#) to toggle the HOLD switch of a delay.

Modifiers are easy to use, but also provide incredible depth of power for those who like to push limits.

## CREATING A MODIFIER

The process of creating a modifier begins at the parameter you want to control. Parameters that can be controlled are marked with a special symbol (below, left). Look for it beneath a knob or to the right of a text parameter. If a modifier is already present, the symbol will have a line through it (below, right).



This symbol indicates a parameter which can have a modifier attached to it.



This symbol indicates a parameter with a modifier already attached to it.

### TO CREATE A MODIFIER...

- ▶ Select any controllable parameter (**+C**)  
You will need to use the NAV keys to do this: **SHIFT + ENTER** for left, or **SHIFT + EXIT** for right.
- ▶ Press the **ENTER** button to show the MODIFIER screen.
- ▶ Select a **SOURCE** to control the parameter.  
("EXT1" is PEDAL1 by default, for example. We'll cover other SOURCES later).
- ▶ Set **MIN** and **MAX** to the lowest and highest values you want to hear as the source changes.
- ▶ **STORE** the preset.

### TO REMOVE A MODIFIER...

To remove a modifier, just change its **SOURCE** to "NONE" and store the preset.


# MODIFIER EXAMPLE: WAH PEDAL

Below you will find a basic step-by-step tutorial on setting up the modifier for a wah pedal.

For this example, we assume:

- A Wahwah block is in your preset (see [p. 26](#) for details on how to insert blocks).
- An **expression pedal** is connected to the **PEDAL 1** jack (see [p. 18](#) for more on pedals).
- You have performed the pedal calibration routine (see [p. 18](#)).

Here are the steps:

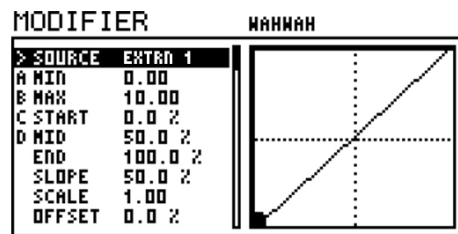
1. On the Footswitch page or Grid, **NAV** to your WAH block and press **EDIT** to show its **Edit Menu**.
2. See the Modifier symbol beneath the on-screen CONTROL knob?  Select that knob pressing the **NAV>** button 4x (Shift, EXIT, Shift, EXIT, Shift, EXIT, Shift, EXIT). When you've selected it, the name of the parameter will be inverted: **CONTROL**.
3. Once the **CONTROL** parameter is selected, press **ENTER** to show the MODIFIER screen.
4. On the MODIFIER screen, use **VALUE** to change the **SOURCE** to External Controller 1 ("EXT 1"). Note: EXT 1 defaults to **PEDAL 1**. (It can be remapped; see "[External Controllers](#)" on [p. 70](#))
5. Test. The wah should work when you move the pedal. You'll also see the dot move on the graph.
6. Store the preset by pressing **STORE, ENTER, ENTER**.



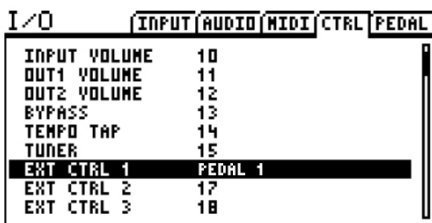
- 1** Wah control can be assigned a MODIFIER



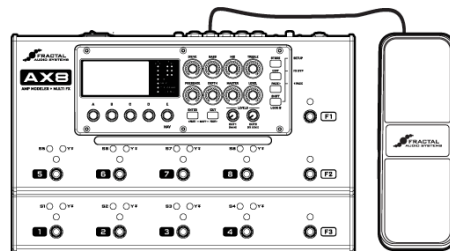
- 2** ENTER opens the MODIFIER screen.



- 3** The SOURCE is set to EXTERNAL 1



- 4** EXTERNAL 1 in the I/O menu is set to PEDAL 1



- 5** PEDAL 1 now controls the WAH

This wah is controlled by an expression pedal. An expression pedal can be used to control other parameters like whammy control, rotary speed, delay feedback, and many, many more.

There are also many different sources we could use instead of a pedal. Try an LFO for a modulating auto-wah, or an envelope for some funky Mu-Tron action. You could even use an external MIDI device like an iPad™ or a GuitarWing™. If you're intrigued, dig deeper into the pages which follow...

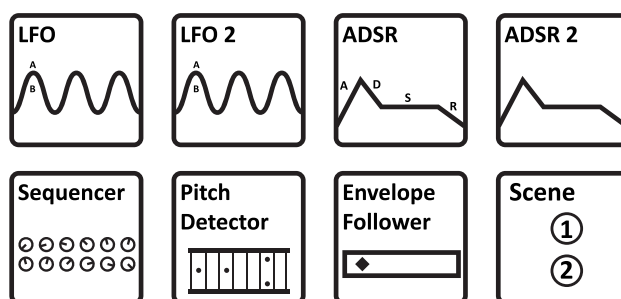
## MODIFIER SOURCES OVERVIEW

Our previous example used EXT 1 assigned to the PEDAL 1 jack, but there are in fact over 20 different sources to use in your modifiers. We refer to these as **CONTROLLERS** because they are used to control a parameter. Some, like the built-in LFOs and Envelope Follower, are **internal** to the AX8, while others, like a connected expression pedal or MIDI message from some other device, are referred to as **external** controllers.

### INTERNAL CONTROLLERS

Internal controllers are built in to the AX8. There are two **LFOs** (low frequency oscillators), two **ADSR** envelope generators, a **Sequencer**, a **Pitch Detector**, an **Envelope Follower**, and two **Scene Controllers**.

Every preset has its own settings for each internal controller, found in the **CONTROLLERS** area of the **CONFIG** page of the main menu.

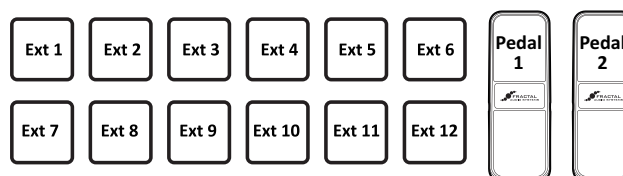


### EXTERNAL CONTROLLERS

External controllers allow you to use a MIDI message (CC# 0–127) or any of the on-board PEDAL jacks as the **SOURCE** in a modifier.

For example, **EXTERNAL CONTROLLER 1** is assigned by default to the **PEDAL 1** jack.

Assignments for the external controllers are made on the **CTRL** page of the **I/O** menu under **SETUP**.



## MODIFIER TIPS AND TRICKS

Here are some modifier tips and tricks.

- You can add up to 24 modifiers in any preset.
- The same modifier **SOURCE** can be used to control multiple parameters at once.
- All modifiers in a block will be shared across both the X and Y states.
- On the **MODIFIER** screen (with the graph):
  - Try Auto-Engage (“**AUTOENG**”) set to “**SLOW SPD**” to have your WAH (or other effect) turn on automatically when you push it forward and bypass again when you pull it back. No need for a toe switch!
  - Try a little “**DAMPING**” if you want sound changes to be slower or smoother.
- Modifiers do use some CPU power, so be careful not to overload your preset.
- You don’t need a **VOLUME** block or a modifier to control global volume with a pedal! Just open the **CTRL** page of the **I/O** menu and set your choice of several different volume controls to your choice of sources. Just re-check your “**External Controller**” assignments to make sure the pedal you’re using isn’t also assigned to one of those.

# ADVANCED MODIFIER PARAMETERS

The default modifier is perfectly linear and direct. You change the source, and the parameter follows precisely. But you can also tweak the relationship between source and target. Maybe you want to tune the taper of a wah. Maybe you want a volume pedal which gets *quieter* instead of louder as you rock it forward. Maybe you want an external footswitch to glide the rate of your chorus between slow and fast.

Fortunately, a full complement of additional controls allow you to dial in all of this and more. Here is an overview of the additional parameters you can use to create advanced modifiers:

**MIN** and **MAX** determine the range of sound changes. These can be very important parameters.

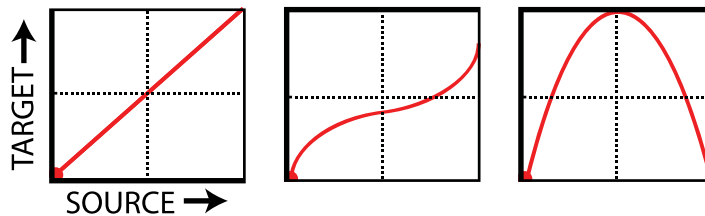
*EXAMPLE: The modifier for a pedal controlling DELAY MIX has MIN at "20%" and MAX at "40%".*

*The mix change will be limited to this range as we move the pedal, even though the parameter might normally go from 0% to 100%.*

The **GRAPH** shows the relationship between the source (x-axis) and the parameter (y-axis). The dot on the graph shows changes in the source in real time.

The default modifier graph (first graph below) shows the direct (red line) relationship between the SOURCE and the target parameter. As the source increases, so does the value of the parameter.

**START**, **MID**, **END**, **SLOPE**, **SCALE**, and **OFFSET** are used to create custom curves, re-mapping the relationship between the source and the target. The second two graphs below show examples of the kinds of curves you can create. The pages which follow contain more on using these parameters.



**DAMPING** causes parameter changes to be smoother and slower. At low settings, it adds just a little smoothing. Try a setting of 4–12 ms to “relax” a pedal or to ease the edges of a square LFO to eliminate clicks and pops. Higher settings cause sound changes to glide like honey.

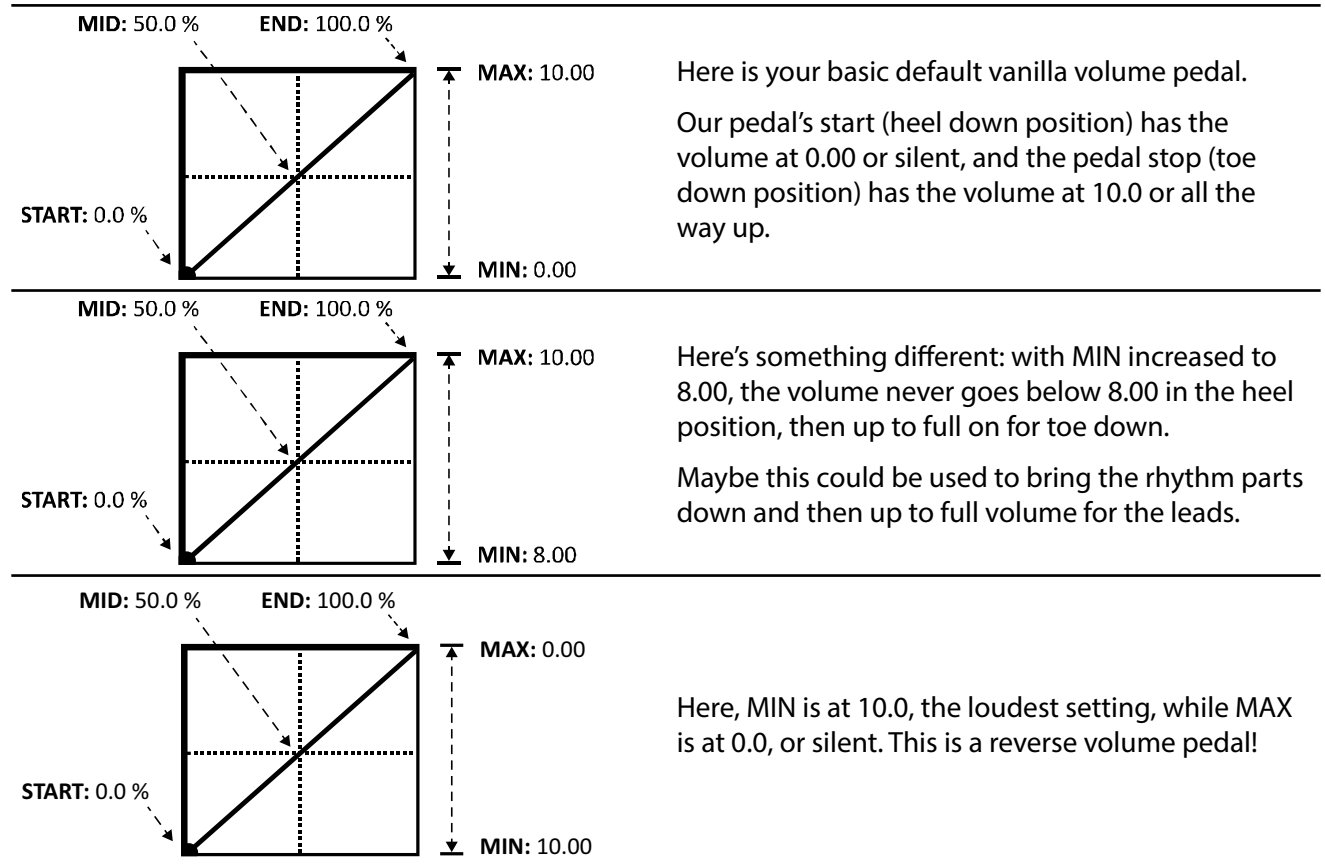
**AUTO-ENGAGE** works with **OFF VALUE** to create effects which turn ON or OFF automatically whenever the source controller is moved. This is typically used with a WAH pedal so you don’t need a toe switch. (Follow the example on [p. 64](#) and set AUTO-ENGAGE to “SLOW POS” to try it out!) Find additional information on **AUTO-ENGAGE** on [p. 68](#).

