AUDIFFEX


# AmpLion 1.1

## User Manual

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# Introduction

Dear musician,

Thank you for purchasing ampLion. We do believe you will be satisfied with its possibilities and hope that it will bring you new inspiration and productivity.

Please read through the whole manual to learn and fully understand the features of ampLion.

## The Technology Behind ampLion

The core of ampLion simulation is a specially designed realtime solver of nonlinear circuit equations. Using this technique, the equations that entirely describe the simulated circuits are solved in real time. That means that we can get the simulated nonlinear circuit to behave realistically under dynamic conditions. This unique technique is applied to all amplifier and distortion circuits present in ampLion.

In addition, we have used an interconnection compensation between several parts of the signal flow, providing you with maximally trustworthy simulation results when connecting preamps, power amps, speaker cabinets and so on.

Last but not least, models of speaker cabinets and microphones are based on highly precise measurements of real devices.

## New In This Version

The biggest change in this version hides in the guts of the plugin and is related to way the GUI is drawn. One of its visible signs is the ability to reorder rack and pedal effects by dragging them.

Another significant change relates to Mac – ampLion is finally available as the AudioUnit for use inside Logic and Garageband.

A couple of effect models were also added in this version. Refer to the Appendix for more information.

We had to make significant changes to parameters storage, therefore presets created in previous versions of ampLion are not compatible with ampLion 1.1.

## System Requirements

To successfully run ampLion, you need a computer that meets the following requirements:

- Windows: CPU with SSE2 support (newer than Pentium 4/Athlon 64)
- Mac OS: Intel based Mac

- CPU speed 1.6 GHz, recommended 2 GHz
- Windows XP SP3 or Mac OS X 10.6 and newer
- 300 MB of HDD space
- ASIO (Win) or CoreAudio (Mac) compatible audio interface
- VST/AU/RTAS host application

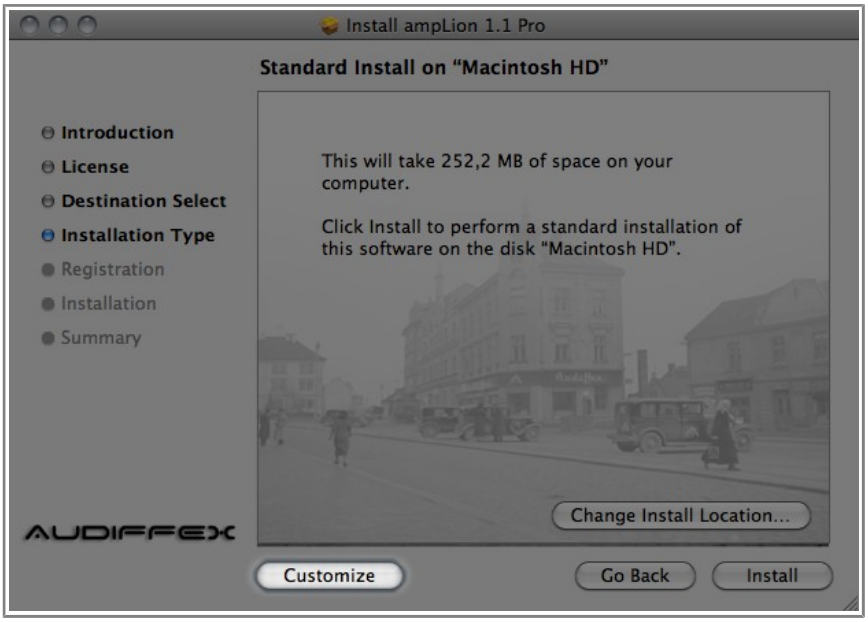
## Installation

### Windows

Unzip and run the installer and follow the on-screen instructions. You can select the destination path and the installed plug-in format (VST/RTAS) during the process.

### Mac

Unzip and mount the provided disk image and run the installer. You can select the installed plug-in format (VST/AU/RTAS) during the process by clicking **Customize.**




## Uninstallation

### Windows

Navigate to ampLion's program folder in the Start menu and run the uninstaller.

### Mac

Open the provided disk image and run the uninstaller.

## ampLion Overview

The user interface (UI) consists of six main parts – five panels assigned to the top buttons (Effect Pedals, Amps & Speakers, Effect Racks, Program Manager and Live Mode) and the Common controls panel. Their functionality will be further described later on in the text. But first of all, lets quickly go through all of them.


