

USER MANUAL

VOX *Continental-V*

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YOUR EXPERIENCE • YOUR SOUND

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1 INTRODUCTION

Thank you for purchasing our virtual organ, VOX Continental V! We are certain it will give you many hours of inspiration and enjoyment.

VOX Continental V is one of the pillars of our extensive family of instruments that recreate hard-to-find classic keyboards and synths. In addition to bringing the authentic sound of this essential instrument to your music, we have added some 21st century features that were never available in the original!

1.1 History of the original instrument

1.1.1 The electronic organ

1.1.1.1 Introduction

The term “organ” is quite versatile, representing a number of constructions ranging from the biological to the electromechanical. Its Greek root is the word “*organon*”, which when translated literally means “*that with which one works.*” And many generations of musicians stretching back further than Johann Sebastian Bach and forward past Joey DeFrancesco would agree! The organ, in all its forms, has been at the heart of some of the greatest music ever produced.

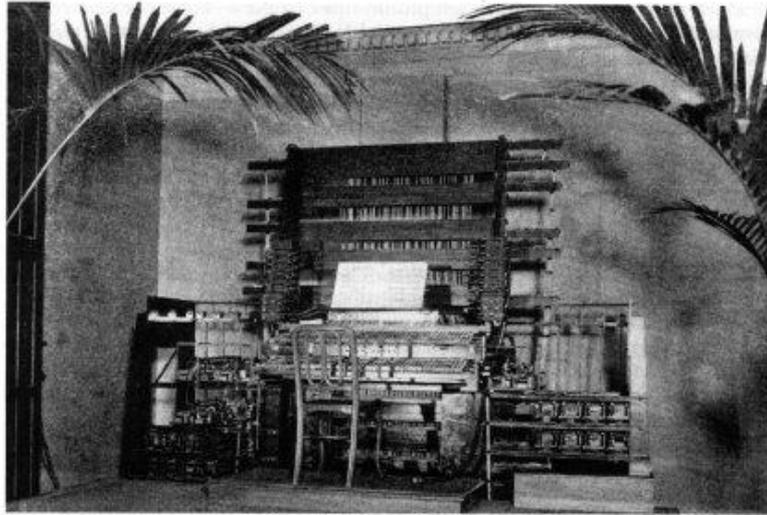
Even within the musical realm the history of the organ has many parallel branches. But prior to the late 19th century AD the method of tone production always depended on the flow of air through a pipe or past a reed, with the airflow provided courtesy of one or more humans: pumping bellows with their arms, pushing pedals with their feet, or exhaling into some device belonging to the harmonica family.

So imagine the rejoicing when someone had the idea to involve electricity! Not only did this allow the players to focus more on the music than on their heart rate; it opened up a range of technological innovations that led to a nearly infinite number of timbral possibilities. And the organ still arguably reigns supreme as the musical instrument capable of the widest diversity in both pitch and timbre. Perhaps this is why it is also found in nearly every style of music known to humankind.

There is much information available elsewhere regarding the history of the organ leading up to the 20th century. Our focus here will be on the development of the electronic organ.

1.1.1.2 The spark that started the fire: the Telharmonium

The very first electronic organ was the Telharmonium, invented in 1897 by Thaddeus Cahill. Only three were made, with the final model weighing almost 200 tons!



A Telharmonium console by Thaddeus Cahill, circa 1897

The Telharmonium (a.k.a. the “Dynamophone”) was originally heard by most people through means of electrical wires attached to “paper cones”, the forerunners of today’s loudspeakers. The music was transmitted to various locations in New York City over the burgeoning telephone system! Crosstalk from the Telharmonium sometimes interfered with telephone conversations, so that idea didn’t last long.

Between 1906 and 1908 there were a number of well-received public performances in a concert hall setting as well. “*Build it and they will come...*” (Well, they had to, didn’t they? The Telharmonium wasn’t exactly portable.)

Sadly, there are no surviving recordings of the Telharmonium. But there are many web sites containing a wealth of information about this fascinating and groundbreaking instrument.

1.1.1.3 Technological innovations

Another thing that made the Telharmonium different from other electrically-powered organs of the day was the use of an electromechanical device to generate the tones, rather than simply using electricity to blow air into a pipe or past a reed. These devices came to be known as tonewheels, and they were the progenitors of the technology later employed by the Hammond Organ Company in its legendary instruments. The resultant sound finally enabled the electronic organ to distinguish itself from the pipe organ and reed organ, and also allowed musicians to sculpt the tone of the instrument through the use of additive synthesis! We owe much to these innovations.

Another form of tone generation became available with the advent of the transistor, and with it an increase in portability and reliability. When combined with the frequency dividing technology that had been developed roughly 10 years earlier, electronic (or “combo”) organs became even more affordable and easier to maintain. For example, rather than tuning hundreds of individual oscillation circuits, the technician only needed to set the fundamental frequency of 12

circuits. The rest of the pitches and their overtones were derived through the combined use of frequency dividers and phase-locked loop (PLL) frequency synthesizers. You tune one, you tune them all (times 12).

And from these discoveries sprang the VOX Continental and its descendants, arguably the most popular and influential “combo” organ series ever produced.

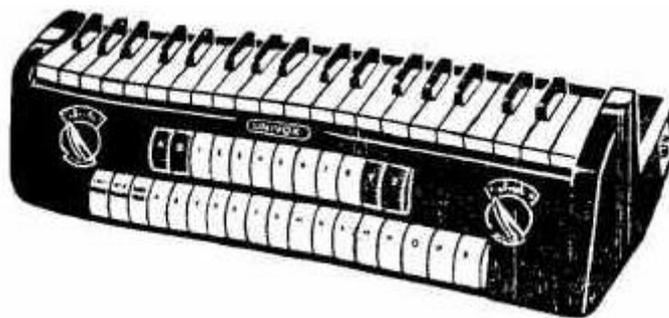
1.1.2 The VOX Continental

1.1.2.1 Beginnings with Jennings

The VOX Continental was originally created by the Jennings Musical Instrument company (JMI). JMI had been in the organ business since the 1950s, at first making accordions and then expanding into the home and church organ markets. Their first somewhat “portable” organs were instruments called the UniVOX, which were initially designed to be attached by means of metal clips beneath the right-hand side of a piano keyboard. Later they designed an adjustable, chrome-plated stand to streamline the setup process.

The UniVOX models had buttons for sound-shaping purposes, a tube-based tone generator, and a built-in amplifier and speaker. They somewhat resembled an accordion, but given their fixed position they couldn’t be “arm powered” so they needed an AC power source nearby.

Pictured below is the second UniVOX model, the J10:



Like its predecessor the J6, the J10 was monophonic. But it provided an extra row of buttons for preset selection, which multiplied its usefulness and appeal. It was used on the song *Telstar*, which was a #1 hit on both sides of “the Pond” for The Tornados in December of 1962. The Tornados went on to become early adopters of the VOX Continental, scoring several more hits in the process.

After a period of development, JMI began mass-production of the first VOX Continental organ in 1962. It was later produced as a joint venture with an Italian manufacturer. There were a number of models all based on the Continental that were released with various feature differences: the Continental itself (single-manual), the Super Continental (dual-manual), the Jaguar (switches instead of drawbars), the Corinthian (similar to the Jaguar), the Baroque (built-in amp and speakers) and the 300. The 300 was the most advanced, with the equivalent of a Continental on the lower manual and an expanded Continental on the upper with

different

drawbars.

In roughly 1967 Tom Jennings was fired from his own company after a buyout. He then started up the Jennings Electronic Instruments (JEI) company and began making his own organs again. These organs were based on the Continental 300 but further expanded with more drawbars on the upper manual, an expanded percussion section, the addition of tremolo and spring reverb, as well as some tone presets.

The sound of the VOX organs caught on fast and they became a staple of the British invasion sound used by the Animals, The Beatles, The Zombies, and more.

1.1.2.2 Physical features: what a looker!

Few keyboards have a design as immediately recognized as the VOX Continental. Its distinctive shape and unique color schemes set it apart from any other portable organ.



Two views of the VOX Continental I

The chrome legs would store within the detachable lid, making the unit much easier to transport than its behemoth rival, the Hammond. The sturdy, flat, and red/orange top was a perfect place for a second keyboard, such as the Fender Rhodes Piano Bass often used by Ray Manzarek of The Doors. The inverse coloring of the keys, previously only seen on harpsichords, was the final stroke of aesthetic genius. It was an irresistible combination (or “combo”, if you will).

1.1.2.3 The sound of renown

The VOX Continental has a sound that is quite distinct from a Hammond organ. It is actually more flexible sonically because it does not rely merely on sine waves; it also gives the user the ability to add or substitute triangle waveforms (which were actually filtered square waves), greatly expanding the sonic palette.

Because of this flexibility its timbre has been described alternately as “bright”, “airy”, “edgy”, “smooth” and “mellow”. Where its rivals might struggle to be heard in certain settings, the VOX Continental had no trouble cutting through a guitar-heavy mix. And when a more subtle tone was required the simpler sine waveforms could be used instead, or used in combination with the triangle waveforms as “sweeteners”.

And of course, the VOX Continental V software instrument makes all of those options yours!

1.1.2.4 Maintenance

As much as the tuning of a VOX Continental was simplified by the frequency divider components, the electromechanical aspects of the keyboard were still of concern. For each key there was an independent contact for each drawbar stop, and as the organ aged in proportion to how much it was used, these individual contacts would begin to age as well...and often at different rates. A very old, poorly maintained VOX Continental would likely give a very different sound from key to key. The overall output can be quite unpredictable when this is the case.

Call us crazy, but we really are serious about faithfully recreating the experience of these classic instruments. So one of the interesting things we did with our VOX Continental V emulation is give you the ability to add that “unpredictability” back in! You’ll find a control in Open mode labeled **Key Contact Age**. Give that a twist and see what happens! It might inject the right amount of personality into a preset you are creating.

1.1.2.5 The VOX rocks: a selected discography

There have been many, many albums made using the various VOX models, but here is a brief list of recordings bearing its unmistakable sound

- 96 Tears – Question Mark & the Mysterians
- House Of The Rising Sun – The Animals
- I’m Down – The Beatles
- Light My Fire – The Doors
- Watching the Detectives – Elvis Costello

- Do You Love Me – The Dave Clark Five
- I'm a Believer – The Monkees
- In-A-Gadda-Da-Vida – Iron Butterfly
- One Step Beyond – Madness
- Working My Way Back To You – The Four Seasons

This is only a small sample, and yet it represents huge hits spanning several decades! Clearly this is a musical instrument with serious staying power and broad audience appeal.

