Clavinet V

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Special Thanks

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Thank you for purchasing Clavinet V!

This manual covers the features and operation of Arturia's **Clavinet V**, the latest in a long line of incredibly realistic virtual instruments.

Be sure to register your software as soon as possible! When you purchased Clavinet V you were sent a serial number and an unlock code by e-mail. These are required during the online registration process.

Special Messages

Specifications Subject to Change:

The information contained in this manual is believed to be correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications without notice or obligation to update the hardware that has been purchased.

IMPORTANT:

The software, when used in combination with an amplifier, headphones or speakers, may be able to produce sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high level or at a level that is uncomfortable.

If you encounter any hearing loss or ringing in the ears, you should consult an audiologist.

Introduction

Congratulations on your purchase of Arturia's Clavinet V!

We'd like to thank you for purchasing Clavinet V, our latest virtual model of an electro-acoustic instrument. The Hohner Clavinet is one of those instruments with an unmistakeable sound: while it may be possible to confuse one electric piano with another, or one electric guitar with another, when one of these instruments shows up in a recording the almost instantaneous reaction is "That's a Clavinet!"

From funk to rock, from pop to soul, the cutting sound of the Clavinet has made its mark on the musical landscape since its creation. We are confident Clavinet V will inspire you to create music that will take you and your audience in completely new directions.

Be sure to visit the www.arturia.com website for information about all of our other great hardware and software instruments. They have become indispensable, inspiring tools for musicians around the world.

Musically yours,

The Arturia team

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1. WELCOME TO CLAVINET V!

Clavinet V is the newest addition to our extensive family of virtual instruments. Not only have we faithfully modeled the sound and behavior of this unique instrument, we have added a slew of features that were unimaginable in the days the Clavinet was being manufactured.

Arturia has always had a passion for excellence and accuracy. This led us to conduct an extensive analysis of every aspect of the Clavinet hardware and its electrical circuits, even modeling the changes in behavior over the course of time. And so with Clavinet V you have the ability to control each of these factors, which allows you to recreate the musical environment of your favorite artists or blast off in completely new directions, sending your creativity into "Outa-Space!"

Clavinet V runs both as a standalone instrument on Windows and Mac OS X and as a plug-in in all major formats inside your DAW. It has easy MIDI learn functionality for hands-on control of most parameters, and as a plug-in also allows parameter automation for greater creative control.

1.1. History of the Clavinet

The Clavinet was manufactured from 1964 until about 1982 by Hohner, a German company perhaps most widely known for its harmonicas. But this is a company with an extensive history of producing many other types of instruments, including accordions, melodicas, banjos, ukuleles, and kazoos!

Hohner also invented many types of electric keyboards, most of which are virtually unknown today: the Cembalet, Pianet, Basset, and the Guitaret. But they secured their place in the pantheon of keyboard history with the invention of the Clavinet.

Its family tree actually dates back to the early 14th century, to a distant relative which bears a striking resemblance to the Clavinet: the clavichord.

A clavichord differed from a harpsichord in that it used a metal blade to strike a string, as opposed to the harpsichord which would pluck the string when a key was played.

The Clavinet uses a rubber pad to strike the string, resulting in an attack characteristic similar to the "hammer-on" technique of playing an electric guitar popularized by Eddie Van Halen.

Neither the clavichord nor the Clavinet were strong enough on their own to be heard during ensemble performances, an unfortunate quality which caused the clavichord to fall into disuse and be superseded by the *pianoforte* (i.e., the acoustic piano).

But with the advent of electricity it became possible for amplification devices to be built, which then put the Clavinet on a level playing field with any other instrument or combination of instruments, including drums and guitars.

And though it is no longer being manufactured technically, the Clavinet endures virtually in the form of Arturia's Clavinet V. And if Clavinets could dream, they would dream of precisely the array of effects and controls we have included with Clavinet V.

1.2. The sound for cutting records

It is a bold claim to make that an instrument has ascended to the realm of the timeless. But it is a claim that is well-founded in this case, when you consider the artists who have used the instrument and the songs on which they used it.

The reputation of the Clavinet rests very firmly upon its history and diverse appeal:

- *Superstition* and *Higher Ground* by Stevie Wonder ...and the list could stop there! But there is so much more:

- *Outa-Space* by Billy Preston

- *NutRocker* and *Still, You Turn Me On* by Emerson, Lake and Palmer

- *You Make Loving Fun* by Fleetwood Mac

- *Life In The Fast Lane* by the Eagles

- *Trampled Under Foot* by Led Zeppelin

The preceding list contains only a half-dozen of the most influential musicians and groups of the 20th century. Perhaps with Clavinet V your name will be listed among theirs someday!

1.3. Features of Clavinet V

Hohner produced a half a dozen versions of the Clavinet, with the most popular being the model D6. All of the original features of the D6 have been meticulously reproduced, including:

- two pickups and a six-core pickup design

- two dual-position pickup selector switches, which tap into the pickups at different places and phases

- a mute/damping slider

But we didn't stop there, and added:

- a complete array of stomp-box type effects, any five of which may be used at once

- a modeled tube amplifier with additional EQ and tremolo controls, plus spring reverb

- harmonic profile selections such as Bass Guitar, Dark, and Boosted 2nd and 3rd.

- control over eight physical modeling parameters, useful for subtle edits or extreme makeovers

- User-definable velocity curves

- MIDI-assignable parameter control

- presets and categories (Try to find those on a physical Clavinet!)

One more thing: Physical modeling also allows us to extrapolate beyond the original range of the Clavinet (60 notes). This allowed us to answer the burning question, "What would a Clavinet sound like if it had 88 keys like an acoustic piano?" And so from the thunderously low A to the sparkly high C, we give you an instrument reborn: Clavinet V.

2. ACTIVATION & FIRST START

Clavinet V works on computers equipped with Windows 7 or later and Mac OS X 10.10 or later. You can use the stand-alone version or use Clavinet V as an Audio Units, AAX, VST2 or VST3 instrument.

2.1. Activate the Clavinet V license

Once Clavinet V has been installed, the next step is to activate your license for the software.

This is a simple process that involves a different software program: the Arturia Software Center.

2.1.1. The Arturia Software Center (ASC)

If you have not already installed the ASC, go to the Updates & Manuals web page:

www.arturia.com/support/updates&manuals

Look for the Arturia Software Center at the top of the page, and then download the version of the installer that you need for your system (Mac OS X or Windows).

