

USER MANUAL

_MEMORY V

ARTURIA

_The sound explorers

Special Thanks

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Special Messages

This manual covers how to use Memory V, provides a comprehensive look at its features, and details how to download and activate it. First, some important messages:

Specifications Subject to Change:

The information contained in this manual is correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications or features without notice or obligation.

IMPORTANT:

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

If you encounter any hearing loss or ringing in your ears, please consult an audiologist.

NOTICE:

Service charges incurred due to lack of knowledge relating to how a function or a feature works (when the software is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this manual carefully and consult your dealer before requesting additional support.

Epilepsy Warning – Please read before using Memory V:

Some people are susceptible to epileptic seizures or loss of consciousness when exposed to certain flashing lights or light patterns in everyday life. This may happen even if the person has no medical history of epilepsy or has never had any epileptic seizures. If you or anyone in your family has ever had symptoms related to epilepsy (seizures or loss of consciousness) when exposed to flashing lights, consult your doctor prior to using the software.

If you experience any of the following symptoms: dizziness, blurred vision, eye or muscle twitches, loss of consciousness, disorientation, any involuntary movement or convulsion, while using this software, discontinue use IMMEDIATELY and consult your doctor.

Precautions to Take During Use

- Do not stand too close to the screen. Sit a good distance away from the screen.
- Avoid using if you are tired or have not had much sleep.
- Make sure that the room is well lit.
- Rest for at least 10 to 15 minutes per hour

Congratulations on your purchase of Memory V!

Excellence is placed at the heart of every Arturia product, and Memory V is no exception. Explore the presets, tweak a few controls, get lost in the features - dive as deeply as you like.

Be sure to visit the www.arturia.com website for information on all our other inspiring hardware and software instruments, effects, MIDI controllers, and more. They have become indispensable tools for many visionary artists around the globe.

Musically yours,

The Arturia team

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1. WELCOME TO MEMORY V



Thank you for purchasing our long sought after tribute to the most classic of all the vintage-era polysynths. The Memorymoog was everything everyone wanted from a Moog polysynth at a time when Moog, as a company, were in some difficulty. A difficulty brought on by the innovation of other players and the rumours that the dark clouds of digital synthesis were just starting to gather. But at that moment, something about the Memorymoog anchored itself in everything we love about how synthesizers make us feel. It captured the essence of analog greatness in its most overt form and it's that greatness that we have endeavoured to explore in the Memory V.

Arturia's very first software synthesizer emulation, Modular V, was released in 2003. It was a circuit-accurate emulation of the Moog Modular built in collaboration with Dr. Robert Moog himself. Through that process Arturia developed the TAE (True Analog Emulation) technology that has formed the backbone of all the synthesizer emulations since. It is fantastic to be able to come full circle in 2026, and honor that original Moog era by tackling the flagship synthesizer with the same care and attention to detail that was poured into the Modular V, under Bob's watchful eyes.

1.1. The Memorymoog



From the mid-1970s Moog had been trying to produce the perfect polyphonic synthesizer. The 1975 Polymoog came to market with full polyphony and a great range of sounds for live and studio use. But it was limited in synthesis and sound design, and the divide-down oscillators sounded weak while supplying more polyphony than anyone needed. Very soon, as discrete components became smaller and cheaper, other manufacturers found they could build more exciting, fully programmable polysynths by shrinking monosynths and stacking them together as voice cards. Even with only 5, 6 or 8 voices of polyphony the chunky, preset-based Polymoog couldn't compete.

Moog went back to the drawing board and back to the original monophonic classic, the Minimoog Model D. With the new miniaturised components and digital control systems they somehow squeezed a whole Minimoog onto a voice card. Everything about the tone and character of the three oscillators, classic Moog ladder filter and VCA was present in each voice and the Memorymoog was designed to use six of them.

Time had moved on and Moog was able to build upon and expand the Minimoog sound with added enhancements. Oscillator 2 could sync to oscillator 1 and you could mix waveforms for more complex tones. The digital systems meant that all 18 oscillators could be tuned within a couple of seconds. You had keyboard tracking, a full ADSR envelope and the massive sound of six Minimoogs playing in unison.

Moog had done interesting things with the Contour Generators (a.k.a envelopes) with one-shot modes, retrigger modes, and keyboard scaling. While there was only one dedicated LFO per voice you could repurpose oscillator 3 as a second modulator at both audio rate and LFO speeds. It could also hang onto the filter contour to add some modulation to the modulator.

While Moog had brought the full control of synthesis back to the front panel they had also designed a digital preset system, called the System Controller, that was vital for keeping them competitive. It amounted to a keypad and a two-digit display that was almost as innovative as it was difficult to use. However, it did allow for the storage and selection of 100 factory sounds, many of which were programmed by Wendy Carlos, Herbert Deutsch and Jan Hammer.

The Memorymoog was a beautiful machine. It harked back to the glory days of analog with the elegant wood panelling, and large, playful knobs while embracing the new with its System Controller, new low-noise keyboard and unsprung mod and pitch wheels. It was everything you could wish for in a polyphonic Moog synthesizer which makes it all the more tragic that it wasn't enough to turn Moog around. Against a backdrop of huge changes in the synthesizer industry, Moog went bankrupt in 1986.

1.2. What does Memory V add to the original?

Everything that made the Memorymoog special has been painstakingly captured in Memory V. Although we have taken the opportunity to remove the System Controller and replace it with an expansive, advanced control system, modulation hub, and preset browser. Some natural enhancements have also been added to the main interface like velocity and oscillator 3 sync. To keep the unpredictability of analog circuits, seven dispersion controls can act upon different areas of the synthesizer to nibble away at perfection. And, of course, we have all the advantages of modern MIDI control, MPE support, plugin and standalone formats and preset management.

At the same time the look and feel of the original instrument is being paid tribute to in Memory V. The main interface leans into the style and poise, with everything exactly where you expect it to be. Replacing the space left by the System Controller with a Scope is a brilliant way to let you further appreciate the waveforms and modulation shapes that the software generates.

Simply using Memory V as a synthesizer is a sublime experience that tugs on all the nostalgia strings. You can play all day on the front panel and explore how the sounds come together.



However, Memory V has another side, one that lives in the modern era of multi-level modulation, effect stacks and expressive performance controls. With a click of the Advanced button Memory V unfolds into a multi-faceted machine of up-to-date processing and colorful creative opportunities.

You can lose yourself in the four-channel arpeggiator that finds rhythms and melodies in response to your notes. There's a bank of 18 effects that you can drop into 4 slots to push and pull, distort and delay the analog sound and take it into unfamiliar places. A bucket of innovative modulators helps you shape the synthesizer and move parameters in ways that can be jagged or liquid smooth, freeform or tied to tempo. The performance aspects of your keyboard controller can be employed in further moves of excitement, accent or transformation. Or, if you have the power, you can get expressive with a full implementation of MPE.

As an instrument you can enjoy Memory V for everything it reminds you of, and as a platform for sound design you can use the fattest Moog sounds for the basis of all the most interesting adventures.

1.3. Features of Memory V

- Legendary synthesizer, authentically captured
- 3 oscillators per voice, with multiple wave shapes
- Up to 12 voices, twice the polyphony of the original
- The classic Moog ladder filter sound with an additional slope
- Dedicated ADSR contour shapers for filter and VCA
- 7 dispersion factors for authentic vintage vibes
- New sync modes and full velocity support
- four-channel programmable arpeggiator
- Comprehensive effects section with four slots
- Additional envelope, function and sequenced modulators
- Full keyboard performance tools
- MPE Compatible
- Full scope for MIDI control
- Macros for major changes with a single twist
- Versatile preset management
- Plugin and standalone versions
- Over 300 curated presets including the original 100 from the Memorymoog
- Integrated tutorials that take you through the synthesizer

2. ACTIVATION AND FIRST START

2.1. Register, activate, and install Memory V

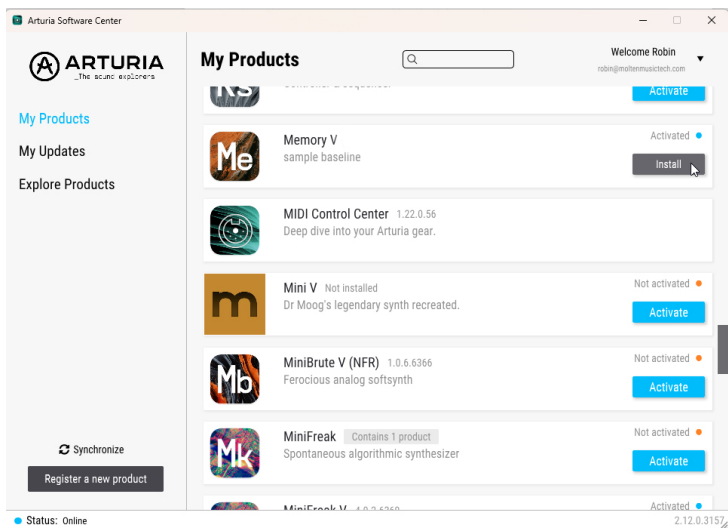
Memory V works on computers equipped with Windows 10 or later and macOS 11 or later. You can use it as a stand-alone instrument or as a plug-in for your favorite DAW (Digital Audio Workstation) in Audio Units, AAX, VST2, or VST3 format.



Before you install or register the software, you'll need to create a My Arturia account here, using an email address and password of your choice: <https://www.arturia.com/createanaccount/>

While it's possible to handle registration, activation, and other tasks manually online, it's far simpler to download and use the Arturia Software Center app, which can be found here: <https://www.arturia.com/support/downloads&manuals>

You'll enter your email address and password to set up Arturia Software Center, which acts as a central location for all of your Arturia software registrations and activations. It also helps you install and update your software by keeping track of current versions.



You can register, activate, and install your product inside Arturia Software Center by pressing the **Register a new product** button, and clicking the boxes to **Activate** and then **Install** your software. The registration process will require you to enter the serial number and the unlock code you received when you bought your software.

You can also do this online by logging into your account and then following the instructions here: <http://www.arturia.com/register>

Once you've registered, activated, and installed Memory V, it's time to get it to talk to your computer.

2.2. Initial setup for stand-alone use

If you would like to use Memory V in standalone mode, you will need to ensure that its MIDI input/output and audio outputs are being routed properly to and from the software. You'll generally only need to do this once, unless you change your MIDI controller or audio/MIDI interface. The setup process is the same on both Windows and macOS.

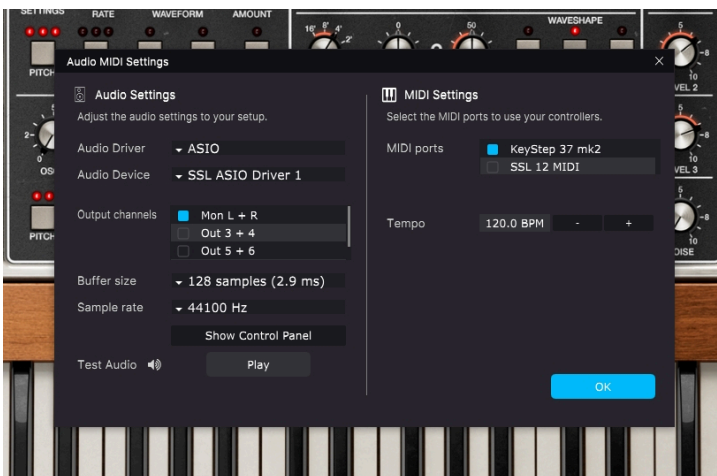
i This section only applies to those of you who plan to use Memory V in stand-alone mode. If you are only going to use Memory V as a plug-in inside a host DAW or other music software, you can safely ignore this section – your host music software handles these settings.

