

**MULTI-EFFECTS PEDALBOARD** 

# OWNER'S MANUAL



VERSION 1.02



Inside Front Cover

# Certificate of Conformity

Fractal Audio Systems, USA, hereby declares on its own responsibility that the following product:

FX8 Digital Multi-effects Pedalboard Processor

covered by this certificate and marked with CE label, conforms to following standards:

EN60065 (IEC 60065)	Safety requirement for mains operated electronic and related apparatus for household and similar use.
EN 55103-1	Product family standard for audio, video, audio-visual, and entertainment lighting control apparatus for professional use. Part 1: Emission.
EN 55103-2	Product family standard for audio, video, audio-visual, and entertainment lighting control apparatus for professional use. Part 2: Immunity.

with reference to regulations in following directives: 73/23/EEC, 89/336/EEC.

December 2014

**Clifford Chase, President** 

Fractal Audio Systems

# 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.

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# 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 FX8 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 FX8 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:
- 10. Liquids or excessive moisture enter the unit.
- 11. The unit operates incorrectly or performance is inconsistent or erratic.
- 12. The unit has been dropped and/or the enclosure damaged.
- **13.** 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

1 : INTRODUCTION 1
Quick Overview1
Pre/Post: The Old Way2
Pre/Post: The FX8 Way2
Quick Connect Guide
Stompbox Mode4
A Note On Mono & Stereo4
Humbuster Cables4
2: HARDWARE OVERVIEW5
The Top Panel5
The Rear Panel9
3 : SETUP GUIDE11
Setup For Both PRE And POST Effects12
Setup For PRE Effects Only
Setup For POST Effects Only14
Checking Levels
Connecting Pedals & Switches16
Connecting a Computer
4 : THE RELAYS
5 : CREATING PRESETS
What Is a Preset? 21
What Is a Block?
Preset Examples
Stompbox Mode
Loading Presets
Working With Blocks
Block Inventory25
Editing Effect Blocks
Saving Changes
X/Y Switching
Preset CPU Limits
FX8-Edit
6: PRESET CONFIGURATION31
Overview
Configure PRE And POST31
Configure Series & Parallel
Intelligent Parallel Fx
Configure True Bypass
Per Scene Relay States
7 : SCENES
Overview
Selecting Scenes
Setting Up Scenes
Sticky Scene Select
Scene Revert
8 : TRUE BYPASS
Overview
Preset Bypass Configuration39
Automatic True Bypass40

9 : BLOCKS GUIDE41
The MIDI Block42
The Relay Block43
Mix Page Common Parameters44
The Noise Gate45
The Output Section45
10 : MODIFIERS47
Overview47
Creating a Modifier47
Modifier Example: Wah Pedal48
Modifier Sources Overview49
Modifier Tips And Tricks49
Advanced Modifier Parameters50
Internal Controllers53
External Controllers54
11 : TEMPO55
Preset Tempo56
Auto Delay56
The Metronome56
12 : THE LOOPER
Looper Parameters58
Global Looper Location
Looper MIDI Control60
13 : THE TUNER61
Advanced Tuner Functions61
14:SETUP MENUS62
The Global Menu62
The I/O Menu64
The Utility Menu69
The Controllers Menu71
15: ADDITIONAL TOPICS72
Global Volume Pedal Setup72
Advanced Level Parameters73
Spillover74
Frequently Asked Questions75
Unity Gain FAQ77
16: SPECIFICATIONS & DEFAULTS78
MIDI Implementation79
Factory Default MIDI CC Settings80
MIDI Program Change Numbers81
WARRANTY83
EULA

# Thank You!

Thank you for purchasing the FX8. Like every Fractal Audio product, it was created to be what we would want and expect as guitar players ourselves.

While even extremely critical musicians agree that our amp modeling technology stands shoulder-toshoulder with the almighty tube amp, we still love that tube amps are ubiquitous. We rely on innovation and tradition. The legacy of tube amps is completely intertwined with music history. And the simple fact remains that digital amp modeling may not be for everyone (yet).

In effects processing, however, digital technology has a greater foothold, having been in widespread use for decades. Our own effects have been vetted and championed for years by some of the world's most demanding and discriminating players—celebrities and unsung heroes alike. Now, with the FX8, we've taken this technology out of the rack and onto the floor with a unit specifically designed to work with traditional guitar amps.

The FX8 offers over 130 different "Fractal-Quality" effects. You can build a virtual pedalboard with up to eight simultaneous effects from an inventory of classic and cutting-edge stompboxes and studio processors arranged in virtually any configuration. "Dial in" with basic controls, or go deeper with optional advanced parameters. Use the onboard relays to control your amp's switchable functions, and attach expression pedals or footswitches. You can control the FX8 with traditional "tap dance" foot switching or via Fractal's widely acclaimed "Scene" technology. Save the result to any of the 128 built-in pedalboard memory locations, each of which can be completely different. And that's only the beginning...

Most importantly, we want to stress that the FX8 was designed from the beginning with uncompromising quality and performance as the end goal. The signal path produces pristine quality audio so there's no "tone suck" when you connect it between your cherished guitar and amp. And why should there be? The entire point is that when you take a "no compromises" approach, high-powered digital equipment delivers exactly what musicians want and expect.

So thank you again for choosing the FX8. We can't wait to hear what you will do with it.

Fractal Audio Systems

January 2015

# 1: INTRODUCTION

The FX8 is an advanced multi-effects pedalboard processor, perfect for guitar, bass, and other instruments. It is built "like a tank" with a steel chassis and aircraft aluminum end panels. The unit features eleven quiet, durable, solid-state footswitches with no mechanical contacts to fail, plus 27 LEDs in three colors. The easy-to-use interface includes a bright display, six buttons, and five knobs.

The FX8 was designed first and foremost for the best possible sound quality, with converters that deliver pristine audio, ultra-low noise levels, and no "tone suck." It uses a powerful processor to run the same high-quality effect algorithms that have made our Axe-Fx processor so successful. Its Humbuster™ outputs help defeat ground hum (when used with Humbuster™ Cables). It also features upgradeable firmware so we can deliver updates with exciting new features.

We hope you find the FX8 easy to use and this manual easy to read. The most important sections are those which introduce the *concepts* behind how the unit works. If nothing else, be sure to review this section, plus <u>Section 2 : Hardware Overview</u>, <u>Section 3 : Setup Guide</u>, <u>Section 4 : The Relays</u> and <u>Section</u> <u>5 : Creating Presets</u>

# QUICK OVERVIEW

- The FX8 contains 128 different presets arranged in 16 lettered banks.
- Each preset is like a whole new pedalboard, with up to eight effect blocks (Wah, Drive, or Phaser, for instance).
- Most blocks offer X/Y switching for twice as many sounds from the same eight blocks.
- Each preset also contains eight scenes. Think of a scene as a preset within a preset. Scenes eliminate "tap dancing" by turning multiple effects on or off at a single tap... and much more!
- Two TRS relays can switch your amplifier and can be controlled by the onboard footswitches or programmed per-scene.
- The FX8 features buffered true bypass with analog relays to switch all processing completely out of the signal path.

- Setting levels is easy, with soft switches to increase headroom and automatic **unity gain**.
- Onboard jacks for two external footswitches or expression pedals make it easy to control sound functions.
- The FX8 has built in looper, a tuner, and a dedicated tap tempo footswitch.
- MIDI and USB also provide powerful options for control, editing, and more.
- FX8-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 FX8, please visit <u>http://www.fractalaudio.com</u>

# **KEY CONCEPTS**

Musicians are not exactly famous for RTFM ("Reading Their Fancy Manuals") but in the name of instant gratification, here are a few key concepts so that you "play now, read later" types can jump right in.

## PRE/POST: THE OLD WAY...



# PRE/POST: THE FX8 WAY...

Here's the same type of setup on the FX8, which plays the role of *both* PRE and POST effects.

Notice that (aside from the speaker cable) this setup uses four different patch cables? That's why we call it . . . "**The Four Cable Method**."

Creative right? Whatever you call it, we think this is the best and most flexible way to set up the FX8.



# QUICK CONNECT GUIDE

Here is a simple overview of what cables you'll need to connect your FX8 in three different scenarios. You can find fully detailed diagrams and descriptions for this subject in <u>Section 3 : Setup Guide.</u>

Humbuster<sup>™</sup> cables should ideally be used between FX8 OUTPUTS and your amplifier (see <u>page 4</u>)

Mimportant: Do NOT connect anything to the FX8 relays until you read <u>Section 4</u>.



- Press **ENTER** to insert the effect. Press **EDIT** to access its parameters.
- To save any and all changes, press **STORE, ENTER, ENTER**.

## STOMPBOX MODE

Throughout this manual, we will refer to the main operating mode of the FX8 as "Stompbox Mode," so called because you typically use this mode to turn effects on or off with the footswitches during a performance.

The FX8 powers up into Stompbox Mode, and returns to it when you press **EXIT**. Other modes allow you to edit effects, tune your guitar, or set up system parameters.

P:A1 S:	1 [4	/4] [FX]C	FG(GTE(OUT		
FX8: Eight New Reasons					
INVI	CDD	DDU	DUD		
MHU	ULU	UNV	FNN		
DIT		MTD	DEU		

# A NOTE ON MONO & STEREO

If you are NOT planning on connecting the FX8 in stereo, there are a few things you should know. The FX8 comes pre-configured for stereo rigs but you can connect it to any mono rig with no issues.



If you are NOT running in stereo, you may find that certain settings produce slightly unexpected sounds. For example, panners become tremolos when one channel is missing. Stereo enhancers or certain types of modulation may not be apparent at all. Later you'll learn to dial in mono or stereo effects as desired. For now, just keep in mind the possibility that if something doesn't sound as expected, you may be playing a stereo effect into a mono rig.

You might be tempted to poke around on the SETUP: I/O: AUDIO menu and start changing things. We would suggest you read up on these parameters first (The I/O Menu, p. 64).

Meanwhile, please don't be surprised or think that something is wrong if your stereo ping-pong delay sounds more like a ping (with no pong) delay when connected to a mono rig!

### HUMBUSTER CABLES

Standard 1/4" guitar cables are fine for all audio connections to and from the FX8, but there is a better option for connecting its **outputs** to your amp, modeler or other device. **Humbuster™ technology** on all FX8 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<sup>™</sup> cable has one **TRS** end (like a balanced cable) and one **TS** end (like a guitar cable). The TRS end connects to the FX8. The TS end connects to your amp.

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



# 2 : HARDWARE OVERVIEW

Understanding the FX8 hardware will help you use it to full effect (pun intended). Here's a guide.



The FX8 is housed in a powder-coated **steel chassis** with an aircraft aluminum bezel and end-caps.

**2** STATUS LEDs communicate important information:

- IN 1 CLIP This LED is lit when the signal at In [Pre] approaches clipping.
- IN 2 CLIP This LED is lit when the signal at In [Post] approaches clipping.
- **OUT 1 CLIP** This LED is lit when the signal sent to Out [Pre] approaches clipping.
- **OUT 2 CLIP** This LED is lit when the signal sent to Output [Post] approaches clipping.
- EDITED This LED is lit when any unsaved change has been made to the current preset.

3 The 160 × 80 pixel LCD is where all menu screens are displayed.

#### 2: HARDWARE OVERVIEW

A Six **Buttons** provide access to various functions and menus:

- SETUP Provides access to the four SETUP menus (which you then select using footswitches).
- ENTER Executes commands, commits changes, accesses sub-menus, and more.
- PAGE Steps through menu pages, shown as "tabs." TIP: Double-click to go back one page!
- EXIT Works as cancel, escape, and more.
- EDIT Opens the EDIT MENU for the currently selected effect.
- STORE Used to store the current preset to memory so it can be recalled in the future.

5 Five **KNOBS** (aka "Rotary Encoders" for you pocket-protector types) offer different functions depending on which screen is shown in the display. Most screens show five (or fewer) knobs for easy 1:1 operation.

- NAV In Stompbox Mode, this navigates between the eight effect slots. In "knob" screens, it changes the value of the *first* on-screen knob. In "menu" screens, it scrolls up and down through the menu.
- VALUE In Stompbox Mode, this steps through the effects list for the current slot. In "knob" screens, it changes the value of the *second* on-screen knob. In "menu" screens, it changes the highlighted parameter.
- A/PRESET In Stompbox mode, this steps through PRESETS/BANKS (see <u>Section 5</u>). In "knob" screens, it changes the value of the *third* on-screen knob. In "menu" screens, it changes the parameter labeled 'A'.
- B/SCENE In Stompbox mode, this selects a SCENE (see <u>Section 7</u>) within the current preset. In "knob" screens, it changes the value of the *fourth* on-screen knob (if any). In "menu" screens, it changes the parameter labeled 'B'.
- **C** In "knob" screens, it changes the value of the *fifth* on-screen knob (if any). In "menu" screens, it changes the parameter labeled 'C'.

6 The **HANDLE** also serves as a GUARD to protect the knobs of the FX8 from being kicked and broken.

**1** There are eight main **FOOTSWITCHES** corresponding to the eights effect slots. Each has three **LEDs**.



a. **FOOTSWITCH** – *Step on it*! Footswitches are used to toggle effects, select scenes, etc. The FX8 utilizes our proprietary Solid State Switches (SSS<sup>™</sup>) with no mechanical contacts to break or fail. Switching is fast and quiet.

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

c. **Y LED** – Many effects on the FX8 offer X/Y switching for two different sound settings from a single block. Press and hold **▼** the footswitch to toggle the X/Y state of the corresponding effect. The **amber** LED indicates that an effect has been switched to its Y setting. See

d. **SCENE LED** – Eight red LEDs labeled S1, S2, etc. indicate which Scene is loaded within the current preset. (See <u>Section 7</u> for more on Scenes.)