Still a classic and in great demand, the prices of VOX organs have climbed in response to their limited availability. Thankfully, Arturia's VOX Continental V software brings this iconic instrument back to life, placing it within the reach of the modern musician with even the most modest budget.

1.2 Physical modeling synthesis

When you want to create a sound, there are many methods of synthesis from which to choose:

- **Additive**, which creates a timbre by adding various waveforms together
- **Subtractive**, in which partials of an audio signal are attenuated by a filter to reduce the original harmonic content of the sound
- **Frequency Modulation (FM)**, where waveforms are used in carrier/modulator relationships and tuned according to the harmonic series to produce overtones in the carrier waves
- **Wavetable**, which offers a wide selection of digital waveforms and then allows them to be layered, filtered, and/or used as the crossfade targets of an X/Y controller or a looping envelope
- **Sample Playback**, where recordings of a sound are triggered by a playback device, and can be transposed by increasing the playback speed when different pitches are required
- **Granular**, which splits samples into very short "grains" and allows them to be manipulated through a myriad of playback options, and
- **Physical modeling**. In this method the output waveform is calculated according to a set of equations and algorithms derived through extensive analysis of a physical sound source.

1.2.1 Music and math: yet another link

A physical model attempts to codify the laws of physics that govern a particular form of sound generation. A model typically will have multiple parameters, some of which are constants that describe the physical materials and dimensions of the instrument, while others are time-dependent components representing the player's interaction with the instrument, such as plucking a string, pressing a valve, or reducing the pressure of his embouchure, etc.

This idea has been around for a long time, but development has been hindered until recently because processors that were powerful enough to handle the computational complexity of the physical models either didn't exist or were too expensive.

But if you've been watching the technological trajectories, you know those days are in the past. And we're just as happy about that as you are.

1.2.2 A computational conundrum

Here's an example of what must be taken into account while developing a physical model. To recreate the sound of a drum, for instance, a formula must be in place to represent all of the ways the collision between a drum stick and a drum head sends shockwaves through a two-dimensional membrane. Among other things, the formula must incorporate:

- The properties of the striker: its rigidity, the velocity of the hit, the material, and how/where the strike happens
- The membrane: its mass density, elasticity, woven fabric vs. plastic vs. skin, etc.
- The sympathetic resonances of the membrane and the body of the drum
- The conditions at the membrane boundaries: is there a rigid termination to the drum's body, or are there multiple, independently adjustable pressure points?
- The ancillary and perhaps lingering response of additional components, such as the snares under a snare drum.

Similar complexities can be found in instruments such as an acoustic guitar. A few years ago, a French scientist finally completed a comprehensive modeling of all acoustic guitar parameters. The calculations to produce the sound took three days!

The second-biggest challenge of physical modeling synthesis is to simplify the algorithms wherever possible without sacrificing the essential nature of the instrument being modeled. The goal is to achieve an efficient model which can be used interactively, in real time, without limiting the spontaneous paths a musician may take during a rush of creativity.

1.2.3 The endless revolution

There are several methods of physical modeling synthesis, including Karplus-Strong algorithms, digital waveguide synthesis, and formant synthesis. Each one uses a different paradigm to bring a modeled sound to its musical fruition.

The salient point here is that physical modeling synthesis is capable of recreating the character of a "real" instrument during performance, including its subtle nuances of expression, while using a thousand times less hard drive space than the "sampling" method would take to produce an inferior result.

Not to rub it in, but we really should mention the ability of physical modeling algorithms to combine parameters into instruments that have never existed. There is no limit to the types of sounds physical modeling synthesis can produce!

And when you gather a bunch of music fanatics who also possess a knowledge of the pertinent laws of physics and an in-depth understanding of the characteristics of electronic circuits, you wind up with Arturia. And Arturia now offers you our latest brainchild, the VOX Continental V.

May it light the fires of creativity for you!

2 ACTIVATION AND FIRST START

2.1 Register and Activate

VOX Continental V works on computers equipped with Windows 7 or later and Mac OS X 10.8 or later. You can use the stand-alone version or use VOX Continental V as an Audio Units, AAX, VST2 or VST3 instrument.



Once VOX Continental V has been installed, the next step is to register the software.

The registration process will require you to enter the serial number and the unlock code you received with the product.

In order to proceed, go to this web page and follow the instructions:

<http://www.arturia.com/register>

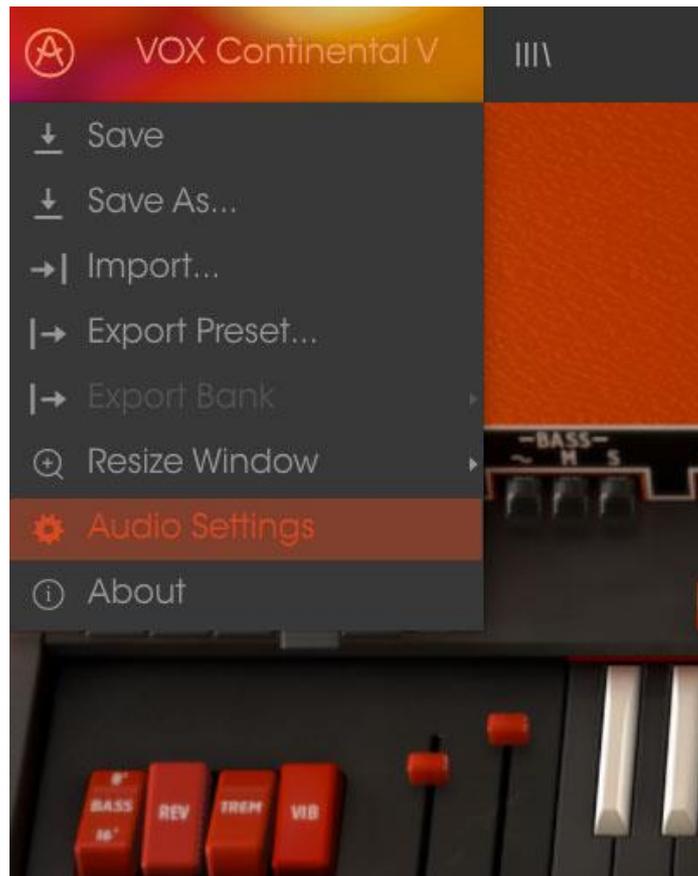
Note: If you don't have an Arturia account yet, you will need to create one. The process is quick, but it does require that you can access your email address during the registration process.

Once you have acquired an Arturia account you will be able to register the product.

2.2 Initial setup

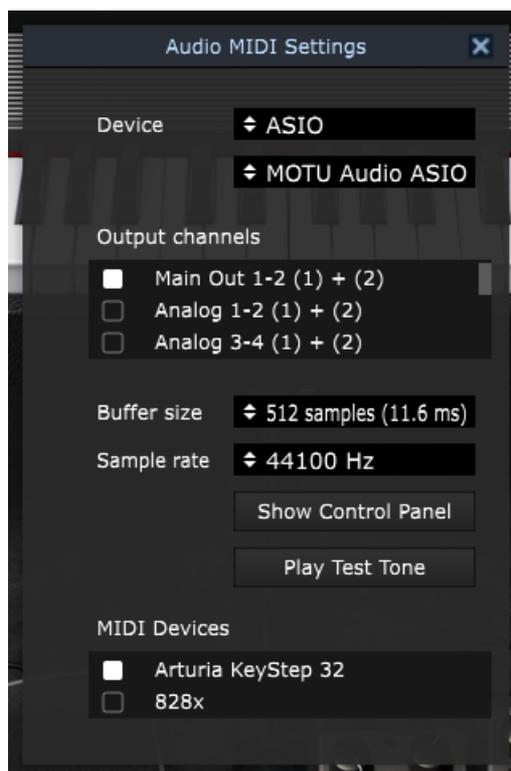
2.2.1 Audio and MIDI settings: Windows

At the top left of the VOX Continental V application is a pull-down menu. It contains various setup options. Initially you will need to go to the menu and choose the Audio Settings option to get sound and MIDI flowing in and out.



VOX Continental V main menu

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.



Audio and MIDI settings window

Starting from the top you have the following options:

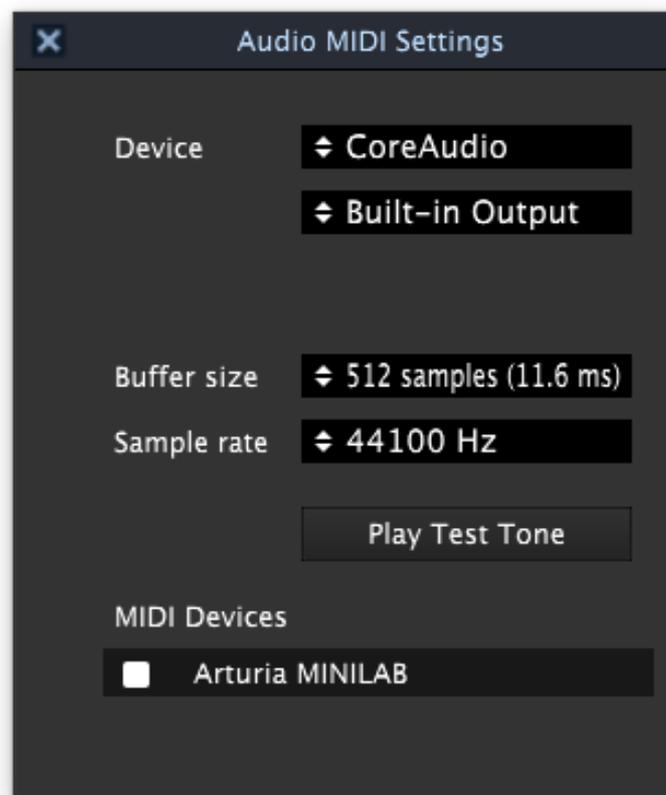
- **Device** lets you choose which audio driver you want to use to route sound out of the instrument. This might be your computer's own driver like Windows Audio, or an ASIO driver. The name of your hardware interface may appear in this field.
- **Output Channels** lets you select which of the available 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, VOX Continental 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.



2.2.3 Using VOX Continental V in plug-in mode



VOX Continental 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 VOX Continental V in a DAW project. In standalone mode you can only use one at once.
- You can route VOX Continental V's audio outputs more creatively inside your DAW using the DAW's own audio routing system.