Follow the installation instructions and then:

- Launch the Arturia Software Center (ASC)
- Log into your Arturia account
- Scroll down to the My Products section of the ASC
- Click the Activate button

That's all there is to it!

2.2. Initial setup

2.2.1. Audio and MIDI settings: Windows

At the top left of the Clavinet V application is a pull-down menu. It contains various setup options. Initially you will need to go to this menu and choose the Audio Settings option to get MIDI flowing in and sound flowing out.
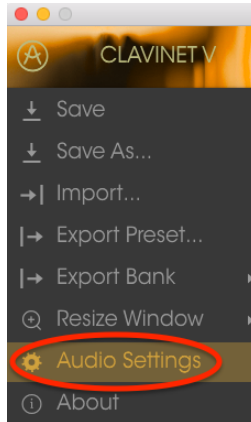
You will then see the Audio MIDI settings window. This works in the same way on both Windows and Mac OS X, although the names of the devices available to you will depend on the hardware you are using.
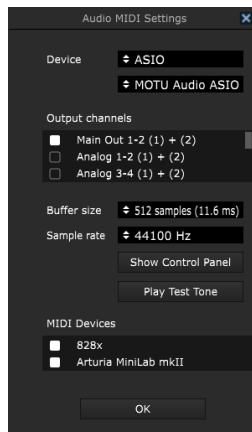
The Audio MIDI Settings

Starting from the top you have the following options:

- **Device** lets you choose which audio driver you want to use to route sound out of the instrument. This might be your computer's own driver like Windows Audio, or an ASIO driver. The name of your hardware interface may appear in this field.
- **Output Channels** lets you select which of the available outputs will be used to route audio out. If you only have two outputs, only two will appear as options. If you have more than two you can select a specific pair of outputs.
- The **Buffer Size** menu lets you select the size of the audio buffer your computer uses to calculate sound. A smaller buffer means lower latency between pressing a key and hearing the note. A larger buffer means a lower CPU load as the computer has more time to think, but can result in a small latency. Find the optimum buffer size for your system. A fast, modern computer should easily be able to operate at 256 or 128 sample buffer size without creating pops or clicks in the sound. If you are getting clicks, try raising the buffer a little. The latency is displayed on the right hand side of this menu.
- The **Sample Rate** menu lets you set the sample rate at which audio is sent out of the instrument. The options here will depend on the capability of your audio interface hardware though even most computers' own hardware can operate at up to 48kHz which is perfectly fine. Higher sample rates use more CPU power so unless you have a good reason to go up to 96kHz, then 44.1k or 48k is usually fine.
- The **Show Control Panel** button will jump to the system control panel for whatever audio device is selected.
- **Play Test Tone** helps you to troubleshoot audio issues by confirming whether sound can be heard through the correct device.
- Your connected MIDI devices will appear in the **MIDI Devices** area. Click the check box to accept MIDI from the device you want to use to trigger the instrument. In standalone mode, Clavinet V listens for all MIDI channels so there's no need to specify a channel. You can specify more than one MIDI device at once.

2.2.2. Audio and MIDI settings: Mac OS X

The process is very similar to initial setup for Windows and the menu is accessed in the same way. The difference is that OS X uses CoreAudio to handle audio routing and the audio device selection is made in the second dropdown menu. Apart from that, the options work the same way as described in the Windows section.
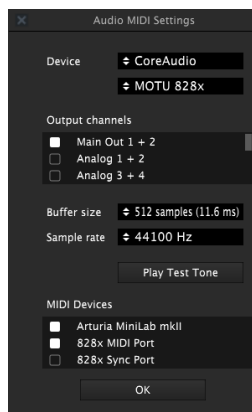
The Audio MIDI Settings
Mac OS X

2.2.3. Clavinet V as a plug-in

Clavinet V comes in VST, AU and AAX plug-in formats for use in all major DAW software such as Cubase, Logic, Pro Tools and so on. You can load it as a plug-in instrument and its interface and settings work the same way as in standalone mode, with a couple of differences.

- You can automate numerous parameters using your DAW's automation system.
- You can use more than one instance of Clavinet V in a DAW project. In standalone mode you can only use one at once.
- Any additional audio effects your DAW has available may be used to process the sound, including delay, chorus, filters, etc.
- You can route Clavinet V's audio outputs more creatively inside your DAW using the DAW's own audio routing system.

3. USER INTERFACE

Clavinet V is packed with great features, and in this chapter we'll make sure you know what each one does. We think you'll be amazed by the huge range of sounds that can be made with this instrument.

And while Clavinet V is very flexible, there's nothing complicated about it. That will always be the main focus of every Arturia product: to unleash your creativity while remaining easy to use.

3.1. Virtual keyboard

The virtual keyboard allows you to play a sound without the need for an external MIDI device. Simply click on a virtual key to hear the currently selected sound. You can also drag the cursor across the keys to hear a glissando.

Clicking near the front edge of the key results in a higher velocity note; clicking near the back of the key produces a soft velocity.

The virtual keyboard of Clavinet V

3.2. The tool bar

The toolbar that runs along the top edge of the instrument both in standalone and plug-in mode provides access to many useful features. Let's look at them in detail.

The first seven of these options can be found by clicking on the Clavinet V section at the very top left hand corner of the instrument window.

We'll go through each of these functions in the following sections.

3.2.1. Save Preset

This option will overwrite the active preset with any changes you have made, so if you want to keep the source preset also, use the Save As option instead. See the next section for information about this.
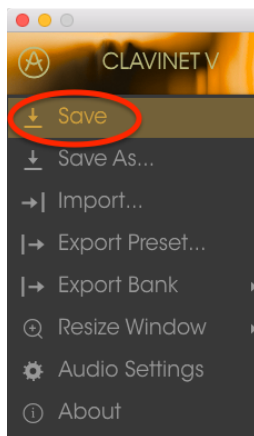
Save Preset

3.2.2. Save Preset As...

If you select this option you are presented with a window where you can enter information about the preset. In addition to naming it you can enter the Author name, select a Bank and Type, select tags that describe the sound, and even create your own Bank, Type, and Characteristics. This information can be read by the preset browser and is useful for searching the preset banks later.