**PC RESET** determines the value of a modifier’s external source when a preset first loads. This allows you to override the actual position of an external controller until it is moved/updated. Here’s how it works: even with a modifier applied, parameters always show a value which can be edited as usual. If **PC RST** is ON, this value will be used for the parameter until the source is updated.



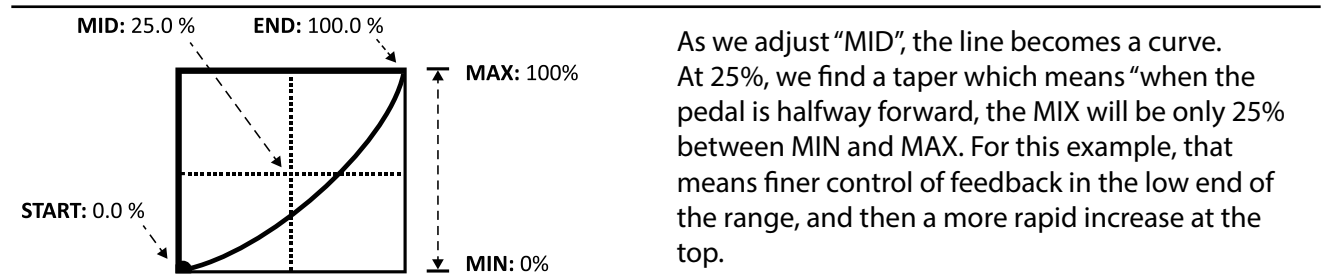
## UNDERSTANDING MODIFIER MIN AND MAX

**MIN** and **MAX** set the range of a modifier. This lets you fine-tune modifiers in musical way. In the example below, we're imagining a volume pedal whose range goes from zero to ten.



## USE MID TO CREATE BASIC CURVES

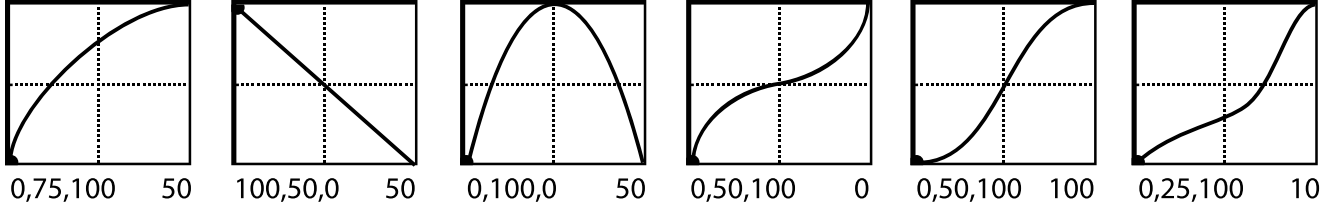
Let's imagine a modifier on the FEEDBACK of a delay to demonstrate changes to the mapping of the response. By now you should be familiar with the default curve, so let's skip right to the tweaked one:



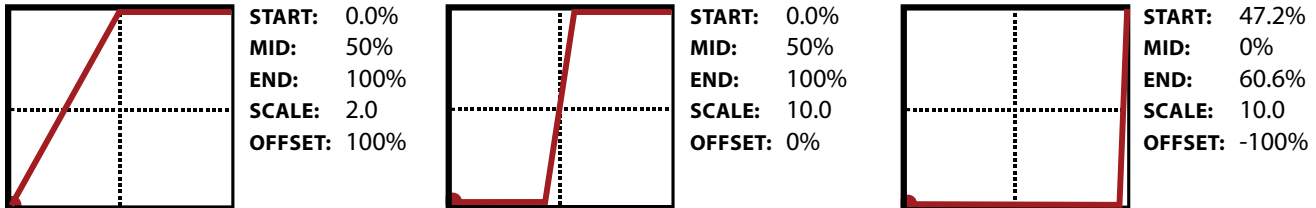
## 8 MODIFIERS

### ADVANCED MODIFIER CURVES AND SHAPES

You can also adjust **START**, **END**, and **SLOPE** (which introduces an “S” or “backwards S” shape). The numbers below each example show the settings for START, MID, END and SLOPE. With a bit of practice, you will learn to achieve desired modifier effects quickly. Try dialing in the shapes below.



**SCALE** and **OFFSET** also re-map modifier response. **SCALE** adds vertical exaggeration or compression, while **SHIFT** moves the entire curve up or down on the Y-axis. Areas outside the graph boundaries will be clipped and replaced by line segments. The examples below show some interesting possible applications. (Here, curves are shown in red because they overlap graph boundaries.)



### AUTO-ENGAGE TURNS EFFECTS ON/OFF AUTOMATICALLY

Ever heard of a wah pedal with no toe-switch? It turns on automatically when you use it and then bypasses when you pull it all the way back. That’s the concept of “Auto-Engage.” Try it! You’ll quickly find that Auto Engage comfortably eliminates the need for expression pedal “toe” switches.

**AUTO-ENGAGE** brings a block out of bypass when the **SOURCE** for one of its modifiers triggers the effect. It is based on two parameters found on the MODIFIER screen:

**AUTOENG** – Determines whether or not the block containing a modifier will automatically engage or bypass based on the level of a modifier source. FAST, MEDIUM and SLOW determine how quickly the effect turns ON or OFF once auto-engage is triggered. Use SLOW settings to “relax” Auto Engage so your effect doesn’t snap on or off unexpectedly.

- The three POSITION (“POS”) options engage the effect when the controller value approaches the OFF VALUE.
- The three SPEED (“SPD”) options engage the effect when the controller is moved quickly.
- Set to OFF to disable Auto Engage.

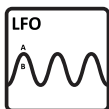
**OFF VAL** – Sets the threshold that SOURCE must approach for auto-engage to occur. When **OFF VALUE** is set below 50%, the effect is bypassed when the controller goes *below* the **OFF VALUE**. If **OFF VALUE** is set to 50% or higher, the effect is bypassed when the controller goes *above* than the **OFF VALUE**.

For “heel down = bypassed”, set to 5%. For “toe down = bypassed”, set to 95%.

# INTERNAL CONTROLLERS

Each of the Internal controllers can be programmed per-preset for use as modifier sources. To access pages and parameters for these controllers, press **SETUP** followed by the footswitch for the Controllers menu. Notice that some parameters of these controllers can be modified themselves for truly interactive dynamics!

## LFO1 + LFO2



An LFO, or Low Frequency Oscillator, generates control signals in the form of a variety of familiar wave shapes or random signals. Familiar examples of LFOs in action include the pulsing of a tremolo, the steady back and forth sweep of a phaser.

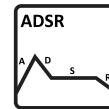
**TYPE** sets the waveform or shape. You can set a **RATE** or lock the LFO to the current **TEMPO**. You can vary the overall **DEPTH** and **DUTY**, or symmetry.

Each LFO outputs two signals, "A" and "B" and so appears twice in the list of sources. You can change the **OUT B PHASE**.

The **RUN** parameter starts and stops the LFO. This can be used to keep it from drifting over time.

**QUANTIZE** changes smooth waveforms into segmented ones. Try it on the "TRI" waveform for a "stepped" effect.

## ADSR1 + ADSR2



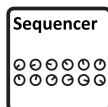
The two ADSR sources are "envelope generators" with **ATTACK**, **DECAY**, **SUSTAIN** and **RELEASE** parameters (thus "ADSR"). The ADSR is triggered whenever the signal level exceeds its **THRESHOLD** measured at Input 1. The envelope has three self-explanatory **MODES** and can optionally be set to **RETRIGGER** every time the threshold is exceeded.

## ENVELOPE FOLLOWER



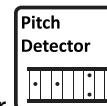
The Envelope Follower converts input levels to control signals, responding variably to your playing dynamics. The classic example is a touch-wah, where the frequency of the wah varies based on how hard you play. In comparison, the ADSR envelope generator always creates the same control signal, but only triggers when you play hard enough.

## SEQUENCER



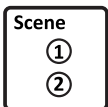
The AX8 step-sequencer generates control patterns by looping through 2–32 "stages." You set the **VALUE** for each stage, the **NUMBER** of stages, and the **RATE** or **TEMPO**. The **RUN** switch allows you to start or stop the sequence.

## PITCH DETECTOR



The pitch detector analyzes the pitch of your playing and outputs a low value for low notes and a high value for high notes.

## SCENE CONTROLLERS



Scene controllers provide a uniquely powerful way to change certain sound settings from one Scene to another. These two "virtual knobs" can be programmed individually for each SCENE in each preset. For example, you might assign SCENE CONTROLLER 1 to delay feedback, with a value of 10% in SCENE 1, 30% in SCENE 2, 5% in SCENE 3, and so on. SCENE CTRL 2 could meanwhile be used for something completely different.

For more on Scenes, see [Section 6](#).

# EXTERNAL CONTROLLERS

External Controllers are modifier sources controlled by MIDI or connected expression pedal(s).

Each External Controller has its own global assignment set on the CONTROLLERS page of the I/O menu. You can set any external controller to any MIDI CC, or to either of the on-board PEDAL jacks.

So, for example, "External 1" defaults to "PEDAL1", but if you wanted a computer sequencer to operate your AX8 instead, you could change External 1 to "16" (MIDI CC 16) -- or any MIDI CC.

To assign a MIDI CC or PEDAL jack to an external controller:

- ▶ Press **SETUP**
- ▶ Press **footswitch 2** to select **I/O**
- ▶ Press **PAGE** to select the Controllers page ("CTRL")
- ▶ Use **NAV** to select to whichever external controller you want to change (ex: "EXTERNAL 1")
- ▶ Use **VALUE** to change the assignment. You can also select "NONE" to disable the selected controller.
- ▶ Press **EXIT** two times to finish.

## EXTERNAL CONTROLLER INITIAL VALUES

(aka "Help! My volume pedal is missing and my presets are all silent!!")

When the AX8 is powered on, it checks all connected pedals to set the value for any assigned external controllers. But what if a pedal is *missing*? The default for each controller is zero, so the missing pedal is assumed to be in the heel down position. External Controllers assigned to MIDI are likewise set to "0" until some MIDI data is received to change them. You can imagine how a missing or broken pedal (or MIDI controller) might therefore present a problem...

Never fear: the **EXTERNAL CONTROLLER INITIAL VALUE** parameters can change the startup value for an external controller to 100%. Now, when the AX8 is powered on, any parameters assigned to the missing controller will be all the way *up* instead of all the way down.

To change the initial value for an external controller:

- ▶ Press **SETUP**
- ▶ Press **footswitch 2** to select **I/O**
- ▶ Press **PAGE** to select the MIDI page
- ▶ Use **NAV** to select to whichever controller you want to change (ex: "EXT CTRL 1 INIT VAL")
- ▶ Use **VALUE** to change the setting.
- ▶ Press **EXIT** two times to finish.

# 9 TEMPO

Tempo on the AX8 is used to synchronize effects or controllers to the beat of the music. Many effects have TEMPO parameters you can use to set times or rates to rhythmic values. The AX8 flashes its current tempo on the LED above the TEMPO footswitch (if you have one assigned). You can change the tempo in several ways:

1. Tap the **TEMPO** footswitch several times.
2. Tap the **TEMPO** footswitch once and use the **NAV** knob to set the tempo (on-screen) as desired. If you have no TEMPO footswitch assigned, you can edit the tempo through the SETUP menu (#6) or using AX8-Edit.
3. Load a preset with its own tempo (see Preset Tempo below).
4. Use an external MIDI device to transmit MIDI Clock to the MIDI IN of the AX8.
5. Use an external MIDI Device to transmit CC# pulses (the default is CC#14).

The tempo can be any whole number from 30 BPM (grave) to 250 BPM (prestissimo).

The AX8 does not transmit MIDI Clock.

## TO SYNCHRONIZE A DELAY TO THE TEMPO...

The time of every delay in the AX8 can synchronize to the tempo. The most typical setting is that where the echo matches the tempo 1:1. Use the musical value of "1/4" (one quarter-note) for this.

- ▶ Navigate to the delay block and press **EDIT** to show its Edit Menu.
- ▶ Navigate to the **TEMPO** parameter (on **PG2**) and set it to "1/4". Feel free to choose/explore other options. The 1/8th dot setting is also very useful and popular.
- ▶ Save the preset if desired.



Note that once **TEMPO** has been set, you will be unable to adjust **TIME** manually or with a modifier.