3 USER INTERFACE

VOX Continental 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 VOX Continental 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 The virtual keyboard and pedals

The virtual keyboards and pedal board in the main VOX Continental V window allow you to play a sound without the need for an external MIDI device. Just click on a virtual key or pedal to hear the corresponding sound. Drag the cursor across the keys or pedals to hear a glissando.



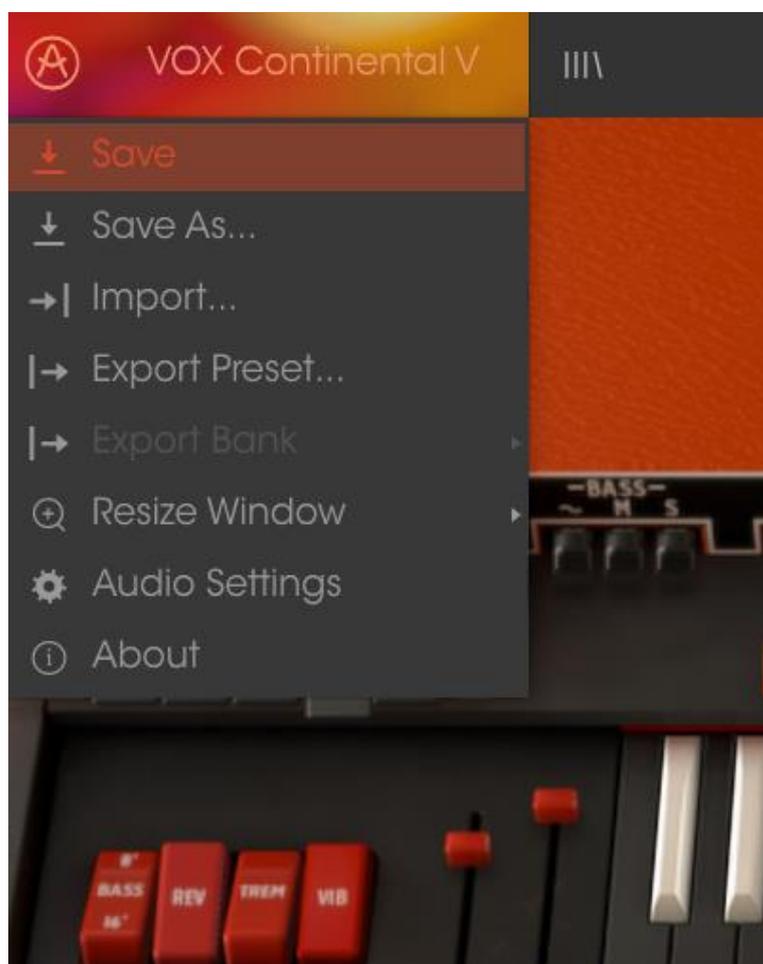
3.2 Toolbar

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 VOX

Continental V section at the very top left hand corner of the instrument window.

3.2.1 Save Preset

The first option lets you save a preset. If you select this 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 and select some tags that describe the sound. 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 Preset window

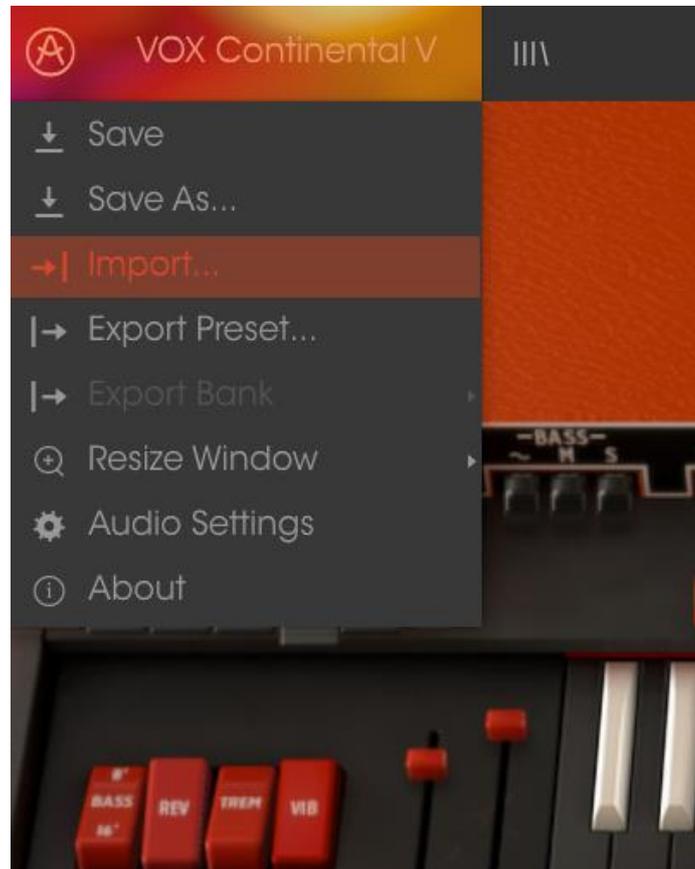
3.2.2 Save Preset As...

This works in the same way as the Save command, but lets you save a copy of the preset instead of saving over the original. It's useful for creating variations on patches but still keeping individual copies of each one.

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 .vox 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.

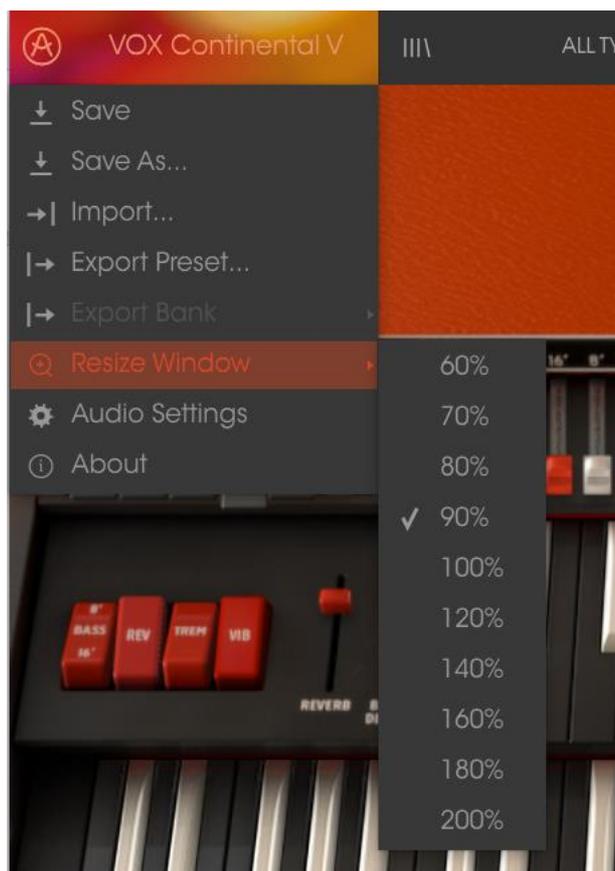


3.2.4 Export preset

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 Resize window options

The VOX Continental 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.



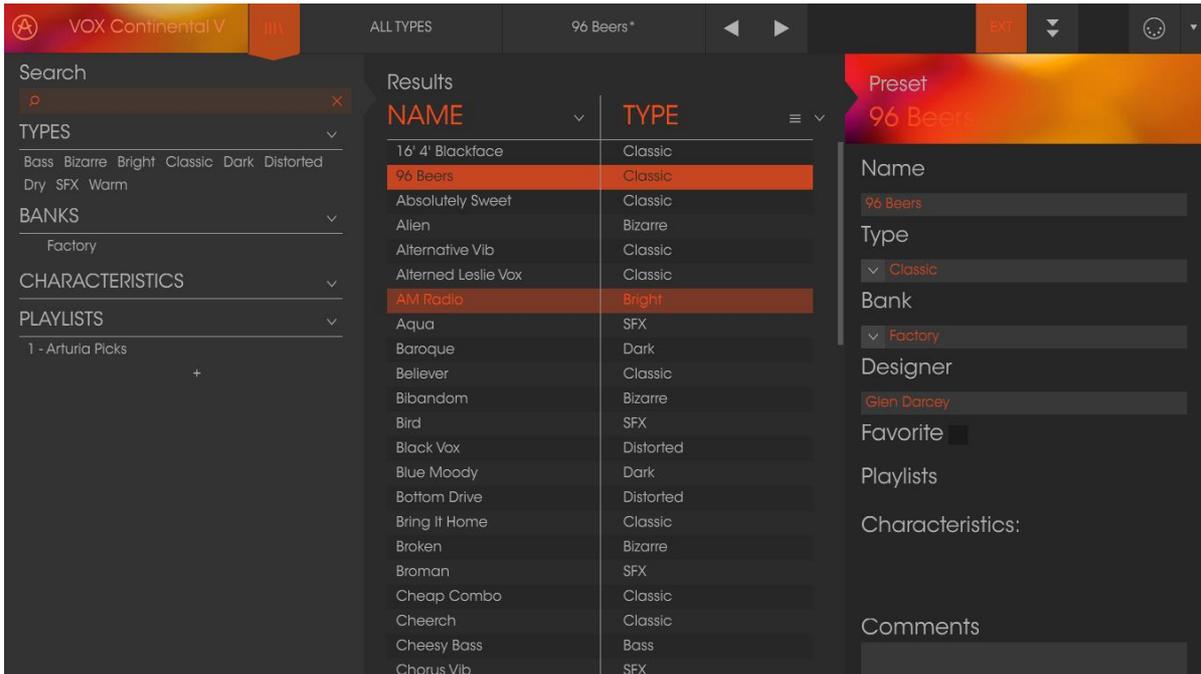
The Resize Window menu

3.2.6 Audio settings

Here you manage the way the instrument transmits sound and receives MIDI. See section 2.2 of the manual for full details on this.