You can also enter freeform text comments in the Comments field, which is handy for providing a more detailed description.
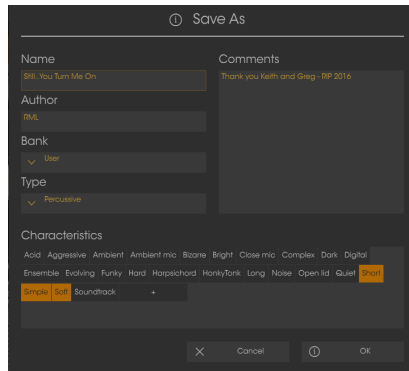
The Save As window

3.2.3. Import Preset

This command lets you import a preset file, which can be either a single preset or an entire bank of presets. Both types are stored in the .clax format.

After selecting this option the default path to these files will appear in the window, but you can navigate to whichever folder you are using.
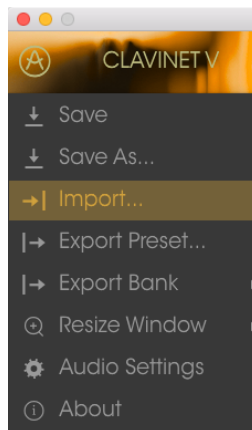
The Import Preset window

3.2.4. Export Preset

You can export and share a single preset using this command. The default path to these files will appear in the window, but you can create a folder at another location if you like.

3.2.5. Export All Playlists

Playlists allow you to select which sounds to use for a particular gig or session. With this command you can export all of your playlists and import them into another computer that also has Clavinet V installed.

3.2.6. Export Bank

This option can be used to export an entire bank of sounds from the instrument, which is useful for backing up or sharing presets.
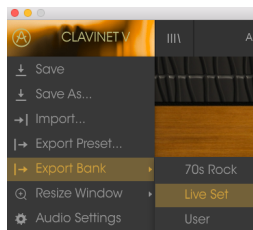
Selecting a Bank to export

3.2.7. Resize Window options

The Clavinet V window can be resized from 60% to 200% of its original size without any visual artifacts. On a smaller screen such as a laptop you might want to reduce the interface size so it doesn't dominate the display. On a larger screen or a second monitor you can increase the size to get a better view of the controls. The controls work the same at any zoom level but the smaller ones can be harder to see at the smaller magnification values.
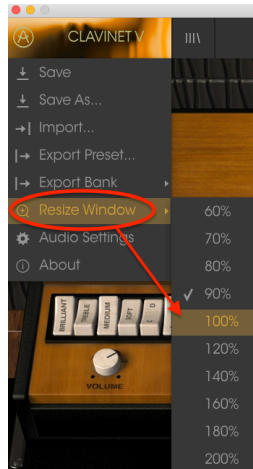
The Resize Window menu

3.2.8. Audio Settings

Here you manage the way the instrument transmits sound and receives MIDI. See the section Audio and MIDI settings [p.6] for full details on this.

3.2.9. About

In this window you can view the Clavinet V software version and developer credits. Click on the About window to close it.

3.2.10. Preset browser overview

The Preset browser is invoked by clicking the toolbar button that has four vertical lines. The Filter, name field and left / right arrows in the toolbar all assist with preset selection.
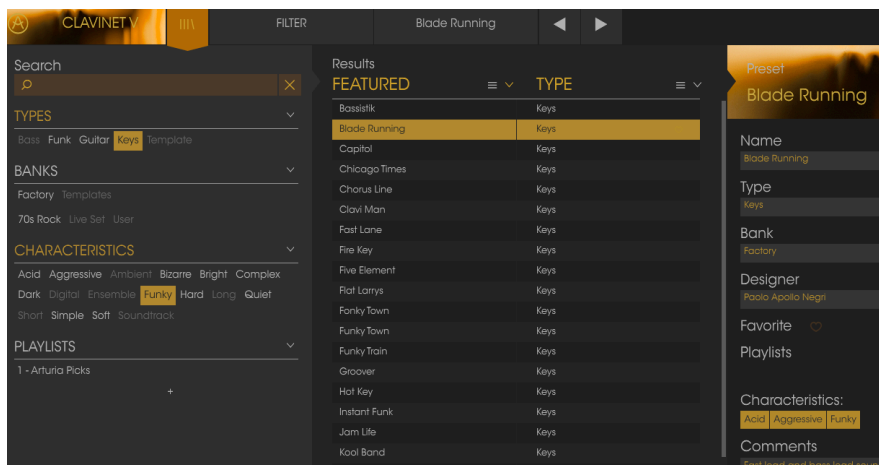
The Preset Browser

3.2.11. Browse with MIDI controller

At the bottom of the Preset browser window on the left side is a field labeled Browse with MIDI Controller. It will configure Clavinet V to work with an Arturia controller so you can browse the preset search results without having to map any controllers to those functions.
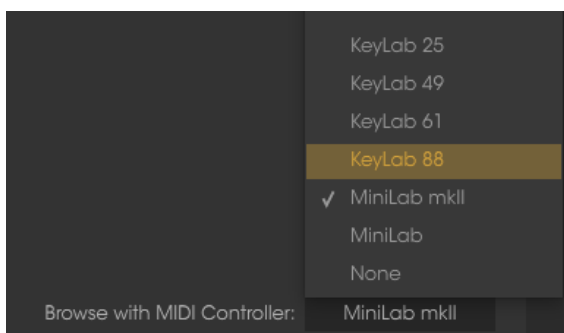
Clavinet V will detect which Arturia controller you are using and will be configured automatically to enhance the preset browsing experience. Refer to the documentation for your controller to learn more.

If you want to defeat this feature, click the menu window and select None.

3.2.12. MIDI Learn assignment

The MIDI plug icon at the far right side of the toolbar places the instrument into MIDI learn mode. MIDI-assignable parameters will be shown in purple, which means you can map physical controls to those destinations inside the instrument. A typical example might be to map a real expression pedal to the Master Gain control, or buttons on a controller to the Preset selection arrows so you can change the preset from your hardware keyboard.
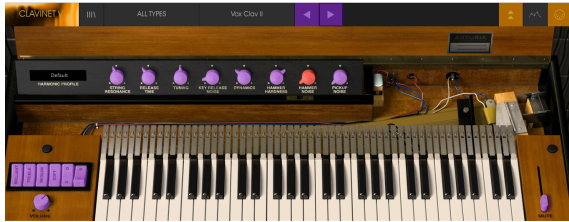
MIDI Learn mode - top section

In the image above one of the parameter knobs is red. That means it has already been assigned to an external MIDI control. It can be reassigned, though.

