

USER MANUAL

JUP-8V

ARTURIA®
YOUR EXPERIENCE • YOUR SOUND

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1 INTRODUCTION

Arturia would like to thank you for purchasing our synthesizer model: the Jup-8 V. We are confident it will prove to be an extremely valuable addition to your music production studio. If you've purchased our products before, you know we pride ourselves in faithfully recreating the sound and feel of the original instruments, down to the smallest detail. Jup-8 V is no exception to this rule.

And if this is the first of our products you have owned, you are in for a treat! The synthesizer upon which this model is based was the absolute pinnacle of analog synthesizer technology at the time, light-years ahead of the competition.

1.1 Roland/Jupiter-8 Story

The history of Roland is intimately tied to the personal story of its founder, Mr Ikutaro Kakehashi.

When he was just 16 years old, the young Mr Kakehashi noticed there was no watch or clock industry in post-war Japan. He therefore understood there was a thriving business to develop repairing existing timepieces.¹

Mr Kakehashi found a part-time job in a watch repair store, but he quickly felt frustrated with the pace at which things were progressing. In the traditional Japanese organization of work, becoming a master in any technical area would take a seven-year apprenticeship. Consequently, he left after a few months, bought a book on how to repair watches and set up the "Kakehashi Watch Shop".

This first venture happened to be so successful that he quickly decided to expand and turn his enthusiasm for music into business. It became legal at that time to have a short-wave radio and to listen to foreign broadcasts. While he scanned the airwaves for new music, Mr Kakehashi learned the basics of how radios operated. He then used broken sets to create working units. His repair shop started to repair broken radios in addition to clocks and watches.

¹: It is remarkable that a man named Mr Torakusu Yamaha had also started out as a watch repairer. In fact the same is true of Matthias Hohner, the founder of Hohner. Even the Hammond Organ Company started out as a sub-division of the Hammond Clock Company.



In 1954 Mr Kakehashi opened an electrical goods and repair shop by the name of "Kakehashi Musen". - Later the name was to be changed to Ace Electrical Company. His initial goal was to produce an electronic instrument capable of generating simple monophonic melodies, and so he ended up building a Theremin. Looking for a new challenge, he later built a four-octave organ using parts from a reed organ, bits of telephones, and simple transistor oscillators. In 1959, he designed and built a Hawaiian guitar amplifier, but he also went on with his further organ developments.

On the 18th of April 1972, Mr. Kakehashi established the Roland Corporation.

The first synthesizer from Roland was also Japan's first synthesizer. The SH1000 came to the market in 1973, just before the Korg 700 did. It was a remarkable instrument, offering 10 preset tones selectable from colored tabs. You could add vibrato, growl and portamento to modify the sound.



The System 100, launched in 1975, is another Roland monosynth that would become sought-after long after production stopped. The System 100 consisted of five semi-modular products. These were the 101 Synthesizer, the 102 Expander, the 103 Mixer (including a simple reverb), the 104 Sequencer, and the 109 Monitor Speakers. These units fit together to produce a system that sounded really interesting.



The first results from 1976's expansion in the development team, led to an explosion in Roland's product range. There were more synthesizers, a piano, more speaker systems and some now-classic instruments that included the Jupiter-4 Compuphonic polysynth. The Jupiter-4 was the company's first true polysynth. It used Roland's trademark chorus and three Unison options that made it a powerful monosynth. There also was an excellent arpeggiator.



By the end of the 1970s, Roland established itself as a major manufacturer, and in 1981 Mr. Ikutaro Kakehashi opened four new companies in three months. Roland UK, Roland GmbH and Musitronic AG in Switzerland. He also established a new Japanese division called AMDEK (Analogue Music Digital Electronics Kits)

Back to the early 80's, the Prophet 5 and Oberheim OB series dominated the polyphonic synthesizer market. Having that in mind the Jupiter-8's success, initiated in 1981, took every one by storm.

But what made the Jupiter-8 so successful? Well, in terms of sonic possibilities, it complemented its competition by bringing something different. The Jupiter-8 was capable of creating very versatile sounds. You could easily make "fat" or "crystal" sounds with it. In fact, the Jupiter-8 sounded the way it looked, 'sleek and polished'. Offering oscillator sync, cross modulation, a switchable 12dB/24dB filter and polyphonic portamento, the sound design opportunities were endless. You could easily save and load patches via its cassette interface. Even a superb arpeggiator was included. And last but not least, the Jupiter-8 was more reliable than its competition, and the sound was more consistent from model to model. Therefore it was very attractive for stage and studio use. In 1982, Roland released an upgraded Jupiter-8, the JP8A. It upgraded the Jupiter-8 with a number of enhancements including an improved DAC with a higher resolution of the auto-

tuning system from 12- to 14-bit, plus a brighter LED screen. The Jupiter-8 has become one of the most revered of all synthesizers.



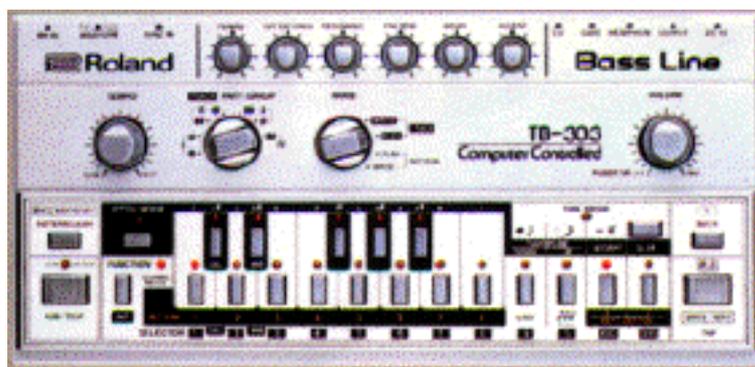
The electro-pop community became quickly convinced by the qualities of the Jupiter-8. "Relax" by Frankie Goes to Hollywood was produced incorporating a Jupiter 8, and players such as Vince Clarke, Howard Jones, John Foxx, and Martyn Ware were also using it. The path to classic status of the Jupiter started there.

Other artists that have used The Jupiter-8 include: Tangerine Dream, Underworld, Jean Michel Jarre, Depeche Mode, Prince, Gary Wright, Adrian Lee, Heaven 17, Kitaro, Elvis Costello, Tears for Fears, Huey Lewis and the News, Journey, Moog Cookbook, Yes, Devo, Freddy Fresh, Simple Minds, Jan Hammer, and BT.

In the early 80's Roland and Sequential Circuits combined forces to create the MIDI protocol. The technology was derived from Roland's earlier DCB bus Format. MIDI is still being used today with great success. In 1982, Roland launched the Jupiter-6, the first synthesizer including the MIDI protocol on board. This new synthesizer was introduced as an enhancement of the Jupiter-8.



In 1982 Roland also released the TB303 Bass line. Initially marketed as a "computerised bass machine", the little silver box and its companion, the TR606 "Drumatix", were intended for use as replacements for a bass guitarist and a drummer. The TB303 had a very characteristic filter, and a built-in sequencer.



In 1984 there was the introduction of three synthesizers: the Juno 106, the JX8P and the JX10P. The last one was the replacement for the Jupiter-8. Unfortunately, the JX10 was never destined for the same success as the Jupiter 8.



It was the introduction of COSM and the “V” products in 1995 that set the future direction for Roland. Mr. Kakehashi and his teams had recognized that digital signal processing and physical modeling were the future of the electronic audio industry. Roland applied these technologies to a broad range of products. From sound modules and dance-oriented groove boxes to their most expensive digital mixers and audio workstations, Roland remains at the forefront of synthesizers and electronic music.

1.2 A unique synthesizer, Why?

1.2.1 The Roland Jupiter-8

The Jupiter-8 is capable of creating very versatile sounds. The Jupiter-8 sounds the way it looks, 'sleek and polished'. It offers oscillator sync, cross modulation, a switchable 12dB/24dB filter and polyphonic portamento. It also features a superb arpeggiator. The sound design opportunities are virtually endless.

The filter (VCF) structure is one of a special kind. It is composed of two independent filter units, a non-resonant 6 dB/Octave high pass filter and a resonant 12 or 24 dB/Octave low pass filter. The combination of the non-resonant high pass filter with the resonant low pass filter, enables creating very characteristic Roland style sounds. This structure can also be found on the Roland Juno series.

The Jupiter-8 is often considered the biggest and fattest of the Roland Jupiter family. The Jupiter-8 offers eight analog voices. The sound of the Jupiter-8 is often referred to as fat and crispy clear at the same time. The Fast envelopes make it

possible to create punchy sounds. This is great for bass and stab sounds in particular. The colorful interface with lots of sliders and knobs is inviting for sound designers and producers. Furthermore, it was one of the first synthesizers that offered a keyboard split and layer possibility. In fact, the Jupiter-8 complemented its competition by bringing something different.

In 1982, Roland released an upgraded Jupiter-8, the JP8A. It upgraded the Jupiter-8 with a number of enhancements. The most noticeable changes were an improved DAC with a higher resolution of the auto-tuning system from 12- to 14-bit, and a brighter LED screen. The Jupiter-8 has become one of the most revered of all synthesizers.

The electro-pop community became quickly convinced by the qualities of the Jupiter-8. 'Relax', by Frankie Goes to Hollywood was produced incorporating a Jupiter-8, and players such as Vince Clarke, John Foxx, Howard Jones and Martyn Ware also used it enormously. The path to classic status of the Jupiter started there.

1.2.2 The Arturia Jup-8 V

Aside from recreating the original in every aspect, the Jup-8 V adds many new functions which make it even more attractive to use. The Jup-8 V offers various new editing possibilities which can result in sounds that were never heard before.

The galaxy module creates very complex modulations with interaction of 3 LFO's. The first 2 LFO's can each modulate a different parameter on a X/Y axis. The third LFO can be set to rotate the X/Y axis at a certain speed. This is beautifully visualized in the interface of the Jup-8 V and enables a totally new dimension for sound design.

Furthermore, the Jup-8 V offers two connections of «Voice» effects. The connections of the effects can be made inside the synthesis chain, between the VCO and the VCF and between the VCF and the VCA. These effects can be modulated by the different available sources of modulations such as the LFO or the envelopes. Combinations of effects and modulations provide the Jup-8 V with even more sonic power. Two «PATCH» effect modules are available on the end of the synthesis chain. The two modules are placed on top of the output of the VCA, and cannot receive external modulations. Amongst these «PATCH» effects are a delay, reverb, flanger and a phaser.

Another addition is the sequencer which is a 32-step «step-sequencer». It allows the creation of several melodic lines as well as creation of dynamic modulations of different parameters such as the cutoff frequency of the VCF or the width of the square waveform of the VCO's.

There is a user friendly preset and patch structure for easy yet expandable management of the sounds. It is possible to add characteristics to sounds to be saved. This provides an easy and effective way to browse patches and find the most relevant one quickly.

As a matter of fact, every single setting can be saved and recalled in a heartbeat. This allows perfect integration with your project and saves a lot of time compared to the original Jupiter-8.

The Jup-8 V delivers a sound that is full of character and highly editable. It can be the perfect companion on every kind of musical project, with the ease of use of the 21st century.

1.3 Arturia's secret ingredient: TAE®

TAE® (True Analog Emulation) is Arturia's outstanding technology dedicated to the digital reproduction of the analog circuits used in vintage synthesizers.

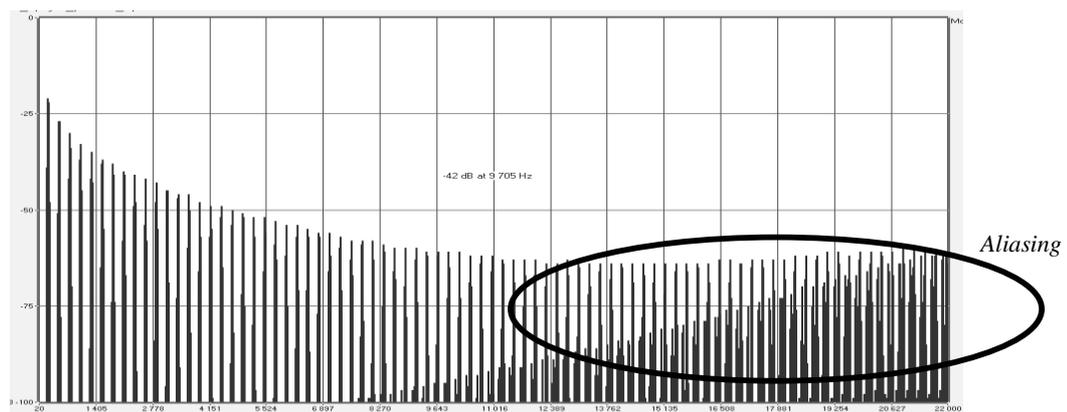
TAE®'s software algorithms result in spot-on emulation of analog hardware. This is why JUP-8 V offers an unparalleled quality of sound, as do all of Arturia's virtual synthesizers.