Note that many footswitches also have special functions indicated for Looper Mode (REC, PLAY, UNDO, etc). See <u>Section 12</u> for more on using the Looper.

8 The SCENE/PRESET/BANK footswitch has two different functions:

- SCENE Tap this footswitch once to enter Scene Select Mode. (The red LED will remain lit.) The next
  press of footswitch 1–8 will select a Scene within the current preset. For example, to select Scene 4,
  press SCENE and then #4. For more on Scenes, see Section 7.

9 The LOOPER/TRUE BYPASS/BANK UP footswitch has three functions:

- LOOPER Tap this footswitch once to enter Looper Mode. (The LED will remain lit.) In Looper Mode, the main footswitches operate the Looper functions shown to the right of each footswitch. To exit Looper Mode press this footswitch again. For more on the Looper, see <u>Section 12</u>.
- TRUE BYPASS Press and hold 
   the TRUE BYPASS footswitch to engage True Bypass. A message will flash in the main display. During True Bypass, signals at IN [PRE] and IN [POST] are shunted via high quality analog relays to OUT [PRE] and OUT [POST] (respectively). With True Bypass engaged, there is no digital conversion of any kind. Tap the footswitch again to disengage True Bypass. For more on True Bypass, see <u>Section 8</u>.
- BANK UP When the FX8 is in Preset/Bank Select mode (see #8 above) this footswitch steps UP through the lettered banks.



You can reverse these functions so True Bypass activates immediately on a tap and the Looper requires Press & Hold. Find LOOPER MODE/TRUE BYPASS in the GLOBAL menu under setup (see <u>p. 63</u>).

### TO USE STICKY PRESET/BANK SELECT MODE...

The FX8 returns to **Stompbox Mode** immediately after you select a Preset. If you want the unit to remain indefinitely in **Preset/Bank Select Mode** so you can change from Preset to Preset with single foot taps, please enable "**STICKY PRESET/BANK SELECT MODE**" in the GLOBAL menu under SETUP:

- 1. Press the **SETUP** button.
- 2. Press footswitch 1 to select the GLOBAL menu.
- 3. Page to SETTINGS.
- 4. Use NAV and VALUE to set STICKY PRESET BANK SELECT to "ON".
- 5. Press EXIT 2x.

Now whenever you press and hold the **PRESET/BANK** footswitch, the FX8 will remain in preset bank select mode until you tap that same footswitch again. The LED for the currently selected preset will flash with the PRESET/BANK LED to remind you that you are in STICKY mode.

In case you're curious, there's also a STICKY SCENE SELECT MODE (see page 38).

The **TEMPD/TUNER/BANK DOWN** footswitch has three functions:

- **TEMPD** Tap this footswitch to set the global tempo. The LED flashes to show the tempo. For more on Tempo, see <u>Section 11 on p. 55</u>.
- TUNER Press and hold Tempo footswitch to enter Tuner Mode. The LED will remain lit.
   Press the TUNER footswitch again to exit. For more on using the tuner, see <u>Section 13 on p. 61</u>.
- BANK DOWN When the FX8 is in Preset/Bank Select mode (see #8 on p. 7) this footswitch steps DOWN through the lettered banks.

# THE REAR PANEL



WARNING! Do NOT connect anything to the RELAY jacks until you read the WARNINGS in Section 4.

#### IN [PRE] (INSTRUMENT IN) (Unbalanced 1/4" Jack)

Connect your guitar (or any instrument level source) using a regular guitar cable here. You can also connect the output of other guitar pedals or anything else that's designed to be used in front of an amp. This jack feeds signal only to effects designated as "PRE".

#### DUT [PRE] L/R

(1/4" Tip-Ring-Sleeve Humbuster<sup>™</sup> Jacks) The output of effects designated as "PRE" appears at these jacks. You'll typically connect to the MAIN (GUITAR) INPUT of an amp, preamp, or modeler using Humbuster<sup>™</sup> cables.

#### A NOTE ABOUT [PRE] AND [POST] I/O

The various input and output jacks of the FX8 are labeled [PRE] and [POST] because the FX8 has two fully independent effect chains. You place "PRE" effects between the guitar and amp like traditional stompboxes, and "POST" effects in the amp's FX loop. You can use either or both of these paths, and the next section covers how to create the setup that works best for you.

*Humbuster*<sup>™</sup> *Technology* on all **DUT** [**PRE**] and **DUT** [**PDST**] jacks can significantly reduce ground hum, common in guitar rigs. It requires a special cable you can make or buy. (See p. <u>p. 4</u> for details).

#### B IN [PDST] L/R – (Balanced 1/4" Tip-Ring-Sleeve Jacks)

Connect the FX LOOP SEND of your amplifier (or the output of your separate preamp) here to feed signal to any effects designated as "POST".

#### OUT [POST] L/R (1/4" Tip-Ring-Sleeve Humbuster™ Jacks)

The signal from effects designated as "POST" appears at these jacks. You'll typically connect to the EFFECTS LOOP RETURN of an amp (or the input(s) of a separate power amp) using Humbuster<sup>™</sup> cables (See p. p. 4 for details).

#### 2: HARDWARE OVERVIEW

#### **B** RELAY 1, RELAY 2 (1/4" Tip-Ring-Sleeve Jacks)

Two fully-independent TRS relays allow the FX8 to switch the channels or other functions of a connected amplifier or other device. The state of each relay can be changed manually (via a footswitch) or by a pre-programmed setting in a SCENE. See p <u>Section 4 : The Relays</u> for more.

#### **16** PEDAL 1, PEDAL 2 (1/4" Tip-Ring-Sleeve Jacks)

These jacks are used to connect up to two external expression pedals or switches to control various functions of the FX8. Use the PEDAL page in the I/O menu under SETUP to calibrate each connected pedal. For more on using these jacks, see <u>Connecting Pedals & Switches, p. 16</u>.

**USB** – This provides the FX8 with two-way "MIDI-over-USB" capabilities.

B The MIDI IN port of the FX8 allows you to control various MIDI functions of the FX8 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, p. 66**.)

The **MIDI OUT/THRU** jack transmits Program Change, Control Change, and other MIDI data to connected devices (such as an Axe-Fx II or an amplifier with MIDI channel switching capabilities).

MIDI data can be sent manually using the **MIDI Block**, which is inserted like an effect assigned to a footswitch (see <u>"The MIDI Block" on page 42</u>) or programmed to be sent automatically when you select a **Scene** (see <u>Section 7 : Scenes</u>).

Main Power Input and switch – Insert the supplied power cable and connect the other end to a grounded AC power receptacle. The FX8 has a universal power supply, which means it can be connected to power around the globe simply by changing the cable. The main power switch is built in to the receptacle.

We recommend switching the FX8 off when it will not be in use for an extended period of time.

# 3 : SETUP GUIDE

This section covers the basics of setting up your FX8.



- WARNING! Take extreme care NEVER to connect the SPEAKER outputs of any amplifier to the FX8 as this will seriously damage one or both units.
- WARNING! Do NOT connect anything to the RELAY jacks until you read and heed the WARNINGS in <u>Section 4</u>

# SETUP FOR BOTH PRE AND POST EFFECTS

This is the most flexible FX8 setup, taking full advantage of the unit's capability for separate "PRE" and "POST" effect chains. Connecting in this manner is also known as the "Four Cable Method" or "4CM." Find factory presets for this type of setup in Banks C and D (plus other banks as well).



### **SIGNAL FLOW:**

The GUITAR is connected to **IN [PRE]** on the FX8. Signal is processed by effects designated as "PRE" and then routed to **DUT [PRE] LEFT**, which is connected to the guitar **INPUT** of your amplifier. Your amp outputs signal to its rear-panel **FX SEND** jack. This is connected to **IN [PDST] LEFT** on the FX8. The signal is now processed by effects designated as "POST" and routed to **DUT [POST] LEFT**, which is connected to your amplifier's **FX RETURN** jack. You could easily connect **DUT [POST] RIGHT** to the **FX RETURN** of a second amp for stereo (or connect **DUT [POST] LEFT** and **RIGHT** to the dual inputs of a stereo power amp).The amplifier's **SPEAKER** output is connected as usual to its speaker cabinet.

Humbuster<sup>™</sup> cables help reduce ground loop hum. See <u>"Humbuster Cables" on page 4</u> for details.

A head is shown in the above diagram. A combo with an effects loop is equally suitable for this type of setup.

*NOTE: For this setup, you'll probably want to make one global change.* Open the **GLOBAL** menu (press **SETUP** followed by **Footswitch 1**) and find the **SETTINGS** page.

**NAV** to **GLOBAL LOOPER LOCATION** and then use **VALUE** to select "OUT POST". Press **EXIT** twice to save and return to Stompbox Mode.

# SETUP FOR PRE EFFECTS ONLY

Here the FX8 is used in a simple setup with PRE effects only (between guitar and amp) with presets presumably configured so all effects are PRE. This is exactly like using traditional guitar pedals—with the exception that there are no batteries or short cables to fail ;-)

Find factory presets for this type of setup in Banks A and B.



### **SIGNAL FLOW:**

Here, signal flows out from the **GUITAR** to the **IN [PRE]** of the FX8. It is processed by the effects—all designated as "PRE"—and then routed to **DUT [PRE] LEFT**, which is connected via Humbuster<sup>™</sup> cable to the guitar **INPUT** of your amplifier. (You could easily connect **OUT [PRE] Right** to the input of a second amp for stereo.)

A combo is shown, but a head with a separate speaker cabinet is equally suitable for this setup.

Humbuster<sup>™</sup> cables help reduce ground loop hum. See <u>"Humbuster Cables" on page 4</u> for details.

The FX8 is connected to a grounded **AC outlet.** 

This is also a great way to connect the FX8 to an Axe-Fx. Use the FX8 for PRE effects and the Axe-Fx for amp and cab sims, and POST effects. Add MIDI cable and the FX8 can even select Axe-Fx presets.

# SETUP FOR POST EFFECTS ONLY

Here the FX8 is used in the effects loop of an amp with presets presumably configured so all effects are POST. Find factory presets for this type of setup in Banks E and F.



### SIGNAL FLOW:

Here, signal flows out from the **GUITAR** to the **Guitar INPUT** of your amplifier. Your amp's preamp outputs to its rear-panel **FX SEND** jack. This is connected to **IN [POST]** on the FX8. The signal is processed by the POST effects of the FX8 and routed to **DUT [POST] LEFT** which is connected to your amplifier's **FX RETURN**. You could easily connect **DUT [POST] RIGHT** to the **FX RETURN** of a second amp for stereo (or connect **DUT [POST] LEFT** and **RIGHT** to the dual inputs of a stereo power amp). The amplifier's **SPEAKER** output is connected to a speaker cabinet, as it normally would be. (If your amp is a combo, it has a built-in speaker.) Humbuster<sup>™</sup> cables help reduce ground loop hum. See <u>"Humbuster Cables" on page 4</u> for details.

If you're interested in this setup, you should also know that the PRE/POST setup on <u>page 12</u> offers the ability to use True Bypass on the PRE chain only. This gives you the flexibility to have a POST ONLY setup and still switch in any desired PRE effects such as wah, whammy, or volume as needed. Learn more about True Bypass in section <u>Section 8</u>.



*IMPORTANT: For this setup, you'll need to make two global changes.* Open the **GLOBAL** menu (press **SETUP** followed by **Footswitch 1**) and find the **SETTINGS** page.

First, **NAV** to **GLOBAL DETECTOR** and then use **VALUE** to select "IN 2 [POST]". Next, **NAV** to **GLOBAL LOOPER LOCATION** and then use **VALUE** to select "OUT POST". Press **EXIT** twice to return to Stompbox Mode.

# CHECKING LEVELS

Setting proper levels through your entire signal path is critical. Four front panel LEDs alert you when clipping occurs.

The FX8 comes ready-to-use for the typical guitar and amp. Chances are, you won't need to adjust levels. The most common issue will probably be a hot guitar clipping the instrument input ("IN1") You can check this by performing the following test:

- Wire up your rig as desired.
- Play your instrument. Choose your loudest pickup and set all the guitar controls to wide open. Play hard. Big open chords and low "chugs" will help push the levels.
- ▶ If none of the CLIP LEDs on the FX8 top panel light, you're all set!

### IF IN 1 CLIPS...

This means your incoming guitar signal is too hot.. Adjusting is simple:

- Press SETUP, press footswitch 2 for the I/O menu and make sure you are on the LEVELS page.
- Increase the setting for INPUT 1(PRE) PAD from the default setting of 6.0 dB to 12.0 dB.
- Be aware that as you increase this PAD setting you also increase the noise floor, so set it as low as possible.
- If IN1 still clips, you'll need to adjust levels at your guitar or somewhere else before the FX8.

### IF INPUT 2 OR EITHER OUTPUT CLIPS...

See <u>"Advanced Level Parameters" on page 73</u>, covering the various controls and settings used to solve clipping problems.



QUICK

# CONNECTING PEDALS & SWITCHES

Each of the two onboard PEDAL jacks of the FX8 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 <u>Section 10: Modifiers</u> Learn to assign pedals and switches to global functions in <u>Section 14: Setup Menus</u>



The Fractal Audio Systems EV-1 Expression/Volume Pedal (sold separately) is ideal for the FX8.

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

Your expression pedal(s) should have a linear resistance taper, a max resistance of  $10k\Omega$  to  $100k\Omega$ , and must be used with Tip-Ring-Sleeve (TRS) cables. (If you are not familiar with TRS cables, see the FAQ on the next page.)

Calibration is required for the FX8 to recognize the full range of your particular expression pedal.

Connect your expression pedal to the PEDAL 1 or PEDAL 2 jack 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 & 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, make or break—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 for a foot switch.)

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

- > 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 your the pedal TYPE:
  - 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 FX8 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.