The effects parameters can be assigned to an external MIDI control also:

MIDI Learn mode - bottom section

3.2.12.1. Assigning / unassigning controls

If you click on a purple area you'll put that control into learning mode. Move a physical knob, fader, or button and the target goes red, indicating that a link has been made between the hardware control and the software parameter. There's a popup window that displays which two things are being linked and an Unassign button that will disconnect the two.

Tone Volume control selected and assigned

You can also right-click on a control to unassign it.

3.2.12.2. Min / Max value sliders

There are also minimum and maximum value sliders that you can use to restrict the parameter change range to something other than 0%-100%. For example you might want the Master Gain to be controllable via hardware from 30% to 90%. If you made this setting (Min set to 0.30 and Max set to 0.90) your physical knob would be unable to alter the volume lower than 30% or higher than 90%, no matter how far you turned it. This is very useful for making sure you can't accidentally make the sound too quiet or too loud when performing.

In the case of switches which only have two positions (on or off), those would normally be assigned to buttons on your controller. But it is possible to toggle those with a fader or other control if you like.

3.2.12.3. Relative control option

The final option in this window is a button labelled "Is Relative". It is optimized for use with a specific type of control: one which sends only a few values to indicate the direction and speed at which a knob is turning, as opposed to sending a full range of values in a linear fashion (0-127, for example).

To be specific, a "relative" knob will send values 61-63 when turned in a negative direction and values 65-67 when turned in a positive direction. The turn speed determines the parameter response. Refer to the documentation of your hardware controller to see if it has this capability. If so, be sure to switch this parameter on when setting up its MIDI assignments.

When configured this way, movements of the physical control (usually a knob) will change the software parameter by starting at its current setting, rather than being an "absolute" control and snapping it to some other value as soon as you start to move it.

This can be a great feature when controlling things like volume, filter, or effect controls, since you won't usually want them to jump noticeably from their current setting when they are modified.

3.2.12.4. Reserved MIDI CC numbers

Certain MIDI Continuous Controller (MIDI CC) numbers are reserved and cannot be reassigned to other controls. These are:

- Pitch Bend
- Sustain (CC #64)
- Soft Pedal (CC #67)
- All Notes Off (CC #123)

All other MIDI CC numbers may be used to control any assignable parameter in Clavinet V.

3.2.13. MIDI controller configuration

There's a small arrow at the far right hand side of the toolbar that deals with MIDI controller configurations. This allows you to manage the different sets of MIDI maps you may have set up for controlling the instrument's parameters from MIDI hardware. You can copy the current MIDI assignment setup or delete it, import a configuration file or export the currently active one.

This is a quick way to set up different hardware MIDI keyboards or controllers with Clavinet V without having to build all the assignments from scratch each time you swap hardware.

Note the check mark next to one of the controller names: that indicates that the MiniLab mk II configuration is currently active.

3.2.14. The lower toolbar

At the left hand side of the lower toolbar you will see a readout showing the value or state of whatever control you are modifying. It will also display the current value of a parameter without editing it: just hover the cursor over the related control and the value will appear as pictured below.

Displaying the current control's value

At the right hand side of the lower toolbar are several small windows and buttons. These are very important features, so let's take a closer look at them.

3.2.14.1. MIDI Channel setting

This window indicates the current MIDI Channel setting. Click on it and it will expand to show the full range of values you can select (All, 1-16).
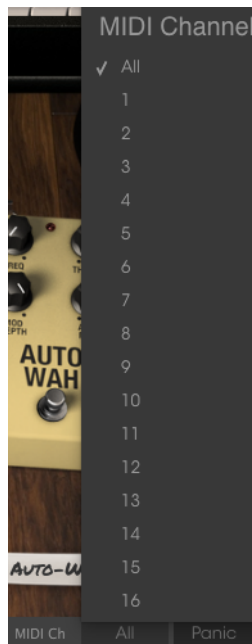
3.2.14.2. Panic button

The Panic button can be pressed to reset all MIDI signals in the event of stuck notes or other issues.

3.2.14.3. CPU meter

The CPU meter is used to monitor how much of your computer's CPU is being used by the instrument.

3.3. The Preset browser

The preset browser is how you search, load and manage sounds in Clavinet V. It has a couple of different views but they all access the same banks of presets.

To access the search view, click the browser button (the icon looks a bit like books on a library shelf).

The Preset Browser button

3.3.1. Searching presets

The Search screen has a number of sections. By clicking on the Search field at the top left you can quickly enter any search term to filter the preset list by patch name. The Results column is updated to show the results of your search. Press the X button in the search field to clear the search.
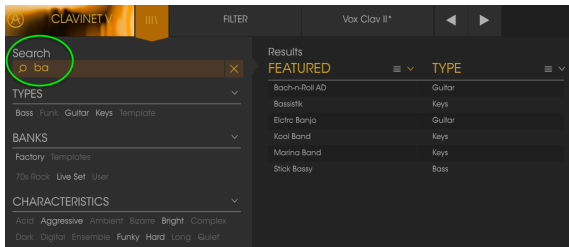
Filter by typing text in the Search field

3.3.2. Using tags as a filter

You can also search using different tags. So for example by clicking on the Guitar option in the Types field you can show only presets that match that tag. The tag fields can be shown or hidden by using the small down arrow buttons in their title fields. Results columns can be sorted by clicking the same arrow button in their own section.
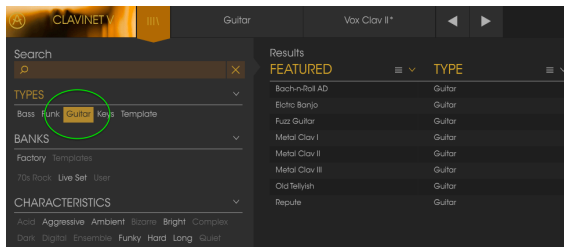
You can use multiple search fields to perform narrower searches. So by entering a text search and also specifying type, bank and characteristics options you could see only the presets that match those exact criteria. Deselect any tag in any area to remove that criteria and widen the search without having to go back and start again.
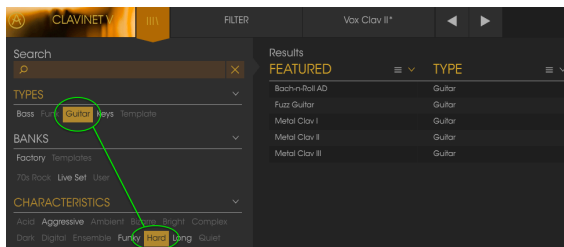
The second Results column can be switched to show Type, Sound Designer, Favorite or Bank tags depending on how you like to search. Click on its options menu button just next to its sort arrow.
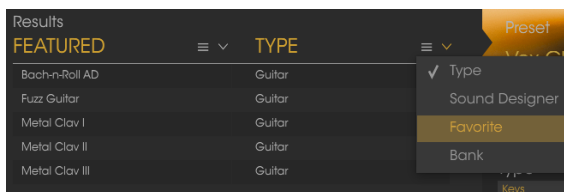
3.3.3. The Preset Info section

The Info column on the right side of the search field shows you information about any preset. The information for User presets may be changed here: Name, Type, Favorite, etc.