3.2.7 Preset browser overview

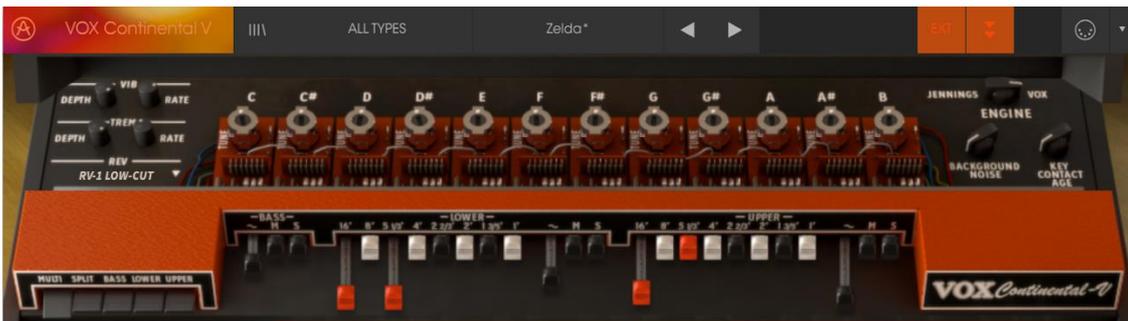
The Preset browser is invoked by clicking the toolbar button that has four vertical lines. See section 3.3 of the manual for full details on this. The Filter, name field and left / right arrows in the toolbar all assist with preset selection.



The Preset Browser

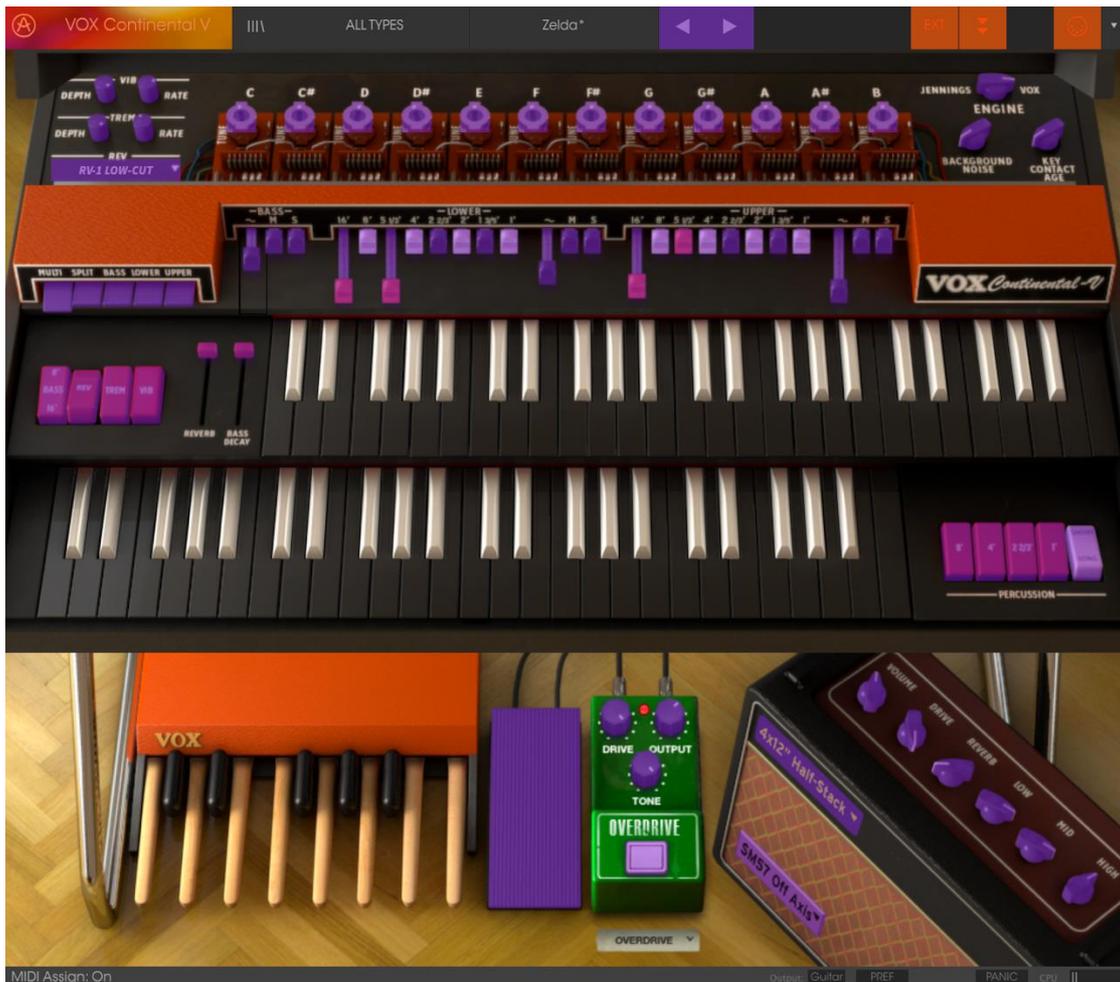
3.2.8 Open and Close Advanced section

The Advanced section can be revealed by clicking on the button with the two downward arrows at the right of the toolbar. This lets you access the more advanced features of the instrument like. Click this button once to reveal the advanced section of the instrument and again to hide it. You can also click on the frame of the instrument to open and close it.



3.2.9 MIDI Learn assignment

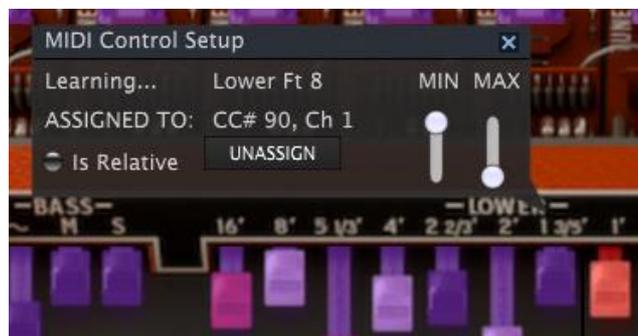
The MIDI plug icon at the far right side of the toolbar places the instrument into MIDI learn mode. Parameters that can be assigned to MIDI controls will be shown in purple, and the idea is that you map physical buttons, knobs, faders or pedals from hardware MIDI controllers to specific destinations inside the instrument. A typical example might be to map a real expression pedal to the virtual volume pedal, or buttons on a controller to the effect switches so you can change the sound from your hardware keyboard.



MIDI Learn mode

3.2.9.1 Assigning / unassigning controls

If you click on a purple area you'll put that control into learning mode. Move a physical knob or fader 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 a button to unassign the two from each other.



1'' Drawbar selected and assigned

3.2.9.2 *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 filter cut-off 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.

3.2.9.3 *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 massively out of their current setting as soon as you start to modify them.

3.2.9.4 *Reserved MIDI CC numbers*

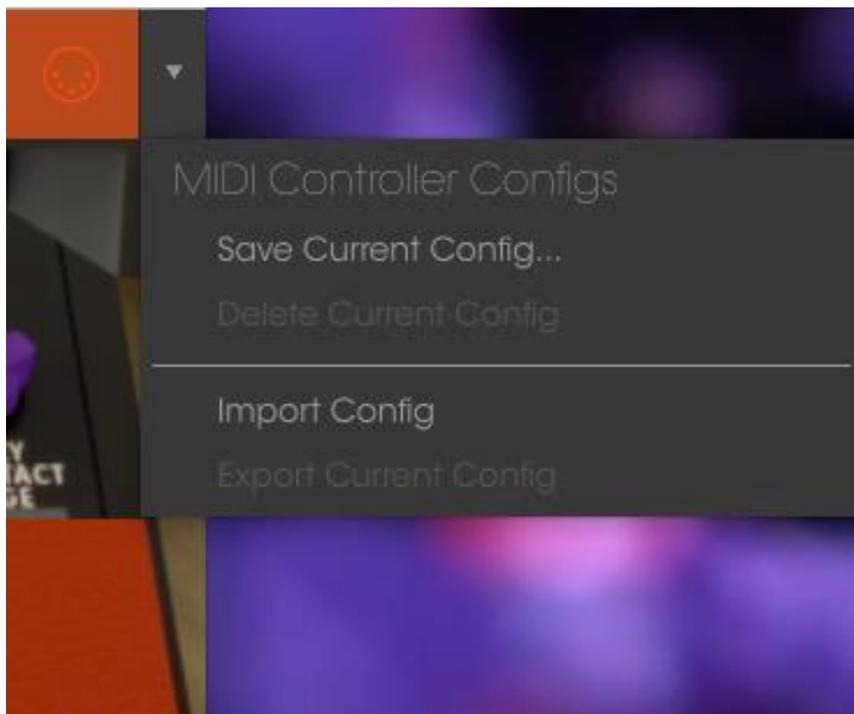
Certain MIDI Continuous Controller (MIDI CC) numbers are reserved and cannot be reassigned to other controls. These are:

- Ctrl All Notes Off (CC #123)

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

3.2.10 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 VOX Continental V without having to build all the assignments from scratch each time you swap hardware.



3.2.11 The lower toolbar

3.2.11.1 *Current control value*

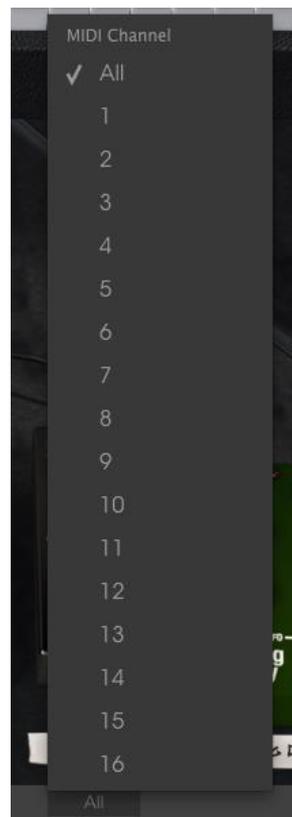
At the left hand side of the lower toolbar you will see a readout showing the value or state of whatever control you are modifying. It will also display the current value of a parameter without editing it: just hover the cursor over the related control and the value will appear as pictured below.



Displaying the current control's value

3.2.11.2 MIDI Channel setting

At the right hand side of the lower toolbar are three small windows. The first one on the left 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).



3.2.11.3 MIDI preferences: the PREF button

With a fully decked-out VOX Continental organ the organist could play three parts at the same time: the upper manual, the lower manual, and the pedal board. So naturally, the VOX Continental V software can respond to three separate MIDI channels simultaneously.

But Arturia didn't stop there. We allowed for other possibilities, such as those times when you just want to plug a keyboard controller into your computer and jam. So it's also possible to access all three instruments (Upper, Lower, and Bass) from a single incoming MIDI channel, shift their octave ranges to spread them across the controller's keys, and then specify the split points between them.