TAE® combines three major advances in the domain of synthesis:

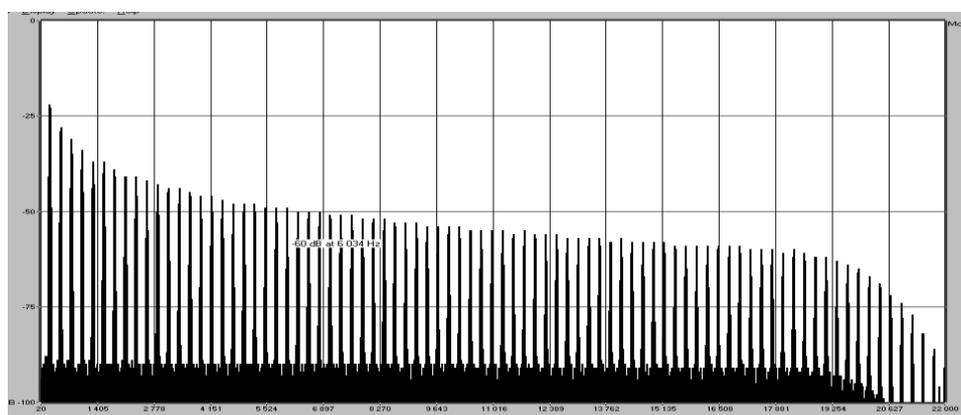
1.3.1 Aliasing-free oscillators

Standard digital synthesizers produce aliasing in high frequencies, especially when using Pulse Width Modulation (PWM) or Frequency Modulation (FM).

TAE® enables the generation of oscillators which are completely free of aliasing in all contexts (PWM, FM...), and at no extra CPU cost.



Linear frequency spectrum of a current well-known software synthesizer

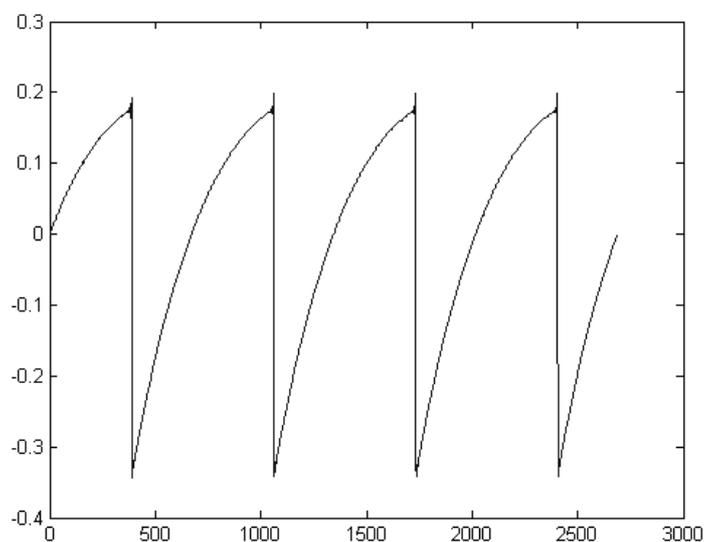


Linear frequency spectrum of an oscillator modeled with TAE®

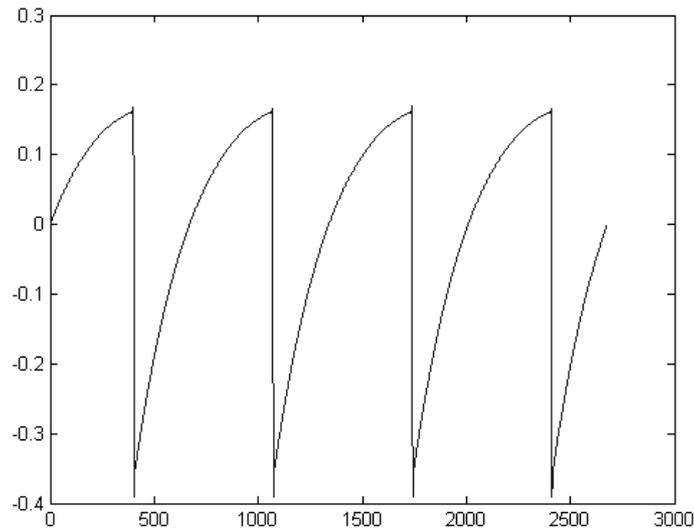
1.3.2 A better reproduction of analog oscillator waveforms

The waveforms produced by the oscillators in analog synthesizers are affected by the presence of a capacitor in the circuits. The discharge of a capacitor results in a slight 'bend' in the original waveform (most notably for sawtooth, triangular and square waveforms). TAE® reproduces the result of this capacitor discharge in software.

Below is the analysis of a waveform from one of the five original instruments Arturia's software emulates, followed by one made by TAE®. They are both equally deformed by the low-pass and high-pass filtering.



Temporal representation of the "sawtooth" waveform of a hardware synthesizer



Temporal representation of a “sawtooth” waveform reproduced by TAE®

What's more, the hardware analog oscillators were unstable. In fact, their waveforms vary slightly from one period to another. If we add to this the fact that the starting point for each period (in Trigger mode) can vary with the temperature and other environmental conditions, we see why vintage synthesizers have such a typical sound.

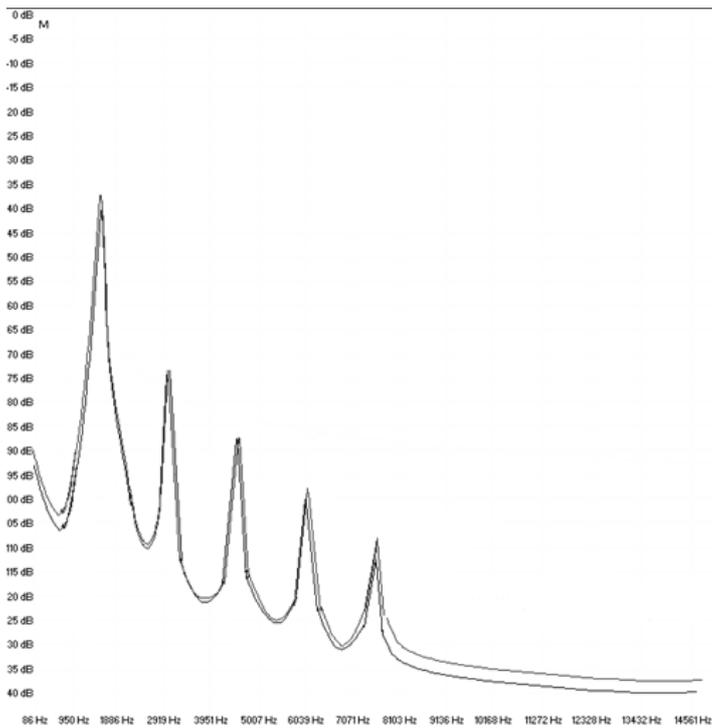
TAE® reproduces the instability of oscillators, resulting in a fatter and “bigger” sound.

1.3.3 Direct Filter Circuit Modeling

Due to advances in computer processing power, TAE® can now employ direct filter modeling techniques to achieve unprecedented accuracy in the emulation of a hardware synthesizer's filter. By modeling the operation of the individual hardware components of the filter circuit, the warm nuances synonymous with analog sounds are recreated.

The following graph shows a single example of direct circuit modeling in action. The peaks represent the generation of harmonics at multiples of the resonant frequency when a particular filter is in self oscillation mode. These harmonics are characteristic of hardware synthesizer filters and are due to the non-linear behavior inherent to their analog circuitry. Anomalies such as these add to the richness and warmth of the sound produced by the filter.

But you'll notice there are two lines on the graph: Those are the superimposed frequency domain plots for both one of Arturia's virtual instruments and the hardware filter being emulated. They are practically indistinguishable, both on the graph and to the human ear. The direct recreation of this analog circuitry causes the same characteristics of the sound to be present, thus giving the user a truly analog sound.



Comparison of harmonics generated by the filter circuits in self-oscillation of TAE® and a hardware synthesizer

So here's the bottom line: when you bring together a bunch of music lovers who also have a deep understanding of the characteristics of electronic circuits, you wind up with Arturia. And Arturia now offers you our most impressive software model yet, the JUP-8 V.

We take great satisfaction in knowing this great synthesizer will help you explore previously unknown musical territory.

2 ACTIVATION AND FIRST START

2.1 Register and Activate

JUP-8 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 JUP-8 V as an Audio Units, AAX, VST2 or VST3 instrument.



Once JUP-8 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>

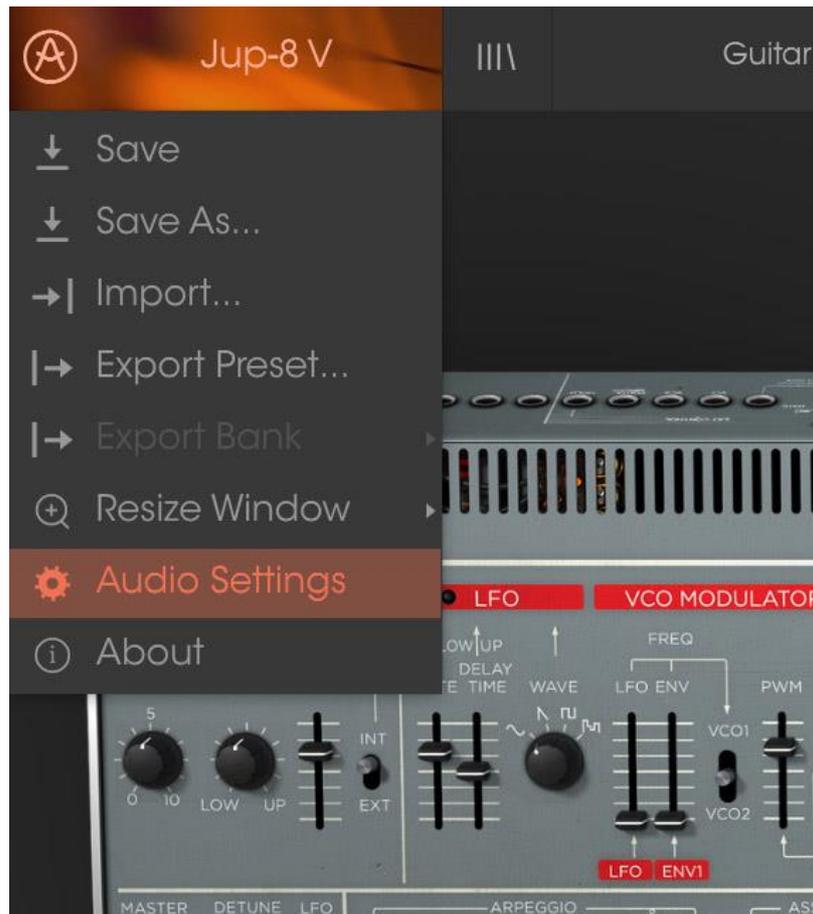
Note: If you don't have an Arturia account yet, you will need to create one. The process is quick, but it does require that you can access your email address during the registration process.

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

2.2 Initial setup

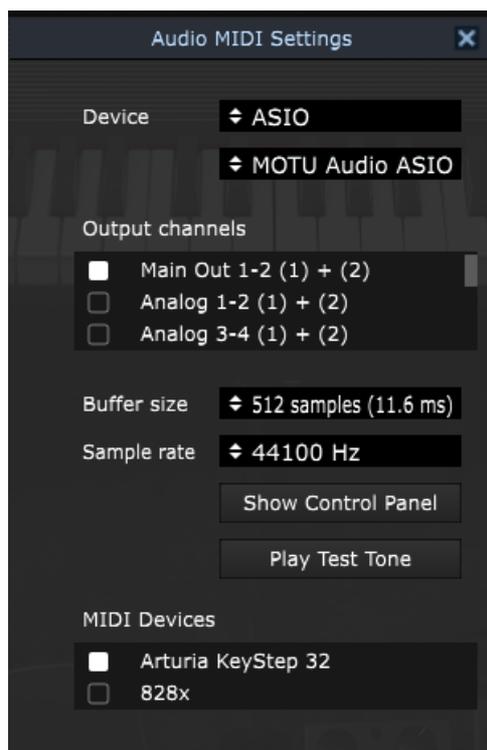
2.2.1 Audio and MIDI settings: Windows

At the top left of the JUP-8 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.



JUP-8 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:

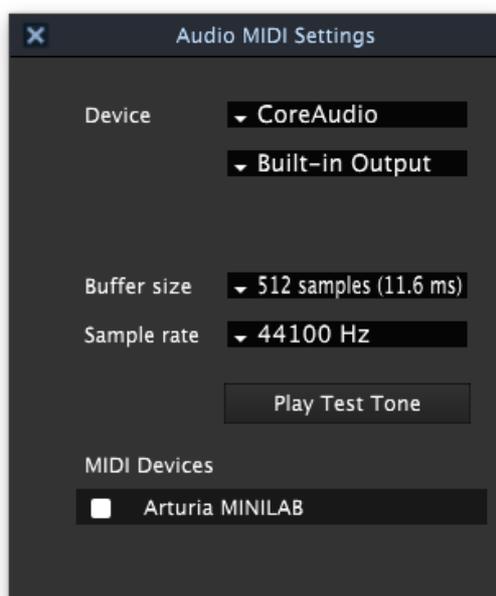
- **Device** lets you choose which audio driver you want to use to route sound out of the instrument. This might be your computer's own driver like Windows Audio, or an ASIO driver. The name of your hardware interface may appear in this field.
- **Output Channels** lets you select which of the available 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, JUP-8 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 JUP-8 V in plug-in mode

JUP-8 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 JUP-8 V in a DAW project. In standalone mode you can only use one at once.
- You can route JUP-8 V's audio outputs more creatively inside your DAW using the DAW's own audio routing system.