## TO SYNCHRONIZE A TREMOLO OR OTHER RATE TO THE TEMPO...

Every RATE parameter in the AX8 can synchronize to the tempo. A typical value here might be 1/8th or 1/16th. Feel free to choose/explore other options.

- ▶ Navigate to the effect and press **EDIT** to show its Edit Menu.
- ▶ Find the **TEMPO** parameter and set it to "1/8".
  - In the PAN/TREM block, **TEMPO** is on the **BASIC** page.
  - For CHORUS, PHASER, FLANGER and other modulation effects, find **TEMPO** on the **ADVANCED** page.
- ▶ Save the preset if desired.

Note that the rate you hear may be out of alignment with the tempo LED but will still be correct.

## PRESET TEMPO

Normally, each preset has its own saved tempo, which takes effect when you load the preset. You can also change presets to use the Global Tempo so the tempo stays the same when you load them.

To change a preset to use the Global Tempo:

1. Load the preset.
2. Tap once on the **TEMPO** footswitch (or open the TEMPO area of the “Config” page of the main menu.)
3. Change **TEMPO TO USE** to “GLOBAL”.
4. Save the preset.

Your new “Preset Tempo” will automatically take effect when the preset is loaded. The global tempo remains in the background and will be used again when you load a new preset with TEMPO TO USE set to “GLOBAL”.

## AUTO DELAY

When you set this parameter to “ON,” any DELAY blocks that are bypassed will become active whenever a new tempo is tapped in. This allows you to set the tempo and engage your delay block(s) from a single footswitch.

## THE METRONOME

The AX8 features a built-in metronome whose signal is mixed in at Output 1. Turn it on or off in the TEMPO menu.

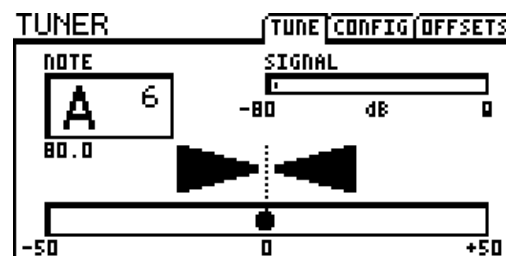
**METRONOME** – Turns the metronome on or off.

**METRO LEVEL** – Sets the level of the metronome from -20dB to +20dB.

# 10 THE TUNER

The AX8 has a built-in TUNER—essential for the performing or recording musician. The tuner is easy to use and has high-resolution automatic pitch detection, a calibration control, offsets for modified tuning schemes, and the option to mute audio while tuning. Press and hold ▼ the **TUNER** footswitch to show or hide the tuner menu.

The tuner is assigned by default to the Press-and-Hold option of the F3 footswitch. You can change this or remove it from the footswitches altogether, but it can always be accessed through the CONFIG page of the main menu, or in AX8-Edit.



## ADVANCED TUNER FUNCTIONS

The actual tuner is on the first page of the tuner menu.

The CONFIG and OFFSETS page provide options for advanced tuner functions.

### CONFIGURATION PARAMETERS

PARAMETER	Description
<b>CAL</b> 430.0 – 450.0 Hz	Calibrates the tuner by setting the frequency of A4 (in the octave above middle C).
<b>MUTE</b> OFF/INPUT/OUTPUT	Determines how the tuner mute works. <ul style="list-style-type: none"> <li>OFF: No mute. All signal is passed as usual when the tuner is engaged.</li> <li>OUTPUT: The signal is muted at the output. Tails for PRE FX are silenced.</li> <li>INPUT: The signal is muted at the noise gate. Tails for PRE FX ring out.</li> </ul>
<b>USE OFFSETS</b> OFF/ON	Determines whether the OFFSET settings (see below) are applied or ignored.

### OFFSET PARAMETERS

PARAMETER	Description
<b>E1, B2, G3, D4, A5, E6</b> +/-12.7 Hz	Offsets allow the tuner to be calibrated so individual notes diverge from standard concert tuning by a defined amount. Use this for example, for Buzz Feiten tuning.

*This page intentionally left blank.*




# 11 SETUP MENUS

Access Setup Menus by pressing **SETUP** (Shift + Store) and making a choice with the footswitches. Changes take effect immediately without needing to be STORED. The settings for all Setup parameters are included in a backup of the AX8 "SYSTEM" (see ["Utility: Erase Page" on p. 83](#)).

## THE GLOBAL MENU

The GLOBAL menu is accessed by pressing footswitch 1 under Setup.

### GLOBAL: SETTINGS PAGE

 Reminder: You do not need to store settings in the **SETUP** menu. EXIT twice when finished.

PARAMETER	Description												
<b>POWER AMP MODELING</b> (ON/OFF)	This parameter conveniently enables or disables power amp simulation within the AMP block in all presets. This capability is provided for cases when the Axe-Fx II is used with a guitar-oriented/tube power amp that contributes significantly to tone and dynamics. Having these characteristics applied twice to the sound—once in the virtual amp and once in the real power amp—would result in an over-processed sound. If this is switched OFF, preamp (gain, tone, etc.), Graphic EQ, and Mixer (Level, Balance, etc.) sections of the AMP block continue to affect the sound.												
<b>CAB MODELING</b> (ON/OFF)	This parameter conveniently enables or disables CAB block processing in all presets. The CAB block will not physically appear to be bypassed, but act exactly as if it had been replaced a shunt. Use this when you are using the AX8 with an amp powering real guitar speaker cabinets or the sound will be muffled, muddy, and boomy.												
<b>REVERB MIX</b> (+/- 50%)	Boosts or cuts the <b>MIX</b> for all REVERB blocks in all presets at once. Note that this offset is NOT reflected in the value shown for the actual reverb block MIX parameter. This feature is provided because certain performance spaces may require more or less reverb "across the board."												
<b>EFFECTS MIX</b> (+/- 50%)	Boosts or cuts the <b>MIX</b> of all blocks for which the <b>GLOBAL MIX</b> parameter is set to "ON." This switch must be enabled on a per-block/per-preset basis and is available on the MIX page of the Edit Menu for these block types: <table border="0" data-bbox="581 1619 1380 1724"> <tr> <td><b>Chorus</b></td> <td><b>Formant</b></td> <td><b>Pitch</b></td> <td><b>Rotary</b></td> </tr> <tr> <td><b>Delay</b></td> <td><b>Multi-Delay</b></td> <td><b>Reverb</b></td> <td></td> </tr> <tr> <td><b>Flanger</b></td> <td><b>Phaser</b></td> <td><b>Ring Mod</b></td> <td></td> </tr> </table>	<b>Chorus</b>	<b>Formant</b>	<b>Pitch</b>	<b>Rotary</b>	<b>Delay</b>	<b>Multi-Delay</b>	<b>Reverb</b>		<b>Flanger</b>	<b>Phaser</b>	<b>Ring Mod</b>	
<b>Chorus</b>	<b>Formant</b>	<b>Pitch</b>	<b>Rotary</b>										
<b>Delay</b>	<b>Multi-Delay</b>	<b>Reverb</b>											
<b>Flanger</b>	<b>Phaser</b>	<b>Ring Mod</b>											

This feature is provided because certain performance spaces may require more or less of certain effects "across the board."

## 11 SETUP MENUS

PARAMETER	Description
<b>SPILOVER</b> (OFF/DELAY/REVERB/BOTH)	Allows delay and reverb “tails” to ring out or spill over across preset changes. You can select whether DELAY, REVERB, or BOTH effects will spill over. Setting to OFF causes effect tails to be cleared upon preset change.  See <a href="#">“Spillover” on p. 86</a> for details on how to set up presets, scenes, or blocks for spillover.
<b>PRESS &amp; HOLD INTERVAL</b> (0.25 - 2.00 seconds)	Sets the duration that you need to continue holding for all Press-and-Hold functions. ▼
<b>TEMPO MENU AUTO EXIT</b> (1-6)	Determines how many seconds it takes to exit back to the previous screen after you tap the tempo footswitch.
<b>PRESS/HOLD FOR X/Y</b> (ENABLE/DISABLE)	Determines whether footswitches 1–8 work to switch X/Y when you press and hold them. With Press-and-Hold enabled, regular switching to engage or bypass an effect needs to activate on the “up stroke” when you lift your foot off the pedal. By disabling Press-and-Hold, effect switching can happen on the “down-stroke”. You can disable press/hold X/Y switching and still change X/Y using SCENES, or by using one of the X/Y mode Function Footswitches (see Chapter X). In fact, the setting for this parameter is IGNORED and treated as DISABLED if you do assign any X/Y function to any FUNCTION FOOTSWITCHES.
<b>NOISEGATE OFFSET</b> (+/- 40.00 dB)	Globally raises or lowers the THRESHOLD of the Noise Gate. Note that if the THRESHOLD for a given preset is set to “OFF” the Global Offset will have no effect. See <a href="#">“The Noise Gate” on p. 60</a> .
<b>AMP GAIN</b> (+/- 12.00 dB)	This provides +/- 12 dB of relative gain for the amp block. It can be used to quickly compensate for differences between guitars.
<b>DEFAULT SCENE</b> (1–8)	This parameter allows you to set which of the eight scenes will be selected whenever you load a preset. For example, if you always want presets to load with Scene 2 selected already, change the global Default Scene to “2”.

### GLOBAL: FUNCTION SWITCHES PAGE

The AX8 has three **FUNCTION FOOTSWITCHES** labeled F1, F2, and F3. Each of these has two assignable functions: one for when you tap the switch, and one for when you press and hold. The **F-SWITCH** page allows you to set those functions by selecting from a menu of options detailed in [Section 4](#).

### GLOBAL: FOOTSWITCH 1-8 PAGE

The **Global Footswitch 1-8 (GBL FS)** page allows you to set footswitches 1–8 each to GLOBAL or PRESET.

**Global Footswitches** will have the same function across every preset of the AX8.

**Preset Footswitches** may be assigned a different function in every preset.

For more on this subject, please see [“Setting Up Footswitches 1-8” on p. 33](#).

## GLOBAL: OUT 1/OUT 2 PAGES

Two separate pages each provide a 10-band global graphic EQ, plus a master GAIN adjustment control for **OUT 1** and **OUT 2**. Use these to make global adjustments to the tone or level of ALL presets. This is convenient when you need to compensate for using a different amp or speakers, or if a particular performance space seems overly bright or boomy. The master GAIN fader should be used with care as it impacts signal-to-noise ratio, and can cause clipping.

## GLOBAL: CUSTOM SCALES PAGE

The Custom Scales ("**SCALES**") page of the GLOBAL menu is used to configure scales for the CUSTOM type found in the Pitch Shifter block.


PARAMETER	Description
<b>CUSTOM SCALE NUMBER</b> (1–32)	Selects from among the 32 global custom scales available to edit using the 12 parameters which follow.
___ <b>SHIFT</b> (+/- 24)	These 12 parameters are used to set the shift amount for each of the 12 steps of the chromatic scale. Range is +/- 24 semitones (+/- two octaves). To set up a custom scale, select its number in the field above and then set each of the 12 pitch values as desired. Changes take effect immediately, with no need to STORE.

# THE I/O MENU

The I/O menu is accessed by tapping the **SETUP** button and then pressing footswitch 2.

## I/O: LEVELS PAGE

The LEVELS page of the I/O menu contains parameters that affect levels.

 Reminder: You do not need to STORE settings in the SETUP menu. EXIT twice when finished.

PARAMETER	Description
<b>IN 1 (INSTR) INPUT PAD</b> (0 db, 6dB, 12dB, 18dB)	<p>Pads the signal from <b>IN 1 [INSTRUMENT]</b> before it reaches the A/D converter. The pad is offset by a corresponding but opposite boost at the output of the converter, so “what you hear” remains the same at all settings.</p> <p>Run this at the <i>lowest possible setting</i> for your guitar, increasing padding only when required.</p>
<b>OUT 1 (MAIN) NOMINAL LEVEL</b> (+4 dBu, -10 dBv)	<p>Sets the nominal level of Output 1.</p> <p>+4 dBu is the default. It is designed for use with professional audio equipment. It is unlikely you will ever need to change this setting.</p> <p>Use the -10 dBV setting for consumer-grade or other equipment.</p> <p>The product manual for your connected equipment should indicate whether it operates at +4 dBu or -10 dBV. (Some devices are switchable.)</p>
<b>IN 2 (FX RTN) NOMINAL LEVEL</b> (+4 dBu, -10 dBv)	<p>Sets the nominal level for Input 2.</p> <p>+4 dBu is the default. It is designed for use with professional audio equipment.</p> <p>Use the -10 dBV setting if Input 2 is fed by the outputs of consumer-grade or other equipment operating at this level.</p> <p>The product manual for your connected equipment should indicate whether it operates at +4 dBu or -10 dBV. (Some devices are switchable.)</p>
<b>OUT 2 (FX SEND) BOOST/PAD</b> (0, 12 dB)	<p>Engages a boost/pad to lower the noise floor of Out 2.</p> <p>This is useful if the device in your FX Loop is a tube amp or an amp modeler. Be careful with this setting, however, as you will be driving the AX8’s FX SEND D/A converter at +12 dB, making it easier to clip. Watch the front panel <b>FX SEND CLIP</b> indicator and if clipping occurs, reduce levels within your preset or turn this setting back to the default of 0 dB.</p>

## I/O: AUDIO PAGE

The AUDIO page of the I/O menu contains parameters that affect audio routing.