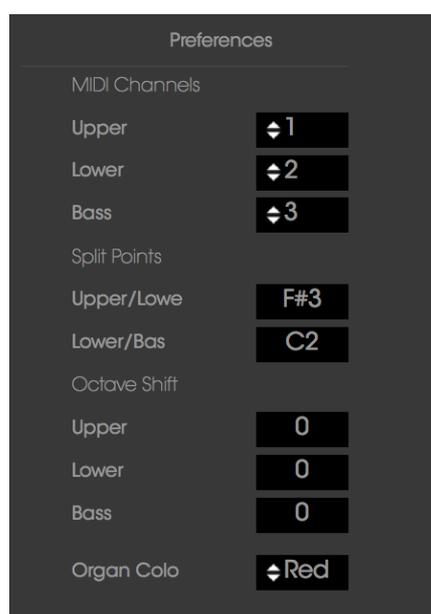
For details on how to switch instantly between multi-channel and single-channel performance, [see section 3.4](#).

Notice that we used the word "Bass" instead of "pedals" in the second paragraph of this section. That's because the part the pedals would otherwise play is made available to the master controller keyboard in that scenario, and the left hand is then able to play the bass part on the keys. The pedals still have an impact on MIDI reception, though, depending on whether they are deployed. More about this later.

To access these great features, press the "PREF" button in the tool bar:



The MIDI Preferences menu will appear in the middle of the VOX Continental V window. From here you can set all of the parameters we've discussed in this section so far, plus choose the organ color (Red or Grey).



The MIDI Preferences window

To change any of the parameters you see in this window, click in the value field next to its name and make a selection from the drop-down menu that appears.

Here's a description of what these parameters do:

- **MIDI Channels:** Multi mode only. Set the Upper, Lower and Bass to independent channels, or set one or more to “All” for an interesting form of Omni mode response (see [section 3.4](#) for an explanation).
- **Split Points:** Determines the boundaries between each instrument when in Split mode.
- **Octave Shift:** Places the selected instrument in a different range of MIDI notes without affecting the pitches it will play. For example, in Multi mode with the pedals deployed, when Octave Shift = 0 for the Bass it will respond to MIDI notes from C1 to C2. When Octave Shift = - 1, the same pitches of the Bass sound will respond to MIDI notes C2 to C3. (See [section 3.4](#) for a description of the MIDI Modes.)

It's important to remember that the note range of each instrument cannot exceed the limits of their physical counterparts: 4 octaves per keyboard, 1 octave for the pedals (13 notes total).

To close the MIDI Preferences window, click outside the Pref window.

Omni mode vs. “MIDI Channel = All”

Technically, Omni mode means “listens to all 16 MIDI channels.” So in the interest of accuracy we gave our “most inclusive” MIDI Channel setting the label “All”. This reflects the hierarchy of MIDI channel assignments in VOX Continental V, starting with the Global MIDI channel and working its way through the available instruments to the Bass channel.

Here's how it works:

- The Upper/Lower/Bass MIDI channels, in that order. If any one of those instruments is set to All, its channel receives any data transmitted to the remaining MIDI channels, leaving nothing for the next in line.
- If one or more of the instruments are set to the same MIDI channel, then a similar thing happens. For example, if both the Upper and Lower instruments are set to receive on MIDI channel 1, then the Lower instrument will not receive anything. The Bass could, though, as long as it is set to any other MIDI channel.

That makes perfect sense to us, but perhaps an example using some actual MIDI channel numbers would be useful.

- When Upper is set to All it receives data on all 16 MIDI channels. This crowds out the Lower and Bass instruments; they cannot be accessed on any MIDI channel.
- When the Upper is set to 1 and Lower is set to All, the Lower instrument allows Upper to be on channel 1 but intercepts any data it finds on MIDI channels 2-16. This crowds out the Bass instrument; it cannot be accessed on any MIDI channel.
- When Upper is set to 1, Lower is set to 2 and Bass is set to All, the Bass instrument allows Upper to be on channel 1, Lower to be on channel 2, and the Bass responds to all other channels (3-16).

Armed with that knowledge, experiment with these settings and see what they do. We think they'll prove themselves useful.

3.2.11.4 *Output mode*

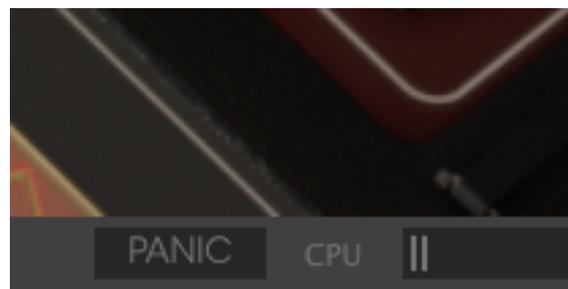
The output button allows you to select the way by which the sound of the instrument is captured. This option plays an important role on the sound you will get and let you access to several specific parameters.



3.2.11.5 *Panic button and CPU meter*

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

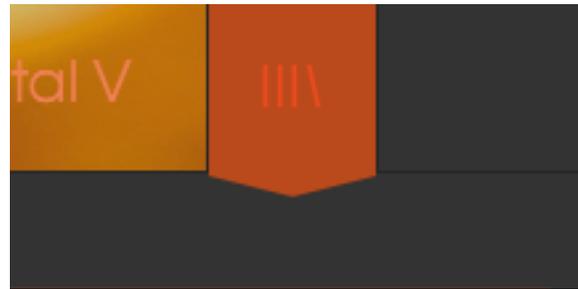
The CPU meter is used to monitor how much of your computer's CPU is being used by the instrument.



3.3 **The Preset Browser**

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

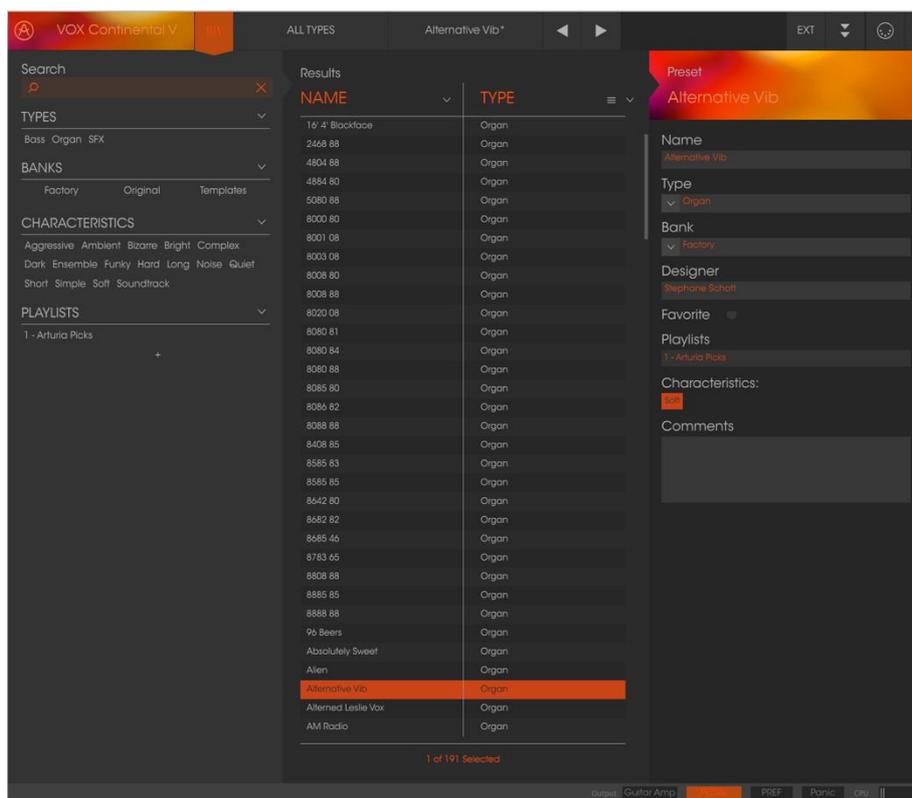
To access the search view, click on the browser button (the icon looks a bit like books on a library shelf).



The Preset Browser button

3.3.1 Searching presets

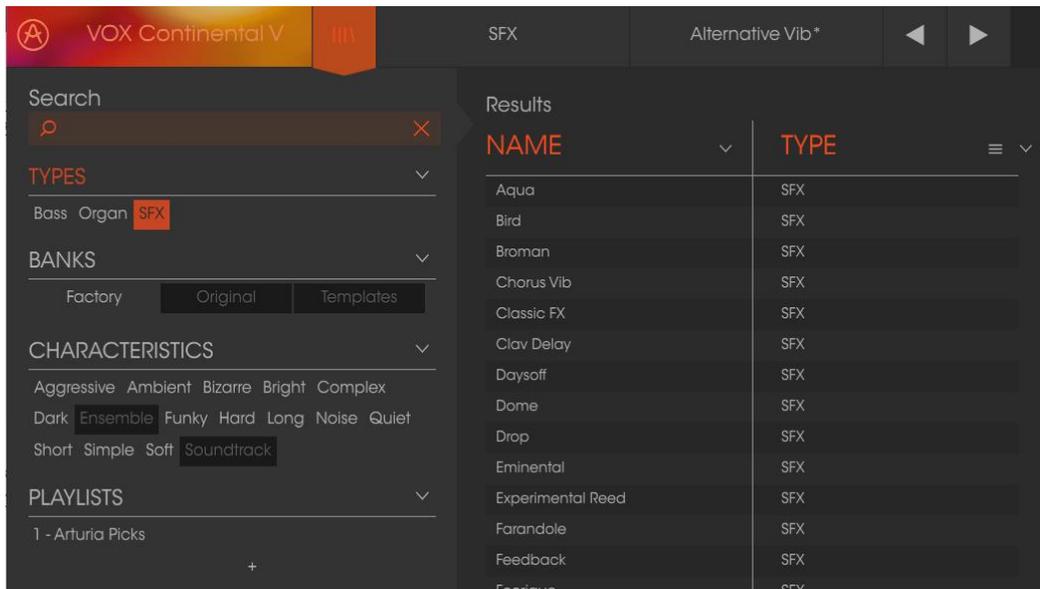
The Search screen has a number of sections. By clicking on the Search field at the top left you can quickly enter any search term to filter the preset list by patch name. The Results column is updated to show the results of your search. Press the X button in the search field to clear the search.