However, if you want to alter the information for a Factory preset you must first use the Save As command to re-save it as a User preset. After this the Info section will gain Edit and Delete buttons at the bottom of the window.

Click Edit and then make the desired changes, either by typing in one of the fields or by using a pull-down menu to change the Bank or Type. You can even add new Characteristics by clicking the + sign at the end of that list. Click Save when you are done.
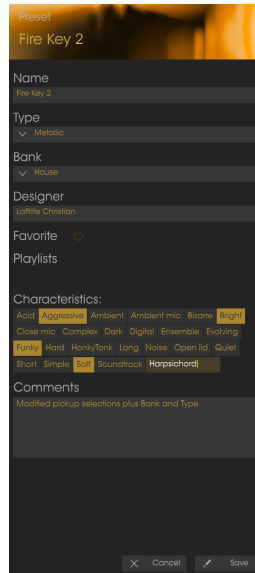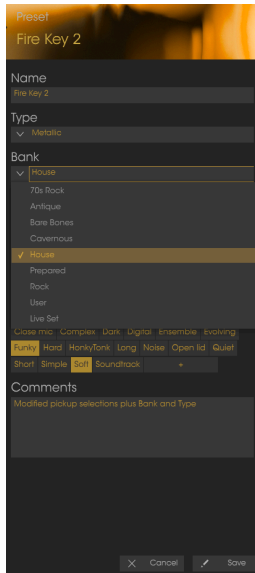
3.3.4. Preset selection: other methods

The pull-down menu to the right of the Search menu provides a different way to select presets. The first option in this menu is called Filter, and it will display the presets that fit the search terms you used in the Search field. So if you searched for the word **Funk** in the main search area, the results of that search will appear here.
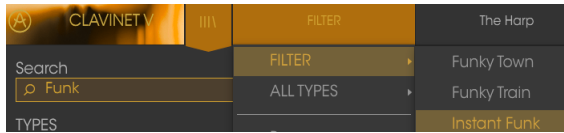
Filter results may differ based on Search criteria

Similarly, if you previously selected **Type: Keys** and **Characteristics: Ambient** in the Search field you would see the results of that search in this area instead.
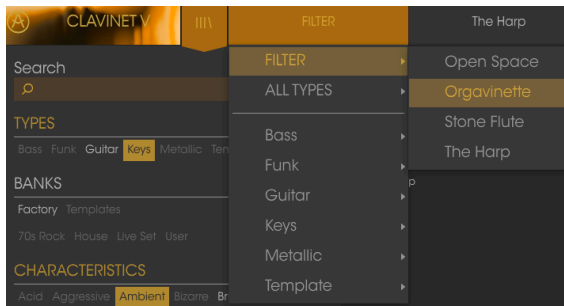
Filter results may differ based on Search criteria

Selecting the All Types option in the pull-down menu will bypass the Search criteria and show the entire list of presets.
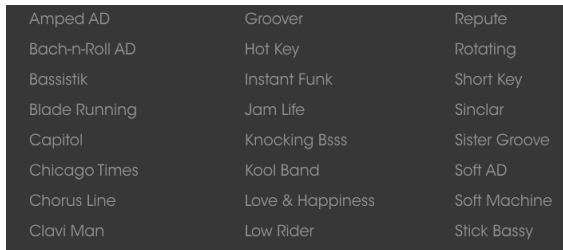
The Categories below the line also ignore the Search criteria and display the presets based on their Type: *Bass, Funk, Guitar,* and so on.
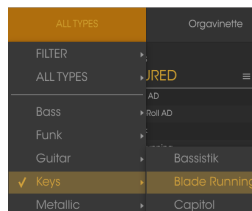
Selecting a preset by its Type

Clicking on the name field in the center of the toolbar will show you a list of all available presets. The list will also take into account any selections you have made in the Search field. So if you have pre-selected a Characteristic such as "Funky" this shortcut menu will only show you presets that match that tag.

The left and right arrows in the toolbar cycle up and down through the preset list: either the full list, or the filtered list that resulted from the use of one or more search terms.

Amped AD	Groover	Repute
Bach-n-Roll AD	Hot Key	Rotating
Bassistik	Instant Funk	Short Key
Blade Running	Jam Life	Sinclar
Capitol	Knocking Bsss	Sister Groove
Chicago Times	Kool Band	Soft AD
Chorus Line	Love & Happiness	Soft Machine
Clavi Man	Low Rider	Stick Bassy

3.3.5. Playlists

In the lower left corner of the Preset Browser window is a feature titled Playlists. This is used to collect presets into different groups for different purposes, such as a set list for a particular performance or a batch of presets related to a particular studio project.

3.3.5.1. Add a playlist

To create a playlist, click the plus sign at the bottom:
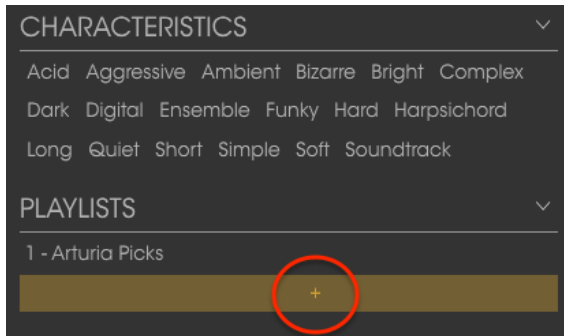
Give the playlist a name and it will appear in the Playlists menu. You can rename the playlist at any time; just click the pencil icon at the end of its row.