**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 connection. Switching some amps requires only a tip-sleeve cable, and the FX8 works just fine in these cases, but as always, contact your amp manufacturer to be sure that the amp's switching is based on shorting the tip to the sleeve.

## CONNECTING A COMPUTER

Connecting the FX8 to a computer via USB is completely optional, but it does provide some great benefits. Our free **utilities** provide a great platform for those who want to take their experience to the next level. USB is also the best way to install firmware updates and make or restore backups.

- The first step is to connect your FX8 and computer with a USB cable (not provided).
- No driver is required. The FX8 is plug and play.
- ▶ Install **Fractal-Bot**<sup>™</sup> for firmware updates, backups, and installing presets or banks you download or keep on your computer or memory stick.
- ▶ Install **FX8-Edit**<sup>™</sup> for a graphical way to work with FX8 presets.
- Find both programs at <a href="http://www.fractalaudio.com">http://www.fractalaudio.com</a>



#### 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 version are supported for all.
- CPU: Intel Core 2 @1.6 GHz or better, or AMD equivalent
- Memory: 1GB minimum
- USB 2.0 support required



FX8-EDIT

FRACTAL AUDIO SYSTEMS - FRACTAL-BOT MIDI UTILITY						
	SEND RECEIVE					
NEED HELP? Read this document	1 READY					
or watch this video.	Axe-Fx II XL   Connected					
Contact support	Fractal Audio FX-8 MIDI 🔹					
or try our forum.	Fractal Audio FX-8 MIDI					
	@ SET					
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FRACTAL-BOT	BEGIN 0% CANCEL					
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#### FRACTAL-BOT

# 4 : THE RELAYS

**IMPORTANT!** The relays of the FX8 are designed for use ONLY with amplifiers that use "short-to-sleeve" type switching. Do NOT connect the FX8 relays to the switch jacks of an amp that uses voltage differential switching or any other type of switching aside from short-to-sleeve, or serious damage can occur to both units. If you are not 100% sure, contact your amp manufacturer to determine whether your amp is compatible with short-to-sleeve switching. The FX8 relay jacks are compatible with TRS cables, TS cables, or TRS-to-dual-TS split cables. The relays are also fully isolated from the electrical ground of the FX8.

The FX8 features two **TRS (Tip-Ring-Sleeve) relays** that can be used to switch the channel or other functions of a connected amplifier or device. If the warning above seems stern, that's because the last thing we want is for anyone to damage their amp or FX8. In fact, short-to-sleeve relay switched amps are quite common, and your amp may well be perfectly compatible. We need to trust and require **you** however, to understand how your amp works and make the right choices about connecting it to the FX8 relay jacks.

Your amp manufacturer should be able to help if you read them the warning above.

An answer to the Frequently Asked Question "What is TRS?" appears on page 17.

### **CONTROLLING THE RELAYS...**

You can control each relay with your choice of a footswitch or per-scene programming.

- To control a relay with a Footswitch, you must insert a **RELAY BLOCK** into your preset. The next section covers building presets with blocks. See <u>"The Relay Block" on page 43</u>.
- You can also program any Scene to control the relays.
   See <u>"To Set Relay States For a Scene..." on page 37</u>.

Regardless of how an FX8 relay is controlled, it can be switched to any of the following states:

Setting	What's Connected?
OFF	Nothing.
TIP	Tip to Sleeve.
RING	Ring to Sleeve.
BOTH	Tip AND Ring to Sleeve.

**FAG:** what is a RELAY? A relay is an electrically operated switch. It is activated or deactivated by a circuit (the FX8 in this case) to make or break a connection in a different circuit (your amp). The FX8 uses fast, quiet, high-quality relays. Each one contains two discrete switches and is able to make all of the connections shown in the table above.

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# 5 : CREATING PRESETS

## WHAT IS A PRESET?

The FX8 has 128 memory slots for PRESETS arranged as sixteen BANKS (lettered A–P) with eight presets each. Think of each preset as a fully independent pedalboard with its own effects, settings, configuration, controllers, and more. You create and store presets using the FX8 front panel or the optional FX8-Edit software. Every memory is a "USER" preset which can be edited or overwritten. Some players will use a lot of presets— perhaps one for each band, gig, guitar, or even song. Some players will use very few presets, maybe just one. However you use presets, understanding them is key to understanding the FX8.

## WHAT IS A BLOCK?

A block is a virtual effect. Each preset has eight slots enabling you to insert up to eight blocks. Some blocks have a single specific function (e.g. "RELAY 1") but most represent a general effect category (such as "DRIVE") with the ability to select a specific "TYPE" (Such as Face Fuzz, Fat Rat, Treble Boost, etc.). Every preset has its own complete inventory of **blocks**—one or two of each type (the complete list appears on page 25).

In the example below, a Compressor Block, a Drive Block, and a Chorus Block have been inserted into the slots of a sample preset. (You'll learn to insert effects on <u>page 24</u>.)



Many blocks also offer X/Y switching, which gives them two independent switchable sounds. For example, the "Blues OD" above might double as a "Shred Distortion" when you press and hold its footswitch. For more information, see <u>"X/Y Switching" on page 28</u>.

### PRESET EXAMPLES

These examples show how blocks can be arranged in a preset to build a pedalboard. And remember that many blocks also offer X/Y switching for two different sound settings from a single footswitch.



# STOMPBOX MODE

While playing, you will generally use the FX8 on the "FX" page of its main menu. We call this "Stompbox Mode" because the footswitches turn effects on and off like traditional stompboxes. (In other modes, footswitches select scenes, presets, and more.) The FX8 starts up in Stompbox Mode and returns to it when you leave any other mode. Get to know the stompbox mode display:



### LOADING PRESETS

The Stompbox Mode display indicates the current Preset by bank and number (ex: A1, A2 ... B1, B2 ... ).

- The **PRESET/A** knob can be used to change presets.
- You can also press and hold the PRESET/BANK footswitch to open the RECALL: PRESET screen (shown at right).
  - Use BANK UP and BANK DN to select the desired bank, and footswitches 1–8 to load the desired preset.
  - Tap PRESET/BANK again to cancel and return to the current preset in Stompbox Mode.



QUICK TIP

Want to stay in Preset Select mode so you can switch from preset to preset with single footswitch taps? Check out "STICKY PRESET/BANK SELECT MODE" on page 8.

## WORKING WITH BLOCKS

Here's what you've wanted to know since page 1: how to add EFFECT BLOCKS to a preset.

### TO INSERT OR CHANGE A BLOCK...

- From the Stompbox Mode screen, turn the **NAV** knob to select the desired slot.
  - Remember, the selected slot is shown in INVERSE.
  - You can also just tap a slot's footswitch, but this also toggles its effect ON or OFF.
- Turn the **VALUE** knob until the desired effect block is shown, then press the **ENTER** button.

### TO REMOVE A BLOCK...

- From the Stompbox Mode screen, turn the **NAV** knob to select the desired slot.
- Turn the **VALUE** knob until "EMPTY" is shown, then press **ENTER** to confirm.
  - "EMPTY" is the only entry NOT listed alphabetically; it is at the beginning of the list.
- OR, just use this shortcut: **NAV** to the slot, press **EXIT**, then press **ENTER**.

### TO MOVE A BLOCK...

- Use the NAV knob to select the slot of the effect you want to move.
- Press ENTER. The "MOVE MODE" pop-up appears.
- Turn the NAV knob to select the desired destination slot.
- > Press ENTER to move the effect or press EXIT to cancel.

Please be aware that moving an effect leaves an empty slot behind.

### TO SWAP TWO BLOCKS...

Swapping blocks requires you to use our optional FX8-Edit software. In FX8-Edit, simply drag and drop one block onto another to swap them. You can also copy/paste blocks within a preset or between presets, save favorite blocks to a library, and much more.

### TO RESET ANY BLOCK...

To reset an entire block to default settings, open its EDIT menu and then double-tap the **ENTER** button. A confirmation screen will appear. Press the "SCENE" footswitch to reset or **EXIT** to cancel.

**FAGe WHY AM I GETTING A CPU LOAD WARNING?** The FX8 has a very powerful processor, which is needed to run its high-quality effects. As you add more blocks, or blocks that require more power, you may ultimately reach the limit of the CPU. When this happens, a warning message prevents you from adding more blocks until you reduce the load by removing blocks or otherwise reducing the load. You may also find that edits which increase the CPU load will cause some blocks to become disabled. For more on CPU limits, see <u>page 29</u>.

# **BLOCK INVENTORY**

Here is an overview of every effect available to every preset.

	Description	#
СНО	Create classic mono and stereo modulation effects including vibrato.	2
CMP	Control dynamics and add sustain.	2
DLY	Up to 8000 ms of delay, with types for analog, digital, tape, and more.	2
DRV	25+ types including boost, overdrive, distortion, fuzz, and many more.	2
ENH	Classic and Modern modes to create and control spatialization.	1
FLT	Includes Low Pass, High Pass, Band Pass, and many other types.	2
FLG	Various types cover everything from subtle modulation to extreme jet.	2
FOR	Create dynamic vowel sounds with this multi-mode formant filter.	1
GTE	Useful for everything from subtle control to extreme effects.	2
GEQ	A variety of modes allow easy, flexible tone sculpting.	2
MGT	A special delay effect with group controls for time, pan, and level.	1
MID	Sends MIDI messages when the block is turned ON or OFF.	1
MTD	A variety of special delays including plex, diffusor, quad-tap, and more.	1
TRM	Creates classic trem, plus auto-pan or extreme psycho acoustic effects.	2
PEQ	The 5-band Parametric Equalizer allows precise control of tone.	2
PHA	A variety of vintage and cutting edge phaser effects, including 'vibe.	2
PIT	Includes detune, harmonizer (intelligent/custom), whammy, and more.	1
RL1	Controls FX8 RELAY 1.	1
RL2	Controls FX8 RELAY 2.	1
REV	World-class recreations of vintage springs, rooms, halls, and more.	2
RNG	The extremely flexible ring modulator provides for a range of cool effects.	1
ROT	Simulates a classic rotary speaker with multiple microphones.	2
VOL	Simple volume block also offers channel input/output tools.	2
WAH	The classic wah, with multiple types based on classic originals.	2
	CHO CMP DLY DRV ENH FLT FLG FOR GTE GEQ MGT MID MTD MTD MTD TRM PEQ PHA PHA PHA PEQ PHA RL1 RL2 REV RL1 RL2 RL1 RL2 RL1 VOL WAH	DescriptionCHOCreate classic mono and stereo modulation effects including vibrato.CMPControl dynamics and add sustain.DLYUp to 8000 ms of delay, with types for analog, digital, tape, and more.DRV25+ types including boost, overdrive, distortion, fuzz, and many more.ENHClassic and Modern modes to create and control spatialization.FLTIncludes Low Pass, High Pass, Band Pass, and many other types.FLGVarious types cover everything from subtle modulation to extreme jet.FORCreate dynamic vowel sounds with this multi-mode formant filter.GTEUseful for everything from subtle control to extreme effects.GEQA variety of modes allow easy, flexible tone sculpting.MGTA special delay effect with group controls for time, pan, and level.MIDSends MIDI messages when the block is turned ON or OFF.MTDA variety of special delays including plex, diffusor, quad-tap, and more.TRMCreates classic trem, plus auto-pan or extreme psycho acoustic effects.PEQThe 5-band Parametric Equalizer allows precise control of tone.PHAA variety of vintage and cutting edge phaser effects, including 'vibe.PITIncludes detune, harmonizer (intelligent/custom), whammy, and more.RL1Controls FX8 RELAY 1.RL2Controls FX8 RELAY 2.REVWorld-class recreations of vintage springs, rooms, halls, and more.RNGThe extremely flexible ring modulator provides for a range of cool effects.ROTSimulates a classic rotary speaker with multiple microphones.VO

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.

# EDITING EFFECT BLOCKS

Blocks are fully programmable, allowing you to dial in every setting or "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**

- First, make sure you're at the main Stompbox Mode display. If not, press **EXIT** until you arrive there.
- Use the **NAV** knob to select the desired block.
  - You can also tap the block's footswitch, but this will also toggle the effect ON or OFF.
- 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 FX8.
- Above each on-screen knob is an indicator showing which of the five knobs to use: NAV, VAL, A, B, or C.
- You can hear all sound changes in real time.



### TURNING PAGES

- Most effect block edit menus have multiple pages.
- Use the **PAGE** button to page forward.
- Double-Click **PAGE** to step back.
- The last page "wraps" to the first.

### **USING TEXT MENUS**

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- Use the NAV knob to move up and down and the VALUE knob to edit the highlighted parameter.
- A, B, and C knobs are mapped dynamically, as indicated on-screen.
- Press EXIT at any time to leave editing and return to the Stompbox Mode screen.
- Press EDIT repeatedly to step in sequence through the EDIT menus of every block in your preset.



PG2 (EQ (PG4

DRIVE

1 : X





Press EXIT at any time to leave editing and return to the Stompbox Mode screen.

Press EDIT repeatedly to step in sequence through the 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 FX8 can be modified. There are no permanent "factory" presets.

### 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 FX8 has 128 preset memory locations grouped in sixteen lettered banks (A–P). Each bank contains eight 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 **VALUE** knob to move the cursor.
  - The **A** knob selects **upper case** letters.
  - The **B** knob selects **lower case** letters.
  - The **C** knob selects **numbers** and **symbols**.
  - The **NAV** knob moves the cursor position.
  - 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.



# X/Y SWITCHING

In the same way that many amplifiers have two fully independent channels, so do many effects on the FX8. Each block with X/Y switching stores two 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.