### Effect Pedals Panel

is the first out of five panels accessible by the top buttons. Contains 8 slots for stomp-box guitar effects and the tuner.

### Amps & Speakers Panel

introduces the actual amplifier, speaker and microphone modeling. Two speakers with independent microphones can be used at the same time.

### Effect Racks Panel

is a virtual 6U effect rack. The middle four positions can be engaged by a user-selectable effect units. The first and the last position contain the noise gate and the limiter, respectively.

### Program Manager Panel

Here you can place and organize your presets in 128 positions for playing live. The defined order is then used in the Live mode.

### Live Mode Panel

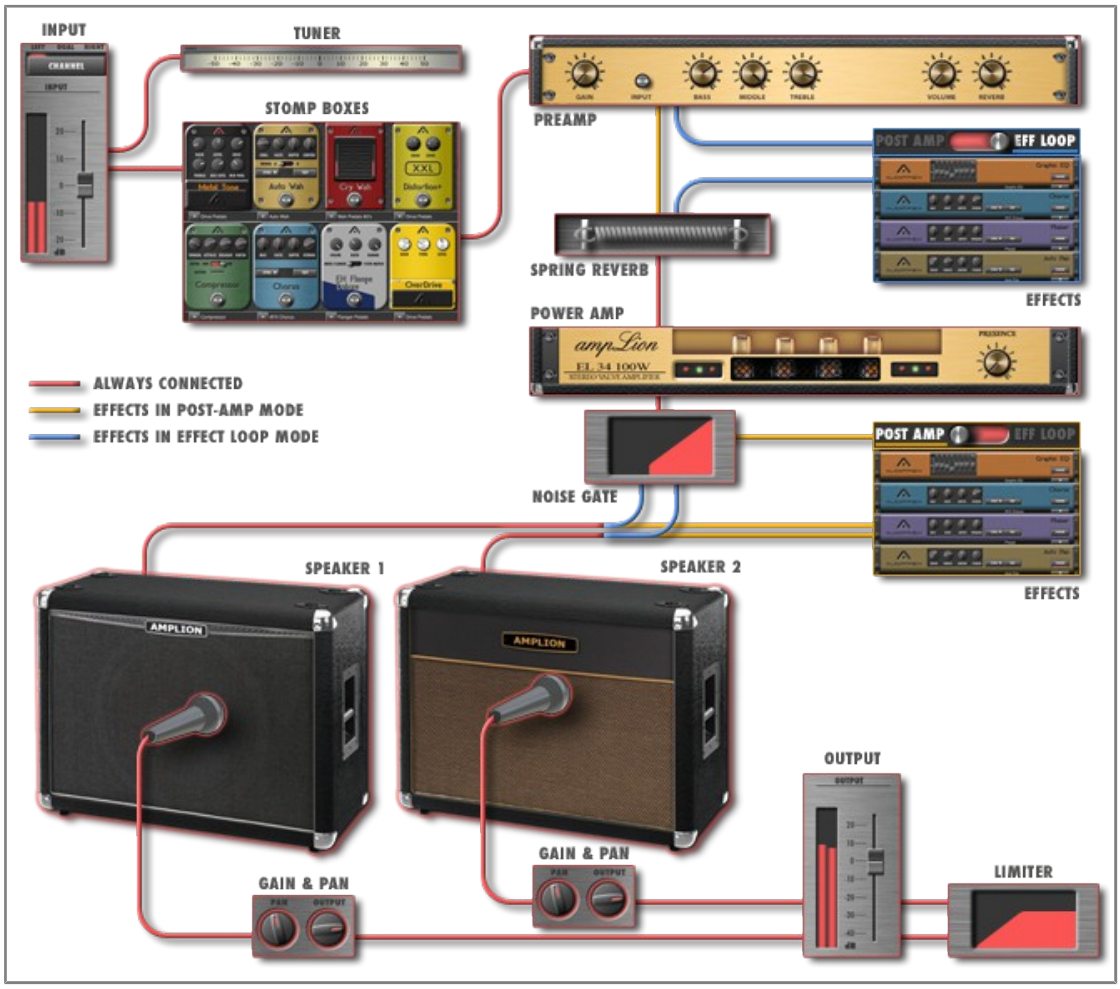
brings you the opportunity to play live with ampLion. Two buttons allow you to quickly switch between the programs according to their order in the Program Manager panel.