3.3.5.2. Add a preset

You can use all of the options in the Search window to locate the presets you want to have in your playlist. Once you have found the right preset, click and drag it onto the playlist name.
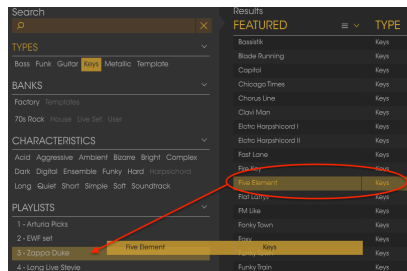
Click and drag from the Search Results list onto one of the playlists

To view the contents of a playlist, click on the playlist name.

3.3.5.3. Re-order the presets

Presets may be reorganized within a playlist. For example, to move a preset from slot 1 to slot 3, drag and drop the preset to the desired location.
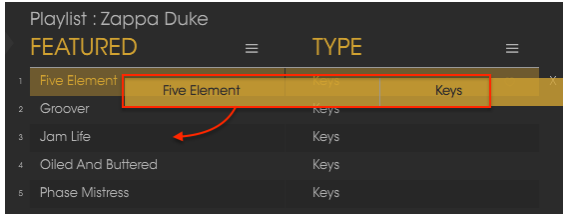
This will cause the other presets to be bumped up in the list to accommodate the new location of the preset being moved.
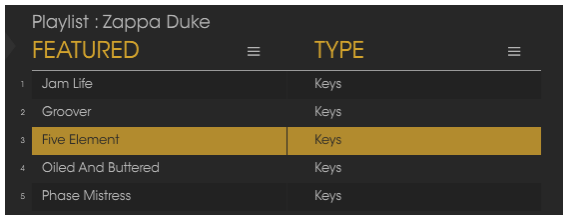
3.3.5.4. Remove a preset

To delete a preset from a playlist, click the x at the end of the preset row.
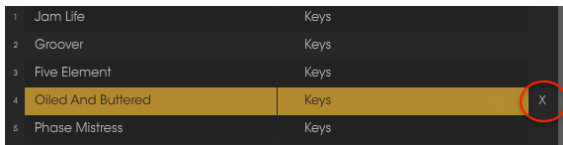
Click the X to remove a preset from a playlist

3.3.5.5. Delete a playlist

To delete an entire playlist, click the x at the end of the playlist row. This will only delete the playlist; it will not delete any of the presets inside the playlist.
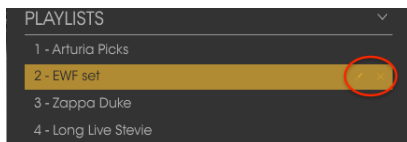
Click the X to delete a playlist

3.4. The Top Panel: Basic Controls

The top panel of the Clavinet V offers the same controls as Hohner's Clavinet model D6. These are fairly simple controls, but they make a huge difference in the sound.

3.4.1. Tone/EQ switches

These are on/off switches, and they are labeled Brillant, Medium, Treble, and Soft, respectively. The names indicate the EQ range they affect.

They may be used in any combination, but at least one of the four has to be pressed for Clavinet V to produce sound.

3.4.2. Pickup settings

Clavinet V accurately models the electrical components of the Clavinet, which had two "humbucker" pickups strategically positioned over the strings. The "alphabet" switches immediately to the left of the keys (C/D, A/B) determine the configuration of these two pickups.

The settings of these switches will cause Clavinet V to use the lower pickup, the upper pickup, or both pickups at once.

The C/D switch toggles between single pickup mode and dual pickup mode. In other words, when C is selected only one pickup will be on and then the A/B switch determines which pickup is active.

When the C/D switch is set to D, both pickups are active and the A/B switch determines whether they are in phase or out of phase with each other. Setting them out of phase will cancel the frequencies they have in common, which results in a very different sound.

The table below summarizes the available configurations:

Switch settings	Pickup selection / combination
AC	Lower pickup only
BC	Upper pickup only
AD	Both pickups active and in phase
BD	Both pickups active and out of phase

3.4.3. Volume control

Every electric instrument needs one, the Clavinet had one, and so we offer you a rather large knob for controlling the output level of Clavinet V.

This control, as with every other control in Clavinet V, may be mapped to the incoming MIDI controller of your choice using the MIDI Learn function described in the section MIDI Learn assignment [p.15].

3.4.4. Mute bar

Guitarists often use the palm of one hand to mute a guitar string while playing, resulting in a more subdued, percussive sound. Hohner introduced a feature with the Clavinet Model D that accomplished the same purpose: a right-hand slider which dampens all the strings and gives them a quick decay.

This was put to brilliant use by prog-rock icon Keith Emerson in the ELP hit "Still...You Turn Me On".
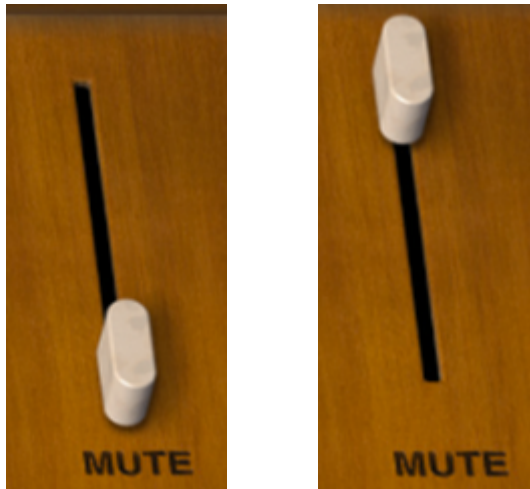
As you can see, this feature is available with Clavinet V also. Drag the slider to set the amount of damping.

You can map this feature to a MIDI control too. It is best to use a button or a footswitch since the Mute bar only has two positions: full mute (slider up) or unmute (slider down).

3.5. Advanced Features

As with all of our virtual modeling instruments, we have harnessed every component of the sound of a Clavinet, extended your control over the sound to previously unimaginable levels, and stuffed it all "under the hood" of the instrument.

You are able to access these controls in two ways: either click on the top wooden panel of Clavinet V or click the two arrows in the Tool bar. Do either of these actions and the Clavinet V lid will open, revealing eight additional controls and a drop-down Harmonic Profile menu.