Sixteen block types support X/Y Switching. They are: Chorus, Compressor, Delay, Drive, Filter, Flanger, Gate/Expander, MIDI, Multitap Delay, Phaser, Pitch Shifter, Tremolo/Panner, Relay, Reverb, Rotary and Wah.

#### X or Y is indicated at the top of the block's EDIT menu as shown below:





### TO SWITCH X/Y...

To switch between X and Y, Press and hold  $\checkmark$  the effect's footswitch.

The amber "Y" LED lights when the Y state is selected. X/Y can also be switched via MIDI CC#. CC# assignments appear on the CTRL page of the I/O menu (see <u>page 67</u>)

### TO SETUP AN X/Y BLOCK...

- Open the desired block for editing. All blocks start with the X state selected.
- Dial in all parameters for X.
- ▶ Press and hold **▼** the effect's footswitch to switch to Y.
- 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 block is saved in the current scene. See <u>Section 7</u> for more information on Scenes.

### 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. Blocks have only one set of modifiers shared across X and Y.

**FAG:** WHY WOULD I USE X/Y? For a feature with just two letters in its name, the benefits of X/Y are immense. 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 DELAY, use X/Y! To go from "a touch of reverb" on rhythms to "spacious" during a solo, use X/Y! To access three settings instead of two for RELAY and MIDI blocks, use X/Y! When you consider that scenes can make the X/Y switch for you, it is even better!

# 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 UTILITY and switching to the STATUS page. A thermometer-like meter on the right side of the screen shows the CPU % usage (and provides a specific numeric readout above). Load is also displayed in the upper right corner of FX8-Edit.

As the load enters the high 90s the FX8 can become unstable or unresponsive, so there are safeguards to prevent this. First, you are stopped from inserting any block which might cause an overload by the message "INSUFFICIENT CPU". The FX8 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:

- Reverb: QUALITY and ECHO DENSITY (Lower = less CPU)
- Phaser: STAGES (Lower = less CPU)
- Filter: **ORDER** and **Q** (Lower = less CPU)
- Multi-Delay: TYPE (Different types have different requirements)
- Setting LOOPER POSITION to "NO LOOPER"
- Modifiers also affect CPU usage.

### AUTOMATIC BLOCK DISABLING

As a second safeguard, the FX8 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, pushes CPU Usage up considerably. 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 Stompbox Mode display and show DISABLED (upper left) in the EDIT menu.

### <u>CPU & USB</u>

The FX8 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.

# FX8-EDIT

Every function and parameter of the FX8 can be conveniently operated from the front panel of the unit. Another way to edit presets and parameters is to use FX8-Edit. If you are at all accustomed to working with audio software or plug-ins, you will probably enjoy FX8-Edit.

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



FX8-Edit also includes a manager which allows you to reorganize presets in the unit. Find FX8-Edit at http://www.fractalaudio.com
# 6 : PRESET CONFIGURATION

# OVERVIEW

The Configuration or "Config" page contains controls to set up the current preset or scene. Press **PAGE** once from stompbox mode to show the "CFG" tab.

P:A1 S:1	[4/4] [FX] CFG GTE [OUT
S PREJPOST 444 FX 2 SER FX 3 SER FX 4 SER FX 5 FX 6 SER FX 7 SER FX 8 SER BYPASS ALL	>0-8-8-8-6-6-6-6-6-6-6-6-6-

#### Some options on the Config Page affect the entire preset:

- How the eight effects are divided into **PRE** and **POST** chains.
- Whether each effect is in **SERIES** or **PARALLEL** with the effect before it.
- Whether **True Bypass** works on PRE, POST, or ALL ins and outs.

#### Other options on the Config Page affect only the current scene:

- The state of **Relay 1** (TIP-to-sleeve, RING-to-sleeve, or BOTH tip- and ring-to-sleeve).
- The state of **Relay 2** (TIP-to-sleeve, RING-to-sleeve, or BOTH tip- and ring-to-sleeve).
- A MIDI Program Change message (number and channel) sent to MIDI OUT when the scene is loaded.

# CONFIGURE PRE AND POST



If you are not familiar with the concept of PRE and POST effects, see the diagrams on page 2 or look for the relevant answers under <u>"Frequently Asked Questions" on page 75</u>.

If you're using only PRE effects, set this to "8/0".

If you're using only POST effects, set this to "0/8".

The FX8 has independent PRE and POST effect chains. This makes it possible for the unit to work simultaneously between your guitar and your amp, and in your amp's effects loop.

### TO EDIT THE PRE/POST CONFIGURATION:

- Press PAGE once from Stompbox Mode to display the Config page.
- The PRE/POST setting for the current preset is shown as two numbers separated by a slash. Make changes with the VALUE knob. A setting of "8/0" positions all effects as PRE. "0/8" positions all effects as post. "4/4" provides 4 PRE effects and 4 POST effects. The table at right shows all options.

#### PRE/POST OPTIONS

	051	
8	Pre	0 Post
7	Pre	1 Post
6	Pre	2 Post
5	Pre	3 Post
4	Pre	4 Post
3	Pre	5 Post
2	Pre	6 Post
1	Pre	7 Post
0	Pre	8 Post

# **CONFIGURE SERIES & PARALLEL**

The effects of the FX8 can be run in either series or parallel.

To edit the series/parallel configuration for the current preset, press **PAGE** from Stompbox Mode to turn to the Configuration ("CFG") page. E

Eight "FX" parameters are provided—one for each numbered slot. Select "SER" (Series) or "PAR" (Parallel) as desired for each. Note that the first effect *and* the first POST effect are always series and cannot be changed.

A diagram shows the current **layout**. The "A" block shows the position of your AMP (between PRE and POST effects.) The "A" moves as you change the number of PRE/POST effects. Make changes while watching the layout diagram and you'll quickly learn how this works. Several common examples appear below:



 WHY RUN FX IN PARALLEL? If you, like most guitarists, have always
 strung pedals together in a straight line, you'll find the FX8 replicates this setup easily. But the freedom to route in parallel opens new options, both traditional and creative.

How does it sound? An easy example to understand is Reverb and Delay in series and in parallel. In series, the dry sound and the delay sound BOTH pass through the reverb. In parallel, only the direct signal passes through the reverb so the delay echoes are heard dry—no reverb.



# INTELLIGENT PARALLEL FX

On most devices, running effects in parallel means making changes to their settings for best results, but the FX8 handles this automatically with intelligent parallel effects.

The first concern is the MIX parameter, which determines the blend of dry and wet. For parallel effects, MIX should be **100% wet** so the dry signals don't "stack up," sound louder and upset the dry:wet ratio.



When you switch them to parallel, effects on the FX8 automatically change MIX to 100% WET. To change how much of a parallel effect you hear, use the effect's **LEVEL** parameter. **LEVEL** changes to -12 dB (equivalent to 25% mix) when you switch effects to parallel. MIX and LEVEL change back to default settings when you switch from parallel to series.

The next concern is the BYPASS MODE parameter, which determines how signal is passed when an effect is switched off. If a parallel effect passes dry signal when bypassed, we have the same problem as if the MIX were set incorrectly: dry signals stack up and levels change.



When you switch them to parallel, effects on the FX8 automatically change BYPASS MODE so dry signal is MUTED when the effect is switched off.

BYPASS MODE changes to its default setting when you switch an effect from parallel to series.



Parallel routing is essential if your amp's effects loop works ONLY in parallel. Such amps have a direct connection from the preamp to the power amp for DRY, plus a second path through the send/ return jacks for WET. If any dry passes through the FX8, you will have phase problems. Therefore, you will need to manually set MIX, LEVEL and BYPASS mode parameters so no dry signal passes through when the effect is engaged or bypassed.



The converters and signal path on the FX8 are of such high quality that a separate discrete analog path is not needed. If your amp has a switchable loop, set it to SERIES and enjoy the flexibility that the FX8 provides with no "tone suck."

## CONFIGURE TRUE BYPASS

The Config page BYPASS parameter configures the current preset with one of three types of True Bypass. You can bypass "PRE" only, "POST" only, or "ALL" (both PRE and POST). See <u>Section 8</u> for more on this.

# PER SCENE RELAY STATES

The Config page contains parameters to set up RELAYS and MIDI per scene.

Every scene can set the state of both relays (to switch the channels of a connected amplifier for instance).

For more on using scenes to operate a RELAY, see "To Set Relay States For a Scene..." on page 37.

# PER SCENE MIDI MESSAGES 🚟

Every scene of every preset can trigger the transmission of a different MIDI PROGRAM CHANGE MESSAGE on its own MIDI CHANNEL. MIDI Program changes are transmitted at the **MIDI DUT** port of the FX8.

Use this feature to have the FX8 operate the functions of a MIDI-switched amplifier, another processor, or a connected Fractal Audio Systems Axe-FX.

For more on how to program a scene to send MIDI messages, please see <u>"To Set The MIDI Program Change Message For a Scene..." on page 37</u>.

# 7: SCENES

# OVERVIEW

Each of the 128 presets of the FX8 preset contains eight **scenes**. You don't need to create them—they're already there, ready and waiting to be used. We like to think of a scene as something like a "preset within a preset." Scenes aren't full presets though, they only control which effects are on, which effects are off, whether each effect is set to X or Y, and a few other settings.

The benefits of scenes are enormous. 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/seamless, and they offer the easiest way to ensure perfect "spillover" of delay and reverb. That's just the beginning... Scenes are incredibly powerful and may become one of your favorite aspects of the FX8.

#### WHAT SCENES INCLUDE...



#### Each scene stores all of the following:

- 1. The ON/OFF state of every effect in the current preset
- 2. The X/Y state of every effect in the current preset
- 3. The state of each relay (unless it has been assigned to a footswitch)
- **4.** The settings for OUTPUT LEVEL PRE and OUTPUT LEVEL POST. This is useful for creating a BOOST, or to normalize the level across scenes
- The setting for two virtual "Scene Controller" knobs, which can in turn be assigned to control sound parameters. (See <u>"Internal</u> <u>Controllers" on page 53</u>).
- 6. One MIDI Program Change message (on any channel), sent to the MIDI OUT port of the FX8 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 preset.

You cannot change which effects are placed in which slots, or tweak effect parameters per scene. You cannot change the pre/post setting, series/parallel settings, or noise gate settings per scene. You cannot change the preset NAME per scene. Scenes do not have names.

**FAGO 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 FX8:

- USE THE FOOTSWITCHES Tap SCENE once to enter Scene Select Mode. (The red 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 SCENE and then #4.
- 2. **USE THE SCENE KNOB** The dedicated **SCENE** knob changes the scene in Stompbox Mode. (and its sub-pages: CFG, GATE, and OUT.)
- USE MIDI Incoming MIDI messages can be used to select scenes. By default, CC#34 is mapped to the SCENE SELECT function. Value of CC#34 determines which scene is loaded. 0 = Scene 1; 1 = Scene 2; 2 = Scene 3, etc.

The best way to tell which scene is loaded is to look at the scene LEDs. The number of the current scene is also shown in the Stompbox Mode display 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 cannot set a preset to load a different scene initially.)

Programming scenes is easy. Select the desired scene and use the footswitches as you normally would to turn effects ON/OFF or select X/Y states. Set any per-scene parameters such as RELAY, LEVELS, or MIDI. 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.

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...

The X/Y 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. Press and hold **₹** each footswitch to select X or Y as desired.

### TO SET RELAY STATES FOR A SCENE...

The state of each relay can be programmed per scene as follows:

- 1. Load the desired preset and select the desired scene.
- 2. Press PAGE from Stompbox Mode to turn to the Configuration-screen ("CFG" tab).
- 3. Use NAV to select RELAY 1 or RELAY 2.
- 4. Use VALUE to select TIP-to-sleeve, RING-to-sleeve, or BOTH tip- and ring-to-sleeve.



**NOTE:** When a RELAY block is in your preset, that relay will be controlled ONLY by the block. Any relay settings on the Config page will be **ignored**. However, the scene itself can control the RELAY block in the same way a scene controls ON/OFF and X/Y for *every* block.

### TO SET THE OUTPUT LEVELS FOR A SCENE:

The main output level for **DUT** [**PRE**] and **DUT** [**PDST**] can be programmed into every scene.

- 1. Press PAGE from Stompbox Mode to turn to the "OUT" page.
- **2.** Select the desired scene.
- 3. OUTPUT LEVEL PRE and OUTPUT LEVEL POST can be set per scene.

Note: Changing scene output levels impacts unity gain.

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

The FX8 can send one **MIDI Program Change Message** ("PC") per scene. TYou can set a different message on a different channel for each scene. Use this feature to change the channel of a MIDI-controlled amp, select presets on a connected Axe-FX, or switch any other MIDI device.

- 1. Load the desired preset and select the desired scene.
- 2. Press PAGE from Stompbox Mode to turn to the Configuration-screen ("CFG" tab).
- **3.** NAV to MIDI PC and use VALUE to select the desired MIDI PC by its number (0–127).
- 4. NAV to MIDI CH and use VALUE to select the desired channel for your MIDI PC by its number (1–16).

Note: The **MIDI block** can be used to send additional MIDI data from a footswitch (and therefore a scene!) It even supports XY for twice the MIDI messaging. See <u>"The MIDI Block" on page 42</u>.

### 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.

# STICKY SCENE SELECT

The FX8 normally goes back to Stompbox Mode once you select a scene with the footswitches.

**Sticky Scene Select Mode** keeps the FX8 in Scene Select mode so you can change from scene to scene using single footswitch taps.

In Sticky Scene Select Mode, the **SCENE** footswitch LED stays lit and the FX8 remains in Scene Select Mode until you manually exit by pressing the **SCENE** footswitch again.

#### TO ENABLE/DISABLE STICKY SCENE SELECT MODE...

- 1. Press the **SETUP** button.
- 2. Press the #3 footswitch to open the GLOBAL menu.
- 3. Use the NAV knob to select "STICKY SCENE SELECT"
- 4. Use the VALUE knob to select "OFF" or "ON".
- 5. Press the **EXIT** button twice to return to Stompbox Mode. (You do not need to STORE changes in SETUP.)