☞ Reminder: You do not need to **STORE** settings in the SETUP menu. Press **EXIT** twice when finished.

PARAMETER	Description
<b>OUT 1 (MAIN) MODE</b> (STEREO/ SUM L+R/ COPY L>R)	Determines how signals appear at the <b>OUT 1 [MAIN]</b> jacks. <ul style="list-style-type: none"> <li>▪ STEREO – Choose this option if you are connecting to a stereo monitoring system. If you use this setting with a mono rig, you'll hear only half of the stereo image.</li> <li>▪ SUM L+R – Collapses the entire signal to mono.</li> <li>▪ Copy L&gt;R – Replicates the left channel to the right, discarding the usual right channel signal.</li> </ul> <p>NOTE: To get the best results from any mono or stereo rig, you'll need to understand what happens inside of each effect block. You may hear unexpected results, for instance, if you SUM a phase-inverted signal pair (such as that created by some DELAY, CHORUS, ENHANCER settings, etc.). Discarding the right signal of a PANNER or PING PONG will likewise create strange effects (but not in a good way). In short, learn which effects and parameters create a wide stereo image and avoid these if your rig is mono.</p>
<b>OUT 1 (MAIN) PHASE</b> (NORMAL/INVERT)	Determines whether signal at <b>OUT 1 [MAIN]</b> will be normal or phase-inverted relative to its state at the output of the grid. This lets you compensate for unwanted inversions elsewhere in the signal chain. (This inverts BOTH the Left and Right channels.)
<b>IN 2 (FX RTN) MODE</b> (LEFT ONLY/ L+R SUM/ STEREO)	Determines whether <b>IN 2 [FX RTN]</b> is processed in stereo or mono. <ul style="list-style-type: none"> <li>▪ LEFT ONLY – The usual setting for mono, utilizing only the <b>IN 2 L</b> jack.</li> <li>▪ L+R SUM – Sums both <b>IN 2 L</b> and <b>IN 2 R</b> to mono.</li> <li>▪ STEREO - This is the setting to use when using stereo or dual mono equipment in the FX Loop of the AX8.</li> </ul>
<b>OUT 2 (FX SEND) MODE</b> (STEREO/ SUM L+R/ COPY L>R)	Determines whether signal at <b>OUT 2 [FX SEND]</b> is stereo or mono. <ul style="list-style-type: none"> <li>▪ STEREO – Choose this option, for example, if you are connecting OUT2 to a stereo power amp or the FX Return of two different amplifiers. The stereo setting also works for mono rigs, but you'll hear only half of the stereo image.</li> <li>▪ SUM L+R – Collapses the entire signal to mono.</li> <li>▪ Copy L&gt;R – Replicates the left channel to the right, discarding the usual right channel signal.</li> </ul>
<b>OUT 2 (FX SEND) PHASE</b> (NORMAL/INVERT)	Determines whether signals at <b>OUT 2 [FX SEND]</b> will be normal or phase-inverted relative to its state at the output of the last POST effect. This lets you compensate for unwanted inversions elsewhere in the downstream signal chain. (This inverts BOTH the Left and Right channels.)

## 11 SETUP MENUS

PARAMETER	Description
<b>OUT 2 (FX SEND) ECHO</b> (NONE, OUTPUT 1, OUTPUT 2)	No, not as in repeats... repeats... repeats. Echo in this case refers to a re-transmitted <i>copy</i> of a signal. The default value "NONE" connects Output 2 to the inputs of the FX LOOP block (p. 57). Selecting "OUTPUT 1" creates an exact copy of the OUTPUT 1 signal at OUTPUT 2 jacks. Use this when you need to feed both front of house and full-range monitors, for example, and want independent level control over each using the top panel OUTPUT knobs. Selecting "INPUT 1" copies the raw unprocessed INPUT 1 signal to OUTPUT 2, and is ideal for capturing a dry track for "reamping" without using the FX Loop block. Note that the echo feature will not function when an FX Loop block is present in a preset as the FX Loop has priority.

### I/O: MIDI PAGE

The MIDI page of the I/O menu contains parameters that affect MIDI processing.

 Reminder: You do not need to STORE settings in the SETUP menu. EXIT twice when finished.


PARAMETER	Description
<b>MIDI CHANNEL</b> 1–16, OMNI	Sets the channel on which the AX8 will receive MIDI messages. OMNI causes the unit to respond to incoming messages on ANY channel.
<b>MIDI THRU</b> OFF/ON	Turning this ON forwards MIDI data received at the MIDI IN port to the MIDI OUT port, where it is soft-merged with regular outbound MIDI.
<b>PROG CHANGE</b> ON/OFF	Determines whether the AX8 will process or ignore MIDI program change commands.
<b>SCENE REVERT</b>	<p>Selects between one of two behaviors for Scene recall via MIDI:</p> <p><b>OFF</b> (Default): Scene edits are <b>RETAINED</b> across Scene changes as long as you do not change PRESETS. So if you tweak Scene 1, switch to Scene 2, then switch back to Scene 1, your tweaks will still be intact.</p> <p><b>ON</b>: Scene edits are <b>LOST</b> if you change the Scene without saving. So if you tweak Scene 1, switch to Scene 2, then back to Scene 1, Scene 1 will have reverted to its previously saved state. This makes Scene changes feel more like traditional preset changes.</p> <p>For more on Scenes, see <a href="#">Section 6</a>.</p>
<b>EXT CTRL # INIT VAL</b> 0% OR 100%	<p>Specifies an initial value for each of the 12 External controllers. This Initial value is used when you power on the AX8, and remains in effect until anything is received from an actual external controller (an expression pedal, switch, or MIDI message).</p> <p>This feature has an important use. Let's say you find yourself without the expression pedal you normally use as "EXTERNAL 1". Now imagine that EXT1 is used to control a VOLUME block. Without the pedal connected, the AX8 assumes it is at 0%, so all of your presets will be silent! Setting <b>EXT 1 INITIAL VALUE</b> to 100% ensures that the volume defaults to all the way up instead of all the way down when you power on the AX8.</p>

## I/O: CONTROLLERS PAGE

The CTRL page of the I/O menu allows you to map PEDALS or MIDI CC# messages to various AX8 functions. CC# messages can be sent by a MIDI controller or computer connected to the AX8 MIDI In jack, or via the USB connection of the AX8. Each of these settings is global.

In every case, the method for mapping a controller to one of these functions is the same:

1. Use the **NAV** knob to select the desired function.
2. Use the **VALUE** knob to assign a controller to the function: PEDAL1, PEDAL 2, MIDI CC (1-127), or NONE.

 Reminder: You do not need to **STORE** settings in the SETUP menu. Press **EXIT** twice when finished.

PARAMETER	Description
<b>IN 1 (INSTR) VOLUME</b> NONE/PEDAL.../0-127	Controls the volume at the <b>INPUT 1 [INSTRUMENT]</b> jack. Map a PEDAL here, for instance, if you want a global volume that works like a volume pedal between the guitar and the AX8.
<b>OUT 1 (MAIN) VOLUME</b> NONE/PEDAL.../0-127	Controls the volume at the <b>OUT 1 [MAIN]</b> jack. Map a PEDAL here for a global volume control that affects everything you hear.
<b>OUT 2 (FXSEND) VOLUME</b> NONE/PEDAL.../0-127	Controls the volume at the <b>OUT 2 [FX SEND]</b> jack. Map a PEDAL here if you want a global MASTER volume which controls only Out 2.  TIP: You can change both Out 1 and Out 2 to the same source for a universal master output volume control.
<b>TEMPO TAP</b> NONE/PEDAL.../0-127	Provides the ability to set the Tempo with an external controller.  IMPORTANT: ANY value for the designated controller counts as a tap, so do not use a momentary switch or you will end up with double-time!
<b>TUNER</b> NONE/PEDAL.../0-127	Provides a way to enter or exit the TUNER function remotely.
<b>EXT CTRL 1-12</b> NONE/PEDAL.../0-127	This is where you specify which incoming MIDI CC# should be assigned to each of the 12 External Controllers available as Modifier sources.
<b>LOOPER REC, PLAY, ONCE, DUB, REV, BYPASS, HALF, UNDO</b>	Most of the functions of the Looper block can also be remote controlled.
<b>SCENE SELECT, SCENE INCR, SCENE DECR</b>	These options allow selecting SCENES via MIDI CC#.  For SCENE SELECT, the value of the Control Change message determines which Scene is loaded. The easy rule is Scene number -1 = CC# Data Value. (Ex: Scene 1, Value 0).  However, values greater than 7 continue to select scenes, in order. To determine the Scene for values >7, add 1 and divide by 8. The REMAINDER is the Scene that will be selected. Ex: 62+1 = 63, 63 ÷ 8 = 7 remainder 7, so 63 loads Scene 7.  SCENE INCR and DECR are triggered by CC# data values greater than 63.

## 11 SETUP MENUS

PARAMETER	Description
<b>OUT 1 VOL INCR, OUT 1 VOL DECR</b> NONE/PEDAL.../0-127	<p>These two options provide a convenient way to increase or decrease the OUT 1 (MAIN) VOLUME volume of the currently loaded Scene in the current preset. This can be a very useful tool when you need to normalize the levels of different presets while playing with a band in a rehearsal situation.</p> <p>Each time VOL INCR is triggered by a CC# value greater than 63, the value for MAIN in the OUTPUT 1 mixer is increased by 1.0 dB and the preset is instantly saved. VOLUME DECR works the same way, decreasing volume.</p> <p>IMPORTANT! Any other unsaved changes such as altered effects will also be stored if either VOLUME INCR or VOLUME DECR is triggered.</p> <p>WARNING! These functions are designed for use with momentary footswitches set up to send a CC# value of 127 for "ON" and 0 for "OFF". Do not use an expression pedal or you may change levels +/-20 dB with a single sweep!</p>
<b>CHORUS BYP</b> through	The BYPASS switch for every block in the AX8 can be remote controlled. The list of MIDI CC# defaults can be found on <a href="#">p. 95</a> . Some blocks may not have a default assignment but you can change any block at any time.
<b>WAHWAH BYP</b>	
<b>CHORUS XY</b> through	Like the BYPASS switch (above) the XY toggle switch for every block can be remote controlled. The list of MIDI CC# defaults can be found on <a href="#">p. 95</a> .
<b>WAHWAH XY</b>	

## I/O: PEDAL PAGES

The functions of the PEDAL page are detailed in "[Connecting Pedals & Switches](#)" on [p. 18](#).



# THE UTILITY MENU

The **UTILITY** menu is accessed by tapping the **SETUP** button and then pressing footswitch 3.

## UTILITY: LCD PAGE

Provides a slider to adjust contrast/viewing angle for the built-in LCD display. Adjust using **VALUE**.

## UTILITY: ERASE PAGE

The ERASE page provides tools to ERASE ALL PRESETS and ERASE ALL USER CABINETS.

These do exactly what they say, so handle with care. **Data erased in this way CANNOT be recovered!!!**

## UTILITY: STATUS PAGE

Displays realtime audio meters scaled at -80 to 0 db.

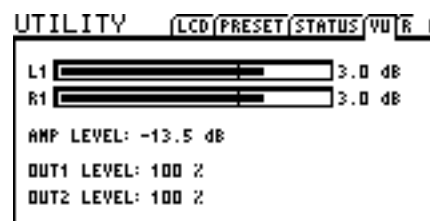
- IN LEVELS (1 (Instrument) and 2 (FX RTN) left and right
- OUT LEVELS for 1L, 1R, 2L, 2R

To the right, CPU Utilization (CPU%) is shown on its own meter. The total CPU usage must not exceed 90%. For more on this topic, see [“Preset CPU Limits” on p. 35](#).

## UTILITY: VU METERS

The VU Meter page provides a visual representation of the level of your presets. This can be very helpful when you are adjusting levels. The scale is -20 to +10 dB with a line to mark 0 dB. You can adjust amp levels as desired using the dedicated LEVEL knob on the top panel of the AX8. A second pair of indicators show MAIN and FX SEND levels.

Remember that meters only tell part of the story: LISTENING is crucial.



## UTILITY: RESET PAGE

The RESET page provides a tool to set GLOBAL, I/O, and TUNER back to factory default values. **RESET SYSTEM PARAMETERS** is one of the first steps of troubleshooting. It never deletes or modifies your presets.

## UTILITY: FIRMWARE PAGE

The FIRMWARE page indicates what firmware version the AX8 is running.