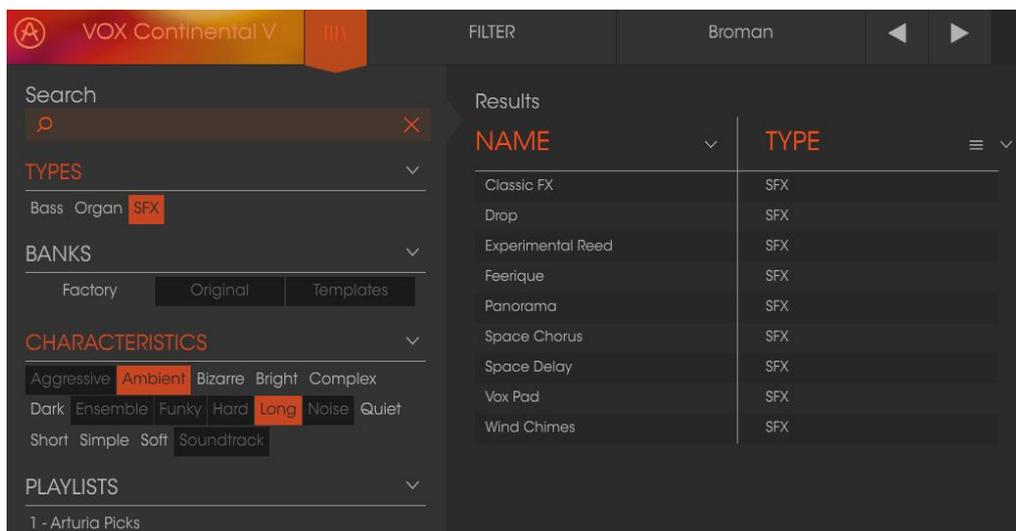
3.3.2 Using tags as a filter

You can also search using different tags. Clicking on a Type field shows only presets that match that tag. The tag fields can be shown or hidden by using

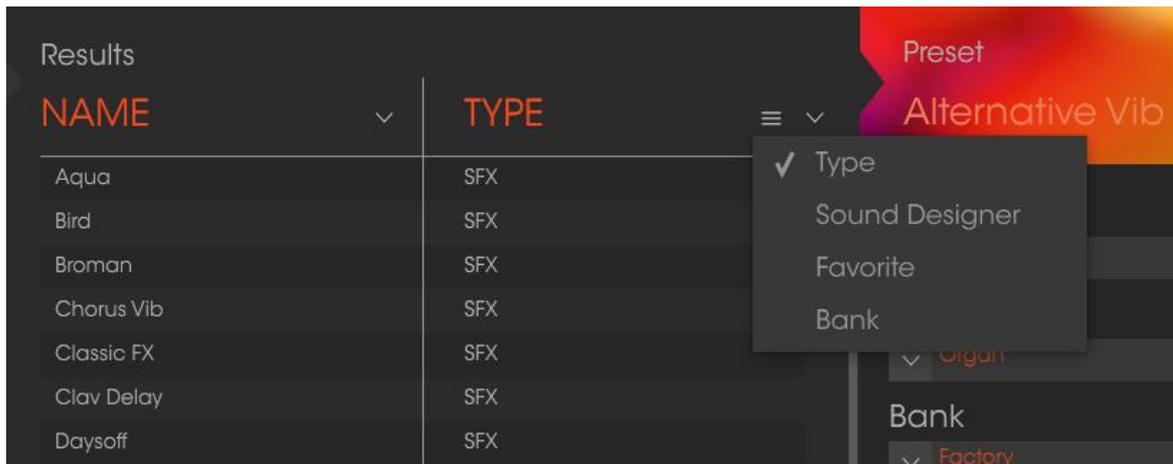
the small down arrow buttons in their title fields. Results columns can be sorted by clicking the same arrow button in their own section.



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. Using “Ctrl + click” (Windows) or “Cmd + click” (Mac) will allow you to select multiple elements in the same area.



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.

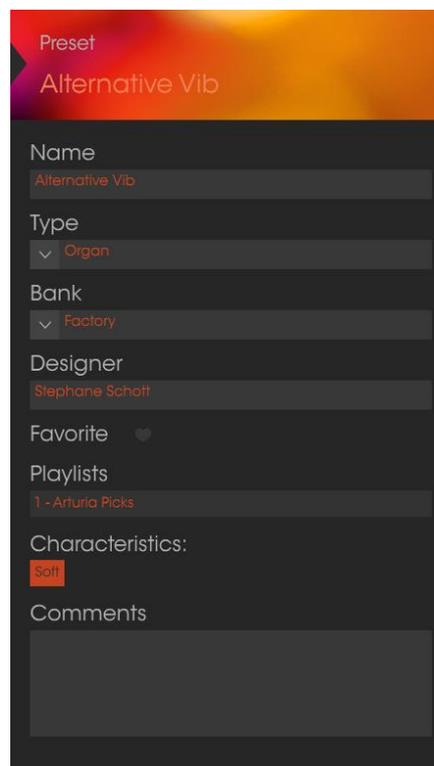


3.3.3 The Preset Info section

The Info column on the right 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.

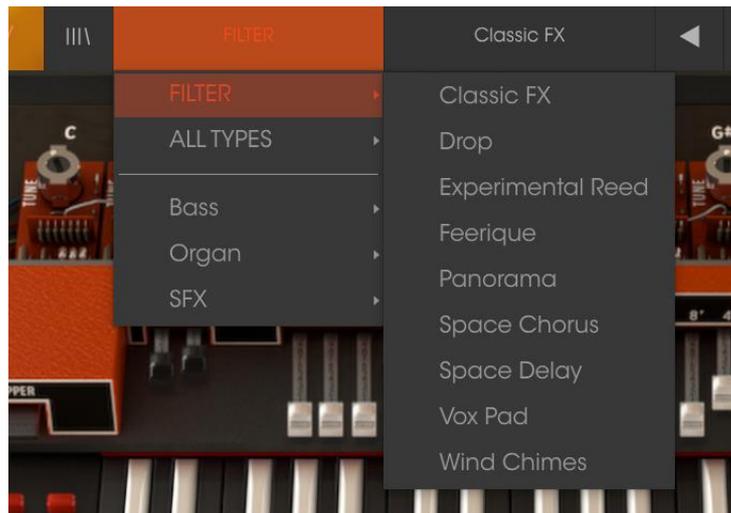
Click Edit and then make the desired changes, either by typing in one of the fields or by using a pull-down menu to change the Bank or Type. You can even add new Characteristics by clicking the + sign at the end of that list. Click Save when you are done.



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 “Love” in the main search area, the results of that search will appear here.

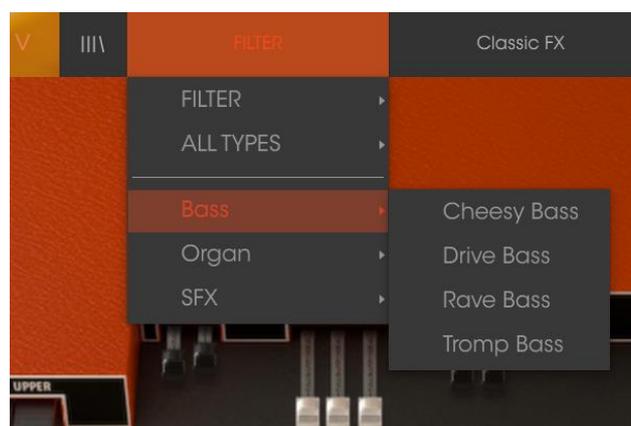
Similarly, if you previously selected a Type in the Search field you would see the results of that search in this area instead.



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.



3.3.4.1 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.

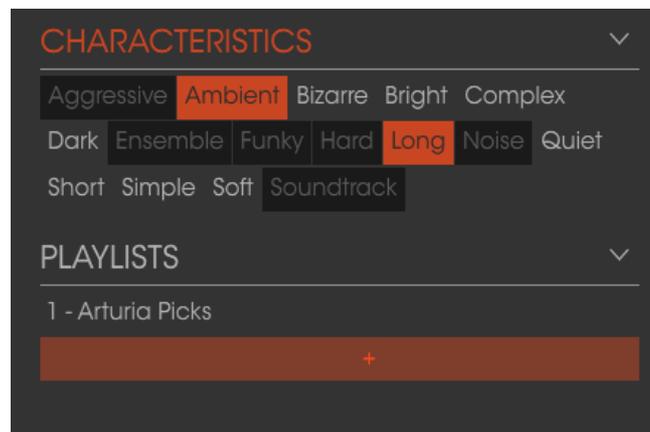
The left and right arrows in the toolbar cycle up and down through the preset list: either the full list, or the filtered list that resulted from the use of one or more search terms.

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

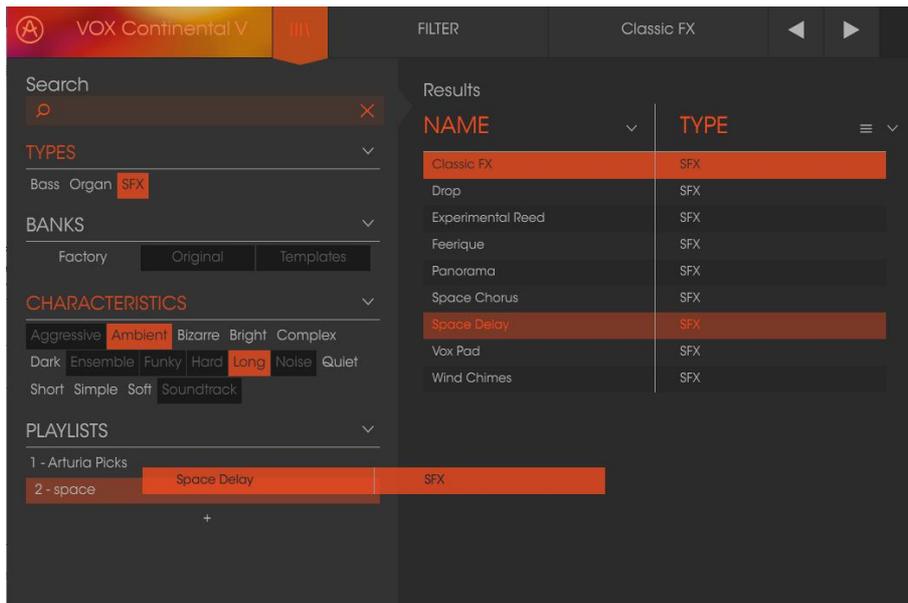
To create a playlist, click the plus sign at the bottom:



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 2 to slot 4, drag and drop the preset to the desired location.

This will move the preset into the new location.