2.2.1. Audio and MIDI settings: Windows

At the top left of the Memory V application is a pull-down menu. It contains various setup options.



Click on **Audio Midi Settings** to open the following window. This works in the same way on both Windows and macOS, although the names of the devices available to you will depend on the hardware you are using. Remember, this menu option is only available (and needed) when running Memory V in stand-alone mode.



Audio and MIDI settings for Windows

Starting from the top, you have the following options:

- **Audio Driver:** Selects which type of audio driver that will handle playback of Memory V. This can be the built-in Windows Audio driver or a more specialist audio driver system like ASIO. ASIO is a high performance audio system supported by most audio interfaces and will give you the best audio performance. If you are relying on the internal sound of your computer then Windows Audio will be just fine.
- **Audio Device** This lists the devices available for the chosen type of audio driver. These will vary depending on what audio hardware you have connected to your computer. You should choose the one that matches the audio hardware through which you wish to hear Memory V.
- **Output Channels** This only exists if you have selected an ASIO audio device. It lets you select which of the available outputs will be used to route audio out. If you only have two outputs, this selection box will not be shown. 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. The latency in milliseconds is displayed after the buffer size setting.

i A smaller buffer means lower latency, i.e. a shorter delay between pressing a key and hearing the note, but loads your CPU more heavily and can cause pops or clicks. A larger buffer means a lower CPU load, as the computer has more time to think, but can result in a noticeable delay between playing a note and hearing it. A fast, modern computer should easily be able to operate at a buffer size of 256 or even 128 samples without clicks. If you still hear clicks, enlarge the buffer size until they stop.

- The **Sample Rate** menu lets you set the sample rate at which audio is sent out of the instrument. Some audio interfaces will not let you change the sample rate. In which case click on the **Show Control Panel** to access the interfaces direct audio settings where you will be able to set the sample rate.



The options here will depend on what your audio device can support; nearly every device can operate at 44.1 kHz or 48 kHz, which will be perfectly fine for most applications. If you have a specific need to use a higher sample rate, up to 96 kHz, Memory V will happily support that.

- The **Show Control Panel** button will jump to the system control panel for whatever audio device is selected.



Note that this button is only available in the Windows version.

- **Test Tone** plays a sound through the audio system when you click the **Play** button, to help you troubleshoot audio issues. You can use this feature to confirm that the instrument is routed correctly through your audio interface and that audio is playing back where you expect to hear it (your speakers or headphones, for example).
- The **MIDI Settings** area will display any MIDI devices you have connected to your computer (if any). Click the check box to accept MIDI from the device(s) you want to use to control the instrument. You can select multiple MIDI devices at once with the checkboxes.



In stand-alone mode, Memory V listens for all MIDI channels, so there's no need to specify a channel.

- **Tempo** sets a base tempo for features inside Memory V such as LFO and effects sync. When using Memory V as a plug-in, the instrument gets tempo information from your host software.

2.2.2. Audio and MIDI settings: macOS



Audio MIDI Settings for macOS

The menu for setting up audio and MIDI devices for macOS is accessed in the same way as for Windows, and the setup process is nearly identical. All options work the same way as described above in the Windows section. The only difference is that all macOS devices, including external audio interfaces, use the CoreAudio driver built into macOS to handle routing. In the second drop-down menu under **Device**, choose the audio device you wish to use.

2.2.3. Using Memory V as a plug-in



Here, Memory V is shown running as a VST plug-in within Fender Studio Pro.

Memory V comes in VST2, VST3, Audio Unit (AU), and AAX plug-in formats, for use in all major DAW software such as Ableton Live, Cubase, Logic, Pro Tools, Studio One, and more.

When using Memory V as a plug-in, all audio and MIDI device settings are handled by your host music software. Please refer to your host music software's documentation if you have any questions about loading or using plug-ins.

Note that when you load Memory V as a plug-in instrument inside your host software, its interface and settings work the same way as in standalone mode (see below), with a few small differences:

- Memory V will synchronize to your DAW's host tempo/BPM when sync is required.
- You can automate numerous parameters using your DAW's automation system.
- You can use more than one instance of Memory V in a DAW project.
- You can run the outputs of Memory V through any additional audio effects available in your DAW, such as delay, chorus, filters, etc.
- You can route Memory V's audio outputs creatively inside your DAW, using the DAW's own audio routing system.
- You route the MIDI from the Multi-Arp to play other instruments inside or outside the DAW.

2.3. Playing Memory V for the first time

Now that you have Memory V up and running, let's take it for a quick test drive!

If you haven't done so already, launch Memory V as a plug-in or as a stand-alone instrument. If you have a MIDI controller set up, use it to play some notes on Memory V. You can also use your mouse to play the on-screen keyboard or use the keys of your [computer keyboard](#) [p.55].

The up and down arrows at the top of the instrument let you step through all of Memory V's available presets. Try playing a few, and when you find one that you like, try adjusting some of the other on-screen controls to see how they affect the sound.

Play with the controls, and don't worry – nothing is saved unless you specifically save a preset (described later in this User Guide), so there is no risk you'll mess up any of Memory V's factory presets.



Factory presets cannot be overwritten. Whenever you wish to save a preset based on a Factory preset you will be directed to save it as a new preset.

We hope this chapter has gotten you off to a smooth start. Now that you're up and running, the rest of this guide will help you work your way through all of Memory V's features on a section-by-section basis. By the time you reach the end, we hope you'll understand all of Memory V's capabilities – and will be using this fantastic instrument to create equally fantastic music!

3. USER INTERFACE OVERVIEW

We'll start with an overview of the Memory V interface so you can get comfortable with what's going on, then jump right into playing and synthesizing some sound. With the basics squared away, you can then follow the links for deeper explanations and guidance through every aspect of the instrument.



The Memory V interface is neatly divided into a number of sections, which are further divided into modules that contain different functions. From left to right in the main panel you have the global control section, the oscillators section, which is divided into modules for pitch oscillators and modulation oscillators, and then we have the voice shaping section containing the filter, VCA and associated envelopes. The top and bottom are utility toolbars, and the space for the virtual keyboard also doubles as a pop-up Advanced section that introduces a range of creative tools and effects to further enhance the Memory V experience.

Let's highlight the key functions.

Number	Area	Description
1.	Upper Toolbar [p.20]	Access to the Memory V menu, Preset Browser, Advanced panel button, master output level, and a cog wheel button to access further settings, the MIDI configuration, and Tutorials.
2.	Global Section [p.30]	Contains three modules. The Performance module has controls for Glide and Legato modes, whether Velocity is linked to the filter and volume, and pitch-bend and mod-wheel amounts. The Scope module displays the shape of the synthesizer's output by default, and can also show LFO waveforms when modulation controls are used. The Global module offers +3 octaves of transposition and some fine-tuning, along with the Vintage knob that introduces imperfections to various aspects of the sound.
3.	Oscillator Section [p.37]	Contains three modules. The Modulation Module includes controls and routing destinations for the LFO (low-frequency oscillator), and oscillator 3, which can be employed for Voice Modulation [p.44]. The Oscillators Module contains the three main voltage-controlled oscillators that provide us with the waveforms and pitch of our synthesizer. The Mixer Module provides a balance between the three oscillators' output and offers the opportunity to add some Noise to the mix.

Number	Area	Description
4.	Voice Shaping Section	Contains three modules, but with a little bit of function sharing between the first two. The Voltage Controlled Filter [p.46] Module houses the low-pass filter and a dedicated ADSR envelope. The Voltage Controlled Amplifier Module [p.49] has an ADSR envelope and shares some envelope functions with the filter. The Voice Module is the last stage of sound generation and offers overall volume, panning, and overdrive.
5.	Virtual Keyboard [p.53]	The five-octave keyboard reflects what's being played via MIDI and can also be clicked on with a mouse to produce sound. To the left, you'll find Pitch and Mod wheels along with buttons to enable the arpeggiator and to hold notes on.
6.	Lower Toolbar [p.56]	This features the tool tip display, polyphony settings, undo/redo functions, CPU meter, macro controls, and window resizing handle.

The links above will take you to the various parts of the manual that cover these functions. You are welcome to jump around to find what you need, but we recommend going through the manual at least once to get the fullest Memory V experience. Memory V is designed so that you can get to work and be creative without having to look too deeply into the manual, but some subtle tricks and functions might not be obvious at first. Reading the manual will help you be sure that you have a good handle on what this instrument can do.

3.1. Advanced

There's another part of the interface you don't see when you first load the instrument: the Advanced view. Click on the "Advanced" button in the top toolbar to reveal the advanced features that replace the virtual keyboard. The Advanced section has a number of different tabs, each with its own functions and controls.



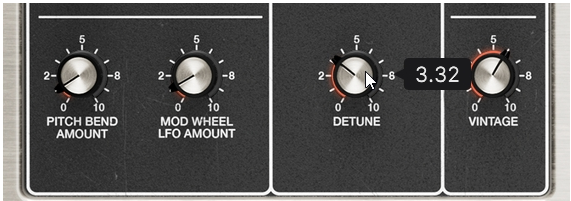
Feature	Description
Multi-Arp [p.60]	A four-channel arpeggiator with controls over direction, rhythm, and gate length.
Effects [p.74]	A four-slot effects engine with a choice of 18 effects.
Modulators [p.111]	A section of three modulation slots that can be configured as an Envelope, Function, Random, Voice Modulator, or Mod Sequencer.
Keyboard [p.138]	Detailed control over how Memory V responds to a MIDI keyboard controller, including aftertouch and MPE settings.
Macros [p.58]	Set the mapping of the four Macro controls.

Use the links above to visit the appropriate parts of the manual for more details.

3.2. Common control behaviors

All Arturia virtual instruments share some common control behaviors to make editing sounds easier. These behaviors are common across the instrument in the main and advanced views.

3.2.1. Value pop-ups



Move or hover on any control, and a pop-up banner or “tool tip” will display its value. The value format depends on the nature of the control; it could be a percentage, a frequency value, a semitone, an octave, or a value from 1 to 10.

3.2.2. Parameter Descriptions



Operating or hovering on any control displays its name and a brief description of its function in the left corner of the lower toolbar.

3.2.3. Fine adjustment

Hold the right mouse button or the CTRL/COMMAND key while dragging on any knob to adjust it more slowly. This helps when you want to dial in precise values.

3.2.4. Double-click for default

Double-click on any knob to return it to its factory default setting. This may not necessarily be the position set by the loaded preset.

4. UPPER TOOLBAR

Before we jump into the main controls, we need to introduce you to the Upper Toolbar that runs along the top of the plug-in's interface. It houses the main menu, the Preset Browser, a button to enter Advanced Mode, a knob to control the overall output level, and a cog-shaped button that opens the main settings, MIDI configuration, and Tutorial section. Let's go through them from left to right.



4.1. Main Menu

Click the "hamburger" icon (three horizontal lines) in the top left corner of the upper toolbar to bring up the main menu. There are some useful functions in here regarding presets and useful functions to get you started with Memory V. Let's go through them one at a time.