### Common Controls Panel

occupies the left part of the screen. Using its controls you can set the input/output volume levels, work with presets, etc. It also contains an information display.

## Signal Flow Diagram

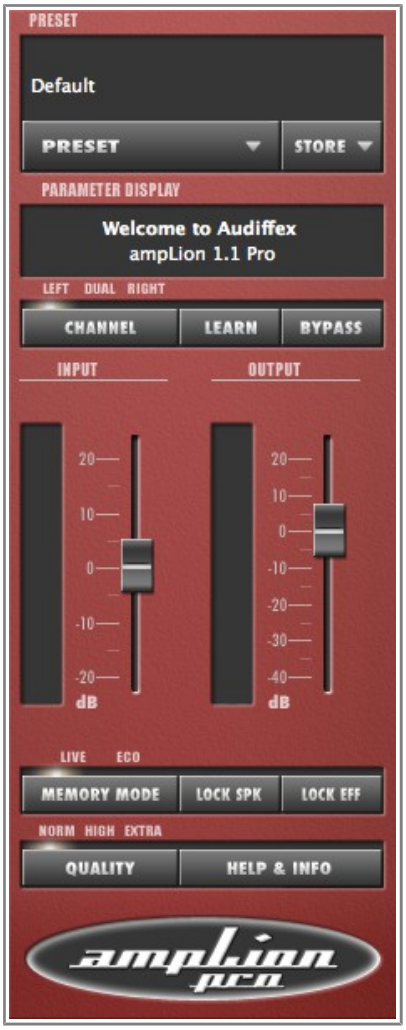
For better understanding of ampLion, take a look at the following diagram. It shows the path of signal across ampLion.



# Using ampLion

## Common Controls Panel

This part of ampLion's UI contains controls whose functionality relates to the whole plug-in, in other words, that are not related to any of the five panels.




The topmost part of the panel is occupied by the **PRESET** section which provides the preset manage-ment. For more on this topic, see the chapter Working With Presets.

Whenever you change any parameter of ampLion, the value is displayed on the **PARAMETER DISPLAY**.

To adjust the **INPUT** or **OUTPUT** volume level, use the appropriate slider. Both of them are accompanied by their signal level meter allowing you to visually check if it doesn't exceed the maximum.

The rest of the panel's controls consists of the following buttons:

**CHANNEL** – select the input channel to be processed (left/both/right)

**LEARN** – set the output volume optimally. After pressing the button, play your guitar with maximal intensity for five seconds. The signal level will be measured and **OUTPUT** slider set appropriately.

**BYPASS** – turn ampLion on/off

**MEMORY MODE:** ECO – only current amp's data is loaded in RAM. Lower memory consumption, suitable for use in DAW. LIVE – data of all of the amps is loaded. Provides smooth amps switching at the cost of higher RAM use.

**LOCK SPK** – locks the arrangement of speakers when changing the preset

**LOCK EFF** – locks the effects when changing the preset

**QUALITY** – selects the simulation quality by internal resampling (1x/2x/4x)

**HELP & INFO** – find the help you need or check for newer ampLion versions

## Amps and Speaker simulation

The core of ampLion are the models of amplifiers, speakers and microphones. All of these are placed in the **Amps** panel:


### Amplifiers

To select the preamplifier of the guitar head, use the **PREAMP** button. By default, the matched (belonging to the selected preamp) power amp is used. To use another one, click **POWER AMP** and select the type you want. Bypassing the power amplifier is also possible.

### Speakers

The signal from the amplifier can be split and processed by two independent speakers.

The following parameters can be set for each of them:

- speaker type
- microphone type, position and angle
- signal level and panning

The **SPEAKER** button opens a list of available speakers. If two speakers are not required, select **Single Speaker** in either of the positions.


The signal coming out of the speakers can be panned across the channels with the appropriate **PAN** knob. Similarly, the speaker signal level is controlled by the **OUTPUT** knob.

### Microphones

Select the suitable microphone from the list inside **MIC MODEL**. The mic position is adjustable in two ways: either by dragging the mic itself or using the sliders alongside the speaker image. To adjust the mic distance, use the vertical slider on the left; the angle towards the speaker membrane is adjusted by **MIC ANGLE**.