3 USER INTERFACE

In this chapter we will give an overview of the features available to you with JUP-8 V. As with every Arturia product, we have gone to great lengths to make the use of this software instrument as simple and as much fun as possible, while also striving to make sure you never run out of new things to do with it as your knowledge expands. After reading this chapter you should be ready to delve as deeply into the workings of JUP-8 V as you would like.

3.1 The virtual keyboard

The virtual keyboard lets you play a sound without connecting an external MIDI device; just click a key to hear the active Voice. Drag the cursor across the keys to hear a glissando.



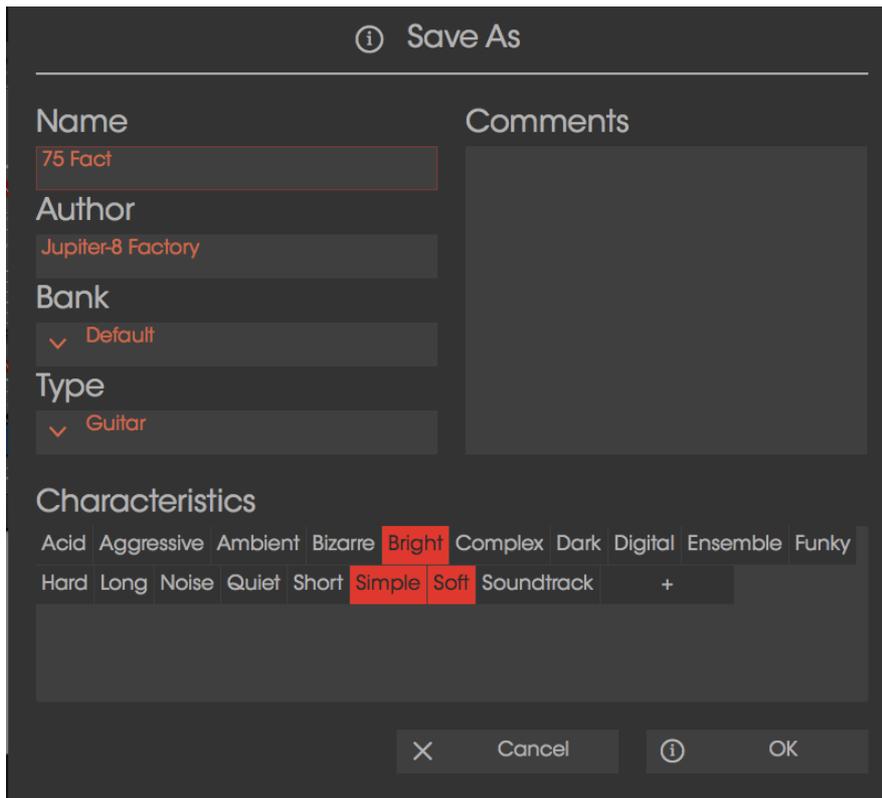
The JUP-8 V virtual keyboard

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 JUP-8 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

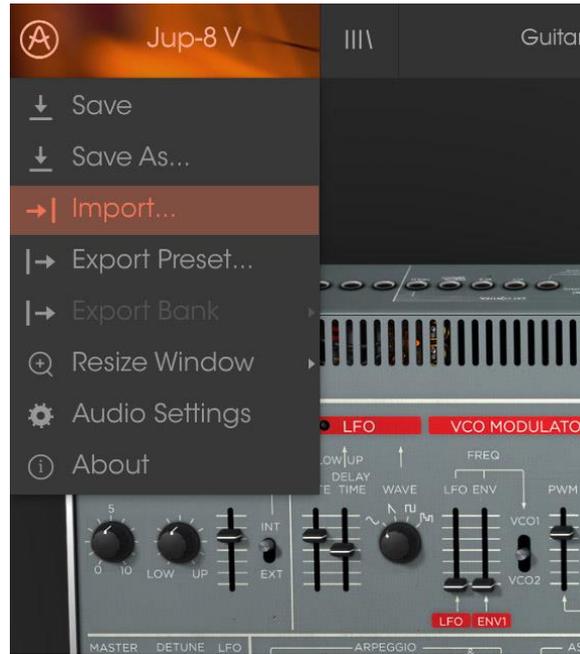
3.2.2 Save Preset As...

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 .jupx 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 JUP-8 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.



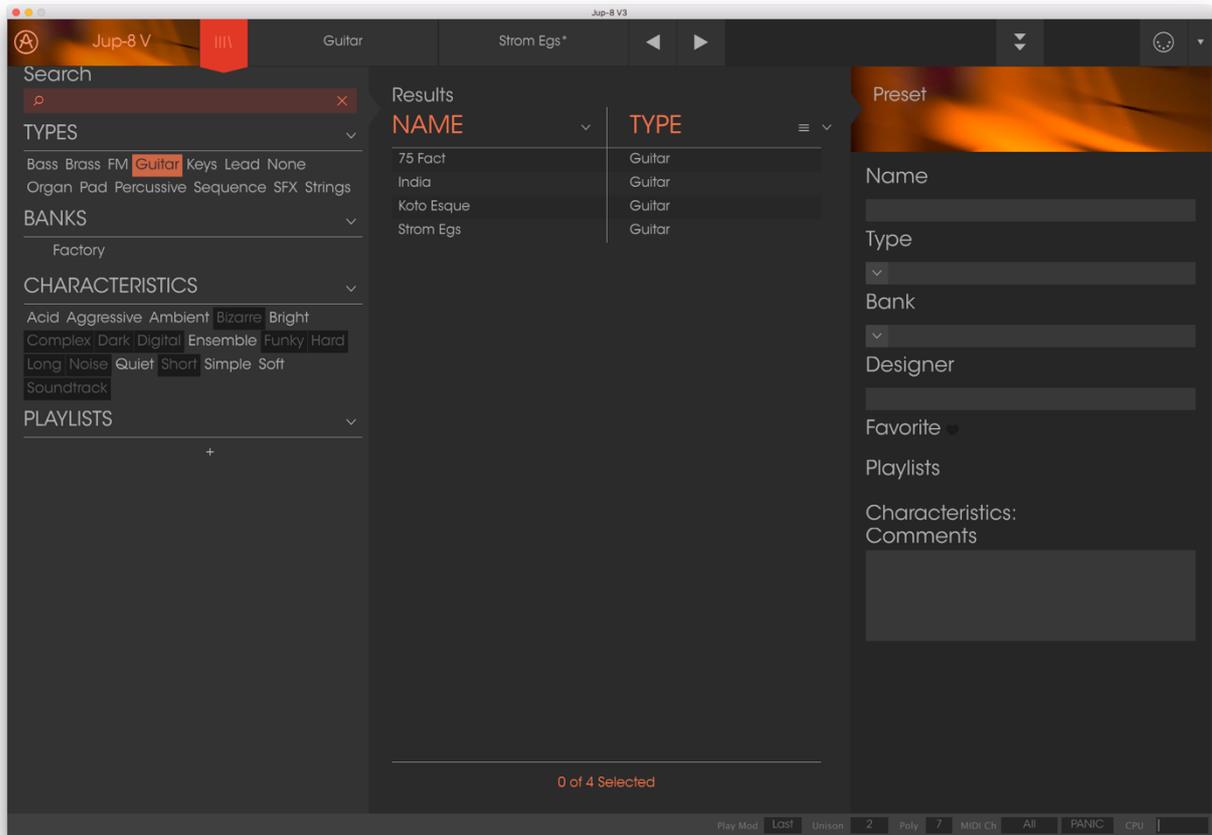
The Resize Window menu

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

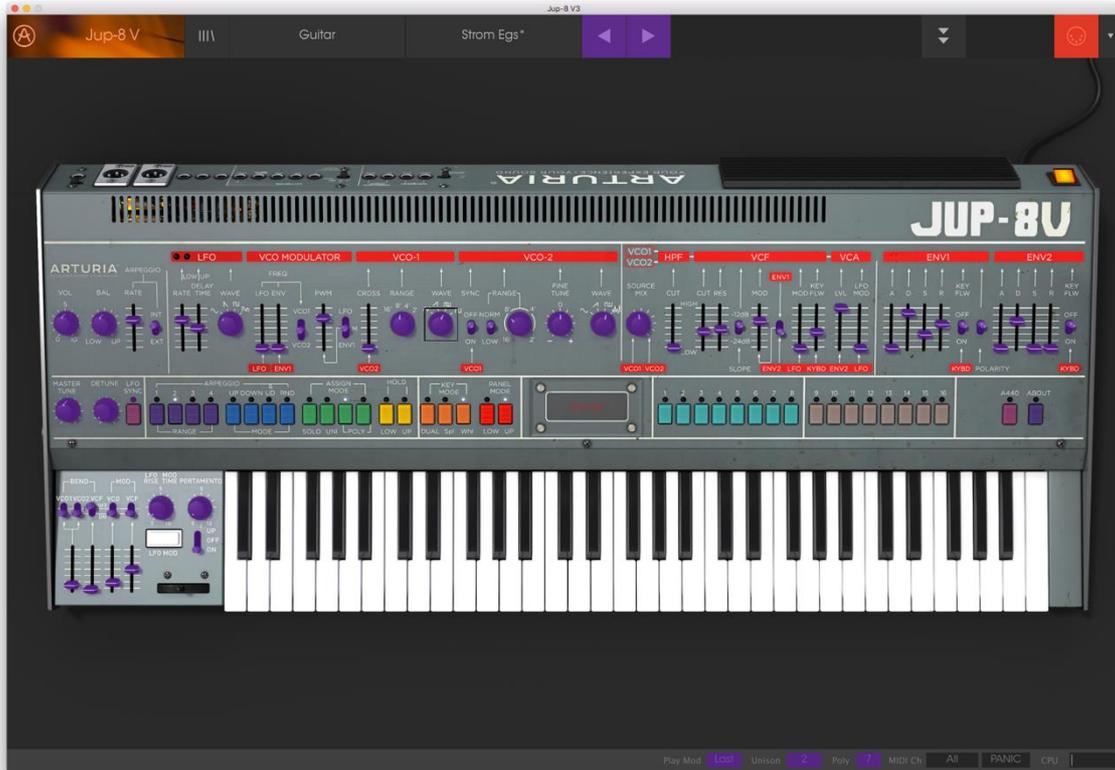
The Preset browser is invoked by clicking the toolbar button that has four vertical lines. See section 3.3 of the manual for full details on this. The Filter, name field and left / right arrows in the toolbar all assist with preset selection.



The Preset Browser

3.2.8 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

3.2.8.1 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.



VCO-2 fine tune knob selected and assigned

3.2.8.2 *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.

3.2.8.3 *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.

3.2.8.4 *Reserved MIDI CC numbers*

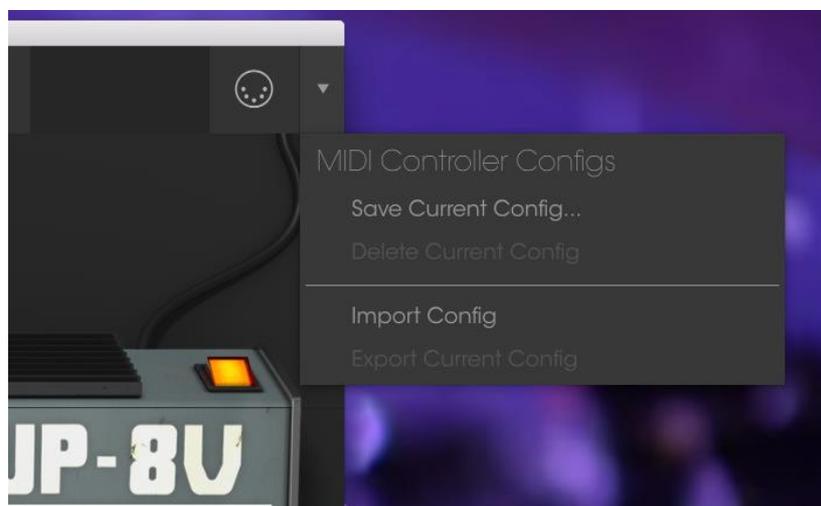
Certain MIDI Continuous Controller (MIDI CC) numbers are reserved and cannot be reassigned to other controls. These are:

- PitchBend
- AfterTouch
- Ctrl Sustain On/Off (CC #64)
- Ctrl Mod Wheel (CC #1)
- Ctrl All Notes Off (CC #123)

All other MIDI CC numbers may be used to control any assignable parameter in JUP-8 V.