4.1.1. New Preset

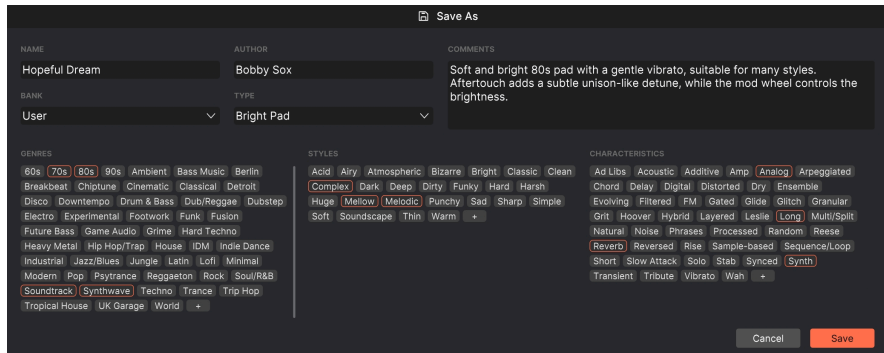
Creates a new preset with default settings for all parameters. The Default preset features oscillator 1 with a sawtooth waveshape, a fully open filter, no modulation, and a basic sustained envelope shape. No effects or advanced modulations are present, but the macros do have some basic assignments. It gives you a fresh, clean space in which to build your sounds.

4.1.2. Save Preset

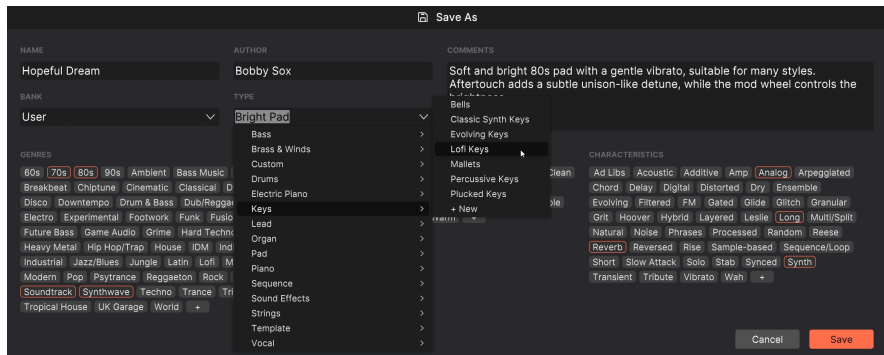
Overwrites the current preset with any changes you have made. This only applies to user presets, so the option is greyed out for factory presets, including the "Default" preset that's generated when you click "New Preset". To start saving a new preset, you need the option below.

4.1.3. Save Preset As

Saves the current state of the Memory V under a different preset name. Clicking this option opens the "Save as" window, where you can enter a preset name, add your name as the author, choose a Type, or add a new one that best describes your preset. You can also add tags from a list of Genres, Styles, and Characteristics. By default, the preset is saved in the "User" bank, but you can also create additional banks for more precise organization.



Memory V offers a highly detailed categorization system with many types and sub-categories to helpfully organize your presets. You can see this in the pop-up menus that appear when you click on "Type".



If nothing really matches, you can create your own type.



The Bank, Author, and Type fields are useful when searching for presets in the [Preset Browser \[p.144\]](#).

4.1.4. Save as Opening Preset

This lets you select the Preset that is loaded into Memory V when you open a new instance of the instrument. You might have a preset you use all the time, or some settings you like to start with, and this will enable you to have it available as soon as you load it up.



If you are running Memory V in Pro Tools then this option is not available in this menu, it's an option in a Pro Tools window.

4.1.5. Import

This command lets you import a Preset file, which can be either a single Preset or an entire bank of Presets. This can be useful if you were installing Memory V on another computer and wanted to transfer your user presets to that new machine, or if you wanted to use presets sent to you from another user.

4.1.6. Export

You can export presets in two ways: as a single Preset or as a bank.

- **Export Preset:** Exporting a single Preset is handy when you want to share a Preset with someone else. The default path to these files will appear in the "save" window, but you can create a folder at another location if you like. The saved Preset can be reloaded using the Import Preset menu option.
- **Export Bank:** This option lets you export an entire bank of sounds from the instrument, which is useful for backing up or sharing Presets. Saved banks can be reloaded using the Import Preset menu option.

4.1.7. Resize



The Memory V window can be resized from 50% to 200% of its original size without any visual artifacts. On a smaller screen such as a laptop, you may wish 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 smaller controls can be easier to use at higher magnification.



While working with Memory V, you can also use keyboard shortcuts to quickly adjust the window size by one step up or down. On Windows, it's CTRL with the "+" and "-" keys on the numerical keypad, or CTRL - and SHIFT CTRL + on the regular keyboard. With macOS, it's COMMAND - / COMMAND+ on both the regular keyboard and numerical pad. Dragging the lower-right corner of the window ([Lower Toolbar \[p.56\]](#)) will also resize the interface to the next window size up or down. Note that in some DAWs, the same key commands may be used for zoom control. In this case, the DAW will take priority.

4.1.8. Theme

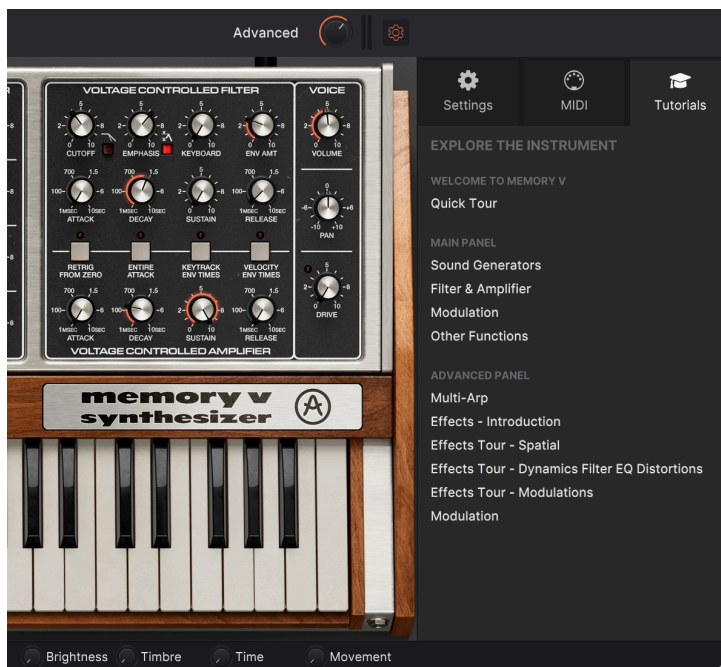
Memory V comes with two Themes: Light and Dark. You can switch between them at any time to match your mood or working environment.



The Theme only affects the upper/lower toolbars and menus.

4.1.9. Tutorials

Memory V comes with integrated Tutorials that walk you through different features of the instrument. When you click on **Tutorials** in the main menu, a list of chapters will pop up on the right side of the main interface.



When you select a chapter, it will load a special preset and guide you through with step-by-step instructions on how to make the most of Memory V. As you go through the tutorial, parts of the control panel are highlighted to show you where to focus your attention.



Click the X in the upper right corner to exit a particular chapter, and click Exit Tutorials at the bottom of the table of contents to close the Tutorials tab entirely.



If you're editing a Preset, make sure to save it before opening the Tutorials, because doing so will replace your current Preset with a special Tutorial preset and overwrite any unsaved edits. Be sure to save frequently!

4.1.10. Help

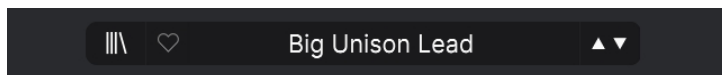
This section provides handy links to the Memory V User Guide and Frequently Asked Questions page on Arturia's website. Note that accessing these pages will require an Internet connection.

4.1.11. About

Here you can view the Memory V software version and developer credits. Click outside the About window to close it.

4.2. Browsing Presets

Memory V comes with a bunch of great-sounding presets, and there are three different ways you can access them via the Preset Browser controls in the middle of the Upper Toolbar.

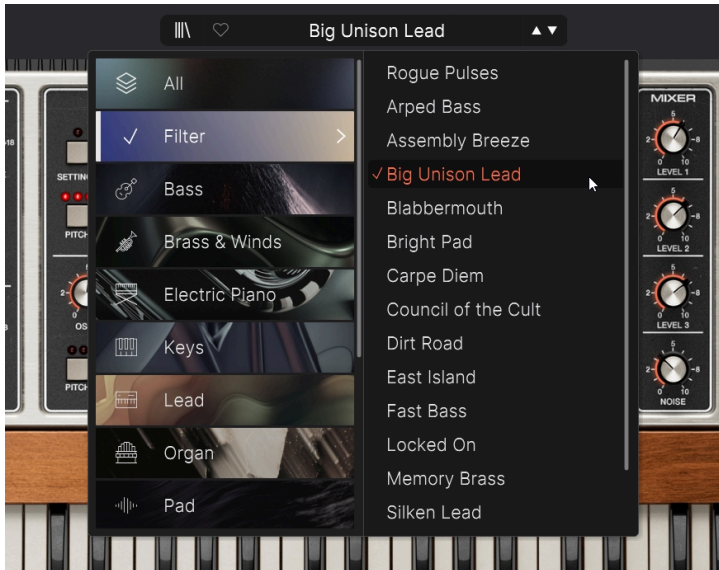


4.2.1. Preset Browser button

The Preset Browser button (the icon with four lines that look like books on a shelf) opens and closes the Preset Browser. This is covered in detail in the [Preset Browser \[p.144\]](#) chapter.

4.2.2. Preset Name

The Preset Name is listed alongside in the toolbar. Clicking the name reveals a dropdown menu that gives you access to the same presets as the Preset Browser, but in a more direct way, without the search tools. Click on any name to load that Preset or click away from the menu to close it. The sound categories on the left let you quickly jump to the appropriate subgroups of Presets (called [Types \[p.146\]](#)) without having to dive into the Preset Browser itself.



If you edit a Preset, an asterisk ('star') will appear next to the Preset Name, prompting you to save your edits before loading a different Preset.



If you've set any search filters in the Preset Browser, pulling up any of these lists in this way ignores them. You will see all the Presets of the selected Type.

4.2.3. Arrow Icons

The Arrow icons are the third way to access the presets, and you can simply select the next or previous preset in the filtered list by clicking on them. This is the same as clicking the Preset name and selecting the next patch on the list, but it does so with only one click.

4.2.4. Liked Presets

Between the Preset Browser button and the Preset name is a heart icon. This is the Like button that lets you quickly tag presets you like for easy recall later. Inside the Preset Browser, you can view, sort, and search for Liked Presets.

4.3. Advanced Button

Pressing the Advanced button reveals the Advanced panel containing the Arpeggiator, Effects, Modulators, Keyboard Settings, and Macro allocations. For more details, please go to the [Advanced Chapter \[p.17\]](#).



4.4. Output Level Knob

Very simply, it sets the overall output level of the instrument's sound from -60 dB to 0 dB, fully clockwise. The meters alongside give an indication of the level of the output.

4.5. Settings

The cog icon opens a side window that contains settings, MIDI configuration, and Tutorials. We have a whole chapter that digs into all these things; you can jump to it [here \[p.29\]](#).

5. GLOBAL

The Global Section has three modules that apply performance characteristics, tuning, and stability tweaks while letting us see what the output looks like.



5.1. Performance

The Performance module houses controls for the Glide, Velocity, Pitch Wheel, and Mod Wheel.