The Advanced features

From left to right, these options are:

- **Harmonic Profile** contains six different timbral models, with variations ranging from subtle to extreme.
- **String Resonance** models the age of the strings; affects timbre and decay time.
- **Release Time** controls the amount of time it takes for the dampers to stop the string vibrations.
- **Tuning** allows you to adjust the master tuning of the instrument +/- 10%.
- **Key Release Noise** adjusts the mechanical noise from the hammers returning to their resting position.
- **Dynamics** sets the range of output variation between notes played with minimum/maximum velocity.
- **Hammer Hardness** models the aging of the rubber hammers; affects initial attack and overall brilliance.
- **Hammer Noise** controls the amount of hammer noise as a component of the overall output.
- **Pickup Noise** models the inherent noise of electric pickups. Add as much as you want, or none.

To close the lid, use the same procedure you used to open it: either click the upper inside edge of the wooden top panel, or click the two arrows in the Tool bar.

3.5.1. Harmonic Profile

This pull-down menu allows you to select one of six variations in the Clavinet V modeling algorithm. Some of the variations are subtle changes from the default, but some are quite extreme.

Click the name of the current profile to open the list.
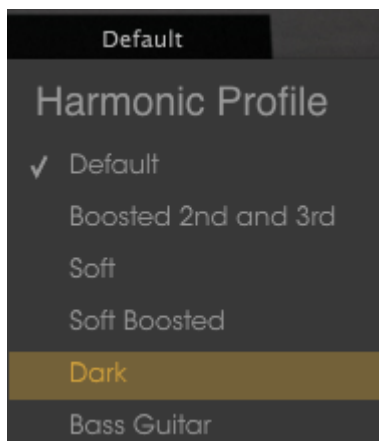
Here's what they do:

- **Default** is the closest timbre to the original instrument.
- **Boosted 2nd and 3rd** is almost the same as the Default, but the 2nd and 3rd harmonics are enhanced.
- **Soft** balances the harmonics, sort of like having an EQ curve that flattens them.
- **Soft Boosted** enhances the 2nd and 3rd harmonics of the Soft profile.
- **Dark** tweaks the harmonics to give a result closer to an organ or an electric piano than a Clavinet.
- **Bass Guitar** can produce a sound more like a bass guitar in the lowest 1-1/2 octaves of the keyboard.

3.5.2. Velocity Curve

Click the envelope graphic in the Tool bar to reveal the Velocity Curve editor.
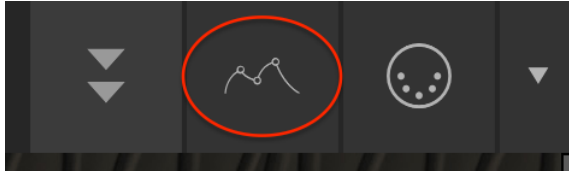
This will cause a device that looks like a tablet PC to fold out from under the Clavinet:

As notes are played on the keyboard vertical lines will appear inside the velocity curve editor window, indicating the velocity at which each note was played. The length of the line represents the amplitude of that particular note.

A number of preset curves are provided, and you can easily adjust, add or remove the data points to create your own velocity curves.

3.5.2.1. Selecting a curve

To audition the existing velocity curves, click on the menu bar inside the editor window. A drop-down menu will appear with a list of presets and the Save As / Delete options.
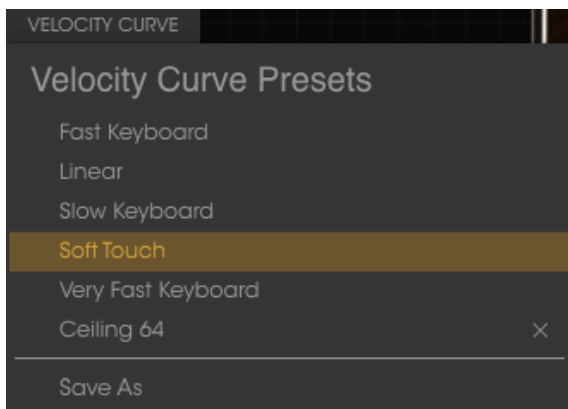
The Velocity Curve menu

A highlighted preset curve indicates that it is the currently selected curve. Click on a different curve name to select that curve. The menu will close and the new curve will appear in the editor window.

If you have edited a velocity curve and would like to save it, use the Save As option and follow the prompts. After you name it and save it your new curve will appear in the Velocity Curve Presets list at the bottom.

If you want to delete one of the preset curves, click the small X next to its name in the Velocity Curve menu. It will be removed from the Velocity Curve Presets list.

3.5.2.2. Editing a velocity curve

Each velocity curve has up to five points which can be edited. Think of the editor window as an X/Y grid, with the Velocity value along the X axis and Amplitude along the Y axis.
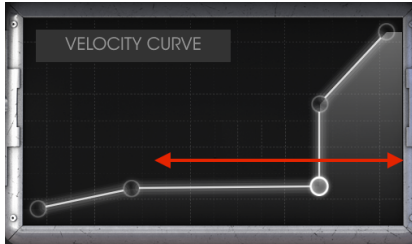
Velocity on X axis

Amplitude on Y axis

Here are some important things to remember about editing velocity curves:

- A velocity curve may contain up to five velocity points.
- Click and drag a velocity point to move it to a different location within the X/Y grid.
- The first and fifth points will only move vertically. They cannot be removed.
- If a curve has fewer than five velocity points, you can left-click to add one.
- Right-click to remove one of the three middle velocity points.

Using a combination of these features it is possible to create an infinite number of velocity curves. Here are two examples:
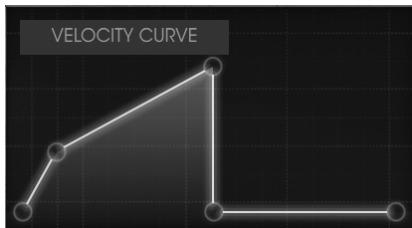
Cross-switch low

Cross-fade high

4. THE AMPLIFIER

In the glory days of the Clavinet the keyboardist would often run its output through a guitar amplifier. We have faithfully modelled the most popular tube amplifier of that era and included it with Clavinet V.

The amplifier is always visible in the lower-left hand corner of the application window.

4.1. The Controls

All of the classic controls of this famous amplifier are available:

4.1.1. On Axis

The placement of a microphone can have a significant effect on the sound of an instrument. This switch selects one of two positions for the modelled microphone (an SM-57): on-axis or off-axis.

On-axis models the sound of the microphone pointing straight at the amp, and off-axis emulates the effect of having the microphone pointed at an angle.