3.2.9 MIDI controller configuration

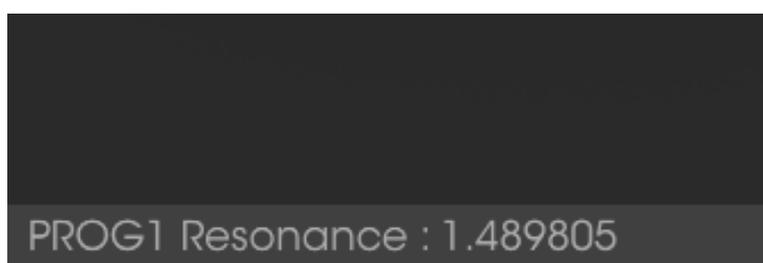
There's a small arrow at the far right hand side of the toolbar that deals with MIDI controller configurations. This allows you to manage the different sets of MIDI maps you may have set up for controlling the instrument's parameters from MIDI hardware. You can copy the current MIDI assignment setup 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 JUP-8 V without having to build all the assignments from scratch each time you swap hardware.



3.2.10 The lower toolbar

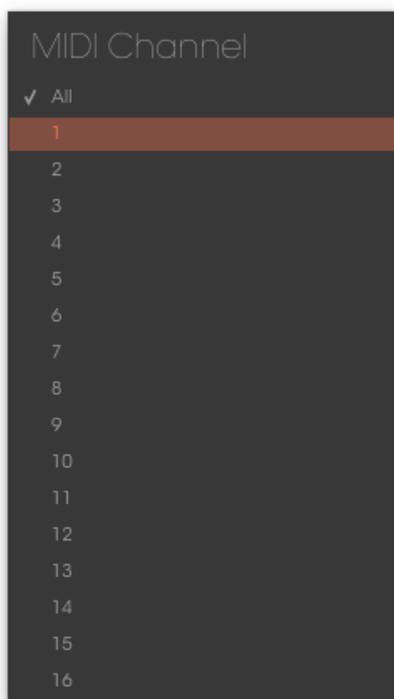
3.2.10.1 Current control value

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.



3.2.10.2 *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).

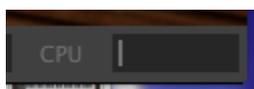


3.2.10.3 *Panic button and CPU meter*

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.



3.2.10.4 *Play Mode*

The play mode allows to select which note is heard when several keys are pushed simultaneously while the Jup-8 V is in monophonic mode.

In “Low” mode we will hear the lowest note, in “High” mode the highest note, and in “Last” mode the last note played on the keyboard.

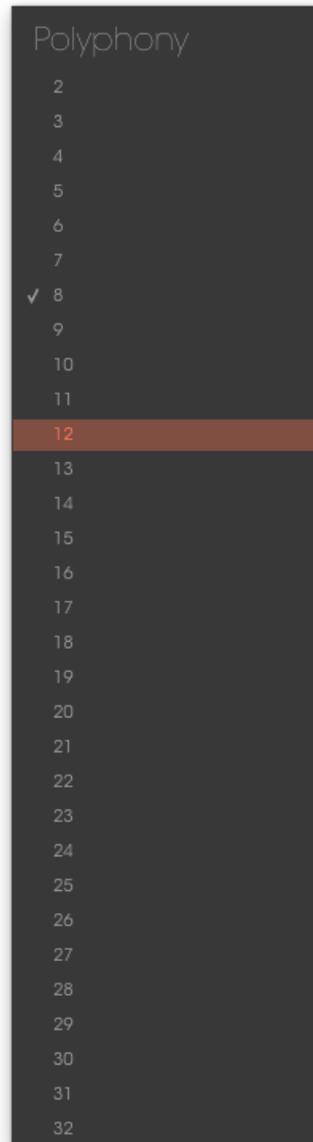
3.2.10.5 Unisson

This button allows you to select the number of voices used when the Jup-8 V is in unisson mode, from 2 to 4. The unisson mode can be activated using the green button “UNI” on the Jup-8 V interface. This mode duplicates the signal of each voices of the Jup-8 V according to the selected value and slightly detunes the resulting signals around the original one. The number depth of the detuning can be modified with the Detune knob on the Jup-8 V interface. Activating the unisson mode fattens and enrich the sound of the Jup-8 V and the effect can be intensified by augmenting the number of unisson voices and by increasing the amount of detuning.



3.2.10.6 Maximum polyphony

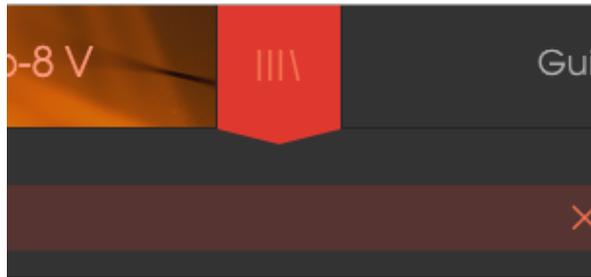
By clicking this button, you will be able to adjust the upper limit for the number of voices played the Mini V. It can be set from 1 to 32. Having lower setting will result in less CPU being used. Setting the number too low can create situation where the voices cut off and create unnatural sustains. The key is to find a balance that you and your computer can both live with.



3.3 The Preset Browser

The preset browser is how you search, load and manage sounds in JUP-8 V. It has a couple of different views but they all access the same banks of presets.

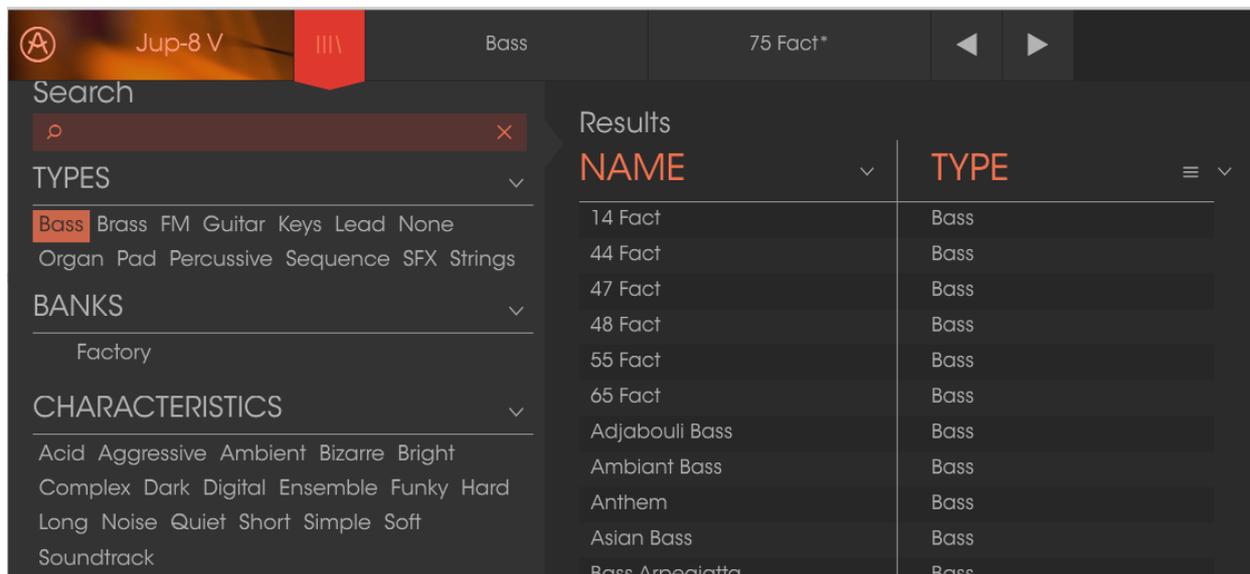
To access the search view, click on the browser button (the icon looks a bit like books on a library shelf).



The Preset Browser button

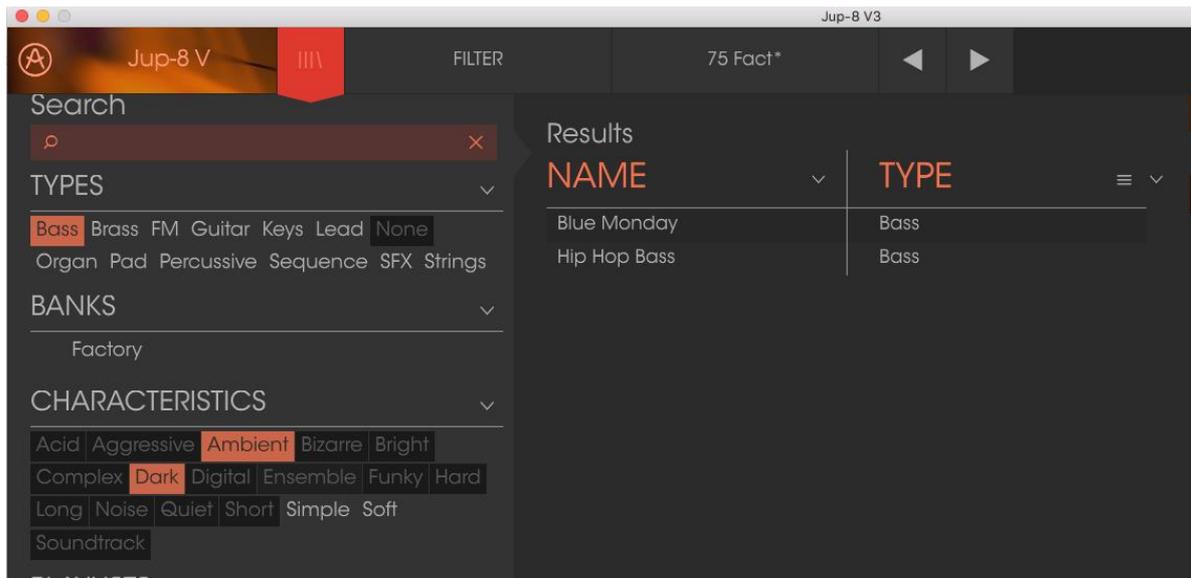
3.3.1 Searching presets

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.

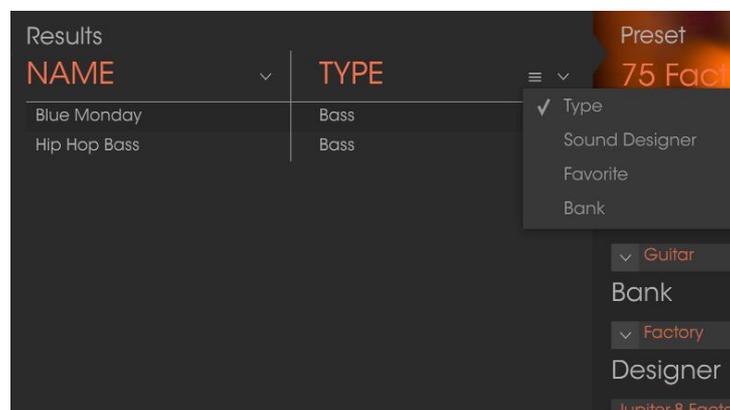


3.3.2 Using tags as a filter

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

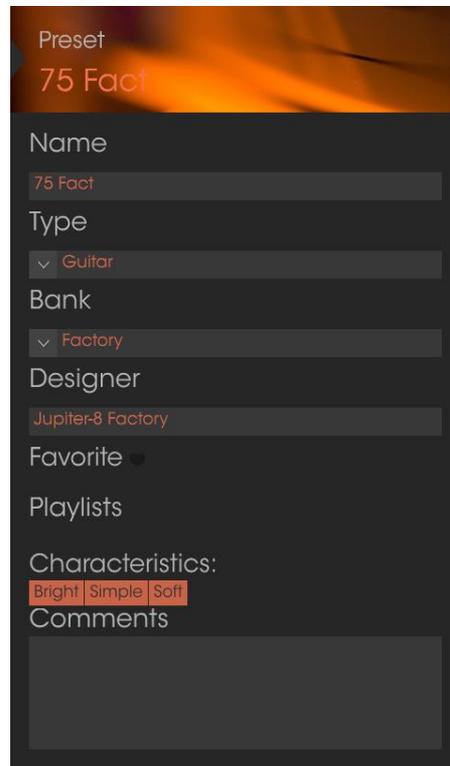


3.3.3 The Preset Info section

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.

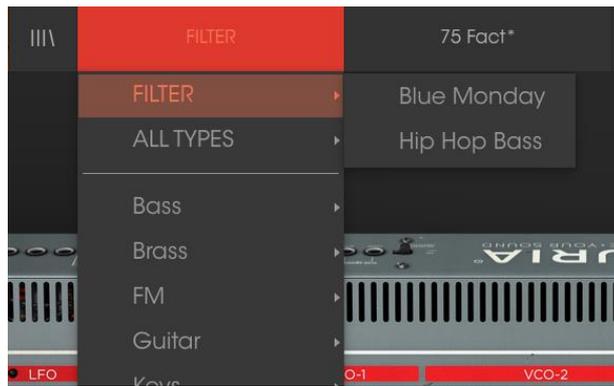
Click Edit and then make the desired changes, either by typing in one of the fields or by using a pull-down menu to change the Bank or Type. You can even add new Characteristics by clicking the + sign at the end of that list. Click Save when you are done.