5.1.1. Glide



The Glide knob sets the time it takes for the pitch to slide smoothly from one note to the next. This is also known as portamento or slew and is used to create sliding sounds. With Glide set to zero, the Memory V behaves normally, where each note is unrelated to any others and plays independently. As you increase the glide, you'll hear the pitch slide between each note get longer. If you are playing chords, then the previous notes slide to the nearest new note.

The Glide range is set as time-per-octave starting from a barely audible 1ms to an enjoyable slide of 2 seconds.

5.1.2. Legato

With the Legato button engaged the notes only slide if they are played legato. That means when the end of one note overlaps with the beginning of the next. Notes played independently or simultaneously will not slide.

5.1.3. Velocity



The Velocity knob sets how much velocity gets sent to the destination, which you could translate as how hard you need to hit the keys to reach the maximum velocity.

Commonly, velocity is tied to the volume, which you can enable by clicking the Volume button. However, we also have the opportunity to send it to the filter section to play with the depth of the envelope modulation.

From the Default preset, it's not immediately clear how that works, as turning up the Velocity and enabling the Filter button doesn't appear to do anything. The key thing here is to turn up the ENV AMT knob, then pull the cutoff down around halfway and add a bit of Emphasis to taste.



The Velocity knob won't do anything unless it's directed to the Filter or Volume by enabling the buttons.

5.1.4. Pitch and Mod Wheels



- **PITCH BEND AMOUNT:** Defines the pitch range of the wheel in semitones. This ranges from 0 to 12 semitones, or a whole octave. The PITCH Wheel will bend the pitch of any held notes to the same amount unless you have enabled [MPE \[p.166\]](#) and have an MPE-enabled controller or DAW, in which case pitchbend can be done on a note-by-note basis.
- **MOD WHEEL LFO AMOUNT:** Sets the depth of LFO being routed to any of its enabled destinations. In the Default preset, this is set to the pitch of the first oscillator, which is what you would normally expect the Mod Wheel to effect. It is independent of the AMOUNT knob in the LFO MODULATION section and ranges from 0 to 10.

The MOD WHEEL can be used to modulate other parameters, either by changing the allocation in the LFO MODULATION module. Or it can be used as a Macro control by mapping whatever you wish to it in the Advanced window. Visit the [Advanced section \[p.17\]](#) of the manual for more information.

5.2. Scope



The Scope displays an oscilloscope reading of the current output as voltage over time. It will automatically switch to show the LFO output or OSC 3 voice modulation waveform when the appropriate controls are touched. There are no other controls for the Scope.

5.2.1. Unison

The Unison button enables Unison mode, which stacks the voices onto a single note rather than having voices sound on different notes. You can choose to allocate from 2 to 6 voices from the menu in the Lower Toolbar.



The Detune knob will set the amount of detuning between the Unison voices.



Unison Mode is always monophonic regardless of how many voices have been allocated to it.

5.3. Global



Within the Global Section is a Global module that has two very simple controls and one that's far more intriguing.

On the simple side, we have TRANSPOSE and TUNE. TRANSPOSE is a coarse tuning knob that affects the pitch of the entire synthesizer in a free-flowing way. It can shift the pitch up and down by 36 semitones and scale down to a 10th, then a 100th, then a 1000th of a semitone as you approach zero for very accurate tuning adjustments.

To take this further, we have the master TUNE knob that gives you 40Hz of play in both directions, starting with 440Hz at the zero position and then tuning flat to the left and sharp to the right.



Double-click the knobs to return the tuning to the default setting. The double click works in the same way on any knob or parameter.

5.3.1. Vintage

The VINTAGE knob is the one we turn to when we want the authentic sound of slightly imperfect and aging analog electronics. If you want a pristine Memory V sound, then leave this at zero, but for something more interesting, add a little bit of VINTAGE.

VINTAGE introduces subtle deviations, known as Dispersions, between the voices, and simulates the response of old, probably dusty components. The effect is very slight, but there's a discernible shift in character.



On the strip of wood between the controls and the keyboard, you might have spotted a not very well hidden secret panel. It looks like you'd need to use a thumbnail to open it, but a simple click will suffice. Behind this panel are 7 dispersion knobs. They set the relative amount of instability that gets sent to various parts of the synthesizer as applied by the VINTAGE knob.

The range is from 0 to 1, and you have controls for the oscillators' pitch, the square wave's pulse width, overall level, filter cutoff, resonance, modulation engine, and envelopes.

The VINTAGE knob ranges from 0 to 10 and is set to 5 by default because, as we know, much of the beauty of these classic old synths lies in their imperfections.

By default, Memory V plays without velocity just like the original synthesizer, before third party retrofitted modifications made this possible via MIDI. In the modern enhancements of Memory V, we have included velocity control that can be allocated to both Volume and Filter. The depth of the Pitch and Mod wheels are set on these two knobs. The wheels themselves live next to the keyboard and are mapped, by default, to the pitchbend and mod wheels (or similar controls) on your MIDI controller keyboard.

6. OSCILLATORS



Memory V has three oscillators, referred to as OSC1, OSC2, and OSC3, that combine to create the fat sound synonymous with the original synthesizer. They are identical in form but have some slight variations in features. There are a number of ways you can use them, for instance you can run them all together allowing the subtle variations to bleed through, you can detune them and enjoy the way the similar frequencies ebb and flow through one another, you can sync them to feel the tearing as the waveforms hold desperately to one another, or you could offset them into chords and intervals before using OSC3 to modulate them into chaotic tones.

6.1. Waveshape

The three oscillators offer up the same three waveforms: square, sawtooth and triangle. You can enable any combination of waveforms, with the buttons, to conjure up a more complex and harmonically rich result.

Each square wave has a PULSE WIDTH knob to the left, which can alter the duty cycle, or width of the top part of the square wave, from 0 to 100%, where all sense of the waveform is lost.



To hear the oscillators, they must be turned up in the [MIXER \[p.40\]](#).

6.2. Tuning

The OCTAVE switch allows you to offset the oscillators from one another by a number of octaves. It's defined by an archaic measurement of organ pipes in feet, where an 8' pipe would produce concert pitch. Halving the length of pipe to 4' raises the pitch by one octave; halving it again to 2' raises it again. Doubling the length to 16' drops the pitch by an octave. All it really means is that you've got an octave switch for two octaves up and one octave down for each oscillator.

Individual oscillator pitch tuning is available on OSC2 and OSC3, but not OSC1. OSC1 would be considered the primary oscillator and can be tuned with the GLOBAL TRANSPOSE and TUNE controls, and then the other oscillators would be tuned relative to it. The PITCH knobs will smoothly add or subtract up to 8 semitones.



Fine-tuning can be done by moving the PITCH knob with the right mouse button or by holding CTRL/Command as you hold the left mouse button.

6.3. Sync

Hard Sync locks the waveform cycles of two oscillators together, forcing one oscillator to restart its cycle in line with the fundamental frequency of the other. This creates rich and harmonically complex sounds and sweeps as you push the frequency of the two oscillators apart.



Press the SYNC 2 TO 1 button to sync OSC2 to OSC1. As you turn the PITCH knob on OSC2, it no longer detunes; instead, it generates harmonic intervals and complex tones, making the sound more interesting while staying in tune with OSC1.



For best results, the follower oscillator (the one doing the syncing) should be higher in pitch than the primary oscillator.



Under OSC3, you'll find the SYNC 1 TO 3 button, which will sync OSC1 to OSC3. This is a slightly more unusual situation because there's no individual PITCH knob for OSC1. What's important is that OSC1's pitch now follows OSC3's, which can get very interesting when using OSC3 for FM synthesis.

6.4. OSC3



The third oscillator has a dual role. It can be a pitched oscillator like OSC1 and OSC2, and contribute to the tone of the output. Or it can be a modulation oscillator, like a second LFO, and be used to control and affect other parameters in the synthesizer. We will get into the details of that in the [Modulation \[p.41\]](#) Section.

These extra abilities require a couple of extra buttons in the Oscillators section:

- **LOW** - Switches the speed of OSC3 down to frequencies associated with being a low-frequency oscillator (LFO). With this button enabled, the PITCH knob now has a range of ± 2.5 octaves. The pitch of OSC3 will be so low that you'll hear it just as clicks through the MIXER. Turn OSC3 down in the MIXER to prevent unexpected interference with the other oscillators.
- **KBD CONTROL** - This button locks OSC3 to the notes on your keyboard, enabling you to play it like any other oscillator. Disabling KBD CONTROL means that OSC3 doesn't change pitch with the keyboard, allowing it to act as an independent modulation source, or as a drone. With KBD CONTROL off, the PITCH knob range is ± 2.5 octaves.

6.5. Mixer



Each oscillator has its own level control in the MIXER module. The range is from 0 to 10, but after 5 (the 12 o'clock position), you will encounter subtle levels of distortion. This can add punch to the sound and even turn the triangle waves into sine waves.

6.5.1. Noise

The MIXER includes a level control for a pink noise generator, allowing you to blend noise with the oscillators' sound. This can be useful for effects, percussive noises, or adding texture.

7. MODULATION



The Modulation module contains two comprehensive modulators with multiple waveshapes and several possible destinations. The top half is a completely independent LFO (Low Frequency Oscillator), the bottom half is the VOICE MODULATION control that harnesses the shape of the filter envelope and OSC3 when you want to use it as an LFO or audio-rate modulator.

7.1. LFO Modulation



Modulation can be directed to any of the enabled destinations via the AMOUNT knob and the MOD WHEEL.

7.1.1. Settings



The SETTINGS button opens a window where you can adjust specific LFO settings.

- **Retrig:** If you enable retriggering, the LFO will begin its cycle on every key press rather than continuing uninterrupted. This turns the LFO from a single global modulator into a polyphonic one, as each voice triggers its own LFO.
- **Rate Type:** By default, the LFO rate is displayed as a frequency in Hertz (Hz). You can change this to sync to the tempo. "Sync" contains all the time divisions; "Sync.s" has the standard whole divisions; "Sync.t" has just the triplets; and "Sync.d" has just the dotted divisions.



When used as a plugin, the Tempo refers to the Tempo of your DAW. When in standalone mode, the Tempo can be found in the Audio MIDI settings under the Hamburger menu in the Upper Toolbar.

7.1.2. LFO Controls

- **RATE:** Sets the speed or frequency of the LFO. In Hertz mode, this ranges from 0.063Hz to 118Hz. In Sync mode, this ranges from a tempo multiple of 24 times down to a division of 1/48.
- **WAVEFORM:** There are five available waveforms: triangle, ramp down, ramp up, square, and Sample-and-Hold. Only one can be selected, and waveforms are not mixed.
- **AMOUNT:** The AMOUNT knob sets how much modulation is being sent to the selected destinations.

i The MOD WHEEL can also set the amount of modulation routed to the destinations, but this is a separate control from the AMOUNT knob in the LFO MODULATION module.

7.1.3. Destinations

The LFO can control up to 9 different destinations. Simply enable the button to connect the LFO to the destination. Those destinations are: - **PITCH:** The frequency of the three oscillators. - **PW:** The pulse width of the three oscillators' square wave. - **FILTER:** The cutoff frequency of the filter. - **VOLUME:** The overall volume of the synthesizer. - **PAN:** The stereo positioning of the sound.



When you click on the PITCH or PW (Pulse Width) buttons, a window comes up where you can select which oscillators you wish to modulate.