If you wish to bypass the microphone simulation, select the **Flat** microphone.

## Convolution Speaker

New in ampLion 1.1 is the possibility to use custom impulse responses (IRs) of the speakers. Their management is accessible via the **Convolution Speaker** item in the list of speaker models.



*Note: Convolution Speaker is not available in the Single Speaker mode.*

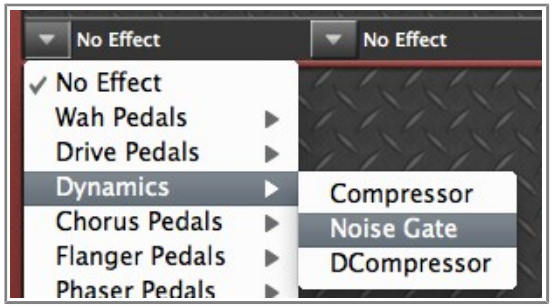
Before using custom IRs, they must be imported into the list. The supported format is WAV, both mono and stereo. When importing stereo files, only the left channel is used. ampLion also uses internal normalization to prevent enormous amplification.

**Warning:** Using an improper IR file can lead to additional delay in sound processing.

## Effect Pedals

Up to eight effect pedals can be placed into the signal path before the amp:


To place an effect into a desired slot, click the down arrow button and select the effect from the list:



You can freely change the order of the effects by dragging them to a new position. If you drop it over slot that is already occupied by another effect, they will swap their positions.


There are two ways of arranging the two rows of pedals: in series or in parallel. In the first case, all of the effect pedals are daisy-chained:


The second option creates two parallel chains of 4 effect pedals:

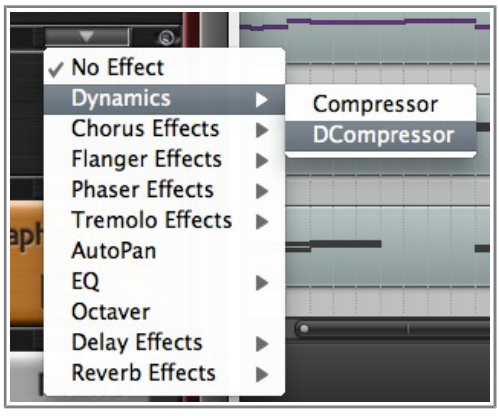

The selection is performed using the **PEDAL CHAINING** button.

## Effect Rack

Besides the aforementioned effect pedals, you can use additional six effects in the rack.


The choice of available effects is limited to those commonly used in an effect rack. You can select the effect for the middle four positions of the rack. The first and the last one are always occupied by noise gate and limiter, respectively. Their operation will be described in the next section.

Just like the effect pedals, you can select the rack effect by the down arrow:



### Rack Effects Placement

Each of the user-selectable rack effect can be placed in two different locations of the signal path: the effect loop and right after the amplifier. The position is defined by the switch next to the name of the effect:


For more information on rack effect placement, refer to the Signal Flow diagram.

### Noise Gate

There are always several amplification elements involved along the signal path of ampLion. Each of them amplifies not only the effective signal but the noise as well. That results in disturbing noise present at the output. To limit the effect of noise, the noise gate comes into play.

Its principle is straightforward: when the signal falls below the defined threshold, the gate attenuates the signal in ratio defined by **ATTEN.** This is indicated by the **CLOSED** indicator.


Speed of closing and reopening the gate is determined by the remaining two knobs, **ATTACK** and **RELEASE**.

There are 5 controllers that influence the function of noise gate. Taken left to right:

| | |
|---|---|
| **THRESH.** | Threshold – signal level necessary to open the noise gate |
| **ATTEN.** | Attenuation – level of suppression when the gate is closed |
| **ATTACK** | Time necessary to reach the full attenuation, after the signal falls below the threshold level |
| **RELEASE** | Time necessary to open the gate after the signal exceeds the threshold level |
| **LEARN** | Useful for optimal threshold setting. To use it, keep the strings silent and press the button. The threshold will be set just above the noise level. |

### Limiter

Another consequence of multiple amplification elements in the signal path is that the output signal level can easily exceed 0 dB, which introduces an audible distortion. To prevent such situations, the limiter can be used.