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.

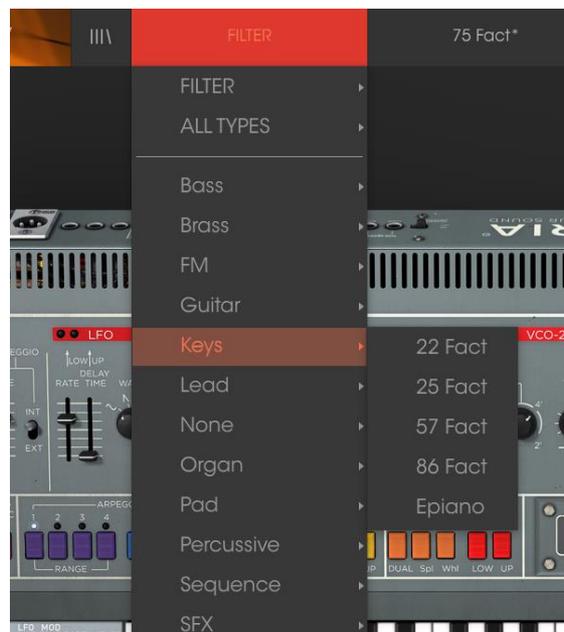
Similarly, if you previously selected a Type in the Search field you would see the results of that search in this area instead.



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.

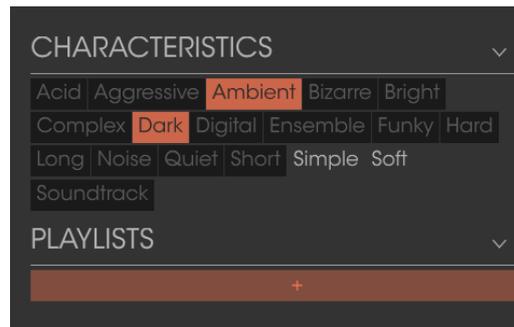
The left and right arrows in the toolbar cycle up and down through the preset list: either the full list, or the filtered list that resulted from the use of one or more search terms.

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

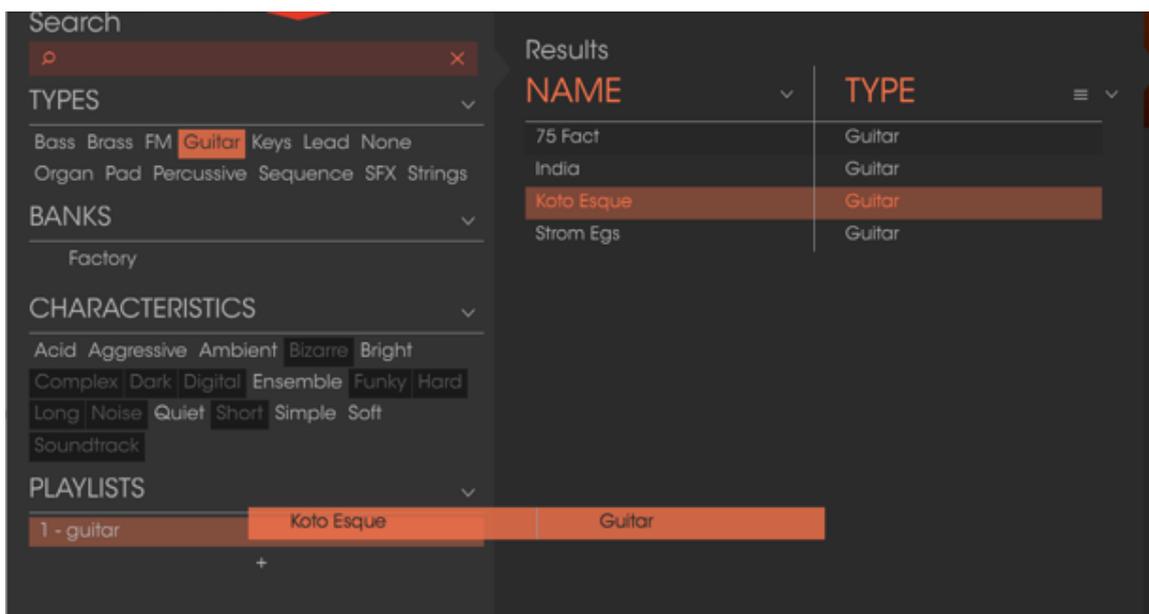
To create a playlist, click the plus sign at the bottom:



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 copy 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 two main parts of the Jup-8 V

The Jup-8 V offers two main parts:

- The "Jup-8 V" interface represents the interface of the original instrument
- The extension panel give access to 4 additional modules:
 - The "GALAXY" module
 - The "SEQUENCER" module
 - The "KEYBOARD" module
 - The "EFFECTS" module

To open the extension panel of the Jup-8 V, click on the open button  then choose one of the 4 available tabs.

3.4.1 Overview of the Jup-8 V user interface

The interface of the Jup-8 V has 54 synthesis parameters and a programmer that allows you to navigate quickly through the 44 factory presets of the original machine. The knobs and associated switches to these parameters will allow you to create a nearly infinite variety of sounds.

These parameters consist of:

- 2 oscillators (VCOs) that deliver the basic audio signal thanks to the waveforms and allow the tuning of the sound (the frequency). VCO1 can produce triangle, saw tooth, variable pulse or square signals while VCO2 can produce sine, saw tooth, variable pulse or noise signals.
- A mixer to mix the 2 VCO's
- A non resonant high pass 6 dB/oct filter
- A resonant low pass 12/24 dB/oct filter

- An LFO
- 1 amplifier (VCA) allowing amplification of the signal between the filter to the stereo output.
- Two envelopes (ADSR) to modulate the low pass filter and the VCA



The synthesis parameters

3.4.2 Overview of the (Advanced) Modulations section

In the extension panel, there are sources of additional modulations allowing an extension of the playing possibilities and of the synthesis. This section offers 4 modules: GALAXY, SEQUENCER, KEYBOARD and EFFECTS.

3.4.2.1 The GALAXY module

Galaxy allows creating very complex modulations thanks to the interaction of 3 LFOs. The first two LFOs allow inter-modulation with a different parameter on the X and Y axes. They are represented on the graphical interface of the unit. A third LFO allows modifying the alpha angle between the 2 X and Y axes.



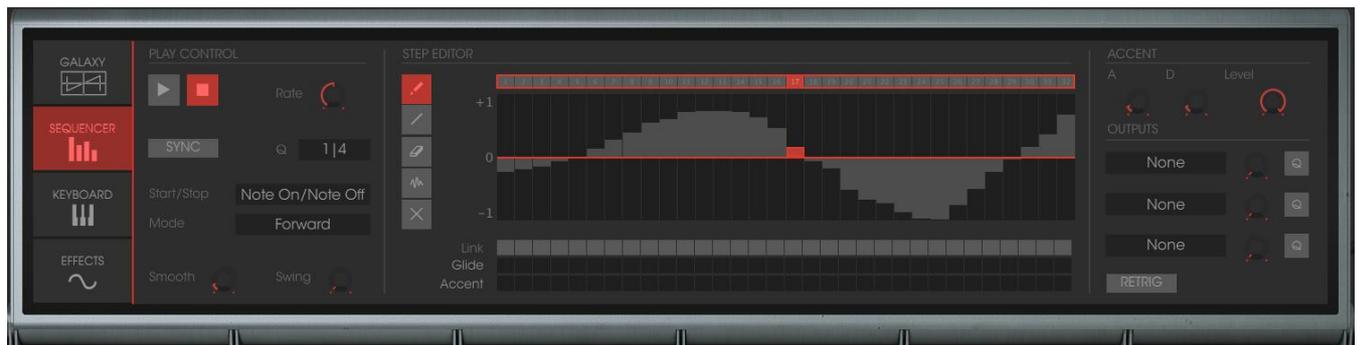
The GALAXY module

3.4.2.2 The SEQUENCER module

The sequencer is accessible by clicking on the "SEQUENCER" tab, situated on the expansion panel.

The sequencer is a 32-step "step sequencer". It allows the creation of several melodic lines (when one of the three available modulations is affecting the frequencies of the VCO) as well as creation of dynamic modulations of other parameters such as the cut-off frequency of the VCF or on the width of the square waveform of the VCO's.

It enables you to affect up to 3 simultaneous parameters.



The SEQUENCER module

3.4.2.3 The KEYBOARD module

The KEYBOARD module enables you to control parameters via velocity and aftertouch.



The KEYBOARD module

3.4.2.4 The EFFECTS module

The "EFFECTS" interface of the Juno-8 V offers unique signal processing possibilities, allowing you to insert effects in the synthesis chain, between the VCO and the VCF and between the VCF and the VCA. These combinations allow you to create a wide variety of new sounds.

Additionally, you will be able to connect two effects "Patches" that are situated at the audio output of the synthesizer.



The interface of the effects

4 THE DIFFERENT MODULES IN DETAILS

4.1 The original interface

The “Jup-8 V” interface takes on all the original parameters and characteristics of the synthesizer it is based on. Likewise, the 44 factory presets of the original machine are included (these cannot be deleted).



The Jup-8 V interface

The Jup-8 V consists of:

- 2 oscillators (“ VCO 1 and 2 ”) in which the second can equally be used as a source of modulation
- 1 mixer for the volume of the 2 oscillators.
- 1 High pass filter (“ HPF ”) 6dB/oct non-resonant
- 1 low pass resonant filter (“ VCF “) 12/24dB/oct
- 1 amplifier
- 2 envelopes dedicated to filter and amplitude modulations
- 1 LFO (low frequency oscillator)
- modulation section (WHEEL MOD) dedicated to the LFO

4.1.1 The oscillators (“VCO 1 and 2”)

There are two oscillators.

The oscillator controls the basic frequencies and timbres of the Jup-8 V with the frequency sync settings, choice of waveform, and the pulse width associated to the square waveform. These settings are made either with various knobs (static settings) or by the means of the modulation sections. These can be activated in the “LFO-MODULATION” section (monophonic modulation by the LFO) or the “CROSS MOD” (polyphonic modulation using the frequency of oscillator 2 on oscillator 1).

The oscillators can be tuned and edited separately. They allow selecting one of four waveforms on each oscillator. The two oscillators have some different waveforms. (E.g. OSC1: triangle, square / OSC2: white noise, Sine) These waveforms can be used simultaneously. Whether tuned separately or when using several mixed waveforms, the two oscillators allow you to quickly obtain a rich variety of sounds.



Two Oscillators

4.1.1.1 VCO 1

- **RANGE:** Switch the frequency range for VCO 1 («RANGE»), between one of four octaves 16', 8', 4', 2'. (The unities are indicated in feet, referring to the sizes of the pipes of church organs)
- **WAVE:** Switch for the four waveforms:
 - Triangle
 - Saw Tooth
 - Variable Pulse
 - Square
- **CROSS MOD:** Knob to set the frequency rate of modulation between the frequencies of VCO 2 towards the frequencies of VCO 1

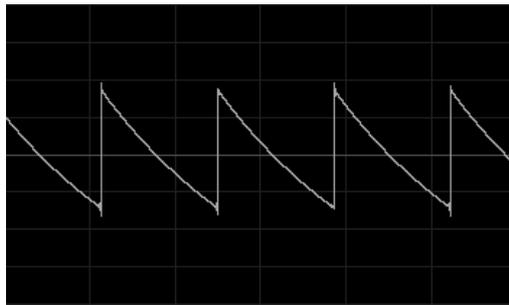
4.1.1.2 VCO 2

- **RANGE:** Switch the frequency range for VCO 2 («RANGE»), choose between four octaves 16', 8', 4', 2'
- **LOW FREQ:** Switch for the «FREQ /NORMAL» (low frequencies / audible frequencies), of VCO 2, of which the oscillation frequency is lower, and enables you to use it as an LFO to modulate the frequency of the VCO1.
- **FINE TUNE:** Knob to fine tune pitch with the range of plus or minus one half tone.
- **SHAPE:** Switch for the four waveforms:
 - Sine
 - Saw Tooth
 - Variable Pulse
 - White noise

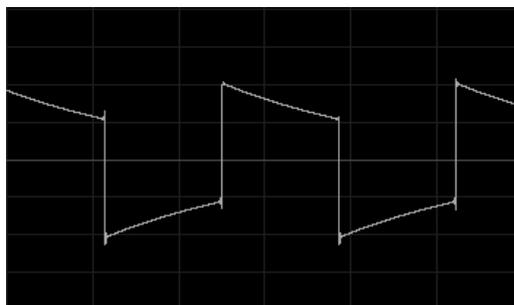
The white noise waveform brings an interesting complement to the sonic possibilities. It is very useful to create breath effects (flute tones for example) or special effects like the sound of wind for example.

SYNC The synchronization between oscillators allows you to create very complex waveforms and overtones. When oscillator 2 is synchronized with oscillator 1, oscillator 2 will restart a new period every time the first oscillator completes its period, even if oscillator 2 has not fully completed its current cycle (this signifies that it is not tuned to the same tonality!)