7.2. Voice Modulation



The second modulation section uses the filter envelope (or "Contour" as it was known in the original synthesizer) and oscillator 3 to modulate each voice independently. So the modulation occurs on the press of a key to that voice, not to any of the other notes currently being held, which have all been modulated separately.

7.2.1. Voice Modulation Controls

- **OSC3:** Sets the amount of modulation from oscillator 3 that's being sent to the selected destinations.
- **FILTER ENV:** Controls the amount of modulation from the filter's envelope being sent to the selected destinations.



- **OSC3 AMOUNT:** When enabled, the shape of the filter envelope is applied to the modulation amount from oscillator 3. This lets you create modulation that varies over time. When using OSC3 AMOUNT, the OSC3 control on the left is disabled.
- **INVERT:** Inverts the filter envelope as being applied to the destinations, and flips the waveform of oscillator 3.



You don't have to enable the "LOW" button on oscillator 3 to use it as a modulator. Leaving it at audio frequency rates brings in unusual tones and chaotic textures that we associate with FM or Frequency Modulation synthesis. Experimentation is the key to unlocking unexpected sounds.



You may notice on the SCOPE that the modulation waveform of oscillator 3 is the flipped version of the pitch oscillator waveform. For instance, the pitched sawtooth waveform is ramp up, whereas the modulation version is ramp down. This was due to the original circuit using an inverting amplifier to mix it with the envelope. You can use the INVERT button to flip the waveform back to match the pitch oscillator output.

7.2.2. Destinations

The Voice Modulation destinations are very similar to the LFO MODULATION section, except that you can't route anything to modulate oscillator 3. And it should be stressed that these are modulations per voice and so have a different feel to them than the global LFO MODULATION. - **PITCH**: The frequency of the first two oscillators - **PW**: The pulse width of the oscillators 1 and 2's square wave - **FILTER**: The cutoff frequency of the filter - **VOLUME**: The overall volume of the synthesizer - **PAN**: The stereo positioning of the sound.

There are many more modulation functions available in the [ADVANCED Section \[p.17\]](#) that go far beyond what was traditionally found on the front panel. We will delve into those in a later chapter.

8. FILTER



On the right of the Memory V, we have the sound-shaping section that contains the VOLTAGE CONTROLLED FILTER (VCF), VOLTAGE CONTROLLED AMPLIFIER (VCA), and associated envelopes, also known as Contours on the original synthesizer. In this chapter, we'll focus on the filter. For details about the VCA and VOICE module, please refer to [this chapter \[p.49\]](#).

8.1. Voltage Controlled Filter

The filter in the Memory V is modeled on the Moog 24dB/Octave low-pass ladder filter found in the original synthesizer. In addition, we've built in a 12 dB filter response to offer some sonic diversity and a more open, gentle character.

8.1.1. Filter Controls



- **CUTOFF:** Controls the filter's cutoff frequency. The button to the right replaces the original 24 dB/Octave response with a 12 dB/Octave response.

- **EMPHASIS:** Also known as Resonance, Emphasis boosts frequencies around the cutoff, giving a more pronounced filtered tone. This begins to self-oscillate somewhere between the 7 and 8 mark, giving a very pure and lively sine wave. The button to the right switches on bass frequency compensation to boost the lower end, which is often lost at high resonance levels.



When the filter is in self-oscillation, it can be played in tune with the rest of the oscillators when the KEYBOARD tracking is set to 10.

- **KEYBOARD:** Controls how much the voltage coming from the keyboard affects the filter cutoff frequency. As you move up the keyboard, the filter opens, giving a brighter sound on higher notes. The original synthesizer offered Off, 1/3, 2/3, or All, whereas the KEYBOARD control here offers a smooth range from 0 to 10, where 10 tracks at 1:1.
- **ENV AMT:** Envelope or Contour amount that controls how much of the filter envelope is used to modulate the filter cutoff.

8.1.2. Filter Envelope

The four-stage envelope set below the filter is dedicated to moving the filter cutoff frequency to the degree set by the filter ENV AMT knob. It can also be used in [Voice Modulation \(p.44\)](#). The numeric values around the ATTACK, DECAY, and RELEASE knobs reflect the original hardware, but the lengths of the stages in Memory V are slightly different.

- **ATTACK:** Sets the amount of time it takes to move the filter cutoff from its current value to its maximum value as defined by the ENV AMT control. The range is from 1ms to 8.5 seconds.
- **DECAY:** Sets the amount of time it takes to move from the maximum value to the value set by the SUSTAIN stage. The range is from 10ms to 42.5 seconds.
- **SUSTAIN:** Sets the value of the cutoff frequency (relative to the original value, as scaled by the ENV AMT) as notes are held. Ranges from 0 to 100%.
- **RELEASE:** Sets the amount of time it takes for the SUSTAIN cutoff value to return to the original value once the notes are released. This ranges from 10ms to 42.5 seconds.

8.1.3. Envelope Controls

There are four buttons that enable four controls that act upon both the filter envelope and the VCA envelope.



- **RETRIG FROM ZERO:** Normally, if you press another key during the attack stage of another note, the attack of the new note starts where the existing note is. Turning on RETRIG FROM ZERO ensures that on each new note, the attack stage starts again from zero.
- **ENTIRE ATTACK:** This was known as Unconditional Contour on the original synthesizer, and when enabled, it means that every time you press a key, the entire attack stage will be played regardless of whether you've released the key. Normally, releasing the keys makes the envelope jump to the RELEASE stage, but here, with a long attack, you'll hear it keep climbing after you've let go before jumping to RELEASE.
- **KEYTRACK ENV TIMES:** With this button on, the time set for each stage of the envelope will be modulated by the keyboard. Lower keys will play longer envelopes, whereas the higher you play, the shorter they are.
- **VELOCITY ENV TIMES:** Very similar to the previous button, but this time it's the velocity that governs the envelope's length. The harder you strike the key (the higher the velocity), the slower the envelope.

9. VCA AND VOICE CONTROLS



The VOLTAGE CONTROLLED AMPLIFIER (VCA) is represented purely by a four-stage envelope that controls the level of the output over time of any voice.

9.1. VCA Envelope

The four-stage envelope at the bottom of the VCF/VCA module is dedicated to shaping the level of each voice's output. The numeric values around the ATTACK, DECAY, and RELEASE knobs reflect the original hardware, but in fact, the lengths of the stages in Memory V are slightly different.

- **ATTACK:** Sets the amount of time it takes to move the level from zero to its maximum value. The range is from 1ms to 8.5 seconds.
- **DECAY:** Sets the amount of time it takes to move from the maximum value to the level set by the SUSTAIN stage. The range is from 10ms to 42.5 seconds.
- **SUSTAIN:** Sets the level for each voice as notes are held. Ranges from 0 to 100%.
- **RELEASE:** Sets the amount of time it takes for the SUSTAIN level to return to zero once the notes are released. This ranges from 10ms to 42.5 seconds.

Envelope Controls There are four buttons that enable four controls that act upon both the filter envelope and the VCA envelope.



- **RETRIG FROM ZERO:** Normally, if you press another key during the attack stage of another note, the attack of the new note starts where the existing note is. Turning on RETRIG FROM ZERO ensures that on each new note, the attack stage starts again from zero.
- **ENTIRE ATTACK:** This was known as **Unconditional Contour** on the original synthesizer, and when enabled, it means that every time you press a key, the entire attack stage will be played regardless of whether you've released the key. Normally, releasing the keys makes the envelope jump to the RELEASE stage, but here, with a long attack, you'll hear it keep climbing after you've let go before jumping to RELEASE.
- **KEYTRACK ENV TIMES:** - With this button on, the time set for each stage of the envelope will be modulated by the keyboard. Lower keys will play longer envelopes, whereas the higher you play, the shorter they are.
- **VELOCITY ENV TIMES:** - Very similar to the previous button, but this time it's the velocity that governs the envelope's length. The harder you strike the key (the higher the velocity), the slower the envelope.

9.2. Voice Module



The last panel on the right side of Memory V is the VOICE Module. It offers a couple of controls over how we hear the synthesizer and a rather nice overdrive circuit that wasn't on the original.

- **LEVEL:** - Sets the output level per voice, ranging from -60dB to 0dB. This would normally be the end of the audio processing chain, but with Memory V, we have an exciting effects engine to look forward to in the ADVANCED chapter [\[LINK\]](#)
- **PAN:** - Sets the stereo position of the voices, ranging from left to right.
- **DRIVE:** - The saturation level that gets driven into the filter and VCA.

9.2.1. Stereo Spread



The PAN control has a secret function. When you enable UNISON mode, it switches to a STEREO SPREAD control. Turning up this knob increases the width of unison voices in the stereo field, pushing them alternatively left and right.

10. KEYBOARD



The keyboard is a beautifully rendered interpretation of the original Memorymoog keyboard. It covers 5 octaves of full-sized keys and has pitch and modulation wheels to the left. Unlike the original, Memory V has velocity, aftertouch, and, with a compatible controller or DAW, expressive MPE support.

10.1. Virtual Keyboard Interaction

In terms of the virtual on-screen keyboard, you cannot access aftertouch or MPE control with a mouse. You can, however, interact with velocity. Velocity varies depending on where you click on a key. The highest velocity is at the leading edge of a key, and as you click towards the back of the key, the velocity decreases.

 For velocity to work on the virtual keyboard, it has to be enabled in either the PERFORMANCE module or in the ADVANCED keyboard section.

10.2. Vintage Dispersion

Above the keyboard, to the left in the wooden panel, is what appears to be a hidden access panel. Hover your mouse over it, and you'll peek inside to see a row of 7 knobs. Click to open the panel.



These knobs set how much instability is introduced to various components of the synthesizer when the VINTAGE knob is turned up. More details can be found on the [Global \[p.30\]](#) page.

10.3. Pitch and Mod Wheels



The PITCH and MOD Wheels are set via the two knobs in the PERFORMANCE module.

- **PITCH BEND AMOUNT:** Defines the pitch range of the wheel in semitones. This ranges from zero to 12 semitones, or a whole octave. The PITCH Wheel will bend the pitch of any held notes to the same amount unless you have enabled [MPE \[p.166\]](#) and have an MPE-enabled controller or DAW, in which case pitchbend can be done on a note-by-note basis.
- **MOD WHEEL LFO AMOUNT:** Sets the depth of LFO being routed to any of its enabled destinations. In the Default preset, this is set to the pitch of the first oscillator, which is what you would normally expect the Mod Wheel to affect. It is independent of the AMOUNT knob in the LFO MODULATION section and ranges from zero to 10.

The MOD WHEEL can modulate other parameters by changing the allocation in the LFO MODULATION module. Or it can be used as a Macro control by mapping whatever you wish to it in the Advanced window. Visit the [ADVANCED section \[p.17\]](#) of the manual for more information.

10.4. ARP and HOLD

The [ADVANCED section \[p.60\]](#) has a very detailed and multi-faceted arpeggiator that you can enable from the ARP button just above the PITCH Wheel. There are no ARP-related controls in the standard keyboard view other than the HOLD button, which sustains any played notes either statically or as running through the arpeggiator.

- **ARP:** Turns the ARP on and off.
- **HOLD:** Sustains any played notes.