Until the signal reaches the threshold, it passes the limiter unaltered. If it gets above the threshold it is attenuated to the threshold level. In other words, the limiter is a compressor with the ratio of infinitive:1. The activity of limiter is indicated by the **CLIP** indicator.

Three parameters are user-adjustable:

| | |
|---|---|
| **THRESH.** | Threshold – signal level necessary to activate the limiter |
| **ATTACK** | Time necessary for limiter to take full effect after the signal exceeds the threshold |
| **RELEASE** | Recovery time from limiter activity to normal operation after the signal returns below the threshold |

### Convolution Reverb

This effects lets you define your own space for signal reverberation. Similarly to convolution speaker, it is determined by so called impulse response (IR).

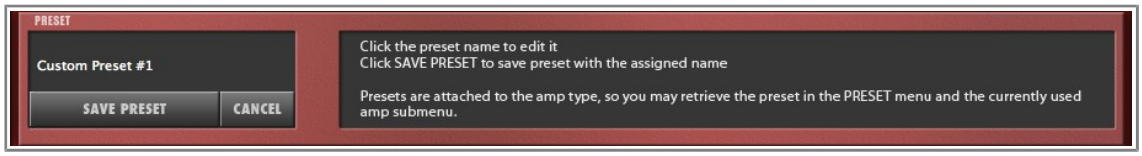

| | |
|---|---|
| **WET** | Amount of processed signal added to the effect output |
| **DRY** | Amount of original signal added to the effect output |
| **SPACE** | Selects the impulse response to be used |
| **IMPORT** | Adds the selected impulse responses to the list |
| **REMOVE** | Deletes the selected impulse response from the list |
| **USE OVERLAP** | If on, the reverb of previously selected IR will be sustained until it fades out, when switching to another IR |
| **REM. DIRECT** | Removes the direct sound from the reverberation (by removing the first pulse of the impulse response) |

## Working with Presets

When you have set your sound according to your needs, you can save ampLion's state to a preset (not to be confused with a program). All information will be stored, i.e. amps, speakers, microphones and the effects.

### Saving a User Preset

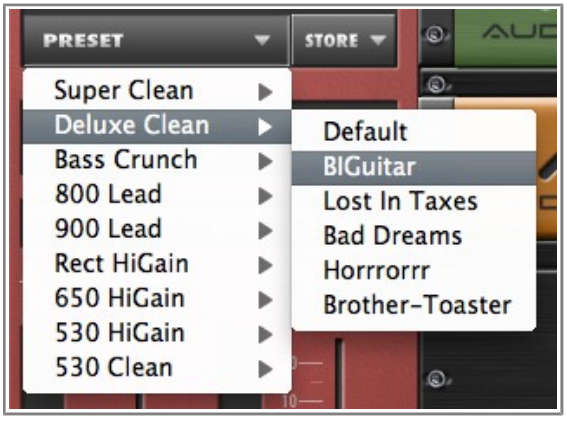
Open the list using the **STORE** button and select either **Save** for saving the current preset or **Save As** for saving the settings to a new preset.




### Loading a Preset

Click the **PRESET** button and select the requested preset. The settings will change to reflect the preset.

*Note: The presets are grouped by the used amplifier:*




### Deleting a User Preset

Load the preset you wish to delete and click **Delete** in the **STORE** menu.

**Presets Backup**

ampLion stores the user presets in the following folders:

**Mac:** `[Home]/Library/Preferences/com.audiffex.effects/`

**Windows:** `[Home]/Documents/Audiffex/PlugIn Presets/`

To backup your presets, save the following files to a safe place:

**Mac:**

- `ampLion1-1Pro.plist`
- `ampLion1-1ProBank.plist`

**Windows:**

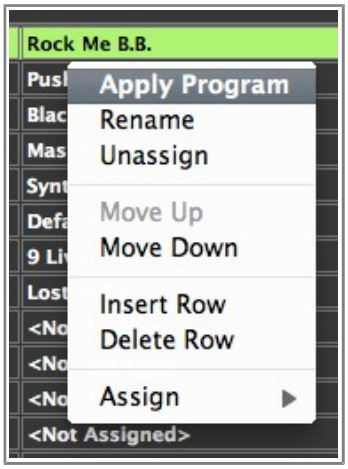
- `ampLion1-1Pro.afxpreset`
- `ampLion1-1ProBank.afxpreset`

## Organizing Presets For Live Use

For live use, it is convenient to have the presets organized in a single chain (playlist), disregarding the amplifier type they belong to. This need is addressed by the Program Manager panel:


There are 128 rows that can be assigned a preset. Each row represents a program (hence Program Manager) that can be renamed, e. g. according to the song name played with it. The resulting order of the programs is subsequently used in the Live Mode panel.