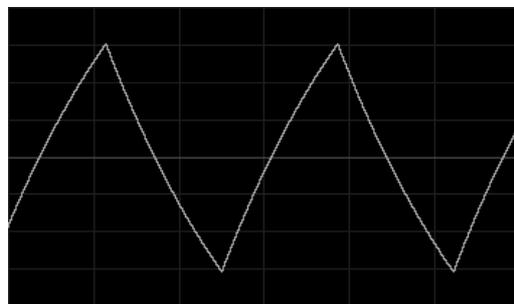
Here are some of the representations of the different waveforms used by the oscillators of the Jup-8 V:



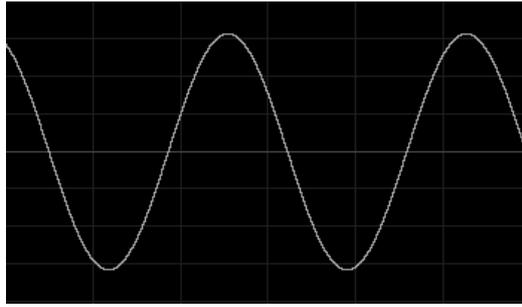
Saw tooth



Square



Triangle



Sine

4.1.2 The mixer (“VCO1 / VCO2”)

The mixer allows regulating the volume of the mix between oscillators 1 and 2.

- **VCO 1:** Knob to set the volume for Oscillator1 (LEFT)
- **VCO 2:** Knob to set the volume for oscillator 2 (RIGHT)
- **VCO 1/2:** Knob to set the volume for both oscillators (CENTERED)



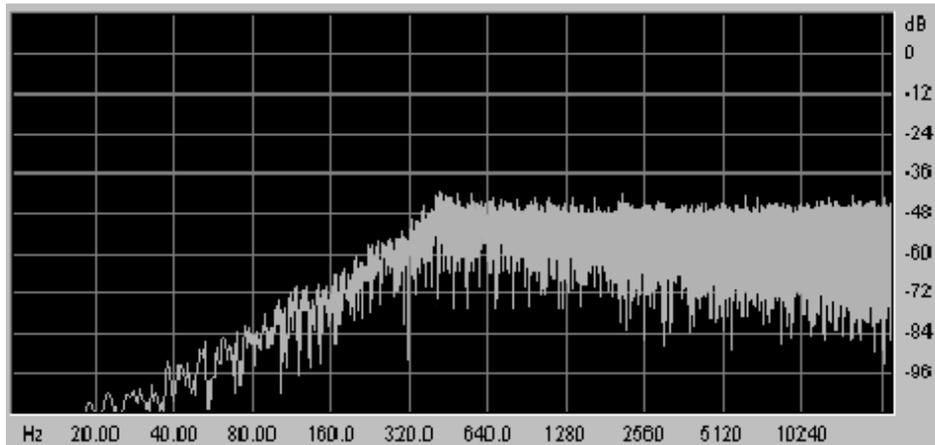
The mixer

4.1.3 The filter (“VCF”)

The Jup-8 V has a filter that is an emulation of the original Jupiter-8 filter. It is made up of two independent filter units:

4.1.3.1 A non-resonant 6 dB/octave high-pass filter

The high-pass filter eliminates the frequencies while letting high frequencies go through. The sound will become thinner. It is very useful to remove bass frequencies of a pad sound for example.



The non-resonant high pass filter

- **CUTOFF FREQ:** Knob to set of the cut off frequency of the filter



Non-resonant high-pass filter

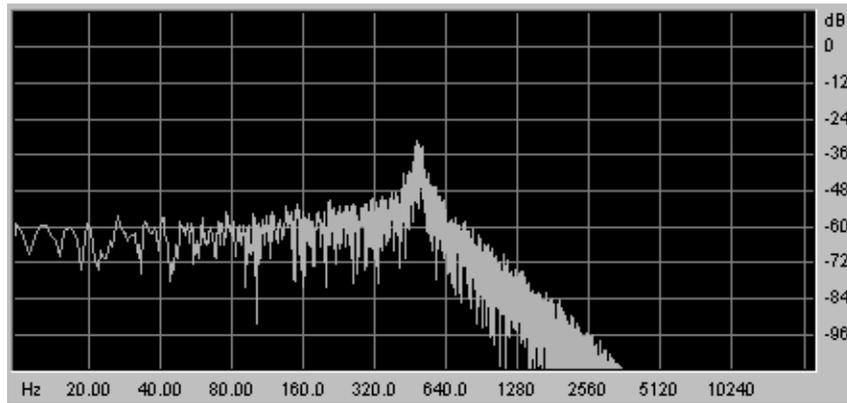
4.1.3.2 A resonant 12 or 24 dB/Octave low-pass filter

The low-pass filter is characteristic of the Jup-8 V's sound. It eliminates the frequencies situated above the frequency setting (the cut off frequency).

The resonance amplifies the frequencies near the cutoff frequency. Turn this knob toward the right, and the filter will become more selective. At extreme settings, the sound will eventually begin to “whistle” as the filter begins to self-oscillate.

Note that the filtering will be less strong with the filter type set on 12 dB instead of 24 dB.

💡 For hosts that allow “linear” control of knobs and sliders, right-click the mouse or [Command]+click on Mac for additional precision. This is useful when trying to regulate the level of the cut off frequency precisely, for example. When in “circular” control mode, simply click on the knob and drag the mouse pointer out into a broader arc for a more precise setting.

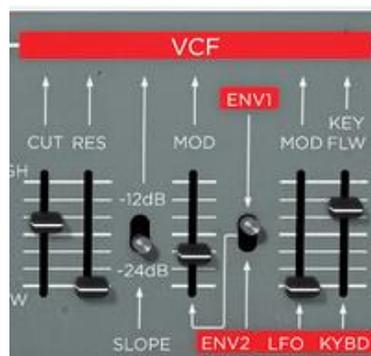


Resonant low-pass filter

- **CUTOFF FREQ:** Knob to set of the cut off frequency of the filter, From 10 Hz to 25 KHz.
 - **RES:** Knob to set the resonance of the filter.
 - **SLOPE:** Switch the filtering slope 12 or 24 dB/ octave.
 - **ENV. AMT:** Knob to manually set the rate of filter modulation by the ADSR envelope.
 - **ENV1 / ENV 2:** Switch to choose whether the modulation source for the cutoff is envelope 1 or envelope 2.
 - **LFO MOD:** Knob to set the level of modulation by the LFO (use this parameter to make a wah-wah effect).
- KEY FOLLOW:** Knob to manually set the keyboard follow.

💡 For a conventional setting of the keyboard follow, place the knob in the middle (value 1.00).

The cutoff frequency of the filter can be modulated by one of the two ADSR envelopes (see the following chapter). It can also be modulated by the LFO.



The VCF

4.1.4 The Amplifier (“VCA”)

The amplifier is the last step in controlling the sound. It allows setting the general volume of the Jup-8 V.



The amplifier (VCA)

This module is very simple, it consists of:

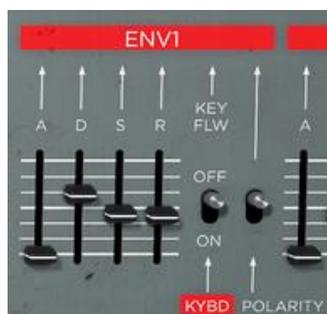
- **VOLUME:** Knob to set the volume of the synthesizer
- **LFO MOD:** Slider to set the intensity level of the modulation by the LFO.

The amplifier’s volume is directly affected by envelope 2 (ADSR2).

4.1.5 The ADSR Envelopes

The «ADSR» envelopes allow several parameters to be controlled with the help of the keyboard as a trigger. You will find two envelopes on the Jup-8 V: one unit for the cutoff frequency of the filter (as well as the frequency of VCO2) and another one to modulate the VCA amplitude.

When playing the keyboard, the envelopes will trigger and modify the way to sound will be heard.



The ADSR envelope of the filter

The ADSR envelope consists of 4 different parameters:

- **ATTACK:** The Attack is the time that the sound will take to reach its maximum volume once we have pressed a key on the keyboard.
- **DECAY:** The Decay is the time that the sound will take to diminish after the attack portion is complete.
- **SUSTAIN:** The Sustain is the maximum volume level that the sound will reach after the decay is complete.
- **RELEASE:** The Release is the time that the sound will take to diminish once the key has been released.
- **KEYFLW:** Switch to connect envelope 1 and/or 2 to the keyboard follow. When the switch is “ON”, the envelope times – “A”, “D” and “R” – will be as shorter as you will play the higher notes on your MIDI keyboard.
- **POLARITY:** Switch to set the polarity for envelope 1:
 - If the switch is on the top, the envelope polarity is positive (this is the more common way to use an envelope).
 - If the switch is on the bottom, the polarity is negative. The envelope’s time settings are reversed: the shorter times will be heard when the faders are on their higher positions.

This type of polarity is very nice to create some inverted effects. Take a look on the preset “Original JP-8 Preset / EFX / JP-8_66_Fact” to hear an example of this special effect.

4.1.6 The LFO

Using the LFO as a modulation source is very common. It can be used to create a vibrato effect (when the LFO modulates the frequency of an oscillator) or a “wah-wah” effect (when it modulates the cutoff frequency of the filter).

- **RATE** Knob to set the speed of the LFO
- **DELAY TIME** Knob to set the delay time before the LFO becomes active
- **WAVEFORM** Switch the LFO’s waveform:
 - Sine
 - Saw tooth
 - Square
 - Random



The LFO

4.1.7 The VCO modulator

The VCO modulator section allows adding modulations to both of the oscillators' frequencies (for vibrato or automatic pitch bending effects) and on the pulse width of their waveforms.

Frequency modulation

- **LFO:** Slider to set the level of modulation from LFO on the VCO frequencies.
- **ENV1:** Slider to set the level of modulation from Envelope 1 on the VCO frequencies.
- **VCO 1 / VCO 2:** Selector to choose either oscillator 1, oscillator 2 or both oscillators as destinations for LFO / ENV modulation.
- **PWM:** Slider to set the level of modulation on the VCOs' pulse width.
- **LFO / M / ENV1:** Selector to choose either a manual setting (via the fader), LFO or envelope 1 as a source for the pulse width modulation.



The VCO modulator section

4.1.8 The LFO MODULATION, PORTAMENTO and BEND section

The “LFO MOD” section shows the parameters that can be modulated by the LFO. There is a white button to activate the LFO. When it is pressed, the modulation is activated. When it is raised, the modulation stops.

- **LFO MOD RISE:** Knob to set the triggering time of the LFO.
- **LFO MOD:** Chooses the destinations that can be modulated by the LFO:
 - ON / OFF switch (“VCO”)
 - ON / OFF switch (“VCF”)
- **VCO level:** Slider to set the level of modulation from the LFO to the VCO
- **VCF level:** Slider to set the level of modulation from LFO to the VCF
- **BEND:** Selectors of the destinations that can be modulated by the PITCH BEND
 - ON / OFF switch (“VCO 1”)
 - ON / OFF switch (“VCO 2”)
 - ON / OFF switch (“VCF”)
- **VCO level:** Slider to set the intensity of the BEND modulation affecting the VCO (From 0 To +24 semi-tones / – 24 semi-tones).

- **VCF level:** Slider to set the intensity level of the BEND modulation affecting the VCF.
- **BENDER:** Pitch bender (movement towards the left: the tuning is diminished; movement towards the right, the tuning of the oscillators is increased)
- **PORTAMENTO level:** Slider to set the level of portamento.
- **PORTAMENTO select:** Switch to use the portamento:
 - Connection Section UPPER ("UPPER ONLY")
 - Connection PORTAMENTO OFF
 - Connection Sections LOWER et UPPER ("ON")



Destination connections

4.1.9 The pitch bend wheel and LFO MOD button

The pitch bend wheel and the push button for the amount of modulation by the LFO (« MOD ») are situated to the left side of the virtual keyboard.

- **PITCH:** This wheel controls the pitch bend of the two oscillators
- **LFO MOD:** Push Button to control LFO modulation



The Pitch Bend wheel and the LFO mod button

4.1.10 The Master Tune section

Among these parameters you will find: the general tuning of the Jup-8 V, the detune option for the voices and a 440 Hz tone to tune the Jup-8 V.

- **TUNE:** Knob to set the general tuning of the synthesizer (+/- one semitone).
- **DETUNE:** Set the amount of detune of the polyphonic voices.

 The detune knob of the polyphonic voices is very useful to make out-of-tune sounds in the “unison” mode. It will sound a little like the effect of a chorus. When the «Unison» is not active, this parameter brings a little more instability to the tuning of the oscillators, a typical characteristic of the original machine.



The Master Tune parameters

4.1.11 The arpeggiator (“ARPEGGIO”)

This section shows the connections that are necessary to make the arpeggiator work. It allows performance of patterns of notes in a particular order, evolving according to the notes played.

- In SPLIT mode, the arpeggiator only works with the lower part of the keyboard.
- In DUAL MODE, the arpeggiator works on both parts of the keyboard.