The on-axis setting tends to emphasize the fundamental frequencies, while the off-axis setting de-emphasizes them.

4.1.2. Volume

This knob controls an additional pre-amp stage. To produce a tone with more distortion, use higher values on this control and lower values on the Master Volume. To produce a tone with less distortion, use lower values on this control and higher values on the Master Volume.

4.1.3. EQ (Treble, Middle, Bass)

These knobs provide conventional tone-shaping controls over the high, mid and low frequencies, respectively.

4.1.4. Bright

This switch provides a quick way to brighten the sound by boosting the high-frequency content of the sound. It is only active at low volumes.

4.1.5. Reverb

We've included a convolution model of a spring reverb so you can add an authentic touch of "roominess" to the sound. We were faithful to recreate all of the characteristics of this feature, with the exception of its tendency to rattle if you shook the amplifier!

4.1.6. Vibrato Speed / Intensity

The "vibrato" is actually a tremolo effect because it alters the amplitude of the signal, not the pitch. The Speed knob controls the rate of the effect, and the Intensity knob controls its depth.

4.1.7. Master Volume

This knob controls the final output stage. To produce a tone with less distortion, use higher values on this control and lower values on the left-hand Volume control. To produce a tone with more distortion, use lower values on this control and higher values on the Volume knob.

4.1.8. Amplifier On / Off

When the amplifier is enabled this light will turn red, indicating that the amp has been placed in the signal path. When it is dark the light will turn off, which means the output of the instrument will be routed directly into your DAW.

> **Note**: The amplifier output is mono, not stereo. It is placed last in the signal chain, which means that the output of all of the other effect units are fed into the input of the amplifier. This will result in a mono output at the final stage.

5. THE EFFECTS

The Clavinet V effects are placed between the instrument and the amplifier. When the effects and amplifier are all switched off, what you hear is the pure output of the instrument.

The signal chain runs from right to left, with the amplifier as the final stage. The effects occupy "slots" in the signal chain: slot 1 (on the right) always contains the Wah/Auto-Wah effect, and the rest of the "stomp-box" style effects occupy slots 2 through 5.

Some of the stomp-box effects are stereo and some are not. However, the mono effects will pass a stereo signal from any of the effects that precede them, so you can place the effects in whatever order you like.

Here are the important points to remember about the signal flow through the effects:

- The effect signal chain runs from right to left.
- Slot 1 always has either Wah or Auto-Wah.
- Each of the effects in slots 2-5 must have one of the seven stomp-box effects selected.
- Switch any effect on or off by clicking its virtual footswitch.
- When an effect is "off" it is the same as being bypassed; i.e., it is removed from the signal chain.
- When the amplifier is used the output signal will become mono.

5.1. Selecting an effect

You can swap the order of most of the effects by clicking the label beneath them and choosing a new effect.

The Clavinet V Effects section

When you do this the pedals will swap positions. So in the example above, if you select the Overdrive to replace the Chorus in slot 3, the Overdrive will be placed there and the Chorus will be placed in slot 5 automatically.

All effects, the amp and the Wah pedal are MIDI-assignable; see the section MIDI Learn assignment [p.15] for more information.

> **i** Note: Remember, when you change a control on an effect the numerical value for the parameter is displayed in the left side of the application window, under the amplifier.

5.2. Flanger

Flanging works by mixing two identical signals together, with one signal delayed by a small and gradually changing period. This produces a swept "comb filter" effect. The controls for the effect are:

- Delay amount
- Effect Depth
- Rate
- Resonance

5.3. Phaser

Phase shifting is a sweeping effect that was first popularized in the 1960s. It adds motion and a swirling character to the sound. The controls are:

- Modulation Rate
- Phaser depth
- Feedback amount
- Stereo spread

5.4. Chorus

A Chorus effect is similar to a flanger in that it splits the signal, delays one side, varies the delay time gradually, and mixes the two signals back together. The difference is that the length of the delay time is longer than that of a flanger, which results in a more subtle but still very interesting effect. The controls are:

- Rate
- Delay amount
- Chorus Amount
- Dry / Wet Mix
- Stereo Chorus Rate
- Stereo Width
- A three-position chorus type switch

5.5. Analog Delay

A delay can increase the spaciousness of a sound without making the sound "swim" the way some reverbs do. It can also be used as a rhythmic counterpoint to accentuate a groove. The controls are:

- Delay Time
- Feedback Tone
- Feedback Amount
- Dry / Wet Mix
- LFO Rate
- LFO Depth

5.6. Compressor

A compressor is generally used to help maintain a consistent level of sound, though there are many other ways to use one.

For example, it can keep the attack transients of a sound from overloading the input of the next effect. It can also help a sound which would normally decay quickly not to fade away as quickly. The controls are:

- Input level
- Threshold
- Ratio
- Attack rate
- Release rate
- Makeup gain

5.7. Overdrive

Overdrive will add anything from a slight amount of grit to flat-out distortion to a sound. The controls are:

- Drive Amount
- Output Level
- Drive Tone

5.8. Vocal Filter

The Vocal filter is a formant filter. Its main interface is the central "TV-style" screen, which shows a series of five vowels (A, E, I, O, and U).

The Vocal filter frequency can be changed a number of ways:

- Click and drag the gray ball between the five vowels. You can relocate the vowel letters by dragging them around inside the screen surface.
- An LFO is available to make the gray ball cycle automatically through the vowels.
- You can set the depth of the LFO by widening the circle inside the screen surface. To do this, click on the gray ball and move it out of the center.

The controls are:

- LFO Rate
- The **On** switch, which starts or stops the LFO.
- **Res** sets the bandwidth of the 5 band pass filters (the vowels).
- Mix

5.9. Wah / Auto-Wah

Slot 1 can either be a Wah pedal or a 'stomp-box' effect called an Auto-Wah. Click the label under at the bottom of the screen to select one of these effects.

Here's a description of each of the Wah effects.

5.9.1. Wah pedal

The Wah pedal looks like a volume pedal but controls the harmonic content of the sound instead of the volume. You can use the MIDI assignment feature to map this virtual pedal to a hardware control or to a variable pedal.

5.9.2. Auto-Wah

The second option selects an effect pedal known as an Auto-Wah. It also controls the harmonic content of the sound, but does so automatically with an LFO (low-frequency oscillator). Its controls are:

- Frequency
- Threshold
- Modulation depth
- Automatic rate

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