Several operations can be performed with the programs in the list. All of them are accessible after right-clicking the given row:




Alternatively, you can

- drag a row to **change the order** of programs,
- **activate** any of the programs by double clicking its row.

## Live Mode

ampLion has been designed not only for home practicing or recording in studio but for playing live as well. Therefore, it includes the **Live Mode** panel:

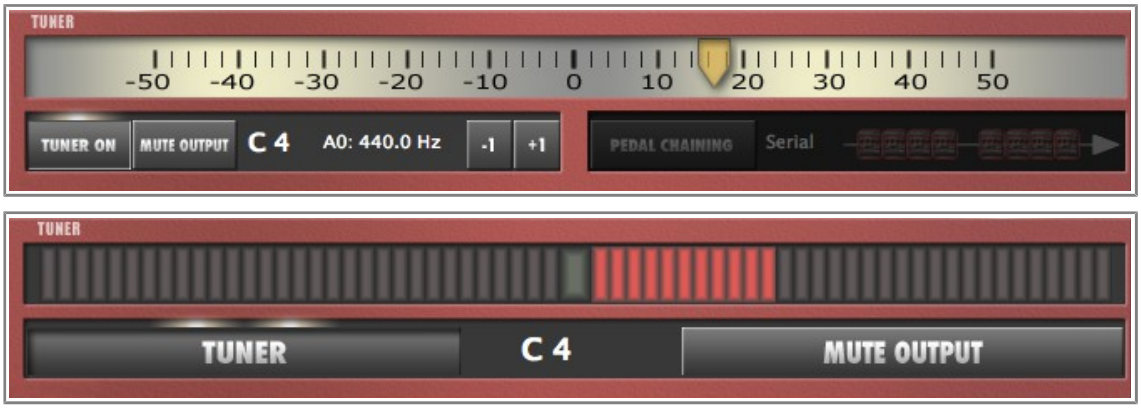

Its purpose is to enable you to quickly switch between the programs and to minimize the amount of displayed information that could distract you while on stage. Thus, there are only four clickable elements: those related to the tuner (see the next section) and the remaining two (**PROGRAM + up/down** arrow) for switching the programs.

The programs can also be quickly switched via MIDI. For more information, go to the MIDI Control section.

The remaining portion of the screen is occupied by signal meters (input on the left) and the information about the selected program.

### Tuner

As you have probably noticed, ampLion is equipped with a tuner. It is accessible from two different places: Effect Pedals and Live Mode panel. In either of the cases, it has a different user interface, taking into account the purpose of the panels.




The tuner can be calibrated in the range of 340 Hz to 500 Hz (frequency of A4). To do so, use the **-1** and **+1** buttons (in the **Effect Pedals** panel only). The calibration remains the same, no matter which panel the tuner is accessed from.

The **MUTE OUTPUT** button comes in handy especially while on stage – when both the button and the tuner are switched on, the output signal from ampLion is muted.

### MIDI Control

There are over 200 assignable MIDI parameters available in ampLion. In fact, every task performed by the mouse can also be done via a MIDI controller or automated in a DAW.

#### Switching the programs via MIDI in Live Mode

There are two options of changing the program. You can either select the program number (0-127) directly using the **Program** parameter, or map two controllers (most probably foot switches) to the **Program Up** and **Program Down** parameters. In this case, the program number will be increased/decreased every time the plug-in receives the maximal value of the respective parameter (127).

## Conclusion

We believe that you are now able to successfully work with ampLion and use its full potential. However, should there be something unclear to you feel free to contact us at support@audiffex.com.

# Appendix: Included Models

The following is an exhaustive list of all modeled devices present in ampLion. The second column denotes the real-world model.