Check our support page for free updates you can easily install yourself using Fractal-Bot

<http://www.fractalaudio.com/support>

## 11 SETUP MENUS

*This page intentionally left blank.*

# 12 ADDITIONAL TOPICS

## GLOBAL VOLUME PEDAL SETUP

The AX8 makes it easy to set up a global volume pedal WITHOUT inserting a VOLUME block in your presets.

### 1 Connect and calibrate an expression pedal (such as the Fractal EV-1).

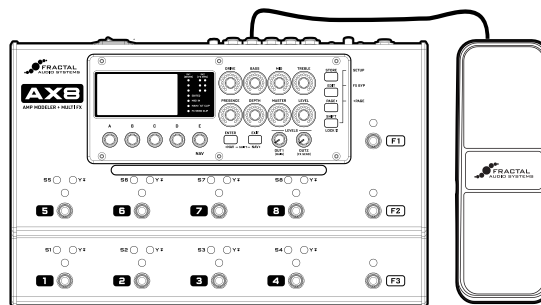
- ▶ **CONNECT** – Using a TRS cable, connect to either the **PEDAL 1** or **PEDAL 2** jack of the AX8.
- ▶ Open the **PEDAL** page of the I/O menu. (Press **SETUP**, press **Switch 2**, press **PAGE** to get to **PEDAL**).
- ▶ Select **PEDAL 1-4 CAL** (depending on where your pedal is connected).
- ▶ Press the **ENTER** button and follow the on-screen instructions to calibrate.

### 2 Select the volume function of your choice:

- ▶ Open the **CTRL** page of the I/O menu. (Press **SETUP**, press **Switch 2**, press **PAGE** to get to **CTRL**).
- ▶ At the top of the **CTRL** menu, **NAV** to the entry for the volume you want to control:
  - **INPUT VOLUME** – Changing this is just like adjusting your guitar’s volume.
  - **OUT 1 (MAIN) VOLUME** – This controls the level of everything at Out 1. Effects, amp, tails, etc.
  - **OUT 2 (FX SEND) VOLUME** – This controls the level of everything at Out 2.

### 3 Change the value for the desired entry to **PEDAL 1-4**, depending on which pedal jack you’re using.

### 4 YOU ARE FINISHED! Press **EXIT** twice and test the pedal.



The Fractal Audio Systems EV-1 expression/volume pedal is ideally suited for the AX8.

# SPILLOVER

Spillover allows delay and reverb tails to ring out when an effect is bypassed or when you change scenes or presets. This section covers how to set up spillover in different scenarios.

## WHEN MANUALLY BYPASSING THE EFFECT, OR CHANGING SCENES

This is easy and requires only one setting change. For tails to ring when an individual effect is bypassed by a Scene change, simply change its **BYPASS MODE** to “MUTE FX IN.”

If an effect is running in parallel, use “MUTE IN” instead.

## WHEN CHANGING PRESETS

Setting up spillover that works across different presets is a bit more involved. The first step is to set the SPILLOVER setting on the SETTINGS page of the GLOBAL menu ([p. 75](#)) to determine whether Delays, Reverbs, or “BOTH” will spill over when you change presets. (“Delay” does not include the Multi-Delay block).

When you want spillover to happen between presets, you also need to ensure that the same delay or reverb blocks exist in each of them. These need to be the same block and the same INSTANCE (i.e. Delay 1 spills only through Delay 1 and Delay 2 spills only through Delay 2).

Ideally, the corresponding blocks in each preset should have the same settings as well. This is because the moment you change to a new preset, the parameter settings for its blocks will “take over” processing the tails. If you change from a preset where delay has a time of 500 ms to one where the time is 100 ms, the tails will be “inserted” into the new effect and be heard as 100 ms echoes (with possible glitches if certain settings change). For spillover to work perfectly then, the pair(s) of blocks in both “starting” and “landing” presets must have essentially identical settings and must have similar (if not identical) placement on the grid. You would hear quite a sudden difference in the tail, for instance, if a delay was placed after a clean amp block in the first preset and in front of a heavily overdriven amp block in the second.

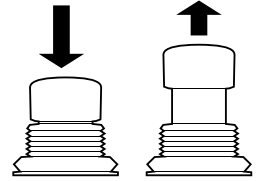
Bypass states and **BYPASS MODE** settings must also be considered. Switching from a preset where delay or reverb is *engaged* to one where it is *bypassed* with a **BYPASS MODE** setting of “MUTE FX OUT” will prevent the tails from being heard. Switching to a preset where the block is bypassed with a setting of “MUTE FX IN” however, will cleverly allow the tails to ring while material you play after the preset change will be heard without the effect. See [“Mix Page Common Parameters” on p. 62](#).

**QUICK TIP** For a simple spillover preset experiment, create a preset, then save an exact copy to a new location and test spillover. Then begin making changes as needed to settings outside of the blocks you want to spill over. AX8-Edit also makes it easy to copy and paste a block from one preset to another.

## UP- VS. DOWN-STROKE FX SWITCHING

By default, the AX8 uses both “tap” and “press-and-hold” actions on its footswitches. This gives the F-Switches double functions, and it allows Footswitches 1-8 to be used for both bypass/engage and X/Y switching.

Because of this, the AX8 must execute all tap functions on the up-stroke of the footswitch, rather than the down-stroke. When your foot goes down, the AX8 begins waiting. If the switch does NOT come up after a critical time window has passed, the Press-and-Hold function is executed. If the switch DOES come up, the tap function is executed.



If you would rather have your effect footswitches engage on the down-stroke, you can turn off press-and-hold X/Y switching in two ways:

### OPTION ONE: DISABLE PRESS-AND-HOLD IN THE GLOBAL MENU

This convenient global option turns off Press-and-Hold for X/Y Switching so effects fire on the down-stroke.

- ▶ Press **SETUP** (Shift + Store)
- ▶ Press footswitch **1** for the GLOBAL menu
- ▶ Make sure you are on the SETTINGS page.
- ▶ **NAV** to **PRESS/HOLD X/Y**
- ▶ Use the A knob to turn it ON or OFF.
- ▶ Press **EXIT** twice to finish.

### OPTION TWO: ASSIGN ANY X/Y MODE TO ANY F-SWITCH

When you assign either Single X/Y or Sticky X/Y to one of the F-Switches, the AX8 assumes that you don’t want Press-and-Hold X/Y action. Changing F-Switch functions is easy. Here’s a review:

- ▶ Press **SETUP** (Shift + Store)
- ▶ Press footswitch **1** for the GLOBAL menu
- ▶ Press **PAGE** to turn to the F-SWITCH page.
- ▶ Select one of the available F-Switches using the **E/NAV** knob.
- ▶ Assign an X/Y function using the A knob.
- ▶ Press EXIT two times when you’re done.

#### **QUICK TIP**

If you set the “HOLD” function of any F-Switch to “NONE”, its TAP function switch will execute on the switch down-stroke instead of the up-stroke.

This is useful for switches assigned to PRESET UP and PRESET DN because you’ll often want to make this kind of change right on the downbeat.

# FREQUENTLY ASKED QUESTIONS

Here are the answers to some frequently-asked questions about the AX8.

Fractal Audio Systems also offers help at [support.fractalaudio.com](http://support.fractalaudio.com)

You can also find answers and meet others who use the AX8 at [forum.fractalaudio.com](http://forum.fractalaudio.com)

**Q:** How do I upgrade the firmware of my AX8?

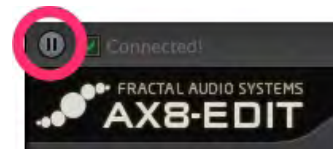
**A:** Use Fractal-Bot, available from [www.fractalaudio.com](http://www.fractalaudio.com)

**Q:** Can I load my presets from the Axe-Fx or FX8 into the AX8?

**A:** No, but you can transfer individual blocks using the editor software for each product. See [“Transferring Blocks Between Products” on p. 91](#) for details.

**Q:** Why does my AX8 keep changing to the Edit menu of one of my effects?

**A:** This is normal while AX8-Edit is running. The “pause” button in the upper left corner of the program is designed to stop this so you can edit the unit from its top panel without interference from the editor.



**Q:** The effect on/off footswitches seem a little sluggish. Why is that?

**A:** Because it supports Press-and-Hold functions, the AX8 activates effects on the up-stroke of the footswitch instead of the down-stroke. You can change this behavior. Please see [“Up- vs. Down-Stroke Fx Switching” on p. 87](#) for more information.

**Q:** I’m hearing click and pops.

**A:** Are you clipping the AX8 outputs? Could it be a bad cable in your rig? Excessive CPU usage may also be to blame. Check the STATUS page in the UTILITY menu under **SETUP**. Is the CPU meter at or near 90%? If so, you’ve overloaded the current preset. Try removing one block or reviewing [“Preset CPU Limits” on p. 35](#) for useful tips.

**Q:** Where can I learn more about all the many parameters for all of these effect blocks?

**A:** We’re currently working on a universal **Effect Parameters Guide** for all Fractal Audio Systems products. Meanwhile, the Axe-Fx II manual has most of the answers you might need. Find it at [www.fractalaudio.com/support](http://www.fractalaudio.com/support).

**Q:** One my effects has totally stopped working!

**A:** Relax. When a tweaked effect overloads the CPU, the AX8 will disable one effect block. This block will be quickly blink on the grid and footswitch page, and its Edit Menu will show “DISABLED”. Reduce CPU load and the effect should automatically re-enable itself.

**Q:** My expression pedal isn’t working. What should I do?

**A:** Expression pedals need to be calibrated, mapped to a controller, and assigned to a parameter. See [“Connecting Pedals & Switches” on p. 18](#) for a basic overview. Are you using a TRS cable? Is it connected to the right jack on the AX8? Is it actually an expression pedal? Did you set up a modifier according to the information in [Section 8](#)?

**Q:** My AX8 won’t start up correctly.

**A:** One problem that may cause this is a bad preset. To get around this issue, reboot the AX8, but as soon as the “Splash Screen” is displayed, tap **ENTER** to load an empty, initialized preset. If this solves your trouble, you’ll need to find and overwrite the problem preset, which may be as easy as pressing **STORE, ENTER, ENTER** after performing this special startup routine.

**Q:** Q: One or more of my presets produces no sound.

**A:** A: This might be any one (or several) of a number of things:

Is your rig working correctly? Most of the time, the problem is a faulty or disconnected cable!

Have you double-checked to ensure that you have a complete path from the input to the output?

Is there a MODIFIER assigned to a volume or level control while the pedal or external switch is not present? See [“Modifiers” on p. 63](#) for more about how to correct this. You may also need to change the Initial Value for an external controller from 0% to 100%.

See [“External Controller Initial Values” on p. 70](#)

Does the preset require a USER CAB which is not loaded? Try changing the CAB block to a Factory cab.

**Q:** Can I use a computer or external MIDI controller to operate the AX8?

**A:** Yes. The AX8 has a rich MIDI spec which allows it to be remote controlled. See [“MIDI Implementation” on p. 94](#)

**Q:** What is “FRFR”?

**A:** FRFR stands for “full-range, flat response.” This acronym is used to describe a “neutral” speaker or speaker system that is designed to reproduce the entire audible spectrum of 20 Hz – 20kHz without emphasis or de-emphasis. Examples of FRFR systems would include studio monitors and properly designed PA systems or components. Many manufacturers are also now offering FRFR systems designed specifically for direct guitar applications.

**Q:** Why all the technical terminology? Can’t every control just go from 1 to 10?

**A:** Only the precise terminology of audio engineering allows the very diverse communities of casual and professional players, producers, engineers, and others, to get the most from the AX8. If you’d like to brush up on Hertz, PicoFarads, milliseconds, etc., you can easily find a good glossary of pro audio terms online, or refer to the appendix of the Axe-Fx II manual.

**Q:** Why would I place a certain effect BEFORE or AFTER the Amp and Cab?

**A:** Sonically speaking, the main reason to care about effect placement is that a given effect will sound different when placed before or after distortion.

How does this difference sound? If you’ve ever switched the sequence of traditional DRIVE and WAH pedals, you’ve heard an excellent example. In the case of wah before overdrive, the resonant filter of the wah “excites” the overdrive in a cool way while still retaining a natural overall tone. When the wah follows distortion, you might hear a more dramatic filtered sweep—with heavy distortion it can get almost synth-like—which might be considered less “classic.” It’s not surprising then that Wah would traditionally be a run as a “pre” effect between guitar and amp. The amp’s distortion follows the wah effect. Many other effects fall in this same category.

A different example is found in overdrive with reverb and delay. In the natural world, reverb and echo occur because of open spaces around your guitar amp – like a club or concert hall. These effects would therefore NOT be heard before a distorted amp, but *after* it. Recording studios often add these kinds of effects at the console—after the mic has picked up the distorted sound from the guitar amp. If you wanted to simulate this natural sounding reverb or delay these effects would likely be run “post.” This is not to say that delay or reverb before distortion is a “no-no.” Many “legendary” tones came from echo units in front of an amp—but this effect is very different from “post” delay—not only tonally, but also in terms of dynamics.