BONUS: You can still change X/Y for any effect using Press & Hold while in Scene Select Mode!

## 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 is a comparison of how scene changes work in both modes:

#### 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.

#### TO ENABLE/DISABLE SCENE REVERT:

- 1. Press the **SETUP** button.
- 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 return to Stompbox Mode. (You do not need to STORE changes in SETUP.)

#### **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 <u>as it was last saved</u>.

# 8 : TRUE BYPASS

# **OVERVIEW**

Relay-based **buffered True Bypass** gives the FX8 a much sought-after capability in the world of effects processors. By physically switching A/D and D/A conversion out of the signal path, True Bypass gives you the opportunity to make comparisons, check gain settings, or just enjoy your amp in its bare-naked glory.

In True Bypass Mode, signal is routed directly from the INPUTS to the OUTPUTS with no DSP conversion or processing of any kind. Effect tails STOP. Pad, Headroom, and Level settings on all inputs and outputs are bypassed. NO control on the FX8 has any effect.

The relays are fast and quiet, and True Bypass can be used on stage with no nasty "pop" or "thump."

### TO ENGAGE TRUE BYPASS...

To engage True Bypass, press and hold ₹ the **TRUE BYPASS** footswitch (also the LOOPER/BANK UP footswitch). The display will flash "TRUE BYPASS ACTIVATED".



To disengage True Bypass, tap the **TRUE BYPASS** switch. You don't need to press and hold!

## PRESET BYPASS CONFIGURATION

The FX8 has independent signal paths for PRE and POST effects, so there are independent PRE and POST options for the True Bypass function. As explained in "Configure True Bypass" on page 34, you can set the True Bypass function individually for every preset to affect the inputs and outputs of the PRE chain, the POST chain, or both PRE and POST ("ALL") inputs and outputs.

To edit the True Bypass configuration for the current preset, press **PAGE** from Stompbox Mode to turn to the Configuration ("CFG") page, then use the NAV and VALUE knobs to change the setting for BYPASS.



#### WHY WOULD I BYPASS ONLY PRE OR ONLY POST?

There are many possible valid answers to this question. Some players are just intent on having NOTHING between their guitar and their amp when it isn't necessary. Others might just want to test the signal path or make other comparisons.

# AUTOMATIC TRUE BYPASS

**Automatic True Bypass** provides the option to engage **True Bypass** automatically when all effects in the PRE or POST chain have been bypassed or removed\*. It works individually on each chain, so an Automatic True Bypass of the PRE chain does not also affect the POST chain (and vice versa).

This feature is either ON or OFF; you can't enable it for PRE and have it disabled on POST (and vice versa).

Automatic True Bypass defeats ALL DSP effects. Effect tails STOP. Pad, Headroom, and Level settings are bypassed. The buffered signal is routed directly from the INs to the OUTs.

\*All effects are also considered "removed" if the PRE/POST configuration shows a "0".

#### WHEN AUTOMATIC TRUE BYPASS IS ON:

- 1. When all PRE effects are removed or bypassed—either manually, or by a SCENE— AUTO TRUE BYPASS will engage for the PRE chain.
- 2. When all POST effects are removed or bypassed—either manually, or by a SCENE— AUTO TRUE BYPASS will engage for the POST chain.

#### TO ENABLE/DISABLE AUTO TRUE BYPASS:

- 1. Press the **SETUP** button.
- 2. Press #3 to enter the GLOBAL menu.
- 3. Use the NAV and VALUE knobs to change AUTO TRUE BYPASS to "ON" or "OFF".

# 9 : BLOCKS GUIDE

### **UNDER CONSTRUCTION**

The FX8 has over 20 different effect blocks with over 100 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 FX8. Find it at <u>www.fractalaudio.com/support</u>.

The pages which follow cover several blocks which are unique to the FX8: the MIDI block and the RELAY block, plus a short section on **Common Parameters** found on the **MIX** page of every effect, the **Noise Gate**, and the **Output Section** of every preset.

# THE MIDI BLOCK

The MIDI block enables you to use the onboard footswitches to send MIDI data to the MIDI Out Port of the FX8. It sends your choice of any Program Change (PC) message and/or any Control Change (CC) message when turned ON, and your choice of messages when turned OFF.

The MIDI Block offers X/Y capability. The X and Y states can each have completely different settings.

#### **MIDI BLOCK PARAMETERS**

**PROGRAM CHANGE** – (ENABLE/DISABLE) determines whether a Program Change message will be sent.

**PC# ON –** Selects a program change number (0–127) to be sent when the block is turned ON.

PC# OFF - Selects a program change number (0-127) to be sent when the block is turned OFF.

MIDI CHANNEL - Selects a MIDI Channel (1-16) for both the ON and OFF Program Change messages.

IMPORTANT: When you load a preset, the FX8 also sends a corresponding MIDI Program Change message on its own MIDI Channel. (See the table on page 81). To control a connected amplifier or effect processor independently, please set that unit to a different MIDI channel according to the instructions provided by its manufacturer.

**CONTROL CHANGE** – (ENABLE/DISABLE) determines whether a Control Change message will be sent.

**CC#** – Selects a control change number (0–127) to be sent when the block is turned ON or OFF.

MIDI CHANNEL - Selects a MIDI Channel (1-16) for both the ON and OFF Program Change messages.

**ON VALUE** – Sets the data value for the CC message sent when the block is turned ON.

**OFF VALUE** – Sets the data value for the CC message sent when the block is turned OFF.

# THE RELAY BLOCK

WARNING! Do NOT connect anything to the RELAY jacks until you read the WARNINGS in Section 4.

As detailed in <u>Section 4</u>, two onboard TRS relays allow the FX8 to control switchable functions of a connected amp or other device. The Relay block lets you use a footswitch to manually (pedally!) operate a relay. The RELAY 1 block (RL1) operates relay 1, and the RELAY 2 block (RL2) operates relay 2.

### RELAY BLOCK PARAMETERS

The relay block is simple.

When the footswitch is off the relay is off. Nothing is connected. The LED is off.

A single parameter, **RELAY ON**, allows you to specify the state of the relay when the block is switched on.

When the footswitch is ON, you can select whether the TIP, RING, or BOTH are shorted to the sleeve.

With X/Y, that's a total of three settings accessible from one footswitch (OFF, ON-X and ON-Y).

Setting	What's Connected?
TIP	Tip to Sleeve.
RING	Ring to Sleeve.
BOTH	Tip AND Ring to Sleeve



NOTE: When a Relay block is added to your preset, the FX8 ignores CONFIG page programming for that relay in that preset. You can still program the relay per-scene, however, in exactly the same way you would program any other effect per-scene. Change to the desired scene, set the relay block as desired using your foot, and store the preset.

# MIX PAGE COMMON PARAMETERS

Almost every block in the FX8 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.



If you're concerned about UNITY GAIN, see page 77 for key info about adjusting MIX and LEVEL.

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 FX8 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 shift, and all three types of delay blocks, 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, Feedback Return, Flanger, Formant, Megatap Delay, Multi-Delay, Phaser, Pitch, Quad Chorus, Resonator, Reverb, Ring Mod, Rotary, Vocoder, and Rotary.

# THE NOISE GATE

Every FX8 preset includes a Noise Gate connected directly to **INPUT 1 [PRE].** (If you're running POST ONLY, you'll need to use a GATE block instead.) To edit noise gate parameters, turn to the GTE page from the FX page of the main menu (aka Stompbox Mode).

#### PARAMETERS

**TYPE** – The noisegate features a CLASSIC gate, and a variable INTELLIGENT type.

**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. See <u>page 62</u>.

**RATIO** – Ratio determines 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 very low so the attack of your first notes can punch through naturally.

RELEASE – determines how long it takes for the gate to close. Higher values will make the noise gradually fade down when you stop playing.

LEVEL – Controls level at the output of the noise gate. Can be used to boost the overall preset input level.

#### **INPUT IMPEDANCE**

The **INPUT IMP** parameter appears on the GTE page, but is not part of the Noise Gate. Instead, it changes the analog circuitry of the IN [PRE] INSTR input jack to alter the way the FX8 interacts with your guitar. This recreates the way that some classic effects (e.g. Vibe) "load down" the pickups, causing a change in frequency response. The FX8 recreates this effect by switching various (real) resistors and a capacitor in and out of the signal path. Normally you will want to leave this on AUTO, but you may also select any of the available values manually. This setting is saved with the preset.

# THE OUTPUT SECTION

Find these parameters on the OUT page of the main menu. LEVEL controls can be set differently in every scene of every preset, offering a great way to normalize or boost scenes.

#### PARAMETERS



**OUTPUT LEVEL PRE** – This controls the overall level of **DUT [PRE]** left and right.

SCENE OUTPUT LEVEL POST – This controls the overall level of OUT [POST] left and right.

**OUTPUT BALANCE PRE** – This controls the left-right balance for **OUT [PRE]**.

**OUTPUT BALANCE POST** – This controls the left-right balance for **DUT [PDST]**.

9: BLOCKS GUIDE

# 10 : 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 (+CD+) (Just wiggle its knob or use the NAV knob to select it.)
- > Press the **ENTER** button to show the MODIFIER screen.
- Select a SOURCE to control the parameter. ("EXT1" is PEDAL1 by default. We'll cover other SOURCES later).
- > Set MIN and MAX to the lowest and highest values you want to hear.
- **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 <u>page 24</u> for details on how to insert blocks).
- An expression pedal is connected to the PEDAL 1 jack (see <u>page 16</u> for more on pedals).
- You have performed the pedal calibration routine (see <u>page 16</u>).

Here are the steps:

- In Stompbox Mode, NAV to your WAH block, then press the EDIT button to show its edit menu. On PAGE 1, select the CONTROL parameter by slightly turning the C knob beneath the display. Notice the Modifier symbol beneath the on-screen knob?
- 2. Once the CONTROL parameter is selected, press ENTER to show the MODIFIER screen.
- 3. 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 <u>"External Controllers" on page 54</u>)
- 4. Test. The wah should work when you move the pedal. You'll also see the dot move on the graph.
- 5. Store the preset by pressing **STORE**, **ENTER**, **ENTER**.



In this example, a wah is controlled by an expression pedal. A pedal can be used to control other parameters like whammy control, rotary speed, delay feedback, and many more.

There are also many different sources we could use instead of EXT1. 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 FX8, 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 FX8. There are two **LFOs** (low frequency oscillators), two **ADSRs** 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 menu under **SETUP**. See <u>page 53</u> for details.

### EXTERNAL CONTROLLERS

External controllers allow you to use a MIDI message (CC# 0–127) or the onboard PEDAL 1 or PEDAL 2 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 4 different volume controls to your choice of sources. (Don't forget to re-assign EXT1 or EXT to "NONE" if you assign PEDAL 1 or PEDAL 2 to a volume control!)





# 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 <u>page 48</u> and set AUTO-ENGAGE to "SLOW POS" to try it out!) Find additional information on **AUTO-ENGAGE** on <u>page 52</u>.

**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 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:



### 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!

#### LF01 + LF02

An LFO, or Low Frequency Oscillator,

and forth sweep of a phaser.



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

**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.

#### SEQUENCER

000000 000000

The FX8 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.

### 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.

Scene 1 (2)

Sequencer

### 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 the input of the Global Detector, p. xx). The envelope has three self-explanatory **MODES** and can optionally be set to **RETIGGER** every time the threshold is exceeded.

#### **ENVELOPE FOLLOWER**

Envelope Follower ٠

Pitch

•

The Evelope 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.

#### PITCH DETECTOR

Detector The pitch detector analyze the pitch of your playing and outputs a low value for <sup>1</sup> low notes and a high value for high notes.

### **SELECTING A DETECTOR INPUT**

ADSR, Envelope, and Pitch controllers (plus the tuner and several other functions) monitor only IN [PRE] by default.

If your rig is POST ONLY, where input 1 is not used, please change the location of the GLOBAL DETECTOR to IN [POST]. Find it on the SETTINGS page o the GLOBAL menu under SETUP.

For more on Scenes, see Section 7.

# EXTERNAL CONTROLLERS

External Controllers are modifier sources which are operated by MIDI or a connected expression pedal.

Each External Controller has its own global source which you 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 onboard PEDAL jacks.

So, for example, External 1 is set by default to "PEDAL1", but if you wanted a computer sequencer to operate your wah instead, you could change External 1 to MIDI CC 16 (or any MIDI CC).

To assign a MIDI CC or pedal 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 return to Stompbox Mode.

#### EXTERNAL CONTROLLER INITIAL VALUES

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

When the FX8 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 (equivalent to heel down). 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 cable) could therefore be a problem if, for example, your presets use a VOLUME block assigned to the missing controller.

Never fear: the **EXTERNAL CONTROLLER INITIAL VALUE** parameters can be used to change the starting value for an external controller to 100%. Now, when the FX8 is powered on, any parameters assigned to the missing controller will be all the way *up* instead of 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 return to Stompbox Mode.

# 11 : TEMPO

Tempo on the FX8 is used to synchronize effects or controllers to the beat of the music. Many effects have TEMPO parameters to set times or rates to rhythmic values. The FX8 flashes its current tempo on the LED above the TEMPO footswitch. You can change the tempo in several ways:

- 1. Tap the dedicated **TEMPD** footswitch three or more times.
- 2. Tap the **TEMPD** footswitch once and use the **NAV** knob to set the tempo (on-screen) as desired.
- 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 FX8.
- 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 FX8 does not transmit MIDI Clock.

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

The time of every delay in the FX8 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 FX8 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 still be correct.