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

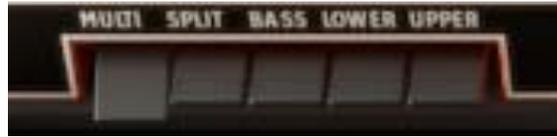
3.3.5.5 Delete a playlist

To delete a playlist, click the x directly to the right of the playlist name.

Click the X to delete a playlist.

3.4 The MIDI Mode tabs

There's a really quick way to switch between multi-channel and single-channel performance when using an external MIDI keyboard controller: the MIDI Mode tabs.



The MIDI Mode tabs

Note: For the following examples we will assume the *Global MIDI channel* is set to All.

Simply select the MIDI Mode tab that corresponds to the configuration you need:

- **Multi:** This places the Upper and Lower manuals and pedals on independent MIDI channels. If the pedals have been retracted they share a MIDI channel with the Lower manual. The MIDI channel values are set inside the MIDI Preferences menu.
- **Split:** No matter which MIDI channel is received, all three instruments will be available to the external MIDI device on that channel. They will be spread across the MIDI note range according to the Split Point settings as defined in the MIDI Preferences menu (see [Section 3.2.12.3](#)).
- **Bass:** No matter which MIDI channel receives the note data, the Bass sound will be the only one to respond. The organ keyboards will only be available to the cursor.
- **Lower:** Any incoming data will trigger the Lower manual, regardless of its MIDI channel setting. The other two instruments can only be played by the cursor, unless the pedals have been retracted; in this case the Bass sound will be triggered below the split point by incoming MIDI data.
- **Upper:** Data received on any MIDI channel will trigger only the Upper manual; the other instruments will respond only to the cursor as noted above, depending on the status of the pedal board.

So there's an important point to emphasize about the first two MIDI Mode tab settings: when the pedals have been retracted their MIDI channel will no longer respond to incoming data. The lowest octave of the lower manual will play the bass sound instead on its MIDI channel.

Also, keep in mind the MIDI Mode tabs only determine the way VOX Continental V responds to incoming MIDI data. They make no difference in what happens when notes are triggered by the cursor. The presence or absence of the pedal board is the only factor that affects the way the lower manual responds to the cursor.

3.5 Extended mode

EXT

When you click the EXT button you will notice immediately that Extended mode adds extra drawbars for each of the VOX Continental V organ manuals, and one more drawbar for the pedals. But it does more than that: it also adds an extra effect switch on the left side of the upper manual (TREM, for tremolo) and changes the “percussion” switches to the right of the lower manual, adding one more button overall but also altering which percussion stops are available for the preset.

The best way to illustrate this is to compare the two modes side-by-side:

3.5.1 Upper manual drawbars

Standard	16'	8'	4'	II	III				~	M	
Extended	16'	8'	5- 1/3'	4'	2- 2/3'	2'	1- 3/5'	1'	~	M	S

Note: See the next page for definitions of II, III, ~, M and S.

3.5.2 Lower manual drawbars

Standard	16'	8'	4'	IV					~	M	
Extended	16'	8'	5- 1/3'	4'	2- 2/3'	2'	1- 3/5'	1'	~	M	S

Note: See below for definitions of IV, ~, M and S.

3.5.3 Pedal drawbars

Standard	~	M	
Extended	~	M	S

Note: See below for definitions of ~, M and S.

Definitions:

II = a mix of 5-1/3' and 1-3/5'

III = a mix of 2-2/3', 2' and 1'

IV = a mix of 2-2/3', 2', 1-3/5', & 1'

~ = sine wave output per drawbar, also known as the “Flute” stop

M = filtered square wave output per drawbar; this is labeled the “Reed” stop

S = sawtooth wave output per drawbar; only in Extended mode, and called the “String” stop.

3.5.4 Bass / Effect switches

Standard	8' / 16'	Rev	Vib	
Extended	8' / 16'	Rev	Trem	Vib

There are some important things to remember about the Bass / Effect switches:

- The 8' / 16' switch selects the octave range for the pedals
- The Vib switch adds vibrato to both organ manuals and the pedals
- The Trem switch adds tremolo only to the upper manual

Note also that the amount of reverb is controlled by the Reverb slider next to the Bass / Effect switches. The Bass Decay slider specifies the amount of time the bass note will continue to sound after the pedal is released.

3.5.5 Percussion switches

Standard	8'	4'	Mix	Short / Long	
Extended	8'	4'	2-2/3'	1'	Short / Long

There are two important things to remember about the Percussion feature:

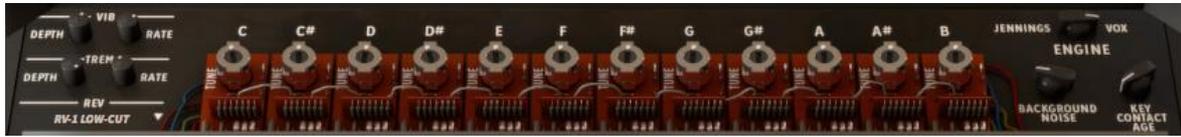
- **Mix** provides a percussive element with two pitches: 5-1/3' and 1-3/5'
- The Percussion only affects the upper manual.

3.6 Open mode



Open mode offers a slew of parameters “under the hood” that further expand the capabilities of VOX Continental V. This is where you select the

engine type (VOX or Jennings), the reverb type, set the vibrato/tremolo rates and depths, add or remove background noise, fine-tune the octave dividers, and turn the instrument into an “antique” with the Key Contact Age control.



Here's a list of the Open mode features, from left to right and top to bottom:

Vibrato Depth: This allows you to control how deep the vibrato will be for the preset. You'll only hear vibrato if the Vib button is toggled to On, though.

Note: Vibrato is a global effect; it affects the upper/lower organ manuals and the pedal equally.

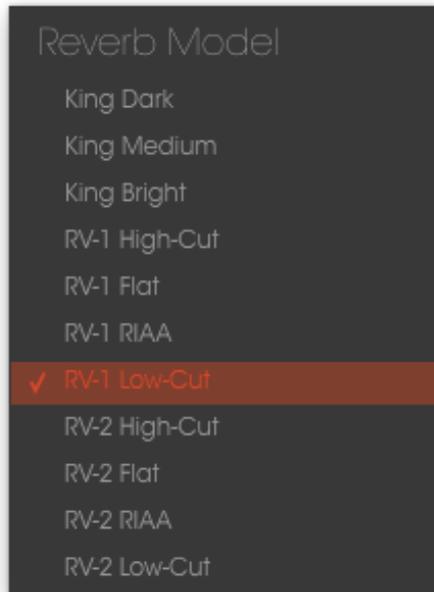
Vibrato Rate: Sets the speed of the vibrato.

Tremolo Depth: This allows you to control how deep the tremolo will be for the preset. You'll only hear tremolo if the Trem button is set to On, though.

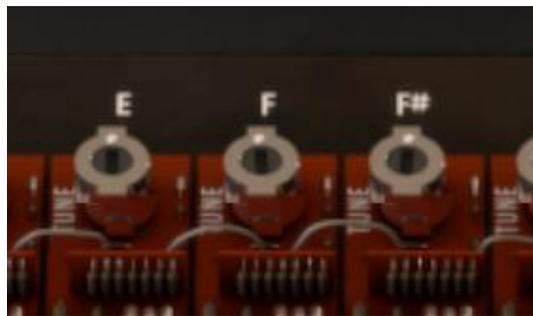
Note: Tremolo only affects the upper manual. It has no effect on the lower manual or the pedal.

Tremolo Rate: Sets the speed of the tremolo.

Rev (Reverb): New to VOX Continental V is the inclusion of a convolution reverb, derived from the impulse responses of three different spring reverb models: the Spring King, the RV-1 and the RV-2. Use this parameter to select the one that best fits the preset you are creating:



Tuning controls: The VOX Continental utilizes “octave divider” circuits to generate the pitches in each octave. These controls allow you to fine-tune the notes in the chromatic scale. So if you'd like to create a preset using altered intonation, for example, these are the controls to use.



The range of each “potentiometer” is +/- 50 cents in 0.4 cent increments. But if you need finer resolution, right-click on your mouse and then click and drag the tuning potentiometer (a.k.a “pot”). This allows tuning to be done in increments as small as 0.025 cents.

Engine: The large switch toggles the engine mode between two choices: **VOX** and **Jennings**. A few minor differences exist in the circuitry between the two organ lines, resulting in a subtle distinction in the overall tone quality. You may find you prefer one over the other, but functionally they are identical.

Background Noise: As analog circuits age a certain amount of instability in various components can give rise to a higher noise floor. VOX Continental V models even this “undesirable” condition, but allows you to control the amount of the background noise with this rotary knob. The range is from -90 dB (completely sterile) to -30 dB (positively bristling with “maturity”).

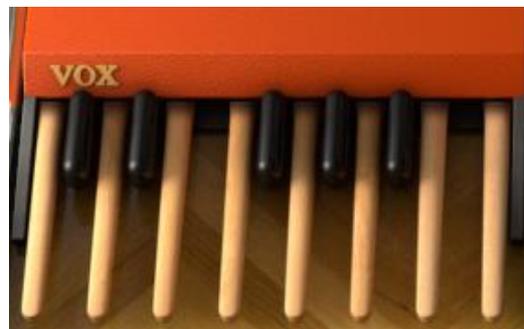
Key Contact Age: The design of the organ keyboards gives them a fair amount of character. Each key has a separate contact for each drawbar stop, and as these connections age the contacts age as well...and often at different rates. This knob allows you to dial in as much of this unpredictability as you would like, from none (0.00%) to “desperately in need of service” (100.0%). The overall output can be very different from key to key, which could be quite interesting in its own right or in conjunction with the effects VOX Continental V provides.

Another good thing to know is that you can enter Open mode simply by clicking on the top of the organ. You can close it with a click, too, but since the top is not available you must click on the back edge inside “the hood,” just beyond the tuning controls and the other knobs.

3.7 The pedals

Sometimes the keyboard player needs to hold down the low end during a song. Knowing this, the people at VOX were kind enough to offer a pedal board as an optional accessory. But the good folks at Arturia have included it for free in VOX Continental V.

And our pedals are a lot easier to set up. They have a dedicated set of drawbars, an octave range switch to the left of the upper manual, and a slider called **Bass Decay** that controls the release time of the pedal sound. They can be set to respond to their own MIDI channel, too, just like the upper and lower organ manuals.



You can also click on the top of the pedals, or on the floor where they should be, and the pedals will appear or be stowed away.