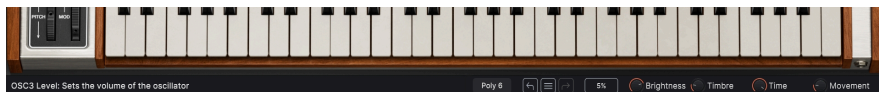
10.5. Playing from a computer keyboard



If you don't have a MIDI controller keyboard, you can trigger notes from your QWERTY keyboard. You can play an octave plus a ninth in the key of C according to the diagram above. In addition, the Z key shifts the pitch range an octave or two down, and the X key shifts it an octave or two up.

i This feature always works when Memory V is used in stand-alone mode, but may behave differently in a DAW when Memory V is run as a plug-in, as other key-bindings may be in play. You may need to adjust your DAW's settings accordingly.

11. LOWER TOOLBAR



Running along the bottom of the Memory V is the Lower Toolbar. It provides quick access to useful information, polyphony and editing settings, and is home to the four Macro controls.

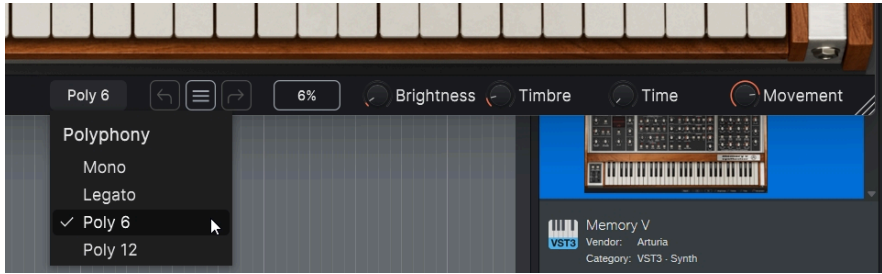
11.1. Parameter Name

On the left, the Parameter Name area displays the name of a parameter and a description of what it does when you hover your mouse over it or click it to adjust its value. The control's current value pops up in a tool tip that appears next to the control.



i You'll often find that simply hovering over a control brings up enough information to clarify what it does without having to go back to the manual or Tutorials.

11.2. Polyphony

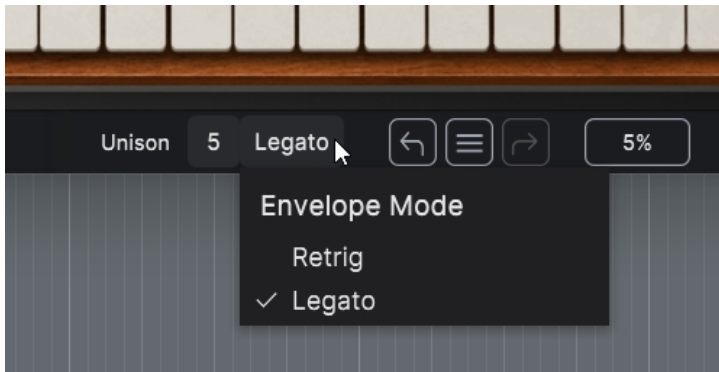


The first of the parameters, going left to right, are the polyphony settings. The original Memorymoog was a 6-voice instrument, but here we have a few more options.

- **Mono:** Plays a single note at a time and envelopes retrigger on every new note.
- **Legato:** Plays a single note, but the envelope only retriggers if the previous note has been released, allowing you to play in a legato style.
- **Poly 6:** The original polyphony count of 6 voices.
- **Poly 12:** An expanded polyphony count of 12 voices.

11.3. Unison

When the UNISON mode is engaged by clicking the button in the SCOPE panel, some different options appear in place of the Polyphony settings.



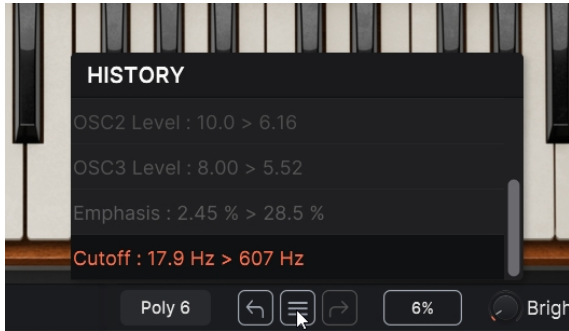
You can choose a voice count from 2-5 voices and select whether you want the envelopes to be retriggered, as in Mono or Legato mode.



Mono and Unison differ because while they both produce a single note, the number of voices being used is not the same. In Mono mode, you're using a single voice at a time, in Unison, you are using more than 1 voice stacked on top of one another to produce a fatter, detuned sound.

11.4. Undo / Redo

The left arrow undoes the last change to any parameter in Memory V, whereas the right arrow redoes the last undone change. If an event is selected in History, pressing Undo moves to the previous event, and pressing Redo moves to the next event.

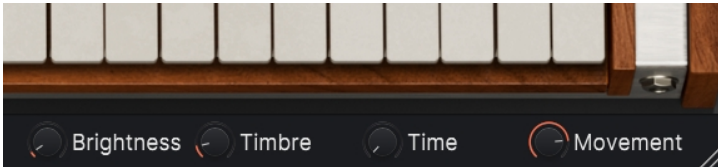


The center icon with three horizontal "hamburger" lines displays a list of recent changes. Click on an entry to restore the patch to that state. This can be useful in the event you happen to go too far in your sound design and want to revert to an earlier version.

11.5. CPU Meter

Displays the current CPU usage of the instrument. Hovering your mouse over the CPU Meter will change it into a PANIC button. In the event of stuck notes or other issues, clicking on PANIC will send a MIDI Panic message, silencing all notes and resetting other MIDI control values.

11.6. Macros



The four macro controls are a powerful way of affecting large amounts of change with the turn of a single knob. They can be mapped and scaled to many different parameters simultaneously. We will get deep into the details of Macros in the [ADVANCED \[p.58\]](#) chapter.

11.7. Resize handle

The diagonal lines in the corner allow you to quickly resize the plug-in window. Click and drag, then release the mouse; the interface size will jump to the nearest option in the Resize menu.

12. ADVANCED

The ADVANCED panel is where we get to push Memory V into all sorts of places the original synthesizer could never go. It has a four-channel arpeggiator, a host of effects, further expressive modulation options, and it's where we set up the MACROS.

To access the ADVANCED panel, click on the ADVANCED button on the right side of the Upper Toolbar. The ADVANCED panel replaces the entire keyboard section of Memory V and leaves us free to play with all the controls and parameters.

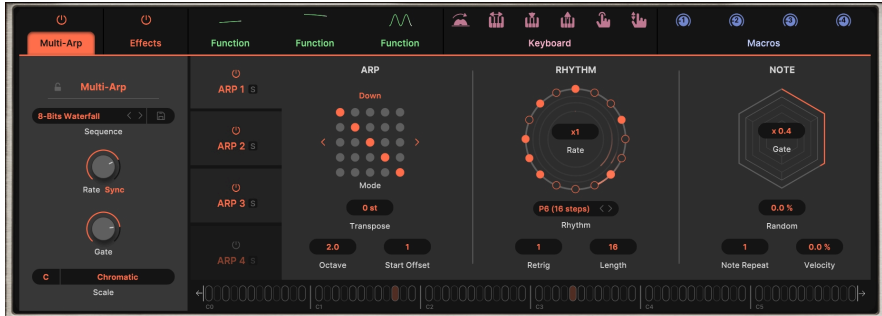


Within the ADVANCED section, there are five main features.

Feature	Description
Multi-Arp [p.60]	A four-channel arpeggiator with controls over direction, rhythm, and gate length.
Effects [p.74]	A four-slot effects engine with a choice of 18 effects.
Modulators [p.111]	A section of three modulation slots that can be configured as an Envelope, Function, Random, Voice Modulator, or Mod Sequencer.
Keyboard [p.138]	Detailed control over how Memory V responds to a MIDI keyboard controller, including aftertouch and MPE settings.
Macros [p.58]	Set the mapping of the four Macro controls.

Use the links above to skip to the relevant chapter for more details.

13. MULTI-ARP



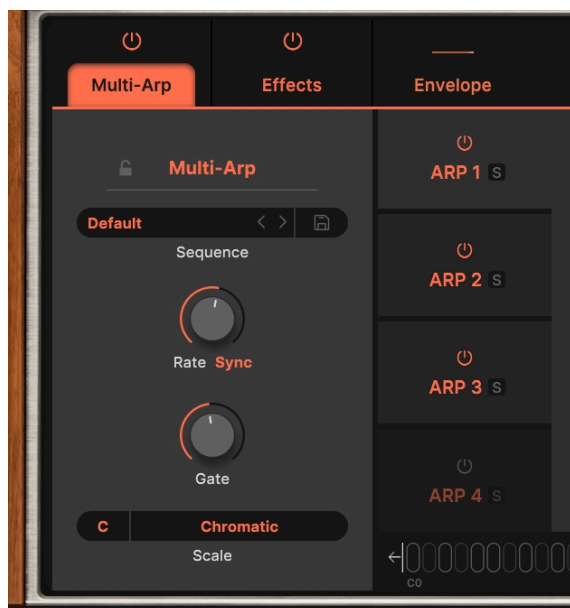
An arpeggiator transforms held notes and chords into repeating patterns. For as long as the notes are held, the arpeggiator will play with them under the direction of our choices.

The Multi-Arp is a four-track arpeggiator that can explore polyrhythms and competing ideas within the framework of the same held notes. In other words, hold down a few notes, and four completely different arpeggiations can occur. It can be turned on or off by the Multi-Arp Enable button at the top of the tab.



The Multi-Arp Enable button is mirrored in the Keyboard view by the ARP button above the Pitch Wheel.

13.1. Common Settings

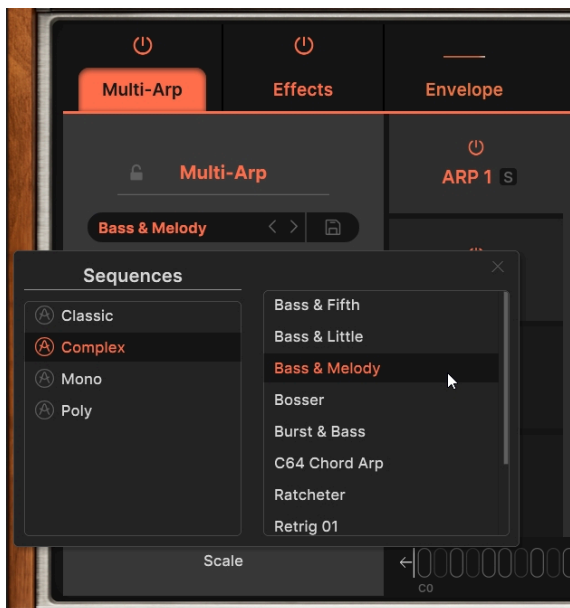


The first panel in the Multi-Arp deals with presets and settings that are common to all the ARP channels.

13.2. Lock

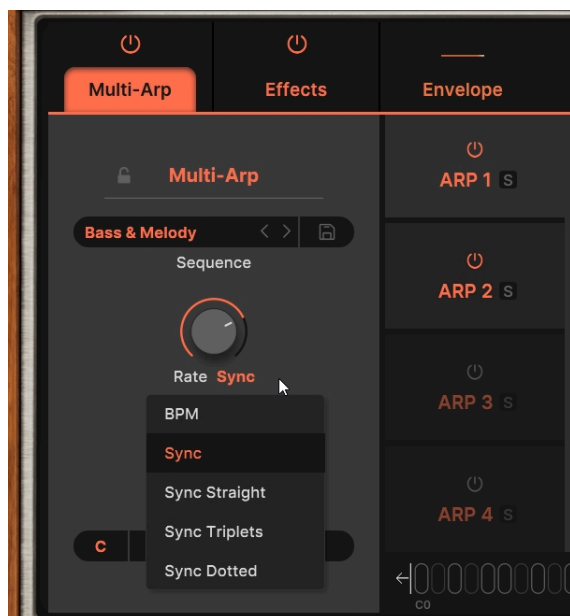
The padlock icon at upper left ensures the current Multi-Arp settings will not change even if you change the Memory V Preset. This is useful for crafting an arpeggio as you browse for the perfect sound to play it.