The good news is that the AX8 allows you to experiment easily and find what combinations of pre- and post-effects work best for you. Creativity begins where conformity ends.

## 12 ADDITIONAL TOPICS

**Q:** Why do I hear a pop or a gap when changing certain X/Y block types?

**A:** When you change X/Y, the AX8 may need to completely reprogram a block for its new function. In some cases, this is sonically transparent. In other cases, this may mean making changes inside the block which cause a small pop or gap. One option for DRIVE blocks that makes this completely avoidable is to use two different blocks instead of one block with X/Y Switching.

**Q:** My AX8 stopped working during or after a firmware update. How can I recover it?

**A:** The AX8 has a built in recovery routine. Power the unit off. Hold down the **SHIFT** button, and then power the unit on. Hold the button for about 1 second beyond the power up, and then release. Turn the page to the FIRMWARE screen and you will be able to install firmware using Fractal-Bot.



# TRANSFERRING BLOCKS BETWEEN PRODUCTS

The AX8, FX8 and Axe-Fx II cannot share presets, but you CAN transfer individual effect block settings from one product to another using our editor software applications: AX8-Edit, FX8-Edit, and Axe-Edit.

Axe-Fx Blocks from firmware 18.04 or newer (including all “Quantum” versions) are supported in this way.

## ABOUT THE BLOCK LIBRARY

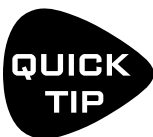
The Block Library feature is one of the best reasons to use our editors. It allows you to save a collection of fully-dialed-in blocks to draw from whenever you are creating or editing presets. For example, you might save a favorite perfectly-tweaked Drive block as “Tweaked Screamer”. Once you do, it only takes a few mouse clicks to drop this block in wherever and whenever you need it. It is the files created by the Block Library that make it possible to transfer blocks from one unit to another.

## EXAMPLE: BLOCK TRANSFER FROM AN AXE-FX TO AN AX8

In this example we’ll transfer an Amp block from Axe-Edit to AX8-Edit by copying a block .syx file from the Axe-Edit Block Library to the AX8-Edit Block Library.

1. Run Axe-Edit. Find the block you wish to transfer.
2. Add that block to the Axe-Edit block library:
  - Select the block.
  - Click the “+” (plus) menu in the Blocks Library control in the lower left and select “Save”.
  - Give your block a meaningful name. “My Amp” is not good. “Amp Deluxe Mid Crunch” is great.
3. Repeat the above steps for any number of blocks you wish to transfer. TIP: Axe-Edit includes a feature which allows you to save ALL Blocks in the current preset to the library at once!
4. Locate the block on your computer using Finder or Explorer.  
Shortcut: Click the Block Library “+” menu and choose “**Show Folder**”.
5. Select the file(s) for your block(s) and copy to your computer’s clipboard using the keyboard shortcut for COPY (**Cmd/Ctrl + C**)
6. Now open the AX8-Edit Block Library folder. If you don’t know where it is, use the same shortcut:
  - Launch AX8 Edit and select any block on the grid.
  - Click the “+” (plus) menu in the Blocks Library control in the lower left and choose “Show Folder”.
7. Paste your Axe-Edit blocks into th AX8-Edit Blocks library using the keyboard shortcut for PASTE (**Cmd/Ctrl + V**)
8. If it is already running, re-launch AX8-Edit so it can scan your new blocks.
9. To INSERT from the block library, choose any grid space (empty or populated) and choose **Block : Library : Recall** from the top menu.

The location of the library can be changed for each program under Settings : Preferences : Workspace. Once you know where the libraries are, you can simply use Finder or Explorer to copy/paste or drag and drop files from one to the other.



You can change the location of the Block Library folder on your computer for each of our editors (though you’ll need to move pre-existing blocks manually.) One possibility is setting the Block Workspace for multiple editors to the *same folder*, though after doing so you may see a warning in Axe-Edit if your version (pre 3.4.0) is too old to load blocks created by AX8-Edit.

## MAIN MENU SOFT KNOBS GUIDE

The **A**, **B**, **C**, **D** and **E** knobs change their functions across the different pages of the main menu that displays when you power on the AX8. Here is a table showing what each of them does.

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Footswitch ("FS")</b>	Value	Preset Select	Scene Select	Nav ◀▶	Nav ⇅
<b>Layout</b>	Value	--	Scene Select	Nav ◀▶	Nav ⇅
<b>Move</b>	Value	--	--	Nav ◀▶	Nav ⇅
<b>MIDI</b>	Value	--	Scene Select	--	Nav ⇅

## HIDDEN EDIT BUTTON FUNCTIONS

Certain buttons of the AX8 have special context-sensitive functions activated when you tap or double-tap.

### IN THE GRID

Double-Tap **EDIT**: Toggle X/Y.

### IN ANY BLOCK'S EDIT MENU

Double-Tap **EDIT**: Toggle X/Y.

Tap **SHIFT** then Double-Tap **EDIT**: Display a dialog to RESET the entire block back to default settings

### IN EITHER GLOBAL GRAPHIC EQ

Tap **SHIFT** then Double-Tap **EDIT**: Flatten the equalizer.

### ON THE GRAPHIC EQ PAGE OF THE AMP

Tap **ENTER**: Flatten the EQ.

### IN THE SEQUENCER WITH ANY "STAGE" SELECTED

Tap **ENTER**: Randomize all stages.

# 13 SPECIFICATIONS & DEFAULTS

---

## INPUT 1 [INSTRUMENT]:

Connector:	1/4" phone jack, unbalanced.
Impedance:	1 Megohm
Max. Input Level:	+16 dBu (conditioned for guitar use)

---

## INPUT 2 [FX RTN]:

Connector:	2 x 1/4" phone jack, balanced.
Impedance:	1 Megohm
Max. Input Level:	+20 dBu

---

## A/D CONVERSION

Bit Depth:	24 bits
Sample Rate:	48 kHz
Dynamic Range:	> 110 dB
Frequency Response:	20 – 20kHz, +0 / -1 dB
Crosstalk:	< -60 dB over full bandwidth

---

## ANALOG OUTPUTS

Connectors:	<b>OUT 1 [MAIN]:</b> 2 x XLR Balanced <b>OUT 1 [MAIN]:</b> 2 x 1/4" phone jack unbalanced (Humbuster™ hum-canceling type) <b>OUT 2 [FX SEND]:</b> 2 x 1/4" phone jack unbalanced (Humbuster™ hum-canceling type)
Impedance:	600 ohm
Max Output Level:	+20 dBu
Dynamic Range:	> 110 dB
Frequency Response:	20 – 20kHz, +0 / -1 dB
Crosstalk:	< -60 dB over full bandwidth

---

## DIGITAL OUTPUT

Connector:	RCA Coaxial Type for S/PDIF
Format:	S/PDIF 24-bit, 48 kHz fixed

---

## MIDI INTERFACE

Connectors (In and Out/Thru):	2 x 5-pin DIN connector
-------------------------------	-------------------------

---

## PEDAL INTERFACE

Connector:	4 x 1/4" TRS phone jacks
Format:	Switch: Momentary or Latching; Pedal: 10–100kΩ max, linear taper expression type.

---

## USB INTERFACE:

Connector:	USB 2.0 Type B
------------	----------------

---

## GENERAL

Finish:	Powder coated steel chassis with anodized aluminum faceplate and end panels
Display:	160x80 dot matrix graphic LCD
Dimensions:	16.1" x 4.0" x 10.3" (410mm x 101mm x 262mm)
Weight:	11.8 lbs. (5.4 kg)
Input Voltage:	100–240 VAC, 47 – 63 Hz (universal input)
Power Consumption:	<40 W

---

## ENVIRONMENTAL

Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-22 to 167 °F (-30 to 70 °C)
Humidity:	Max. 90% non-condensing

**SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.**

# MIDI IMPLEMENTATION

The AX8 features a robust MIDI implementation detailed below.

Function		Tx	Rx	Remarks
Basic Channel	Default	1	1	
	Changed	1-16	1-16	
Note Number	True Voice	X	X	
Velocity	Note ON	X	X	
	Note OFF	X	X	
After Touch	Keys	X	X	
	Channels	X	X	
Pitch Bend		X	X	
Control Change		X	O	Receivable CCs are globally soft-assigned to functions via the I/O: CTRL menu. These include master volumes, Tap Tempo, Tuner, 12 "EXTERNAL" control nodes (assignable as modifiers to one or more parameters on a per-preset basis), all Looper functions, the BYPASS switch of every block instance (DRIVE1, DRIVE2, CHORUS, etc.), and the X/Y switches of the block types that support this function (DRIVE 1 XY, DRIVE 2 XY, etc.).
Program Change	True Number	O	O	The AX8 can transmit CC and PC messages.
	Bank Select	X	O	
System Exclusive	Fractal Audio	O	O	SysEx is used extensively for AX8-Edit.
	Real time	O	X	
	Non-Real time	X	X	
System Common	Song Position	X	X	
	Song Select	X	X	
	Tune Request	X	X	
System Real time	Clock	X	O	AX8 Global Tempo syncs automatically to MIDI Beat Clock. AX8 does not transmit MIDI clock.
	Commands	X	X	
Auxiliary Messages	Local ON/OFF	X	X	
	All Notes OFF	X	X	
	Active Sense	X	X	
	Reset	X	X	

# FACTORY DEFAULT MIDI CC SETTINGS

The following text table lists the default MIDI CC# assignments for each of the available functions in the AX8. In addition to a MIDI CC, any item can be set to NONE, or PEDAL 1–4. All such assignments are global.

In 1 (Instr) Volume . . . . .	10	Scene Select . . . . .	34	Rotary Bypass . . . . .	86
Out 1 (Main) Volume . . . . .	11	Scene Increment . . . . .	123	Synth . . . . .	88
Out 2 (FX Send) Volume . . . . .	12	Scene Decrement . . . . .	124	Trem/Pan Bypass . . . . .	90
Tempo Tap . . . . .	14	Out 1 Vol Incr . . . . .	35	Volume/Pan 1 Bypass . . . . .	93
Tuner . . . . .	15	Out 1 Vol Decr . . . . .	36	Volume/Pan 2 Bypass . . . . .	94
External Control 1 . . . . .	PEDAL 1	Chorus Bypass . . . . .	41	Wahwah Bypass . . . . .	97
External Control 2 . . . . .	PEDAL 2	Compressor Bypass . . . . .	43	Chorus X/Y . . . . .	104
External Control 3 . . . . .	PEDAL 3	Delay 1 Bypass . . . . .	47	Delay 1 X/Y . . . . .	106
External Control 4 . . . . .	PEDAL 4	Delay 2 Bypass . . . . .	48	Delay 2 X/Y . . . . .	107
External Control 5 . . . . .	20	Drive 1 Bypass . . . . .	49	Drive 1 X/Y . . . . .	108
External Control 6 . . . . .	21	Drive 2 Bypass . . . . .	50	Drive 2 X/Y . . . . .	109
External Control 7 . . . . .	22	Enhancer Bypass . . . . .	51	Filter 1 X/Y . . . . .	NONE
External Control 8 . . . . .	23	Filter 1 Bypass . . . . .	52	Filter 2 X/Y . . . . .	NONE
External Control 9 . . . . .	24	Filter 2 Bypass . . . . .	53	Flanger X/Y . . . . .	110
External Control 10 . . . . .	25	Flanger Bypass . . . . .	56	Gate/Exp X/Y . . . . .	NONE
External Control 11 . . . . .	26	Formant Bypass . . . . .	58	Multidelay X/Y . . . . .	NONE
External Control 12 . . . . .	27	Gate/Expander Bypass . . . . .	60	Phaser X/Y . . . . .	112
Looper Record . . . . .	28	Graphic EQ 1 Bypass . . . . .	62	Pitch X/Y . . . . .	114
Looper Play . . . . .	29	Graphic EQ 2 Bypass . . . . .	63	Rotary X/Y . . . . .	125
Looper Once . . . . .	30	Multidelay Bypass . . . . .	69	Reverb X/Y . . . . .	116
Looper Dub . . . . .	31	Parametric EQ 1 Bypass . . . . .	71	Trem/Pan X/Y . . . . .	NONE
Looper Rev . . . . .	32	Parametric EQ 2 Bypass . . . . .	72	Wahwah X/Y . . . . .	118
Looper Bypass . . . . .	33	Phaser Bypass . . . . .	75		
Looper Half . . . . .	120	Pitch Bypass . . . . .	77		
Looper Undo . . . . .	121	Reverb Bypass . . . . .	83		
Metronome . . . . .	122	Ring Mod Bypass . . . . .	85		

# MIDI PROGRAM CHANGE NUMBERS

The following table lists the MIDI Bank and Program Change message required to select AX8 Banks/Presets.