### PRESET TEMPO

Normally, the system tempo is global, which means it stays the same as you change presets, but in fact, any preset can have its own tempo which takes over the system tempo while that preset is loaded.

To give a preset its own built-in tempo:

- 1. Load the preset.
- 2. Tap once on the TEMPO footswitch.
- 3. Change TEMPO TO USE to "PRESET".
- 4. Set the tempo as desired using any method.
- 5. 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 FX8 features a built-in metronome whose signal is mixed in at Output 1.

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

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

# 12 : THE LOOPER

The FX8 has a global LOOPER with a maximum loop time of eight minutes in mono and four minutes in stereo (half that if optional UNDO is enabled). Press the **LODPER** footswitch to enter Looper Mode.

Seven footswitches have dedicated looper functions as indicated on the top panel.



**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 and stops looper playback.

**DNCE** – When **DNCE** is toggled on, looper playback will stop automatically at the end of the loop. If playback is already stopped, **DNCE** will start playback, play through the loop, and then stop. You cannot go directly from **RECORD** to **DNCE**.

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

**UNDD** – 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 layer/take, just press RECORD again).

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

**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!

**FAGe** WHY IS IT CALLED A "GLOBAL" LOOPER? Unlike other Fractal Audio systems products, the FX8 does not require you to insert a Looper Block into every preset. The looper is in every preset, so playback or recording can easily continue across preset changes. Looper parameters such as Mix, Level, Mode, Location and others, are NOT global, so you can set these as desired per-preset.

## LOOPER PARAMETERS

The following Looper parameters can be configured as desired for every FX8 Preset.

**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 8 minutes. Undo is not possible.
- STEREO Recording/playback are in stereo. Maximum loop length is 4 minutes. Undo is not possible.
- MONO UNDO Recording/playback are in mono. Maximum loop length is 4 minutes. Undo works.
- STEREO UNDO Recording/playback are in stereo. Maximum loop length is 2 minutes. 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 FX8. 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.



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



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

THRESHOLD – The FX8 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.

### LOOPER TRIM PARAMETERS

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

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

### LOOPER MIX PARAMETERS

The Looper has a **MIX** page with **LEVEL**, **BALANCE**, and **BYPASS MODE** parameters. See <u>"Mix Page Common Parameters" on page 44</u>.

**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.

# **GLOBAL LOOPER LOCATION**

In terms of signal flow, the Looper can be positioned in several different locations. It defaults to **IN PRE** — before any PRE effects. You can move the looper per preset, or globally.

### **TO CHANGE THE GLOBAL LOOPER LOCATION...**

- > Press the SETUP button. Press Footswitch 1 to open the GLOBAL menu.
- Navigate to **LOOPER LOCATION**. Use the **VALUE** knob to select the desired setting:
  - **IN PRE** (Default) The looper is positioned just after the **IN PRE** jack, before any PRE effects. *No effects are recorded, but any effects you turn on will be heard to process the looper.*
  - **OUT PRE** The looper is positioned after PRE effects just before the **DUT PRE** jack. *PRE effects are recorded into the looper.*
  - **OUT POST** The looper is positioned after POST effects just before the **DUT PDST** jack. *PRE and POST effects are recorded into the looper.*
  - **NO LOOPER** The looper is disabled, resulting in a slight CPU usage decrease.

Note that any individual preset can override the global setting for LOOPER LOCATION (see below).



If you disable the looper globally, you may wish to change the behavior of the LOOPER/ TRUE BYPASS footswitch so a single quick tap engages or disengages True Bypass.

- Press SETUP
- Press Footswitch #1 to show the **GLOBAL** menu.
- Navigate to **SHOW LOOPER/ENGAGE BYPASS.**
- Use the VALUE knob to change TAP/HOLD to HOLD/TAP.

### **TO CHANGE THE LOOPER LOCATION FOR A SINGLE PRESET...**

The Looper location can also be changed per-preset, overriding the global setting. The **LOCATION** parameter is on **PAGE2** of the Looper edit menu. It offers the same options as the global **LOOPER LOCATION** parameter (above). One additional option, "**GLOBAL**" causes the preset to use the GLOBAL setting for **LOOPER LOCATION**. Setting a particular preset to **NO LOOPER** leave slightly more CPU power for other effects.

## LOOPER MIDI CONTROL

Every function of the FX8 Looper (plus a hidden "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.

Looper Record 28
Looper Play 29
Looper Once
Looper Dub31
Looper Rev
Looper Bypass
Looper Half120
Looper Undo121
Metronome ON/OFF122

# 13 : THE TUNER

The FX8 has a built-in TUNER—an essential tool 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.





*IMPORTANT: For a POST ONLY setup, you'll need to make a global change for the tuner to work.* Open the **GLOBAL** menu (press **SETUP** followed by **Footswitch 1**) and find the **SETTINGS** page.

**NAV** to **GLOBAL DETECTOR** and then use **VALUE** to select "IN 2 [POST]". Press **EXIT** twice to save and return to Stompbox Mode.

# 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
CAL	Calibrates the tuner by setting the frequency of A4 (in the 8va above middle C).
430.0 – 450.0 Hz	
MUTE	Determines how the tuner mute works.
OFF/INPUT/OUTPUT	<ul> <li>OFF: No mute. All signal is passed as usual when the tuner is engaged.</li> </ul>
	<ul> <li>OUTPUT: The signal is muted at the output. Tails for PRE FX are silenced.</li> </ul>
	<ul> <li>INPUT: The signal is muted at the noise gate. Tails for PRE FX ring out.</li> </ul>
USE OFFSETS	Determines whether the OFFSET settings (see below) are applied or ignored.
OFF/ON	

### **OFFSET PARAMETERS**

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

# 14 : SETUP MENUS

Access Setup Menus by pressing the SETUP button 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 FX8 "SYSTEM" (see <u>"Utility: Preset Page" on page 69</u>).

### THE GLOBAL MENU

The GLOBAL menu is accessed by tapping the SETUP button and then pressing footswitch 1.

#### **GLOBAL: SETTINGS PAGE**

PARAMETER	Description			
<b>REVERB MIX</b> (+/- 50%)	Boosts or cuts the that this offset is N block MIX paramet spaces may require	<b>MIX</b> for all REVERB I OT reflected in the ter. This feature is p e more or less rever	blocks in all presets value shown for the rovided because ce b "across the board.	at once. Note actual reverb rtain performance
EFFECTS MIX (+/- 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:			
	Chorus Delay Flanger Formant	Megatap Delay Multi-Delay Phaser Pitch	Quad Chorus Resonator Reverb Ring Mod	Rotary Vocoder
	This feature is prov more or less of cer	vided because certa tain effects "across t	iin performance spa the board."	ices may require
SPILLOVER (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.		oss preset I effects will spill I preset change.	
	See <u>"Spillover" or</u> blocks for spillover	<b>page 74</b> for detail	s on how to set pre	sets/scenes/
<b>AUTO TRUE BYPASS</b> (ON/OFF)	Enables or disables	s Automatic True By	vpass (see <u>page 40</u> ).	
STICKY SCENE SELECT	Enables or disables	s Sticky Scene Selec	t Mode (see page 3	<u>88</u> ).
STICKY PRESET/BANK SELECT	Enables or disables	s Sticky Preset/Bank	< Select Mode (see <b>g</b>	<u>bage 8</u> ).
PRESS & HOLD INTERVAL (0.25 - 2.00 seconds)	Sets the duration t for all "Press and H	hat you need to co old" functions. 퐞	ntinue holding	

#### 14: SETUP MENUS

PARAMETER	Description
TEMPO EXIT COUNT (1-6)	Determines how long it takes to return to Stompbox Mode after you tap the tempo footswitch. 1 is the shortest, 6 the longest.
LOOPER MODE/TRUE	Selects between one of the two following options:
BYPASS (TAP/HOLD, HOLD/TAP)	<ul> <li>TAP/HOLD - Tap the footswitch to activate Looper Mode.</li> <li>PRESS &amp; HOLD it to activate True Bypass.</li> <li>(Tap again to exit True Bypass).</li> </ul>
	<ul> <li>HOLD/TAP - PRESS &amp; HOLD the footswitch to activate Looper Mode. TAP it on or off to activate True Bypass.</li> </ul>
LOOPER LOCATION	Determines the global default looper location (see page 59).
NOISEGATE OFFSET (+/- 40.00 dB)	Globally raises or lower 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 page 45 for more on the Noise Gate.
GLOBAL DETECTOR (IN 1 PRE, IN 2 POST)	Sets whether IN 1 [PRE] or IN 2 [POST] is used as the global detector for pitch and level functions (tuner, envelope, ADSR, Harmonizer, etc.). If your rig is POST ONLY, set this to IN 2 POST. Otherwise, don't make changes.
DEFAULT SCENE (1-8)	Sets the default scene for ALL presets and is provided for those players who want SCENE 5, (bottom row, far left) to be selected by default.

#### **GLOBAL: OUT PRE/OUT POST PAGES**

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

Preminder: You do not need to STORE settings in the SETUP menu. EXIT returns to Stompbox Mode.

#### **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
CUSTOM SCALE NUMBER	Selects from among the 32 global custom scales available to edit using the
(1–32)	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.

PARAMETER	Description
<b>INPUT 1 (PRE) PAD</b> (0 db, 6dB, 12dB)	Pads the signal from <b>IN PRE</b> (INSTRUMENT input) 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.
	Run this at the lowest possible setting for your guitar, increasing padding if IN1 clipping occurs.
OUTPUT 1 (PRE) HEADROOM	Sets the headroom on <b>DUT PRE</b> to 6, 12 or 18 dB.
(0 db, 6dB, 12dB)	If the signal from your PRE fx gets too loud, unpleasant clipping will occur. The greater the headroom allows louder signals, but also increases the noise floor, meaning you will hear more hiss.
	The default setting for this parameter is 6 dB. This gives you the least headroom and the lowest noise floor. If you can't reduce the output of your PRE effects to eliminate clipping at OUT 1, increase the headroom.
	The increased headroom is offset by a corresponding but opposite adjustment internally, so "what you hear" remains the same at all settings.
POST LEVEL	<b>POST LEVEL</b> affects both IN 2 and OUT2.
(+4.0 dBu, -10.0 dBV)	+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.
	Use the -10 dBV setting if your downstream equipment cannot handle the hotter output of the +4 dBu setting.
	Your amp manufacturer or the product manual should indicate whether it operates at +4 dBu or -10 dBV. (Some amps may be switchable).

### I/O: AUDIO PAGE

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

PARAMETER	Description
OUTPUT 1 (PRE) MODE	Determines how signals appear at the <b>DUT [PRE]</b> jacks.
(STEREO/ SUM L+R/ COPY L>R)	<ul> <li>STEREO - DUT1 PRE outputs in stereo. Choose this option if you are connecting to 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>
	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.
OUTPUT 1 (PRE) PHASE (NORMAL/INVERT)	Determines whether signal at <b>DUT [PRE]</b> will be normal or phase-inverted relative to its state at the output of the last PRE effect. This lets you compensate for unwanted inversions elsewhere in the downstream signal chain. (This inverts BOTH the Left and Right channels.)
INPUT 2 (POST) MODE (LEFT ONLY/ L+R SUM/ STEREO)	This determines whether signal at <b>IN [PDST]</b> (typically that from your amp's "FX Send") is processed in stereo or mono.
	<ul> <li>LEFT ONLY – This is the usual setting for a mono rig (and also for the many rigs which are "Mono Pre, Stereo Post." With this setting, the FX Send of your amp is connected to the IN PDST L jack only.</li> </ul>
	<ul> <li>L+R SUM – Here the signals at both IN PRE L+R jacks are summed to mono and then passed on to any POST effects in the FX8.</li> </ul>
	<ul> <li>STEREO - This is the setting to use when inputting different left and right signals to the POST effects of the FX8. One such scenario might be using two different heads for left and right. Another would be using another stereo effects processor in front of the FX8.</li> </ul>
OUTPUT 2 (POST) MODE (STEREO/ SUM L+R/ COPY L>R)	This determines whether signal at <b>DUT [PDST]</b> (typically the signal to your amp's "FX Return" or power amp) is processed in stereo or mono.
	<ul> <li>STEREO – <b>DUT2 PDST</b> outputs in stereo. Choose this option if you are connecting 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> </ul>
	<ul> <li>SUM L+R – Collapses the entire signal to mono.</li> <li>Consult D. Deplication the left also a bit is in the second se</li></ul>
	<ul> <li>Copy L&gt;R – Replicates the left channel to the right, discarding the usual right channel signal.</li> </ul>

PARAMETER	Description
OUTPUT 1 (PRE) PHASE	Determines whether signals at <b>OUT [POST]</b> will be normal or phase-
(NORMAL/INVERT)	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.)

### I/O: MIDI PAGE

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

PARAMETER	Description
MIDI CHANNEL	Sets the channel on which the FX8 will receive MIDI messages.
1–16, OMNI	OMNI causes the unit to respond to incoming messages on ANY channel.
MIDI THRU	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.
OFF/ON	
PROG CHANGE	Determines whether the FX8 will process or ignore MIDI program change
ON/OFF	commands.
SCENE REVERT	Selects between one of two behaviors for scene recall via MIDI:
	OFF (Default): Scene edits are retained across scene changes until a preset is loaded. If you tweak Scene 1, switch to Scene 2, then back to scene 1, your tweaks will still be intact.
	ON: Scene edits are lost when you change the scene without saving. 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.
	For more on Scene Revert, see page 38.
<b>EXT CTRL # INIT VAL</b> 0% OR 100%	Specifies a value for each of the 12 External controllers when the FX8 is powered on. The Initial value is applied until anything is received from the external controller (an expression pedal, switch, or MIDI message).
	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 FX8 assumes it is at 0%. Setting the <b>EXT 1 INITIAL VALUE</b> to 100% ensures that the volume defaults to all the way up instead of all the way down.
## I/O: CONTROLLERS PAGE ["CTRL"]

The CTRL page of the I/O menu allows you to map PEDALS or MIDI CC messages to various FX8 functions. CC messages can be sent by a MIDI controller or computer connected to the FX8 MIDI In jack, or via the USB connection of the FX8. 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.