*Note: Items written in italics have been added in this version.*

## Amp Models

| | |
|---|---|
| Super Clean | Fender Super Reverb |
| Deluxe Clean | Fender Deluxe Reverb |
| Bass Crunch | Fender Bassman '59 |
| 800 Lead | Marshall JCM800 |
| 900 Lead | Marshall JCM900 |
| Rect HiGain | MesaBoogie Dual Rectifier |
| 650 HiGain | Engl Ritchie Blackmore Signature |
| 530 HiGain | Engl Tube Preamp 530 Lead mode |
| 530 Clean | Engl Tube Preamp 530 Clean mode |

## Power Amps

| | |
|---|---|
| 6L6 Silicon Rect 100W | MesaBoogie Dual Rect – solid state rectifier |
| 6L6 Tube Rect 100W | MesaBoogie Dual Rect – tube rectifier |
| 6L6 Bass 50W | Fender Bassman |
| 6L6 Super 50W | Fender Super Reverb |
| EL34 Classic 100W | Marshall 100W |
| EL34 Classic 50W | Marshall 50W |
| 6V6 Deluxe 30W | Fender Deluxe Reverb |

## Speakers

| | |
|---|---|
| Classic 1x10 Combo | Marshall MG30FX Combo |
| FBlues 1x12 Combo | Fender Blues Junior Combo |
| FrocPro 1x12 Combo | Fender RocPro 700 Combo |
| Modern6 1x12V30 Combo | Line6 Spider Valve Bogner |
| ModernE 1x12V30 Combo | Engl E320 Thunder 50 Combo |
| Classic 2x12T Combo | Marshall JCM900 Combo |

| | |
|---|---|
| Classic 2x12(V+H) H Open | Marshall TSLC |
| Rect 2x12V30 Closed Back | MesaBoogie Rectifier 212 |
| Rking 4x12 C90 Half Back | MesaBoogie RoadKing – left speaker C90 |
| Rking 4x12 V30 Half Back | MesaBoogie RoadKing – right speaker V30 |
| Rect 4x12 Closed Back | MesaBoogie Rectifier 412 Slant |
| Classic 4x12T Closed Back | Marshall 1960A |

## Microphones

| | |
|---|---|
| Dynamic S57 | Shure SM57 |
| Dynamic A5 | Audix i5 |
| Condenser 1A | Rode NT1-A |
| Condenser 1000 | AKG C1000 |
| Condenser 451 | AKG C451 |
| Condenser kh40 | Sennheiser MKH40 |
| Bass Dynamic 6 | Audix D6 |
| Bass Dynamic 112 | AKG D112 |

## Pedal Effects

### Drive Pedals

| | |
|---|---|
| Treble Booster | Brian May Booster |
| XXL Distortion+ | Dunlop MXR Distortion |
| BAT Distortion | ProCo Rat |
| OverDrive | BOSS OD1 |
| SuperDrive | BOSS SD1 |
| 9 Screamer | Ibanez Tube Screamer 9 |
| 808 Screamer | Ibanez Tube Screamer 808 |
| Metal Tone | BOSS Metal Zone |

### Dynamics

| | |
|---|---|
| *DCompressor* | *MXR Dyna comp* |

**Chorus Pedals**

| | |
|---|---|
| Super Chorus | BOSS CH1 |
| Chorus Ensemble | BOSS CE5 |

**Phaser Pedals**

| | |
|---|---|
| *Small Phaser* | *Electro-Harmonix Small Stone* |

**Flanger Pedals**

| | |
|---|---|
| EH Flange | Electro-Harmonix Electric Mistress |
| EH Flange Deluxe | Electro-Harmonix Electric Mistress Deluxe |

**Wah Pedals**

| | |
|---|---|
| mcClyde Wah | VOX Clyde McCoy Wah |
| Cry Wah | Dunlop Cry Baby |
| V847 Wah | VOX V847 Wah Pedal |
| EH Wah 1 | EHX Big Muff Π Crying Tone Pedal – high |
| EH Wah 2 | EHX Big Muff Π Crying Tone Pedal – low |

**Tremolo Pedals**

| | |
|---|---|
| *Analog Tremolo* | *Boss TR-2* |

## Rack Effects

**Chorus Effects**

(see the chorus pedals)

**Flanger Effects**

(see the flanger pedals)

**Phaser Effects**

(see the phaser pedals)

**Delay Effects**

| | |
|---|---|
| *Analog Delay* | *Boss DM-2* |