## MIDI Bank Select (CC#0) Value , Midi Program Change = AX8 Bank:Preset

0, 0 = 01:1	0, 46 = 06:7	0, 92 = 12:5	1, 10 = 18:3	1, 56 = 24:1
0, 1 = 01:2	0, 47 = 06:8	0, 93 = 12:6	1, 11 = 18:4	1, 57 = 24:2
0, 2 = 01:3	0, 48 = 07:1	0, 94 = 12:7	1, 12 = 18:5	1, 58 = 24:3
0, 3 = 01:4	0, 49 = 07:2	0, 95 = 12:8	1, 13 = 18:6	1, 59 = 24:4
0, 4 = 01:5	0, 50 = 07:3	0, 96 = 13:1	1, 14 = 18:7	1, 60 = 24:5
0, 5 = 01:6	0, 51 = 07:4	0, 97 = 13:2	1, 15 = 18:8	1, 61 = 24:6
0, 6 = 01:7	0, 52 = 07:5	0, 98 = 13:3	1, 16 = 19:1	1, 62 = 24:7
0, 7 = 01:8	0, 53 = 07:6	0, 99 = 13:4	1, 17 = 19:2	1, 63 = 24:8
0, 8 = 02:1	0, 54 = 07:7	0, 100 = 13:5	1, 18 = 19:3	1, 64 = 25:1
0, 9 = 02:2	0, 55 = 07:8	0, 101 = 13:6	1, 19 = 19:4	1, 65 = 25:2
0, 10 = 02:3	0, 56 = 08:1	0, 102 = 13:7	1, 20 = 19:5	1, 66 = 25:3
0, 11 = 02:4	0, 57 = 08:2	0, 103 = 13:8	1, 21 = 19:6	1, 67 = 25:4
0, 12 = 02:5	0, 58 = 08:3	0, 104 = 14:1	1, 22 = 19:7	1, 68 = 25:5
0, 13 = 02:6	0, 59 = 08:4	0, 105 = 14:2	1, 23 = 19:8	1, 69 = 25:6
0, 14 = 02:7	0, 60 = 08:5	0, 106 = 14:3	1, 24 = 20:1	1, 70 = 25:7
0, 15 = 02:8	0, 61 = 08:6	0, 107 = 14:4	1, 25 = 20:2	1, 71 = 25:8
0, 16 = 03:1	0, 62 = 08:7	0, 108 = 14:5	1, 26 = 20:3	1, 72 = 26:1
0, 17 = 03:2	0, 63 = 08:8	0, 109 = 14:6	1, 27 = 20:4	1, 73 = 26:2
0, 18 = 03:3	0, 64 = 09:1	0, 110 = 14:7	1, 28 = 20:5	1, 74 = 26:3
0, 19 = 03:4	0, 65 = 09:2	0, 111 = 14:8	1, 29 = 20:6	1, 75 = 26:4
0, 20 = 03:5	0, 66 = 09:3	0, 112 = 15:1	1, 30 = 20:7	1, 76 = 26:5
0, 21 = 03:6	0, 67 = 09:4	0, 113 = 15:2	1, 31 = 20:8	1, 77 = 26:6
0, 22 = 03:7	0, 68 = 09:5	0, 114 = 15:3	1, 32 = 21:1	1, 78 = 26:7
0, 23 = 03:8	0, 69 = 09:6	0, 115 = 15:4	1, 33 = 21:2	1, 79 = 26:8
0, 24 = 04:1	0, 70 = 09:7	0, 116 = 15:5	1, 34 = 21:3	1, 80 = 27:1
0, 25 = 04:2	0, 71 = 09:8	0, 117 = 15:6	1, 35 = 21:4	1, 81 = 27:2
0, 26 = 04:3	0, 72 = 10:1	0, 118 = 15:7	1, 36 = 21:5	1, 82 = 27:3
0, 27 = 04:4	0, 73 = 10:2	0, 119 = 15:8	1, 37 = 21:6	1, 83 = 27:4
0, 28 = 04:5	0, 74 = 10:3	0, 120 = 16:1	1, 38 = 21:7	1, 84 = 27:5
0, 29 = 04:6	0, 75 = 10:4	0, 121 = 16:2	1, 39 = 21:8	1, 85 = 27:6
0, 30 = 04:7	0, 76 = 10:5	0, 122 = 16:3	1, 40 = 22:1	1, 86 = 27:7
0, 31 = 04:8	0, 77 = 10:6	0, 123 = 16:4	1, 41 = 22:2	1, 87 = 27:8
0, 32 = 05:1	0, 78 = 10:7	0, 124 = 16:5	1, 42 = 22:3	1, 88 = 28:1
0, 33 = 05:2	0, 79 = 10:8	0, 125 = 16:6	1, 43 = 22:4	1, 89 = 28:2
0, 34 = 05:3	0, 80 = 11:1	0, 126 = 16:7	1, 44 = 22:5	1, 90 = 28:3
0, 35 = 05:4	0, 81 = 11:2	0, 127 = 16:8	1, 45 = 22:6	1, 91 = 28:4
0, 36 = 05:5	0, 82 = 11:3	1, 0 = 17:1	1, 46 = 22:7	1, 92 = 28:5
0, 37 = 05:6	0, 83 = 11:4	1, 1 = 17:2	1, 47 = 22:8	1, 93 = 28:6
0, 38 = 05:7	0, 84 = 11:5	1, 2 = 17:3	1, 48 = 23:1	1, 94 = 28:7
0, 39 = 05:8	0, 85 = 11:6	1, 3 = 17:4	1, 49 = 23:2	1, 95 = 28:8
0, 40 = 06:1	0, 86 = 11:7	1, 4 = 17:5	1, 50 = 23:3	1, 96 = 29:1
0, 41 = 06:2	0, 87 = 11:8	1, 5 = 17:6	1, 51 = 23:4	1, 97 = 29:2
0, 42 = 06:3	0, 88 = 12:1	1, 6 = 17:7	1, 52 = 23:5	1, 98 = 29:3
0, 43 = 06:4	0, 89 = 12:2	1, 7 = 17:8	1, 53 = 23:6	1, 99 = 29:4
0, 44 = 06:5	0, 90 = 12:3	1, 8 = 18:1	1, 54 = 23:7	1, 100 = 29:5
0, 45 = 06:6	0, 91 = 12:4	1, 9 = 18:2	1, 55 = 23:8	1, 101 = 29:6

### 13 SPECIFICATIONS & DEFAULTS

1, 102 = 29:7	2, 26 = 36:3	2, 78 = 42:7	3, 2 = 49:3	3, 54 = 55:7	3, 106 = 62:3
1, 103 = 29:8	2, 27 = 36:4	2, 79 = 42:8	3, 3 = 49:4	3, 55 = 55:8	3, 107 = 62:4
1, 104 = 30:1	2, 28 = 36:5	2, 80 = 43:1	3, 4 = 49:5	3, 56 = 56:1	3, 108 = 62:5
1, 105 = 30:2	2, 29 = 36:6	2, 81 = 43:2	3, 5 = 49:6	3, 57 = 56:2	3, 109 = 62:6
1, 106 = 30:3	2, 30 = 36:7	2, 82 = 43:3	3, 6 = 49:7	3, 58 = 56:3	3, 110 = 62:7
1, 107 = 30:4	2, 31 = 36:8	2, 83 = 43:4	3, 7 = 49:8	3, 59 = 56:4	3, 111 = 62:8
1, 108 = 30:5	2, 32 = 37:1	2, 84 = 43:5	3, 8 = 50:1	3, 60 = 56:5	3, 112 = 63:1
1, 109 = 30:6	2, 33 = 37:2	2, 85 = 43:6	3, 9 = 50:2	3, 61 = 56:6	3, 113 = 63:2
1, 110 = 30:7	2, 34 = 37:3	2, 86 = 43:7	3, 10 = 50:3	3, 62 = 56:7	3, 114 = 63:3
1, 111 = 30:8	2, 35 = 37:4	2, 87 = 43:8	3, 11 = 50:4	3, 63 = 56:8	3, 115 = 63:4
1, 112 = 31:1	2, 36 = 37:5	2, 88 = 44:1	3, 12 = 50:5	3, 64 = 57:1	3, 116 = 63:5
1, 113 = 31:2	2, 37 = 37:6	2, 89 = 44:2	3, 13 = 50:6	3, 65 = 57:2	3, 117 = 63:6
1, 114 = 31:3	2, 38 = 37:7	2, 90 = 44:3	3, 14 = 50:7	3, 66 = 57:3	3, 118 = 63:7
1, 115 = 31:4	2, 39 = 37:8	2, 91 = 44:4	3, 15 = 50:8	3, 67 = 57:4	3, 119 = 63:8
1, 116 = 31:5	2, 40 = 38:1	2, 92 = 44:5	3, 16 = 51:1	3, 68 = 57:5	3, 120 = 64:1
1, 117 = 31:6	2, 41 = 38:2	2, 93 = 44:6	3, 17 = 51:2	3, 69 = 57:6	3, 121 = 64:2
1, 118 = 31:7	2, 42 = 38:3	2, 94 = 44:7	3, 18 = 51:3	3, 70 = 57:7	3, 122 = 64:3
1, 119 = 31:8	2, 43 = 38:4	2, 95 = 44:8	3, 19 = 51:4	3, 71 = 57:8	3, 123 = 64:4
1, 120 = 32:1	2, 44 = 38:5	2, 96 = 45:1	3, 20 = 51:5	3, 72 = 58:1	3, 124 = 64:5
1, 121 = 32:2	2, 45 = 38:6	2, 97 = 45:2	3, 21 = 51:6	3, 73 = 58:2	3, 125 = 64:6
1, 122 = 32:3	2, 46 = 38:7	2, 98 = 45:3	3, 22 = 51:7	3, 74 = 58:3	3, 126 = 64:7
1, 123 = 32:4	2, 47 = 38:8	2, 99 = 45:4	3, 23 = 51:8	3, 75 = 58:4	3, 127 = 64:8
1, 124 = 32:5	2, 48 = 39:1	2, 100 = 45:5	3, 24 = 52:1	3, 76 = 58:5	
1, 125 = 32:6	2, 49 = 39:2	2, 101 = 45:6	3, 25 = 52:2	3, 77 = 58:6	
1, 126 = 32:7	2, 50 = 39:3	2, 102 = 45:7	3, 26 = 52:3	3, 78 = 58:7	
1, 127 = 32:8	2, 51 = 39:4	2, 103 = 45:8	3, 27 = 52:4	3, 79 = 58:8	
2, 0 = 33:1	2, 52 = 39:5	2, 104 = 46:1	3, 28 = 52:5	3, 80 = 59:1	
2, 1 = 33:2	2, 53 = 39:6	2, 105 = 46:2	3, 29 = 52:6	3, 81 = 59:2	
2, 2 = 33:3	2, 54 = 39:7	2, 106 = 46:3	3, 30 = 52:7	3, 82 = 59:3	
2, 3 = 33:4	2, 55 = 39:8	2, 107 = 46:4	3, 31 = 52:8	3, 83 = 59:4	
2, 4 = 33:5	2, 56 = 40:1	2, 108 = 46:5	3, 32 = 53:1	3, 84 = 59:5	
2, 5 = 33:6	2, 57 = 40:2	2, 109 = 46:6	3, 33 = 53:2	3, 85 = 59:6	
2, 6 = 33:7	2, 58 = 40:3	2, 110 = 46:7	3, 34 = 53:3	3, 86 = 59:7	
2, 7 = 33:8	2, 59 = 40:4	2, 111 = 46:8	3, 35 = 53:4	3, 87 = 59:8	
2, 8 = 34:1	2, 60 = 40:5	2, 112 = 47:1	3, 36 = 53:5	3, 88 = 60:1	
2, 9 = 34:2	2, 61 = 40:6	2, 113 = 47:2	3, 37 = 53:6	3, 89 = 60:2	
2, 10 = 34:3	2, 62 = 40:7	2, 114 = 47:3	3, 38 = 53:7	3, 90 = 60:3	
2, 11 = 34:4	2, 63 = 40:8	2, 115 = 47:4	3, 39 = 53:8	3, 91 = 60:4	
2, 12 = 34:5	2, 64 = 41:1	2, 116 = 47:5	3, 40 = 54:1	3, 92 = 60:5	
2, 13 = 34:6	2, 65 = 41:2	2, 117 = 47:6	3, 41 = 54:2	3, 93 = 60:6	
2, 14 = 34:7	2, 66 = 41:3	2, 118 = 47:7	3, 42 = 54:3	3, 94 = 60:7	
2, 15 = 34:8	2, 67 = 41:4	2, 119 = 47:8	3, 43 = 54:4	3, 95 = 60:8	
2, 16 = 35:1	2, 68 = 41:5	2, 120 = 48:1	3, 44 = 54:5	3, 96 = 61:1	
2, 17 = 35:2	2, 69 = 41:6	2, 121 = 48:2	3, 45 = 54:6	3, 97 = 61:2	
2, 18 = 35:3	2, 70 = 41:7	2, 122 = 48:3	3, 46 = 54:7	3, 98 = 61:3	
2, 19 = 35:4	2, 71 = 41:8	2, 123 = 48:4	3, 47 = 54:8	3, 99 = 61:4	
2, 20 = 35:5	2, 72 = 42:1	2, 124 = 48:5	3, 48 = 55:1	3, 100 = 61:5	
2, 21 = 35:6	2, 73 = 42:2	2, 125 = 48:6	3, 49 = 55:2	3, 101 = 61:6	
2, 22 = 35:7	2, 74 = 42:3	2, 126 = 48:7	3, 50 = 55:3	3, 102 = 61:7	
2, 23 = 35:8	2, 75 = 42:4	2, 127 = 48:8	3, 51 = 55:4	3, 103 = 61:8	
2, 24 = 36:1	2, 76 = 42:5	3, 0 = 49:1	3, 52 = 55:5	3, 104 = 62:1	
2, 25 = 36:2	2, 77 = 42:6	3, 1 = 49:2	3, 53 = 55:6	3, 105 = 62:2	