The pattern development is possible to control with two parameters:

- **RANGE:** Choose the range of the arpeggiator 1-4(in octaves):
 - One octave (button ON/OFF “1”)
 - Two octaves (button ON/OFF “2”)
 - Three octaves (button ON/OFF “3”)
 - Four octaves (button ON/OFF “4”)
- **MODE:** Choose the playing mode:
 - UP (button ON/OFF)
 - Down (button ON/OFF)
 - Up and Down (button ON/OFF)
 - Random (button ON/OFF)

The rate of the arpeggiator can be set on the left side of the LFO section (next to the general volume and LOWER / UPPER balance potentiometers).

In the same area, you can also affect the MIDI synchronization for the arpeggiator rate (“EXT” position).



The arpeggiator section



The arpeggiator rate section

4.1.12 The keyboard assign section (“ASSIGN MODE”)

This section allows selecting the play modes as follow:

- **SOLO:** Button for selecting the monophonic mode.
- **UNISON:** Button for selecting the Unison mode. When “UNISON” is activated, all the voices are regrouped to be played by one note of the keyboard. The result is a rich harmonic sound. It sounds similar to a chorus effect. When the Unison mode is activated the patch is still polyphonic (the amount of polyphony depends on the number of voices available)
- **POLY 1:** The most natural polyphonic playing mode. The envelopes are not reinitialized by each note played.
- **POLY 2:** Polyphonic playing mode reinitializing the envelopes with each note played. The « release » time is cut by the next note played.
- **HOLD LOW:** This mode allows holding the played notes on the LOWER part. (This effect is similar to a sustain pedal action).
- **HOLD UP:** This mode allows holding the played notes on the UPPER part.

In SPLIT mode, the HOLD function can be assigned to both the LOWER and UPPER parts independently.

In DUAL and WHOLE modes, the HOLD function simultaneously affects both parts. ⚠️ **Only** the volume envelope will be used by the hold function. That allows you to bring life to the sound while keeping the envelope free for the filter.



4.1.13 Play mode section The play modes selection (“KEY MODE”)

The methods of playing indicate the distribution of the programs on the keyboard. They are 3 selectable configurations that can be set to: “ON/OFF”:

- **DUAL:** Two selected programs on the LOWER and UPPER part can be played simultaneously on the keyboard. The polyphony is then divided by two.
- **SPLIT:** Two selected programs are assigned the LOWER and UPPER part of the keyboard. The polyphony is then divided between the two selected programs.
- **WHOLE:** A single program is assigned to the entire keyboard range.



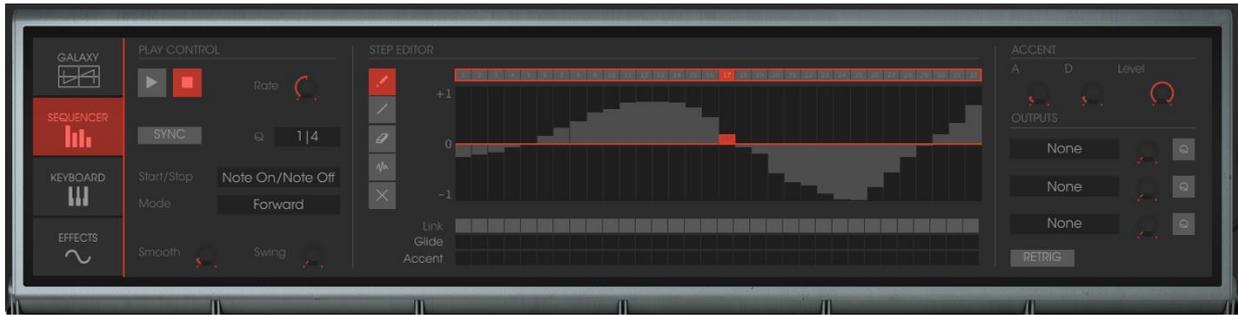
Key modes

4.2 Step Sequencer

The sequencer is a 32-step sequencer.

It allows the creation of several melodic lines (when one of the three available modulations is affecting the pitch of the VCO) as well as creation of dynamic modulations of other parameters such as the cutoff frequency of the VCF or the width of the VCO square waveform.

Click on the “Modulations” tab, then, click on the “Sequencer” button to bring up the interface.



The step sequencer

The interface of the sequencer consists of three main parts:

4.2.1 The transport

The transport is on the left side of the sequencer. It consists of the necessary parameters to play and stop the sequence, MIDI synchronization, quantification and trigger ("trigg") parameters:

- **START / STOP:** Selection screen to control the sequencer's playing mode:
 - **Note On/ Note OFF:** Start / Stop with a note ON / OFF message.
 - **MIDI Start / Stop :** Start / Stop the sequencer with a MIDI sequencer (or a drum machine for instance)
 - **Free running:** Start / Stop the sequencer with the Start/Stop buttons of the step sequencer.
- **START / STOP buttons:** Start / Stop the sequencer, in "free running" mode only
- **RATE:** Set the speed of the sequencer, in "free running" mode only
- **SYNC ON/OFF:** Synchronization to an external MIDI clock
- **Q:** Subdivision of MIDI tempo to adjust the speed of the sequencer in "MIDI Sync" mode: 1/2 ;1/4 ;1/4T ;1/8 ;1/8T ;1/16 ;1/16T ;1/32 ;1/32T ;1/64 ;1/128
- **Mode:** Playingmodes of the sequencer:
 - FORWARD: Playing the sequence forward
 - BACKWARD: Playing the sequence backward
 - FORWD/ BACKWD: Playing the sequence forward and backward
 - RANDOM: Playing the sequence randomly
- **SMOOTH:** Amount of interpolation between values of each step in a sequence.
- **SWING:** Automatically bring a ternary quantification to the sequence. This parameter will be very useful to add "groove" to a sequence for hip hop music, for example.
- **ACCENT:** Bring an additional modulation to the selected step thanks to an "Attack" / "Decay" envelope applied to the cutoff frequency of the VCF low pass filter. This unit is comparable to the one that is located on the very famous TB303. The possibility to edit the attack time was added to the original unit to allow more flexibility.

- **A:** Attack time of the accent envelope
- **D:** Decay time of the accent envelope
- **LEVEL:** Knob that controls the modulation amount of the accent to the low pass VCF Filter.

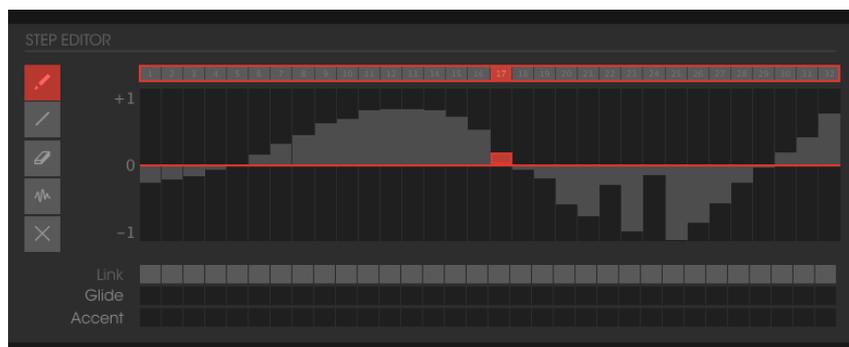


The transport section

4.2.2 Edit the sequence

The editable part of the sequencer is located in the center of the sequencer's interface.

- **Edit tools:** Five tools are available for editing the sequence:
 - **Pencil:** drawing of the values of the steps
 - **Line:** drawing of the values of the steps in line
 - **Eraser:** Delete certain values and settings
 - **Noise:** Automatically create a sequence
 - **Reset:** Reset the sequencer
- **STEPS:** The steps. They contain bi-directional values (positive or negative).
- **LENGTH:** To set the length of the sequence, 32 steps maximum.
- **LINK:** Link the selected step with the following step, « Legato »).
- **GLIDE:** Place an effect of portamento between the selected step and the following step.
- **ACCENT:** Place an accent effect on the selected step.



4.2.3 The edit section of the sequencerOutputs

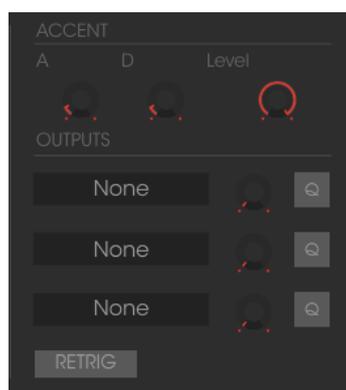
The modulation destination (“OUTPUT”) is located to right of the interface of the sequencer, where the synthesis parameters that will be affected by the sequencer are selected.

💡 It is also possible to connect the parameters of the voice effects to the sequencer. To do that, go to the “Effects” / “Voice Effects” page. Then choose the source “Sequencer” among the choices of sources of proposed modulations for the parameters of these effects. (see paragraph “Voice Effects” for more details)

Three connection locations are available for the sequencer.

For each of them the following destinations are available:

- **DESTINATION:** Choice of available modulation destinations
 - **None:** Nothing is connected
 - **VCO1 Pitch:** VCO1 FREQUENCY
 - **VCO2 Pitch:** VCO2 FREQUENCY
 - **VCO1 PW:** Pulse width of the square wave form of VCO1
 - **VCO2 PW:** Pulse width of the square wave form of VCO2
 - **HPF Cutoff:** Frequency of the high pass filter
 - **VCF Cutoff:** Frequency of the low pass filter
 - **VCF Res:** Resonance of the low pass filter
 - **VCA:** Volume of the VCA
- **AMOUNT:** Sets the level of modulation
- **Q:** Quantification of the modulation settings by semitones. This parameter is essential to regulate the levels of each step for the creation of a melodic sequence
- **RETRIG:** Automatically place a «trig» envelope on all the steps.



The connection section

4.3 Galaxy

The galaxy module creates very complex modulations with the interaction of 3 LFOs.

The first 2 LFOs can each modulate a different parameter on the X/Y axes, represented in the framework of the interface. A third LFO allows modifying the alpha angle between the X and Y axes.

Each of these 3 LFOs have two parameters:

- **SHAPE:** Selection screen for the waveform of the LFO and X/Y axis ("Sine", "Tri", "Saw" and "Square") and "Sine", "Tri" and "Saw" for the third LFO.
- **RATE:** Knob to set the modulation frequency of the LFO.
- **ANGLE:** Knob to set the rotation angle of the X/Y axis manually.

Three modulation outputs can be connected. For each, the following modulation destinations are available:

- None: Nothing is connected
- VCO1 Pitch
- VCO1 FREQUENCY
- VCO2 Pitch
- VCO2 FREQUENCY
- VCO1 PW: Pulse width of the square wave form of VCO1
- VCO2 PW: Pulse width of the square wave form of VCO2
- HPF Cutoff: Frequency of the high pass filter
- VCF Cutoff: Frequency of the low pass filter
- VCF Res: Resonance of the low pass filter
- VCA: Volume of the VCA

A reset setting of the movements for the three LFO's by a played note is available by using the "RETRIG" button.



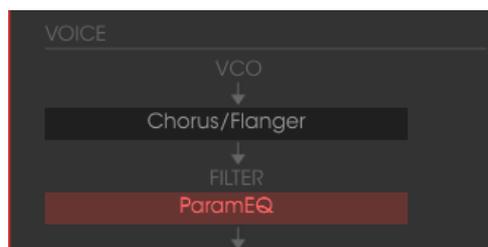
The Galaxy module

4.4 Voice Effects

The Jup-8 V offers two connections of “Voice” effects. These connections can be made inside the synthesis chain, between the VCO and the VCF and between the VCF and the VCA.

These effects can be modulated by sources of modulation such as the LFO or the envelopes. These combinations of effects and of modulations will bring an additional dimension to the original sound of the Jupiter-8.

4.4.1 Chorus / Flanger



Connections of the voice effects

The effects are accessible when you click on the “EFFECTS” tab, situated in the extension panel.

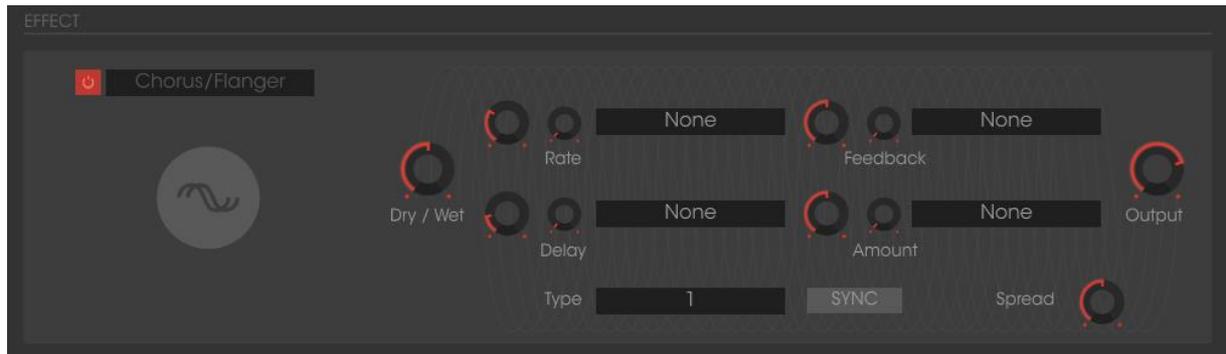
This monophonic Chorus/Flanger module adds a comb filtering aspect to the sound.