Preminder: You do not need to STORE settings in the SETUP menu. EXIT returns to Stompbox Mode.

PARAMETER	Description
IN 1 (PRE) VOLUME	Controls the volume at the IN PRE jack. Map a PEDAL here, for instance, if
NONE/PEDAL/0-127	you want a global volume between the guitar and the first PRE effect.
OUT 1 (PRE) VOLUME	Controls the volume at the <b>DUT PRE</b> jack. Map a PEDAL here, for instance,
NONE/PEDAL/0-127	if you want a global volume between your PRE fx and input of your amp.
IN 2 (POST) VOLUME	Controls the volume at the <b>IN POST</b> jack. This is perhaps the best and most
NONE/PEDAL/0-127	common placement of a global volume pedal in a PRE/POST rig. Volume changes will not affect the amount of preamp gain/distortion, and when you pull the pedal back, the tails of any post effects will ring out.
OUT 2 (POST) VOLUME	Controls the volume at the <b>DUT PDST</b> jack. Map a PEDAL here if you want
NONE/PEDAL/0-127	a global MASTER volume which controls the final level of everything you hear.
TRUE BYPASS	Operates the True Bypass function remotely.
NONE/PEDAL/0-127	
ΤΕΜΡΟ ΤΑΡ	Provides the ability to set tap the Tempo with an external controller.
NONE/PEDAL/0-127	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!
TUNER	Provides a way to enter or exit the TUNER function remotely.
NONE/PEDAL/0-127	
EXT CTRL 1-12	This is where you specify which incoming MIDI CC# should be assigned to
NONE/PEDAL/0-127	each of the 12 External Controllers available as Modifier sources.
LOOPER REC, PLAY, ONCE, DUB, REV, BYPASS, HALF, UNDO	Most of the functions of the Looper block can also be remote controlled.

PARAMETER	Description				
SCENE SELECT, SCENE INCR,	These options allow selecting SCENES via MIDI CC#.				
SCENE DECR	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: $62+1 = 63$ , $63 \div 8 = 7$ remainder 7, so 63 loads scene 7.				
	SCENE INCR and DECR are triggered by CC# data values greater than 63.				
OUT POST VOL INCR, OUT POST VOL DECR	These two options provide a convenient way to increase or decrease the OUT 2 (POST) VOLUME volume of the currently loaded scene in the current				
NONE/PEDAL/0-127	preset. Each time VOL INCR is triggered by a CC# value greater than 63, the level is increased by 1.0 dB and the preset is instantly saved. VOLUME DECR, works the same way, decreasing volume.				
	IMPORTANT! Any other unsaved changes such as altered effects will also be stored if either VOLUME INCR or VOLUME DECR is triggered. 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!				
CHORUS 1 BYP	The BYPASS switch for every block in the FX8 can be remote controlled. The				
through	list of MIDI CC# defaults can be found on <u>page 80</u> . Some blocks may not				
VOLUME/PAN BYP	have a default assignment but you can change any block at any time.				
CHORUS 1 XY	Like the BYPASS switch (above) the XY toggle switch for every block can be				
through	remote controlled. The list of defaults is on page 80.				
WAHWAH 2 XY					

## I/O: PEDAL PAGES

The functions of the PEDAL page are detailed in <u>"Connecting Pedals & Switches" on page 16</u>.

## 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: PRESET PAGE**

The PRESET page contains utilities to manually dump the memory of the FX8 to a computer (or to another FX8 connected via MIDI), plus a tool to ERASE ALL PRESETS.



You will generally NOT need to use these options for backups to a computer because Fractal-Bot, our free MIDI UTILITY handles backup and restore dumps automatically. Find it at http://www.fractalaudio.com/fractal-bot.php

PARAMETER	Description
DUMP TO MIDI	Three options — one for <b>PRESET</b> (current), one for <b>ALL PRESETS</b> , and one for <b>SYSTEM</b> — dump the memory of the FX8 as System Exclusive data to the MIDI OUT port.
	Connect the <b>MIDI DUT</b> of the FX8 to the MIDI IN of a computer running a MIDI Utility (typically <b>MIDI Ox</b> or <b>Snoize SysEx Librarian</b> ), or connect to the MIDI IN port of another FX8 to use these utilities. An on-screen meter indicates the progress as the dump is transmitted.
	It takes approximately 9-10 minutes for a bank dump to complete via MIDI, so the meter moves very slowly. USB is dramatically faster, and we recommend using Fractal-Bot whenever possible.
	SYSTEM dumps area includes all <b>GLOBAL</b> and <b>I/O</b> settings, plus global options for the <b>TUNER</b> .
DUMP TO USB	As above, but the data appears at the virtual MIDI port which appears in your computer when the FX8 is connected via USB. You'd almost never use these options unless Fractal-Bot were unavailable for some reason.
ERASE ALL PRESETS	Does just what it says, so handle with care!!! Data erased in this way cannot be recovered unless you previously made a backup to your computer.

## **SENDING DUMPS TO THE FX8**

We recommend using Fractal-Bot to restore backups to the FX8. Find it at http://www.fractalaudio.com/fractal-bot.php

In the event Fractal-Bot is unavailable, you can dump into the unit using a 3rd party MIDI utility or another FX8. It is not necessary to ready the FX8 in any way before transmitting a file to it. When the FX8 receives an individual preset, you must manually store it. When the FX8 receives ALL PRESETS or a SYSTEM file, it overwrites local data and settings without warning. Be certain you are sending the correct files, and consider making a fresh backup of current settings before transmitting anything to your FX8.

IMPORTANT: You must always REBOOT the FX8 immediately after it receives a SYSTEM bank.

### UTILITY: STATUS PAGE

Displays realtime audio meters for:

- IN 1 (PRE)
- IN 2 (POST) left and right
- OUT 2 (PRE) left and right
- OUT 2 (POST) left and right

The scale is -80 to 0 db. The clip LED will light at -6 dB.

To the right, CPU Utilization (CPU%) is shown on its own meter. The total CPU usage should not exceed about 90%. For more on this topic, see <u>"Preset CPU Limits" on page 29</u>.

### UTILITY: RESET PAGE

The RESET page provides a single function which sets all SYSTEM parameters (GLOBAL, I/O) back to their 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 FX8 is running. Over time, you'll likely upgrade the firmware of your FX8 to add new features and maybe even bug fixes. This is done using our free companion software, Fractal-Bot, which provides step-by-step instructions.

# THE CONTROLLERS MENU

The **CONTROLLERS** menu is accessed by tapping the **SETUP** button and then pressing footswitch 4.

This menu contains pages of parameters for each of the **Internal Controllers**, each of which can be used as the **SOURCE** of a Modifier to create real-time sound change or automation .

See <u>"Internal Controllers" on page 53</u> for more on using these parameters.

# 15 : ADDITIONAL TOPICS

# GLOBAL VOLUME PEDAL SETUP

The FX8 makes it easy to set up a global volume pedal WITHOUT inserting a VOLUME block in your presets.

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

- CONNECT Using a TRS cable, connect to either the **PEDAL1** or **PEDAL 2** jack of the FX8.
- Open the PEDAL page of the I/O menu. (Press SETUP, press Footswitch 2, press PAGE to get to PEDAL).
- Select **PEDAL 1 CAL** or **PEDAL 2 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 Footswitch 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:
  - IN 1 PRE VOLUME This is like adjusting your guitar's volume. The level to all effects and your amp will be affected when you make changes.
  - **OUT 1 PRE VOLUME** This places volume at the end of the PRE effects chain. The signal level into any PRE effects like DRIVE or COMPRESSOR is not affected, but the level into your preamp is affected.
  - IN 2 POST VOLUME Here, the volume pedal presumably has no effect on any drive pedals or preamp gain, and since it comes before POST effects, their tails ring out when you pull the pedal back.
  - **OUT 2 POST VOLUME** This controls the level of EVERYTHING you hear. Effects, amp, tails, etc.

3 Change the value for the desired entry to **PEDAL 1** or **PEDAL 2**, depending on which jack you're using.

### YOU ARE FINISHED! Press EXIT to return to Stompbox Mode and test the pedal.



The Fractal Audio Systems EV-1 expression/volume pedal is ideally suited for the FX8.

# ADVANCED LEVEL PARAMETERS

Setting levels on the FX8 is easy, but to get the most from your unit you need to know what the various settings do and how they work. If you encounter clipping or want to ensure that you're getting the best signal-to-noise ratio, you should understand the various ways to set levels, pads, and headroom:

### IF YOU ARE CLIPPING THE PRE CHAIN...

**IN [PRE] PAD** (Setup : I/O : LEVELS) – This should be set as low as possible to keep the noise floor low, but if you clip IN 1, you'll need to increase the pad. If the input still clips with a 12dB pad, you'll need to lower the level of your guitar or other upstream effects/device(s).

**LEVEL** of your PRE effects – If the LEVEL is too hot on one or more PRE effect blocks, OUT 1 will clip. Don't forget that the Noise Gate also has a LEVEL control.

**OUTPUT LEVEL PRE** (OUT page of the preset main menu... page over from "Stompbox Mode") – Each Scene of every preset has its own master volume setting for OUT 1 (PRE). Adjust this to normalize scenes, but watch out for clipping at out 1 and be aware that this also affects unity gain.

**OUTPUT 1 (PRE) HEADROOM** (Setup: I/O: Levels) – This increases headroom on the output converter. Use this control only if you can't address clipping by adjusting the settings above. The default is 6dB. Try 12 dB before using 18 dB as a last resort, since higher settings also increase the noise floor.

**OUT 1 GLOBAL EQ** (Setup: Global: Out 1) – The Global EQ has the potential to boost signals to the point of clipping. Conversely this can also be a "quick fix" until you can adjust blocks/ or scenes as described above.

No other controls or settings on the FX8 address IN1/OUT1 clipping.

## IF YOU ARE CLIPPING THE POST CHAIN...

**SEND LEVEL** of your amp's FX loop – Some amps have a knob or switch to vary send levels. Be sure to select the loudest channel on your amp when checking to see if this solves a possible problem of clipping at IN 2.

LEVEL of your POST effects – If the LEVEL is too hot on one or more POST effect blocks, OUT 2 will clip.

**OUTPUT LEVEL POST** (OUT page of the preset main menu... page over from "Stompbox Mode") – Each Scene of every preset has its own master volume setting for OUT 2 (POST). Adjust this to normalize scenes, but watch out for clipping at Out 2 and be aware that this also affects unity gain.

**POST LEVEL** (Setup: I/O: Levels) – SETUP: I/O: POST LEVEL can be set to +4dbu or -10dbV. This setting affects BOTH IN2 (POST) and OUT 2 (POST). +4dbu is "professional" standard. This setting gives you greater headroom, which is why this control is mentioned at all in a discussion about clipping. The increased voltage is also better for long cable runs between the FX8 and other equipment. -10dbV is the "home" standard but may also be used for music equipment. If your connected amplifier operates at -10dbV, choose this setting.

**OUT 3 GLOBAL EQ** (Setup: Global: Out 3) – The Global EQ has the potential to boost signals to the point of clipping. Conversely this can also be a "quick fix" until you can adjust blocks/ or scenes as described above.

No other controls or settings on the FX8 address IN1/OUT1 clipping.

# SPILLOVER

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

### WHEN MANUALLY BYPASSING 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 set to 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 (page 62) to determine whether Delays, Reverbs, or "BOTH" will spill over when you change presets. ("Delay" does not include Multi-Delay or Megatap blocks).

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 "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 be placed in similar routing architectures. You would hear quite a sudden difference in the tail, for instance, if a delay was placed after a clean amp in the first preset and in front of a heavily overdriven amp 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 page ask for more on **BYPASS MODE**.



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.

## FREQUENTLY ASKED QUESTIONS

Here are the answers to some frequently asked questions about the FX8.

Fractal Audio Systems also offers help at support.fractalaudio.com

You can also find answers and meet others who use the FX8 at forum.fractalaudio.com

- **Q:** One or more CLIP LEDs are lighting up.
- A: Many factors affect levels and clipping in the FX8. See <u>"Advanced Level Parameters" on page 73</u>.
- Q: I can't hear some of the effects.
- A: You PRE/POST set up may be incorrect. Please refer to the basic overview on page 2, the setup diagrams in <u>Section 3</u>, and <u>"Configure PRE And POST" on page 31</u>.
- **Q:** I can't hear the Looper,
- A: Check the LOOPER LOCATION on Page 2 of the Looper menu. It must not be set to NO LOOPER. If it is set to GLOBAL, check the GLOBAL LOOPER LOCATION (in the SETUP: GLOBAL menu) to ensure that it is not set to NO LOOPER. This may also be due to PRE/POST settings. If your rig uses only the PRE chain or only the POST chain, set LOOPER LOCATION accordingly.
- **Q:** I'm hearing click and pops.
- A: Excessive CPU usage may be to blame. Press UTILITY and change to the STATUS page. Is the CPU meter in the mid 90s or higher? If so, you've overloaded the current preset. Try removing one block or reviewing <u>"Preset CPU Limits" on page 29</u> for useful tips.
- **Q:** One of my effects is totally not working!
- A: When tweaking effect parameters causes excessive CPU usage, the FX8 will disable one effect block. This block will be quickly blink in the Stompbox Mode display. 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 <u>"Connecting Pedals & Switches" on page 16</u> for a basic overview. Are you using a TRS cable? Is it connected to the right jack on the FX8? Is it actually an expression pedal? Did you set up a modifier according to the information in <u>Section 10</u>?
- Q: My FX8 won't start up correctly.
- A: One problem that may cause this is a bad preset. To get around this issue, reboot the FX8, but as soon as the "Splash Screen" is displayed, press and hold **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: How do I upgrade the firmware of my FX8?
- A: Use Fractal-Bot, available from www.fractalaudio.com
- Q: Where can I learn more about all these effect parameters?
- 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 <u>www.fractalaudio.com/support</u>.