## 13 SPECIFICATIONS & DEFAULTS

### CC#34 TO SCENE

By default, MIDI CC# 34 selects SCENES. The *value* sent determines the Scene:

0-----1	16-----1	32-----1	48-----1	64-----1	80-----1	96-----1	112-----1
1-----2	17-----2	33-----2	49-----2	65-----2	81-----2	97-----2	113-----2
2-----3	18-----3	34-----3	50-----3	66-----3	82-----3	98-----3	114-----3
3-----4	19-----4	35-----4	51-----4	67-----4	83-----4	99-----4	115-----4
4-----5	20-----5	36-----5	52-----5	68-----5	84-----5	100-----5	116-----5
5-----6	21-----6	37-----6	53-----6	69-----6	85-----6	101-----6	117-----6
6-----7	22-----7	38-----7	54-----7	70-----7	86-----7	102-----7	118-----7
7-----8	23-----8	39-----8	55-----8	71-----8	87-----8	103-----8	119-----8
8-----1	24-----1	40-----1	56-----1	72-----1	88-----1	104-----1	120-----1
9-----2	25-----2	41-----2	57-----2	73-----2	89-----2	105-----2	121-----2
10-----3	26-----3	42-----3	58-----3	74-----3	90-----3	106-----3	122-----3
11-----4	27-----4	43-----4	59-----4	75-----4	91-----4	107-----4	123-----4
12-----5	28-----5	44-----5	60-----5	76-----5	92-----5	108-----5	124-----5
13-----6	29-----6	45-----6	61-----6	77-----6	93-----6	109-----6	125-----6
14-----7	30-----7	46-----7	62-----7	78-----7	94-----7	110-----7	126-----7
15-----8	31-----8	47-----8	63-----8	79-----8	95-----8	111-----8	127-----8



## WARRANTY

# WARRANTY

Fractal Audio Systems warrants that your new Fractal Audio Systems product shall be free of defects in materials and workmanship for a period of one (1) year from the original date of purchase.

During the warranty period, Fractal Audio Systems shall, at its sole option, either repair or replace any product that proves to be defective upon inspection by Fractal Audio Systems.

Fractal Audio Systems reserves the right to update any unit returned for repair and to change or improve the design of the product at any time without notice. Fractal Audio Systems reserves the right to use reconditioned parts and assemblies as warranty replacements for authorized repairs. This warranty is extended to the original retail purchaser for units purchased directly from Fractal Audio Systems or one of its authorized distributors or resellers.

This is your sole warranty. Fractal Audio Systems does not authorize any third party, including any dealer or sales representative, to assume any liability on behalf of Fractal Audio Systems or to make any warranty for Fractal Audio Systems. Fractal Audio Systems may, at its option, require proof of original purchase date in the form of a dated copy of original authorized dealer's invoice or sales receipt. Service and repairs of Fractal Audio Systems products are to be performed only at the Fractal Audio Systems factory or a Fractal Audio Systems authorized service center. Fractal Audio Systems may require advanced authorization of repairs to authorized service centers. Unauthorized service, repair or modification will void this warranty.

### **DISCLAIMER AND LIMITATION OF WARRANTY**

THE FOREGOING WARRANTY IS THE ONLY WARRANTY GIVEN BY FRACTAL AUDIO SYSTEMS AND IS IN LIEU OF ALL OTHER WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE, EXCEEDING THE SPECIFIC PROVISIONS OF THIS WARRANTY ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS WARRANTY. UPON EXPIRATION OF THE APPLICABLE EXPRESS WARRANTY PERIOD (1 YEAR), FRACTAL AUDIO SYSTEMS SHALL HAVE NO FURTHER WARRANTY OBLIGATION OF ANY KIND, EXPRESS OR IMPLIED. FRACTAL AUDIO SYSTEMS SHALL IN NO EVENT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES SUFFERED BY THE PURCHASER OR ANY THIRD PARTY, INCLUDING WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS OR BUSINESS, OR DAMAGES RESULTING FROM USE OR PERFORMANCE OF THE PRODUCT, WHETHER IN CONTRACT OR IN TORT. FRACTAL AUDIO SYSTEMS SHALL NOT BE LIABLE FOR ANY EXPENSES, CLAIMS, OR SUITS ARISING OUT OF OR RELATING TO ANY OF THE FOREGOING. Some states do not allow the exclusion or limitation of implied warranties so some of the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state. This warranty only applies to products sold and used in the USA and Canada. Fractal Audio Systems shall not be liable for damages or loss resulting from the negligent or intentional acts of the shipper or its contracted affiliates. You should contact the shipper for proper claims procedures in the event of damage or loss resulting from shipment.

# EULA

BY ACCEPTING, INSTALLING OR USING ANY PART OF THIS PRODUCT YOU ARE CONSENTING TO ALL OF THE TERMS AND CONDITIONS OF THIS ENTIRE END USER LICENSE AGREEMENT ("EULA"). IF YOU DO NOT AGREE TO ALL THE TERMS AND CONDITIONS OF THIS ENTIRE AGREEMENT, ARE UNABLE OR UNWILLING COMPLY WITH THESE TERMS AND CONDITIONS, YOU MUST DISCONTINUE USE OF THE PRODUCT IMMEDIATELY AS YOU HAVE NO AUTHORITY OR LICENSE TO USE THE PRODUCT.

## TERMS AND CONDITIONS

### 1) GRANT OF LICENSE FOR PRE INSTALLED OR USER UPGRADED FIRMWARE ("THE SOFTWARE")

Subject to the terms and conditions set forth herein, Fractal Audio Systems, ("FAS") grants you an individual, personal, non-sub licensable, nonexclusive license to use this product in accordance with the applicable end user documentation, if any (the "License"). The user will not, directly or indirectly, reverse engineer, decompile, disassemble or otherwise attempt to discover the source code or underlying ideas or algorithms of the Software; modify, translate, or create derivative works based on the Software; or copy (except for archival purposes), rent, lease, distribute, assign, or otherwise transfer rights to the Software (except as expressly authorized by this Agreement); remove any proprietary notices, comments, terms and conditions and or labels on or in the Software. As between the parties, you acknowledge that FAS and its licensors retain their respective ownership of the Software, any portions or copies thereof, and all rights therein throughout the world. Upon termination of this Agreement for any reason, the License and all rights granted to you under this Agreement will terminate and you will cease to use the Software. You may permanently transfer the limited rights of use of the Software granted to you under this Agreement only as part of a permanent sale or transfer of the hardware device containing the software, and only if the recipient agrees to be bound by the terms and conditions of this Agreement. You acknowledge that you have no rights in or to, and may not transfer or otherwise authorize the use of, any "beta" or "preview" software of FAS and its licensors. THIS LIMITED LICENSE TO USE AND TRANSFER THE SOFTWARE IS PROVIDED AS-IS AND IS SUBJECT TO THE RESTRICTIONS, INDEMNITY AND WARRANTY DISCLAIMERS AND LIMITATIONS OF LIABILITY SET FORTH BELOW.

### 2) RESTRICTIONS, WARRANTY DISCLAIMERS AND INDEMNITY OBLIGATION AGREED TO BY YOU IN EXCHANGE FOR LIMITED GRANT OF LICENSE.

YOU WILL ONLY USE THE SOFTWARE FOR LAWFUL PURPOSES AND IN COMPLIANCE WITH ALL APPLICABLE LAWS. YOU HEREBY AGREE TO DEFEND AND INDEMNIFY FAS AND ITS LICENSORS AGAINST ANY CLAIM OR ACTION THAT ARISES FROM YOUR USE OF THE SOFTWARE IN AN UNLAWFUL MANNER (INCLUDING, WITHOUT LIMITATION, ANY CLAIM OR ACTION ALLEGING INFRINGEMENT OF ANY PATENT, COPYRIGHT, TRADEMARK, TRADE SECRET, OR OTHER INTELLECTUAL PROPERTY; UNFAIR COMPETITION; VIOLATION OF GENERAL BUSINESS LAWS; OR VIOLATION OF ANY OTHER LAWS OR RIGHTS) OR ANY OTHER USE OF THE SOFTWARE NOT EXPRESSLY AUTHORIZED PURSUANT TO THIS AGREEMENT.

### 3) IMPULSE RESPONSE EXPORT FOR COMMERCIAL USE

Offering for sale any Impulse Response data (e.g. "Tone Match Export/Save/Dump"; "User Cab Export/Save/Dump") created, converted or modified using Fractal Audio Systems hardware and/or software requires a commercial use license. Recording studios, consultants, and other commercial entities may use these features in conjunction with work performed for their commercial customers, but the resulting data files created may not be offered for sale or gifted to their commercial customers or other third parties without a commercial license from FAS and its licensors where applicable. Contact sales@fractalaudio.com to obtain a commercial license.

### 4) IMPULSE RESPONSE DATA EXPORT FOR NON-COMMERCIAL USE

You are free to export Impulse Response data for non-commercial use. This includes producing, converting, or modifying Impulse Response data for yourself, or offering/distributing such data at no charge to third parties. Files created without a commercial license cannot be included for free with another product or package that is offered for sale. Contact sales@fractalaudio.com to obtain a commercial license.

### 5) SUPPORT

Subject to the terms hereof, FAS will provide you with e-mail support services for the Software. Under no circumstances will FAS have any obligation to provide you with hard-copy documentation, upgrades, enhancements, modifications, or telephone support for the Software.

### 6) TERMINATION

This Agreement is effective until terminated. Either party may terminate this Agreement upon written notice to the other party. FAS may also terminate this Agreement immediately, without prior notice or liability, if you breach any of the terms or conditions of this Agreement. All sections of this Agreement which by their nature should survive termination will survive termination, including, without limitation, warranty disclaimers and limitations of liability and limitations of use and transfer of the Software.

### 7) WARRANTY DISCLAIMER

The software is provided as is without warranty of any kind. FAS disclaim all warranties, expressed or implied, including but not limited to implied warranties, fitness for a particular purpose, and non-infringement. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

### 8) LIMITATION OF LIABILITY

NOTWITHSTANDING ANYTHING CONTAINED IN THIS AGREEMENT OR OTHERWISE, YOU AGREE THAT FAS AND ITS LICENSORS WILL NOT BE LIABLE WITH RESPECT TO THE SUBJECT MATTER OF THIS AGREEMENT UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY, INFRINGEMENT OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES OF ANY KIND. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE MAY NOT APPLY TO YOU.

### 9) EXPORT RESTRICTIONS

You acknowledge that the Software, or any part thereof, or any process or service that is the direct product of the Software (the foregoing collectively referred to as the "Restricted Components") are of U.S. origin. You agree to comply with all applicable international and national laws that apply to these products, including the U.S. Export Administration Regulations, as well as end-user, end-use and destination restrictions issued by U.S. and other governments.

### 10) MISCELLANEOUS

The failure of either party to exercise in any respect any right provided for herein will not be deemed a waiver of any further rights hereunder of FAS and or its licensors. If any provision of this Agreement is found to be unenforceable or invalid, that provision will be limited or eliminated to the minimum extent necessary so that this Agreement will otherwise remain in full force and effect and enforceable. This Agreement will be governed by and construed in accordance with the laws of the state of New Hampshire without regard to the conflict of laws provisions thereof. You agree that this Agreement is the complete and exclusive statement of the mutual understanding of the parties and supersedes and cancels all previous written and oral agreements, communications and other understandings relating to the subject matter of this Agreement, and that all modifications to this EULA, or any commercial license that you may have obtained from FAS and or its licensors must be in a writing signed by you, FAS and or its licensors, where applicable, except as otherwise provided herein. No agency, partnership, joint venture, or employment is created as a result of this Agreement and you do not have any authority of any kind to bind FAS and or its licensors in any respect whatsoever. In any action or proceeding to enforce rights under this Agreement, the prevailing party will be entitled to recover costs and attorneys' fees. All notices under this Agreement will be in writing and will be deemed to have been duly given when received, if personally delivered; when receipt is electronically confirmed, if transmitted by facsimile or e-mail; the day after it is sent, if sent for next day delivery by recognized overnight delivery service; and upon receipt, if sent by certified or registered mail, return receipt requested.