- **RATE:** Knob to set the frequency of the chorus
- **DEPTH:** Knob to set the depth of the modulation
- **FEEDBACK:** Knob to set the feedback of the modulation. (to achieve more of a flanged effect)
- **AMOUNT:** Knob to set the depth of the modulation
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob to set the output volume of the chorus

The “MOD” display allows accessing the modulation connections of each of the parameters of the chorus as well as the choice of the sources of modulation:

- KEY FOLLOW
- VELOCITY
- AFTERTOUCHE
- ENVELOPE 1
- ENVELOPE 2
- GALAXY Y
- GALAXY X
- LFO
- SEQUENCER

The “BYPASS” button deactivates the Chorus / Flanger effect.



The Chorus/Flanger

4.4.2 Distortion

The distortion unit brings a soft or strong saturation to the sound, on the output of the VCO or VCF. Three modes of distortion are available:

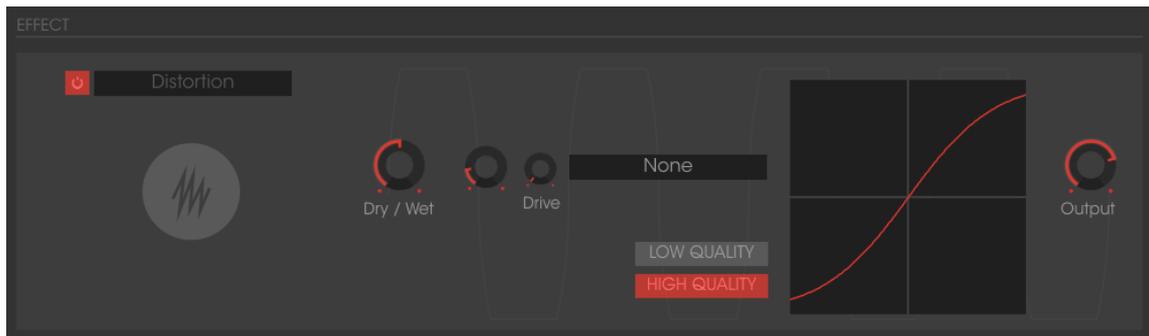
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect.
- **DRIVE:** Sets the distortion amount.
- **OUTPUT:** Knob to set the output volume of the distortion.

The LCD screen allows to graphically show the distortion curve.

The “MOD” display allows accessing the modulation connections for each of the parameters of the distortion as well as the choice of the sources of modulation:

- KEY FOLLOW
- VELOCITY
- AFTERTOUCH
- ENVELOPE 1
- ENVELOPE 2
- GALAXY Y
- GALAXY X
- LFO
- SEQUENCER

The “BYPASS” button deactivates the distortion effect.



Distortion

4.4.3 Parametric EQ

This equalizer unit adjusts the harmonic content of the sound with four bands of frequency control.

Bands 1 and 4 (low and high) are semi-parametric; bands 2 and 3 (mid) are fully parametric.

Each of the parameters of the equalizer can be modulated by sources of modulation. This allows you to create effects that sweep frequencies, resulting in a complex «phasing» or filtering effect.

BAND 1 (bass frequencies)

- **FREQUENCY (F):** Knob to set the band of the bass frequencies
- **GAIN (G):** Knob to set the gain of the bass frequency band

BAND 2 (Mid-low frequencies)

- **FREQUENCY (F):** Knob to set the band of the mid-low frequencies
- **GAIN (G):** Knob to set the gain for the band of the mid-low frequencies
- **BAND WIDTH (Q):** The setting of the band width of the mid-low frequencies

BAND 3 (Mid-high frequencies)

- **FREQUENCY (F):** Knob to set the band of the mid-high frequencies
- **GAIN (G):** Knob to set the gain for the band of the mid-high frequencies
- **BAND WIDTH (Q):** The setting of the band width of the mid-high frequencies

BAND 4 (High frequencies)

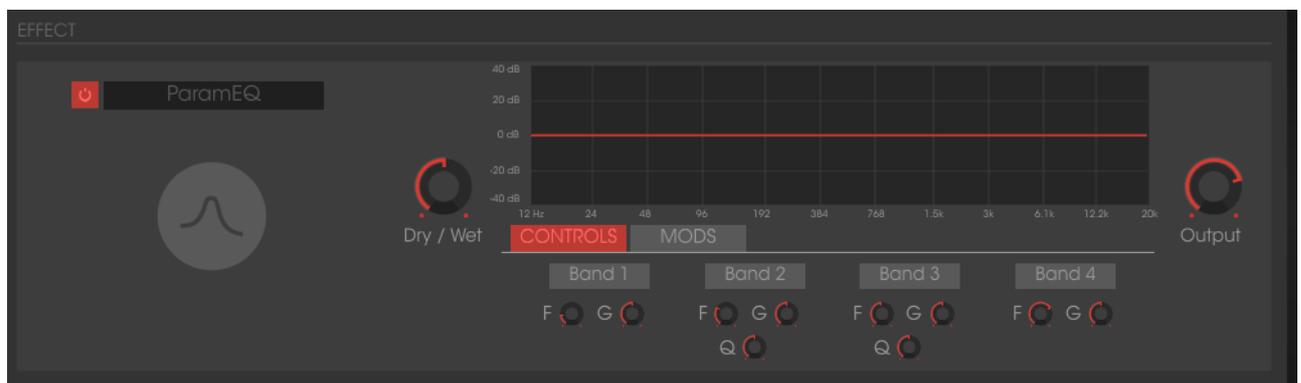
- **FREQUENCY (F):** Knob to set the band of the high frequencies
- **GAIN (G):** Knob to set the gain for the band of the high frequencies
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob for the PARAM EQ's output volume.

The LCD screen allows you to graphically show the positions of each band.

The “MOD” button allows accessing the modulation connections for each of the parameters of the PARAM EQ as well as the choice of the sources of modulation:

- KEY FOLLOW
- VELOCITY
- AFTERTOUCHE
- ENVELOPE 1
- ENVELOPE 2
- GALAXY Y
- GALAXY X
- LFO
- SEQUENCER

The “BYPASS” button allows deactivating the parametric equalizer effect.



Parametric EQ

4.4.4 Phaser

The PHASER effect provides a classic phasing sound similar to analog effects used in the 70's.

- **SWEEP START:** Knob to set the reference frequency
- **FEEDBACK:** Knob to set the feedback of the modulated signal
- **SWEEP AMOUNT:** Knob to set the amplitude of the modulation
- **SWEEP RATE:** Knob to set the speed of the modulation
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob for the volume of the output of the phaser.

The “MOD” display allows accessing the modulation connections for each of the parameters of the PHASER as well as the choice of the sources of modulation:

- KEY FOLLOW
- VELOCITY

- AFTERTOUCH
- ENVELOPE 1
- ENVELOPE 2
- GALAXY Y
- GALAXY X
- LFO
- SEQUENCER

The “BYPASS” button allows deactivating the PHASER effect.



Phaser

4.4.5 Ring Mod

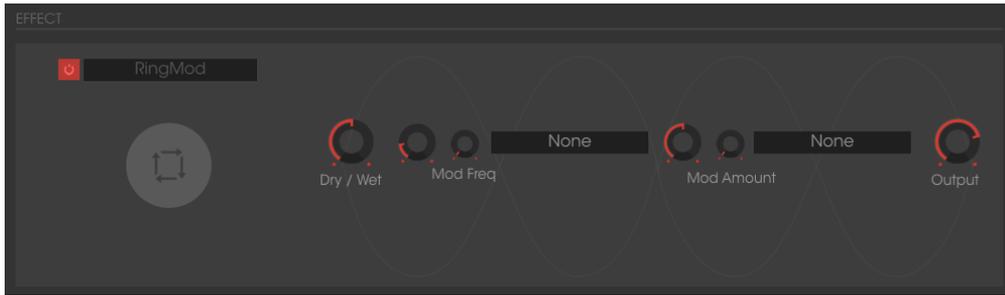
The RING MODULATOR allows adding metallic effects to the sound with modulation of the output of the VCO or filter VCF.

- **MOD FREQ:** Knob to set the speed of the modulation
- **MOD AMOUT:** Knob to set the amplitude of the modulation
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob for the volume of the output of the ring modulator.

The “MOD” display allows accessing the modulation connections for each of the parameters of the RING MOD as well as the choice of the sources of modulation:

- KEY FOLLOW
- VELOCITY
- AFTERTOUCH
- ENVELOPE 1
- ENVELOPE 2
- GALAXY Y
- GALAXY X
- LFO
- SEQUENCER

The “BYPASS” button allows deactivating the RING MOD effect.



Ring Mod

4.5 Patch Effects

Two “PATCH” effect modules are available on the end of the synthesis chain. The two modules are placed after the output of the VCA, and cannot receive external modulations.



Patch effect connections

4.5.1 Chorus/Flanger

The stereo Chorus/Flanger module adds thickness and width to the sound. This effect is often used to create string pads for example (the “Ensemble” effect of old analog synthesizers)

- **RATE:** Knob to set the frequency of the chorus
- **DEPTH:** Knob to set the depth of the modulation
- **FEEDBACK:** Knob to set the feedback of the modulation, to achieve more of a flanged effect
- **AMOUNT:** Knob to set the depth of the modulation
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob to set the output volume of the chorus

The “BYPASS” button allows deactivating the “CHORUS/ FLANGER” effect.



Chorus / Flanger

4.5.2 Stereo Analog Delay

The delay effect allows creating echo effects or doubling in the sound. This effect is used on all types of sounds to add stereo space.

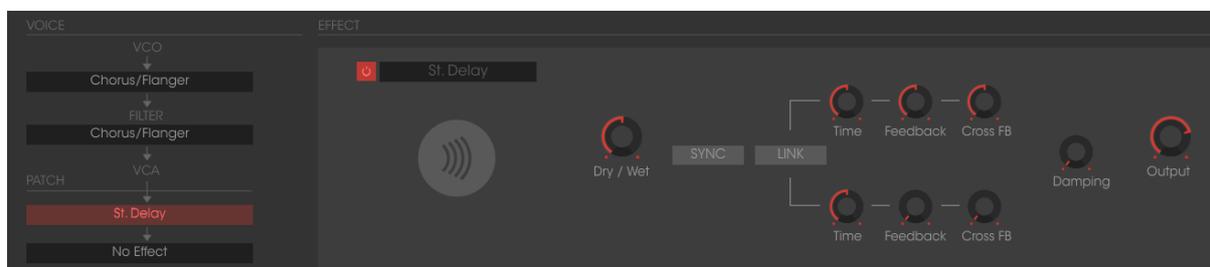
This effect recreates the characteristics of the analog delays of the 70's, which are very popular today for their unique sound (the famous “tape delays”).

- **RIGHT TIME:** Knob to set the time for the right channel
- **LEFT TIME:** Knob to set the time for the left channel
- **FEEDBACK RIGHT:** Knob to set the feedback for the right channel
- **FEEDBACK LEFT:** Knob to set the feedback for the left channel
- **CROSS FEEDK R:** Knob to set the feedback of the right channel towards the left channel
- **CROSS FEEDK L:** Knob to set the feedback of the left channel towards the right channel
- **DAMPING:** Knob to set the amount of high frequencies that are rolled off with each repetition
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob to set the output volume of the delay

The “BYPASS” button allows deactivating the delay effect

The “SYNC” button allows synchronize the delay to MIDI

The “LINK” button allows linking of the left and right channel of the delay.



Stereo Delay

4.5.3 Reverb

The reverb effect creates a very dense series of decaying echoes in the sound, simulating the sound's performance within a three-dimensional space.

- **FEEDBACK:** Knob to set feedback time for the reverb
- **DAMPING:** Knob to set the rate at which high frequencies that are rolled off as the reverb decays
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob to set the output volume of the reverb

A visual interface shows the characteristics of the REVERB for convenient editing.

The “BYPASS” button allows deactivating the “REVERB” effect.



The Reverb effect

4.5.4 Dual Phaser

The Phaser unit provides a classic phasing sound similar to analog effects used in the 70's.

- **SWEEP GENERATOR 1/2:** Selection of the waveforms for the modulations of phasers 1 and 2:
 - Sin
 - Square
 - Saw
 - Triangle
- **RATE 1/2:** Knob to set the rate for Phaser 1 /2
- **DEPTH 1/2:** Knob to set the depth of the modulation for Phaser 1/2
- **FEEDBACK 1/2:** Knob to set feedback time for Phaser 1/2
- **DRY/WET:** Knob to set the balance between the original signal and the output of the effect
- **OUTPUT:** Knob to set the output volume of the DUAL PHASER
- **SWEEP SYNC:** Button allows activating the synchronization of the two modulation frequencies.
- **INVERT:** Button allows inverting the phase of the modulation frequencies
- **BYPASS:** Button allows deactivating the “DUAL PHASER” effect.



Dual Phaser

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