- **Q:** Why should I bother with PRE and POST?
- **A:** Sonically speaking, the main reason to care about PRE vs. POST is that a given effect will sound different when placed BEFORE or AFTER your amp's preamp—the place where distortion occurs.

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 FX8 allows you to experiment easily and find what combinations of pre- and post-effects work best for you. Creativity begins where tradition ends.

- Q: My FX8 stopped working during or after a firmware update. How can I recover it?
- A: The FX8 has a built in recovery routine. Power the unit off. Hold down the **SETUP** button, and then power the unit on. Hold the button for about 1 second beyond the power up, and then release. The unit will now allow you to install firmware using Fractal-Bot.
- **Q:** Why do I hear a pop when changing X/Y on some DRIVE block types?
- **A:** When you change X/Y on the FX8, the block may need to be completely reprogrammed for its new function. In some cases, this is sonically transparent. In other cases, this may mean changes inside the block which cause a small pop. When connected to a loud amplier that has a lot of gain, this small pop will naturally be even louder. One possibility that makes this completely avoidable is to use two different drive blocks instead of one drive block with X/Y Switching.

### **15 : ADDITIONAL TOPICS**

## UNITY GAIN FAQ

- Q: What does "unity gain" mean?
- **A:** Unity gain means that the level at a device's output is the same as the level at its input, with no change in gain.
- **Q:** Why do I care that the FX8 is designed for unity gain?
- **A:** The FX8 makes it EASY to achieve unity gain. This can be important because amplifier tone, distortion amount, dynamics and noise are level dependent. With unity gain:
  - The level of the signal from your guitar output can reach your amp input without being altered. Therefore, your guitar-amp interaction sounds and feels the same, offering a transparent playing experience while using the FX8.
  - The level of your FX SEND can reach your FX return without being altered. The entire system can
    therefore perform optimally, without unpredictable changes to level, dynamics or noise when you
    engage True Bypass or bypass all post effects.
- **Q:** How do I set up the FX8 for unity gain?
- A: You don't need to! Just set up according the basic instructions in <u>Section 3</u>. A default empty preset should sound have the same level as True Bypass Mode.
- Q: What might I do to inadvertently upset unity gain?
- **A:** Many SETUP and EFFECT parameters change the gain level. Some of these are *intended* to change gain levels (how else is a boost supposed to work, after all?) Here is a short list of things to consider:
  - The LEVEL parameter of every effect increases or decreases the overall level.
  - Changing MIX on certain effects changes both dry and wet levels. This is to prevent signals from "stacking up" and causing clipping. You can compensate with your ears by turning effects on and off and comparing the level with True Bypass engaged.
  - If you're going to change a block's **BYPASS MODE** from the default setting of THRU, it is best to check its levels when you engage/disengage the effect BEFORE you switch to something like MUTE FX IN.
  - The level parameters on the **OUTPUT** page of the main mode menu increase or decrease overall levels.
  - Incorrect settings on the I/O: AUDIO page can result in gain changes.
  - The NOISE GATE has a level control.
  - If your rig is MONO, every BALANCE or PAN control can affect levels.
  - The Global Graphic EQs affect overall level.
  - The I/O LEVEL page settings DO NOT affect unity gain. Each setting is compensated internally.
  - See also <u>"Advanced Level Parameters" on page 73</u>, which contains several tips about levels and gain.
- Q: Any last words of advice?
- A: Use the **TRUE BYPASS** switch as a way to make sure your presets and scenes are on track. In general, it is better to be <u>in control</u> of your levels than to be fixated on the "concept" of unity gain. Do what sounds best to you and learn as much as you can about your gear.

# 16 : SPECIFICATIONS & DEFAULTS

INPUT PRE:	
Connector:	1/4" phone jack, unbalanced.
Impedance:	1 Megohm (less if Input Impedance is active)
Max. Input Level:	+16 dBu (conditioned for guitar use)
INPUT POST:	
Connector:	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:	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
MIDI INTERFACE	
Connectors (in and out/thru):	5-pin DIN
PEDAL INTERFACE	
Connector:	2 x 1/4"TRS phone jacks
Format:	Switch: Momentary or Latching; Pedal: 10–100k $\Omega$ max, linear taper expression type.
RELAY INTERFACE	
Connector:	2 x 1/4"TRS phone jacks
Туре:	Short tip-to-sleeve, ring-to-sleeve, tip-AND-ring-to-sleeve
USB INTERFACE:	
Connector:	USB 2.0 Type B
GENERAL	
Finish:	Powder coated steel chassis with anodized aluminum faceplate
Display:	160x80 dot matrix graphic LCD
Dimensions:	16.35″ x 3.96″ x 10.00″ (415.29mm x 100.6mm x 254mm)
Weight:	11.5 lbs. (5.2 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

Every function of the FX8 Looper (plus a hidden "BYPASS" feature) can be controlled by MIDI CC messages or an external footswitch. Find the complete list of controllable functions in a table on the next page.

Function		Тх	Rx	Remarks
Basic Channel	Default	1	1	
	Changed	1-16	1-16	
Note Number	True Voice	Х	Х	
Velocity	Note ON	Х	Х	
	Note OFF	Х	х	
After Touch	Keys	Х	Х	
	Channels	Х	х	
Pitch Bend		Х	Х	
Control Change Program Change	True Number Bank Select	O O X	O O X	The MIDI block of the FX8 can transmit CC and PC messages. No other CCs are transmitted. Receivable CCs are globally soft-assigned to functions via the I/O: CTRL menu. These include master volumes, True Bypass, 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, CHORUS1, CHORUS2, etc.), and the X/Y switches of the block types that support this function (DRIVE 1 XY, DRIVE 2 XY, etc.). The MIDI block of the FX8 can transmit CC and PC messages. With 128 presets onboard, the FX8 does not transmit or removed to bank coloct. Selecting
				a preset with a footswitch also transmits the
System Exclusive	Fractal Audio	0	0	SysEx is used extensively for FX8-Edit.
	Real-Time	0	x	
	Non-Real-Time	х	x	
System Common	Song Position	Х	Х	
	Song Select	х	x	
	Tune Request	х	x	
System Real-Time	Clock	Х	0	FX8 Global Tempo syncs automatically to MIDI
	Commands	х	x	Beat Clock. FX8 does not transmit MIDI clock.
Auxiliary Messages	Local ON/OFF	Х	Х	
	All Notes OFF	Х	x	
	Active Sense	Х	Х	
	Reset	Х	x	

# FACTORY DEFAULT MIDI CC SETTINGS

The following text table lists the default MIDI CC# assignments for each of the available functions in the FX8. In addition to a MIDI CC, any item can be set to NONE, PEDAL 1 or PEDAL2. All such assignments are global.

In 1 Pre Volume10
Out 1 Pre Volume11
In 2 Post Volume9
Out 2 Post Volume12
Bypass13
Tempo14
Tuner15
External Control 116
External Control 217
External Control 318
External Control 419
External Control 520
External Control 621
External Control 722
External Control 823
External Control 924
External Control 1025
External Control 1126
External Control 1227
Looper Record
Looper Play
Looper Once
Looper Dub31
Looper Rev32
Looper Bypass
Looper Half120
Looper Undo121
Metronome122
Scene Select
Scene Increment123
Scene Decrement124
Out Post Vol Incr35
Out Post Vol Decr

Chorus 1 Bypass41
Chorus 2 Bypass42
Compressor 1 Bypass43
Compressor 2 Bypass44
Crossover 1 Bypass45
Crossover 2 Bypass46
Delay 1 Bypass47
Delay 2 Bypass48
Drive 1 Bypass49
Drive 2 Bypass50
Enhancer Bypass51
Filter 1 Bypass52
Filter 2 Bypass53
Flanger 1 Bypass56
Flanger 2 Bypass57
Formant 1 Bypass58
Gate/Expander 1 Bypass60
Graphic EQ 1 Bypass62
Graphic EQ 2 Bypass63
Megatap Delay Bypass66
MIDI 1 NONE
MIDI 2 NONE
Multi-Delay Bypass69
Parametric EQ 1 Bypass71
Parametric EQ 2 Bypass72
Phaser 1 Bypass75
Phaser 2 Bypass76
Pitch Bypass77
Relay 1125
Relay 2126
Reverb 1 Bypass83
Reverb 2 Bypass84
Ring Modulator Bypass85

Rotary Bypass86
Trem/Pan Bypass90
Tremolo 2 Bypass91
Volume/Pan Bypass93
Wahwah 1 Bypass97
Wahwah 2 Bypass
Chorus 1 X/Y104
Chorus 2 X/Y105
Delay 1 X/Y106
Delay 2 X/Y107
Drive 1 X/Y108
Drive 2 X/Y109
Filter 1 X/Y NONE
Filter 2 X/Y NONE
Flanger 1 X/Y110
Flanger 2 X/Y111
Gate/Exp X/Y NONE
Multitap X/Y
Phaser 1 X/Y112
Phaser 2 X/Y113
Pitch X/Y114
Relay 1 X/Y NONE
Relay 2 X/Y NONE
Rotary X/Y125
Reverb 1 X/Y116
Reverb 2 X/Y117
Trem/Pan X/Y NONE
Wahwah 1 X/Y118
Wahwah 2 X/Y119

## MIDI PROGRAM CHANGE NUMBERS

The following table lists MIDI Program Change message associated with each of the presets in the FX8.

### PRESET TO PC

Each time you select a preset, the FX8 transmits a MIDI Program Change message on its own MIDI Channel as set in the MIDI page of the I/O menu under SETUP.

A10	C116	E1 32	G148	l1 64	K1 80	M196	01 112
A21	C217	E2 33	G249	l265	K2 81	M2 97	02 113
A32	C318	E3 34	G3 50	13 66	K3 82	M3 98	03 114
A43	C419	E4 35	G451	l4 67	K4 83	M4 99	04 115
A54	C520	E5 36	G552	15 68	K5 84	M5 100	O5 116
A65	C621	E6 37	G653	l6 69	K6 85	M6 101	O6 117
А7б	C7 22	E7 38	G754	I7 70	K7 86	M7 102	07 118
A87	C823	E8 39	G855	l8 71	K8 87	M8 103	O8 119
B18	D124	F1 40	H156	J172	L1 88	N1 104	P1 120
B29	D225	F2 41	H257	J273	L2 89	N2 105	P2 121
B3 10	D326	F3 42	H358	J374	L3 90	N3 106	P3 122
B4 11	D427	F4 43	H459	J475	L4 91	N4 107	P4 123
B5 12	D528	F5 44	H560	J576	L592	N5 108	P5 124
B6 13	D629	F6 45	H661	J677	L6 93	N6 109	P6 125
B7 14	D7 30	F7 46	H762	J778	L7 94	N7 110	P7 126
B8 15	D831	F8 47	H863	J8 79	L8 95	N8 111	P8 127

### PC TO PRESET

When the FX8 receives a Program Change message on its own MIDI Channel as set in the MIDI page of the I/O menu under SETUP it loads the corresponding preset.

0A1	16C1	32 E1	48 G1	64l1	80 K1	96 M1	112 01
1A2	17C2	33 E2	49 G2	65l2	81K2	97 M2	113 O2
2A3	18C3	34 E3	50 G3	66I3	82 K3	98 M3	114 03
3A4	19C4	35 E4	51 G4	67l4	83 K4	99 M4	115 04
4A5	20C5	36 E5	52 G5	68I5	84 K5	100 M5	116 O5
5Аб	21C6	37 E6	53 G6	69 l6	85 K6	101 M6	117 O6
6A7	22C7	38 E7	54 G7	70I7	86 K7	102 M7	118 07
7A8	23C8	39 E8	55 G8	71I8	87 K8	103 M8	119 08
8B1	24 D1	40 F1	56 H1	72 J1	88 L1	104 N1	120P1
9B2	25 D2	41 F2	57 H2	73 J2	89 L2	105 N2	121P2
10B3	26 D3	42 F3	58 H3	74 J3	90 L3	106 N3	122P3
11B4	27 D4	43 F4	59 H4	75 J4	91 L4	107 N4	123P4
12B5	28 D5	44 F5	60 H5	76 J5	92 L5	108 N5	124P5
13B6	29 D6	45 F6	61 H6	77 J6	93 L6	109 N6	125P6
14B7	30 D7	46 F7	62 H7	78 J7	94 L7	110 N7	126P7
15B8	31 D8	47 F8	63 H8	79 J8	95 L8	111 N8	127P8

### CC#34 TO SCENE

By default, MIDI continuous controller #34 selects SCENES. The value sent determines the scene.

01	161	321	481	641	801	961	1121
12	172	332	492	652	812	972	1132
23	183	343	503	663	823	983	1143
34	194	354	514	674	834	994	1154
45	205	365	525	685	845	1005	1165
56	216	376	536	696	856	1016	1176
67	227	387	547	707	867	1027	1187
78	238	398	558	718	878	1038	1198
81	241	401	561	721	881	1041	1201
92	252	412	572	732	892	1052	1212
103	263	423	583	743	903	1063	1223
114	274	434	594	754	914	1074	1234
125	285	445	605	765	925	1085	1245
136	296	456	616	776	936	1096	1256
147	307	467	627	787	947	1107	1267
158	318	478	638	798	958	1118	1278

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