13.3. Presets



A number of preset patterns and setups are available by clicking on the Sequence menu. You can also use the arrows to step through them one at a time. Click the disk icon to save all the current Multi-Arp settings as a user preset. You will be prompted to name it, then you can recall it at any time from the user bank.

13.4. Rate and Tempo Sync



The Multi-Arp's rate can run free or be synced to the project tempo via a drop-down menu accessed by clicking on Sync. The options are:

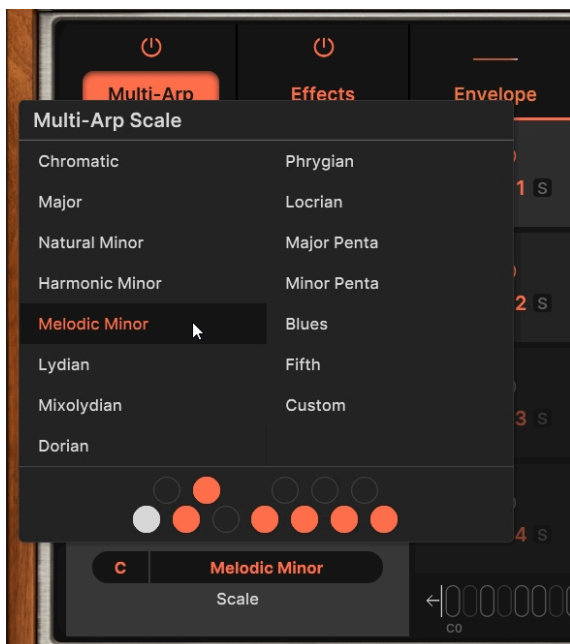
- **BPM:** Free-running in beats per minute
- **Sync:** All tempo divisions are available when you turn the knob
- **Sync Straight:** Only even-numbered tempo divisions.
- **Sync Triplets:** Contains triplet tempo divisions where three notes are played in the time of two.
- **Sync Dotted:** Contains dotted tempo divisions, which add half the value of the note to itself.

13.5. Gate Time

Gate time shortens or lengthens the duration of each note the Multi-Arp plays. In musical terms, this leads to a more sustained sound at longer gate times and a clipped sound at shorter ones. Thanks to a gate multiplier per Multi-Arp track, each track can have a different effective gate time.

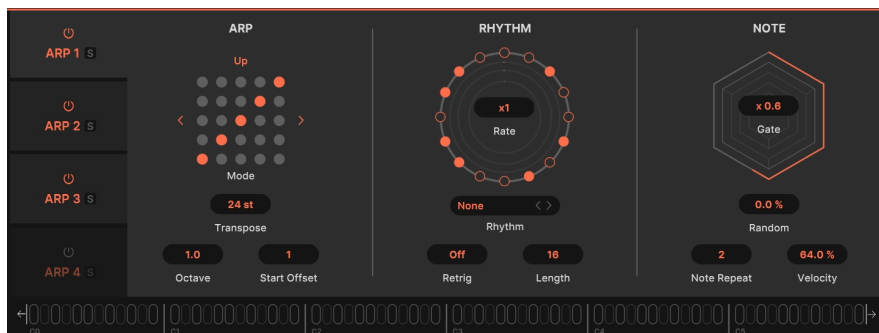
13.6. Scales

The Multi-Arp can play chromatically or be confined to a number of scales and modes from traditional music theory. Click on the note field to the left to set the root note of the scale. Then click on the scale name to bring up a list of available scales:



Notice the *Custom* option. This sets a scale that you define by clicking on the orange circles at the bottom of the menu, which are arranged as a piano octave. Orange indicates an allowed note.

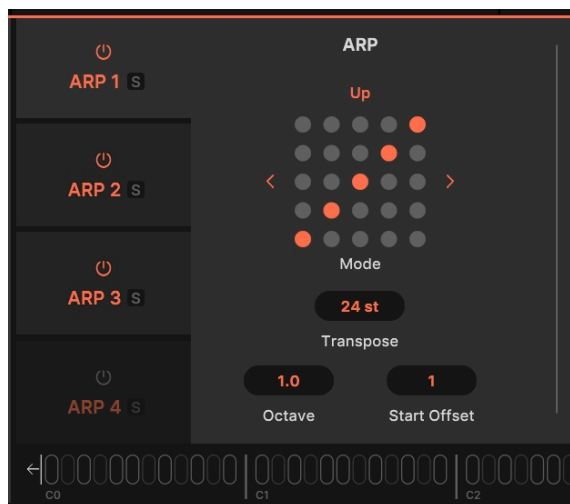
13.7. ARP Channels



With reference to the common settings, the four ARP channels can be set up independently. Each one can be accessed through its tab, where you'll also find an On/off button and a Solo button that mutes the other channels so you can work on it by itself. All the functions are the same for each channel.

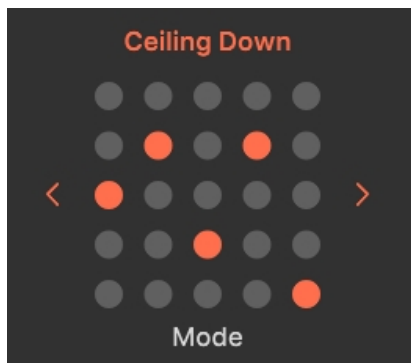
 You can only turn the individual arpeggiator channels on and off in the ADVANCED view. The ARP button on the keyboard enables or disables the entire Multi-Arpeggiator.

13.8. ARP Section

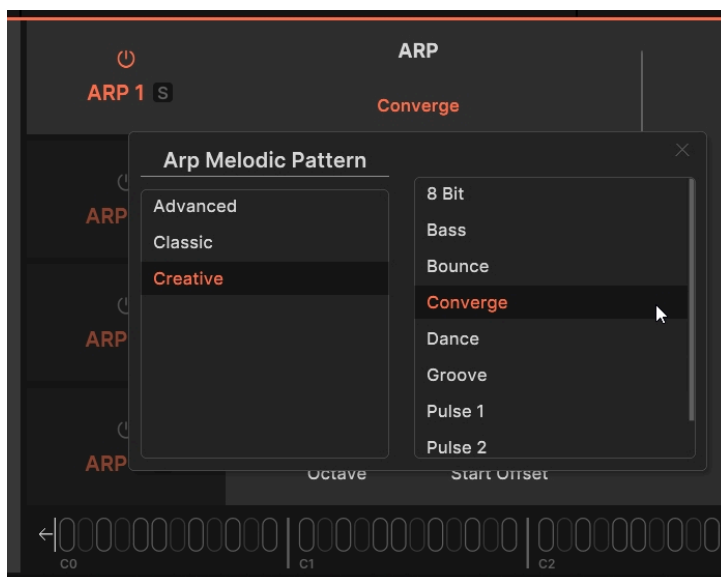


Many vintage synth arpeggiators had simple up, down, up/down, and random modes that controlled the order in which the synth played notes in a held chord. The Multi-Arpeggiator gives you so much more.

13.9. Pattern

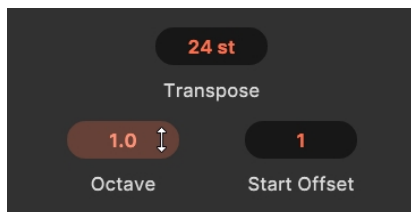


The 5 x 5 matrix of dots illustrates the current pattern. This doesn't necessarily mean the pattern has five notes; it's simply a visual reference to the up-and-down direction the pattern takes. You can audition the patterns using the arrows, or click on the matrix to display the full menu, with categories on the left and patterns on the right:



- **Advanced:** Patterns that follow more complex rules while still keeping a strong sense of repetition
- **Classic:** Traditional modes like those found on most analog synth arpeggiators
- **Creative:** Fun, unconventional patterns that experiment with different melodic and rhythmic phrasing

13.10. ARP Settings



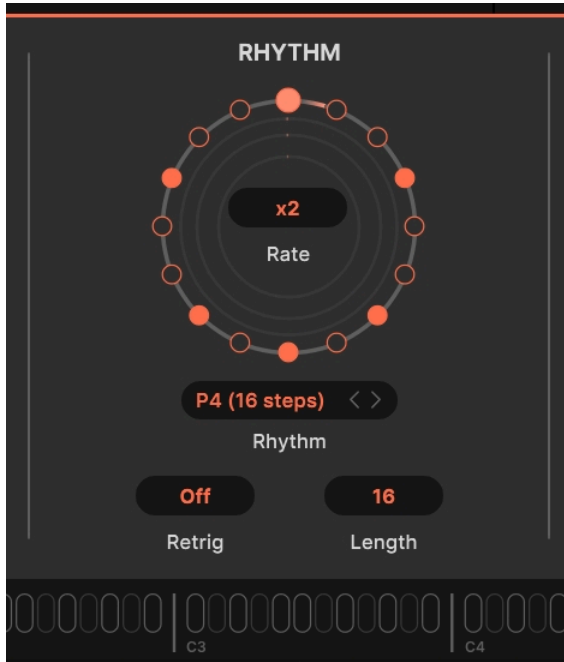
Three further settings govern the pattern behavior. - **Transpose**: Changes the pitch of all notes in the pattern in semitones - **Octave**: Determines the range of the pattern in octaves, including partial octaves - **Start offset**: Defines which step in the pattern is the first step played

Drag up or down on any of the fields to edit them.



Values for Octave range are expressed as a decimal. Given that a chromatic scale has 12 notes, a range of 3.5 octaves would therefore split the octave at the tritone – i.e., F#, assuming a root note of C.

13.11. RHYTHM Section

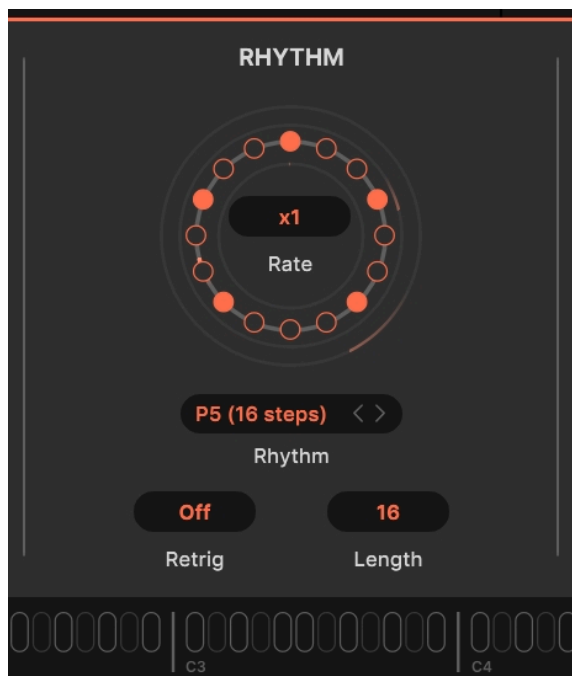


In the Multi-Arp, patterns are not restricted to playing an evenly spaced series of notes. The Rhythm section allows you to determine the rhythm of the pattern by altering time, length and turning steps on and off.