Note: when the pedals have been retracted their MIDI channel will no longer respond to incoming data. The lowest octave of the lower manual will play the bass sound instead on its MIDI channel.

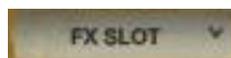
3.8 The Swell pedal



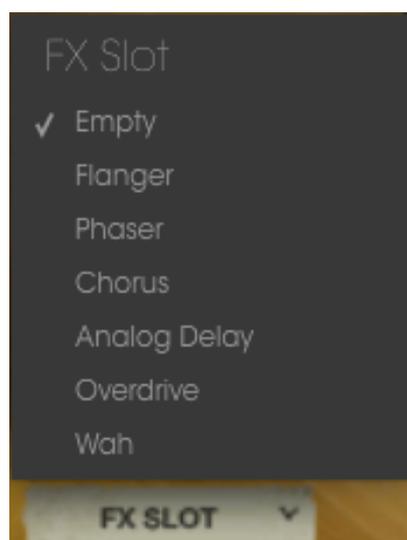
Whether you're using the pedal board, an amplifier or an FX pedal, the Swell pedal is always there in the middle of the floor under the organ. You can click and drag the top of the pedal to set the overall level, or you can assign the Swell pedal to the MIDI controller of your choice.

3.9 The effects

To add one of the effects to the VOX Continental V output, click the arrow to the right of the words "FX SLOT" at the bottom of the main window.



A pop-up menu will show you the available FX choices:



When you select an effect it will appear on the virtual floor below the VOX Continental.

We'll take each of the FX Slot menu choices one at a time, starting from the top.

The first one is labeled **Empty**. Selecting this option will close the FX pedal and the FX Slot menu, removing the FX device from the signal path.

But **Empty** isn't the only option if you just want to hear the sound without the FX unit temporarily. You'll notice that almost every FX device also has a bypass button, which when clicked will cause the FX mix to become 100% dry. A red LED indicates when the FX device is on, so when you bypass the effect the LED will turn off.

The only FX device without a bypass switch is the Wah pedal. That unit is basically a filter, so the way to remove it from the signal path is to push the pedal all the way forward by clicking the pedal top and dragging the cursor all the way up. When you reach a value of 100% the pedal is wide open (bypassed).

One more thing: All FX parameters are MIDI-assignable, which means they "learn" the controllers on your external USB MIDI device. For information about this process, refer to the [Section 3.2.10](#).

What follows is a description of each available FX device.

3.9.1 Flanger



Delay: Sets the delay time, which changes the harmonic content.

Depth: Sets the modulation depth. This is set to "max out" at less than 100% to limit runaway feedback.

Rate: Sets the modulation rate for the delay time.

Res.: Short for "Resonance." This control adds positive or negative feedback for a harsher or "ringing" sound. Set this straight up for zero feedback.

A flanging effect is created by combining two identical signals, delaying one of the signals by a small amount, and then modulating the delay time. The recombined output produces a sound that sweeps up through the harmonics of the original signal and back down.

Flanging can create both subtle and extreme effects, depending on the **Rate** and **Depth** of the modulation. With higher Depth settings you will begin to hear changes to the pitch of the sound. This is how the circuits in an analog flanger work, and we have taken care to recreate these conditions.

3.9.2 Phaser



Rate: Sets the speed of the phaser

Depth: Sets the depth of the phaser activity

Feedback: Controls the amount of phaser resonance

Stereo: Determines the stereo width of the overall effect

The phase shifter was one of the most popular effects used with electric instruments in the 1970s. It works by splitting the incoming signal, changing the phase of one side, and recombining it with the unaffected signal. This creates a notch-comb filter sweeps through the frequency spectrum.

You can then modulate the phase of the affected half with an oscillator, with the frequency determined by the **Rate** control. The **Depth** knob sets the amplitude for the action of the filtering, while **Feedback** amplifies certain harmonics. Phase shifting is easily identified by a characteristic “whooshing” sound that sweeps through the frequency spectrum.

3.9.3 Chorus



Type: Select one of three chorus types

Rate: Adjusts the speed of the chorus

Delay: Sets the amount of delay applied to the input signal

Amount: Controls the depth of the chorus

Mix: Changes the balance between the input signal and processed signal

Stereo Rate: Sets the speed of the stereo effect

Stereo Width: Controls the width of the stereo effect

A chorus module recreates the sound of multiple takes of an instrument being combined in a mix. Even with the best of performances there are always differences in tuning or timing, and when taken to either extreme the results can range from slow and lush to a wobbling, quick vibrato.

The speed of the effect is set by the **Rate** knob, while its depth and width are controlled by the **Amount** and **Delay** knobs, respectively. The resulting “frequency blur” is different for the left and right halves of the signal, which allows us to derive a stereo signal from a mono signal. The difference between the two halves then can be set with the **Stereo width**, with the speed of the left-right rotation under the control of the **Stereo rate** knob.

The **Mix** control sets the ratio between the input signal and the treated signal, while the **Type** switch selects between three different chorus models: simple, medium, and complex.

3.9.4 3.6.4 Delay



Delay: Sets the delay time. (The delay is mono for authenticity.)

LFO rate: Controls the modulation rate

Feedback: Adjusts Feedback

FB Tone: Changes feedback filtering

Mix: Alters wet/dry mix

LFO Depth: Sets the amount of delay time modulation (which follows a sine wave)

A delay repeats a sound, like an echo, giving it more space and depth. This analog delay reproduces the sound of the old solid state units that used analog bucket brigade circuits. The **Delay** knob allows you to select a time between 12ms and 1000ms for the delay. The **Feedback** knob sets the feedback level. The **FB Tone** knob controls a feedback filtering effect: low-pass to the left, high-pass to the right. You can set the delay modulation by changing the **LFO rate** and **LFO depth** values. The **Mix** potentiometer sets the ratio between the original and modified signals.

3.9.5 Overdrive



Drive: Controls the amount of distortion

Output: Sets the output trim level

Tone: Sweeps the low-pass filter

An overdrive effect “saturates” and distorts a sound by increasing the volume of a signal then clipping the excess. The **Drive** knob sets the amount of the saturated sound. The **Tone** knob controls the distortion filtering. You can adjust the output level by setting the **Output** knob.

3.9.6 Wah

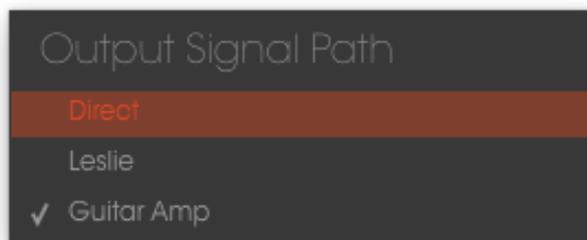


This FX device emulates a standard “wah-wah” pedal. By default it is assigned to MIDI CC #11 (Expression). You can also click and drag on the top of the pedal to change the filter frequency of the “wah” effect.

3.1 Output mode



There are three output options, which are placed in the signal path after the FX unit. Click on the “Direct” button and you will see the following options:



3.1.1 Direct output

Direct: The VOX Continental V and the FX unit are connected directly to the output, bypassing the Guitar and Leslie cabinet models. You can still use the built-in convolution reverb that resides in the VOX Continental V if you like.

3.1.2 Leslie speaker model

Leslie: The Leslie speaker, most commonly associated with Hammond organs, takes advantage of the Doppler effect by using an electric motor to rotate an acoustic horn around a loudspeaker, sending its sound in a 360-degree circle. This results in a modulating pitch effect on the audio source. The speed of the modulation itself can be modulated, allowing for an unparalleled level of expressiveness during a performance. And using a Leslie with a VOX Continental organ takes the instrument to a completely different world.



The **High Shape** and **High Width** set the parameters of the high rotor (amplitude and pan of the treble sounds).

The **Low Shape** and **Low Width** set the parameters of the low rotor (amplitude and pan of the lower-frequency sounds).

Speed and **Rate** adjust the rotor speed or stop it altogether.

High Depth controls the famous Doppler effect of the Leslie speaker

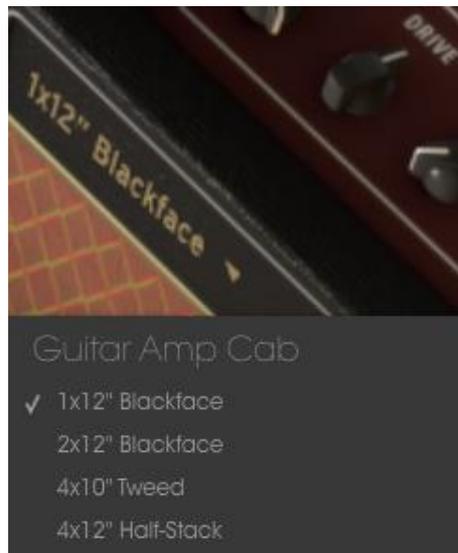
Level sets the output audio gain.

3.1.3 Guitar amp model

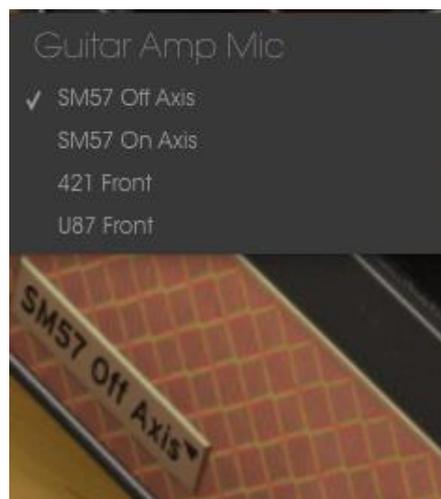
Guitar amp: This output option faithfully recreates the characteristics of a physical guitar amplifier. In the early years of the British Invasion dedicated keyboard amplifiers other than a Leslie did not exist. So in most cases, the original “band” experience with a VOX Continental organ was plugging the VOX into a guitar amp. These models are reminiscent of everything from the garage to the main stage.



To select a different speaker output model, click the label in the upper portion of the amplifier's face:



To select a different microphone model, click on the label in the lower-left corner of the amplifier's face:



Volume: Controls the output level

Drive: Adjusts the amount of “crunch”

Reverb: Increases or decreases the amount of spring reverb

Low: Boost or cut of low-frequency EQ

Mid: Boost or cut of midrange EQ

High: Boost or cut of high-frequency EQ

Amp Type: Select one of four amplifier models

Mic Type: Select one of four classic microphone models

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Sample rate converter designed by Aleksey Vaneev of Voxengo