The rhythm of the arpeggiation is represented by a circle of steps.

1. Each dot represents a step in the playing of the arpeggiation. When all dots are active (orange), the pattern plays every step evenly as a conventional arpeggiator.
2. When dots are deactivated (by clicking on one), the step becomes a rest or rhythmic gap before the next note plays.
3. In terms of pitch, the next note is played on the next active step in line with the ARP direction of travel. No notes are skipped, but rather are held until the next active step.

Inside the circle of steps are three more fainter circles that represent the rhythm part of the other active ARP channels. As you select another channel, that circle becomes populated with dots.

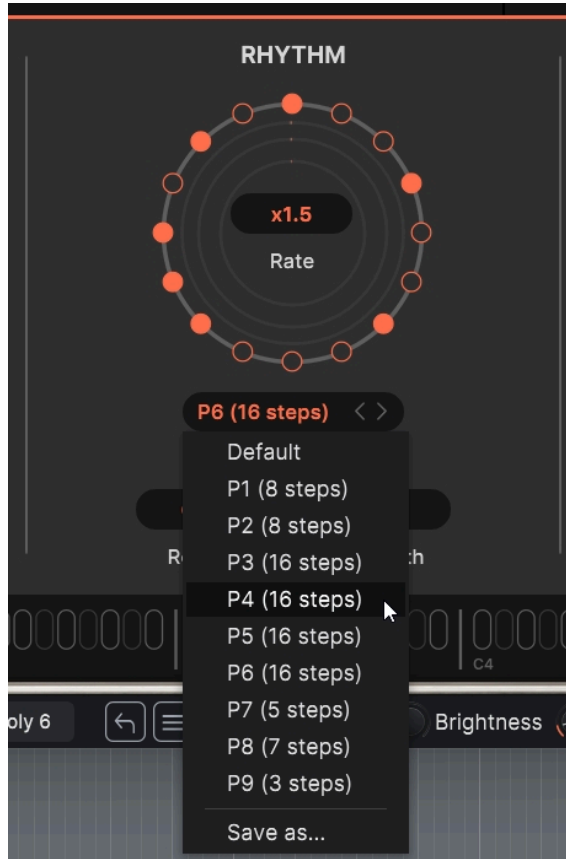


As the ARPs play together, you'll be able to see a sort of playhead going round each circle, visualizing the speed and timing of each ARP.

13.12. RHYTHM rate

The Rate setting in the center of the circles is a multiplier/divider. It causes the individual ARP channels to run at a fraction or multiple of the global Rate set on the knob on the Multi-Arp panel. Experiment with this across more than one part for some wild avant-garde polyrhythms!

13.13. RHYTHM Presets



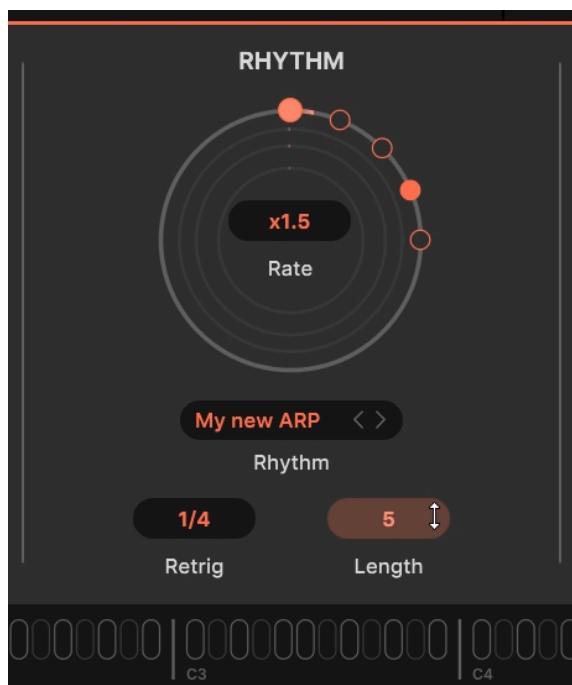
The Multi-Arp comes with nine factory Rhythm presets, plus the default of all 16 steps being active. Step through them by clicking on the sideways arrows, or click on the name to bring up the menu. Some of them have unusual step lengths that aptly demonstrate the versatility of the Multi-Arp.

If you prefer to find your own rhythms, then you can save your own presets by clicking "Save as..." and naming it in the prompt that pops up. It will then be available in the menu.

13.14. Retrigger

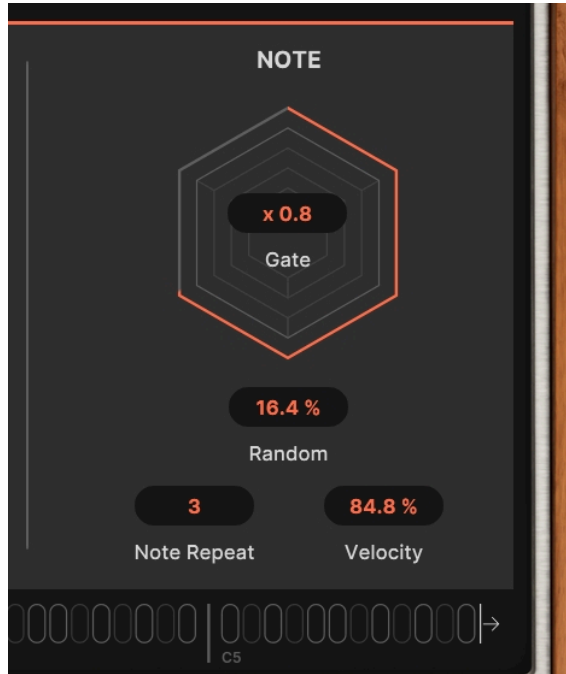
Retrig is a draggable field that causes the Multi-Arp pattern to restart from the beginning. It has quite a lot of options, which you just click and drag through – there is no pop-up menu. - **Off:** Pattern loops normally, and the pattern is triggered at the top by the first note and continues to loop regardless of how many notes are added, until all notes are released. - **Note:** Pattern restarts whenever a new key is pressed. - **Numeric values:** The pattern retriggers on the specified multiple or subdivision of a bar.

13.15. Length



Length simply sets the overall pattern length. The default is 16 steps, but you can set odd or uncommon lengths. In the above example, when the pattern completes step 5, it returns to step 1 and starts working through the steps all over again.

13.16. Note Section



The final section of the Multi-Arp governs how individual notes behave.

13.17. Gate Multiplier

In the center of the hexagon graphic, designed to visualize the gate length of a note, is a multiplier/divider value that references the Gate length set on the Multi-Arp panel. It can be set up to 2 times more than the main Gate length or down to almost nothing. Manipulating the Gate lets you give the arpeggiation longer or shorter held notes for the duration of each step.

13.18. Note parameters

The final parameters for individual notes in the Multi-Arp part are as follows:

- **Random** introduces randomness to the part's gate time, octave, and velocity. Octave randomness is subject to the range set by the Octave parameter, which must be set to a value greater than 1.0 for randomness to be heard.
- **Note Repeat** adjusts for how many steps the same note is repeated before the pattern moves on to the next note, from one to four times. So, if you held a C chord and set Note Repeat to 4, the C note would sound on the first 4 active steps, then the E note on the next 4 active steps, and so on.
- **Velocity** is an offset for MIDI velocity as played by the Multi-Arp part, and expressed as a percentage. In terms of what you can hear, it makes arpeggiated notes louder or softer.

13.19. Multi-Arp Visualizer



Across the bottom of the Multi-Arp is a visualizer in which all notes played by all active channels can be seen scattered across something resembling a keyboard. Brighter coloured keys correspond to notes in the currently selected channel, while the slightly dimmer ones indicate notes from the other channels. Click the arrows on either end to move through the entire possible note range, as the visualizer has screen space to show six octaves.

13.20. Using the Multi-Arp externally

In addition to playing Memory V, the Multi-Arp can transmit its MIDI note data to an external destination such as another virtual instrument or even a MIDI interface. This allows you to use its sophisticated patterns and rhythmic options to play other synths!

Memory V does not contain settings or controls for this. Most DAWs, as well as plug-in host programs geared for live performance can route MIDI from a given virtual instrument track to another instrument track, MIDI track, or port and channel on a connected MIDI interface. If the track in which Memory V resides is configured to transmit MIDI, and the instrument on the other end is configured to receive it, that instrument should get played by the Multi-Arp's output.

Consult your DAW or host program's documentation for the exact MIDI routing settings to make. Here's an example using Fender Studio Pro where the MIDI input of the Jup-8000 V track is set to "Memory V" and receives the notes that come from the Memory V's Multi-Arp.



14. EFFECTS



Memory V includes a suite of powerful stereo effects curated from our latest V Collection of virtual instruments. You can use up to four effects at once, and each of the four effects slots offers a choice of 18 pedal-style effects.

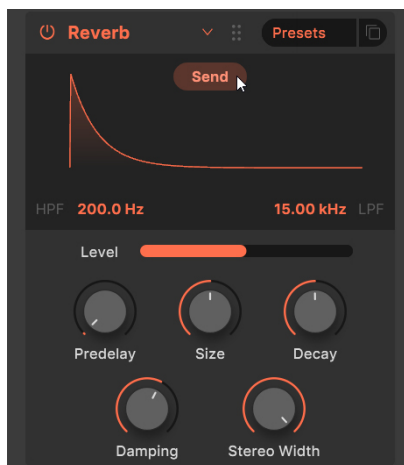
The power button above the EFFECTS tab turns the effects rack on and off and can be used as a global bypass.

14.1. Effects Routing



By Default, effects routing is “hard-wired” as serial. The signal is first processed by the effect in the slot at far left, then moves from left to right. This keeps things simple. Just set up the effects chain you want, like a guitar pedalboard.

However, the Spatial effects (Reverb, Delay, Tape Echo and Pitch Delay) also offer send-based parallel routing.

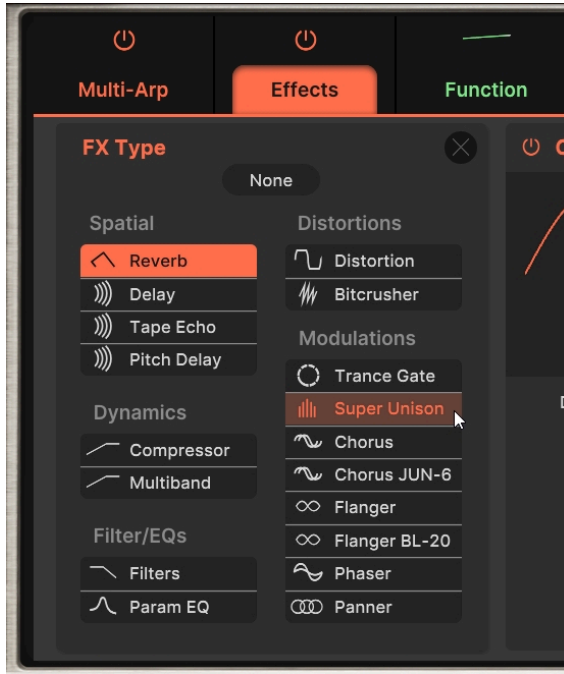


Click the Insert button, and it will change to Send. Notice that the Dry/Wet slider has now changed to a Level slider.

When an effect is in Send mode, it sits in parallel to whatever effects are still Inserts. The Insert effects still follow left-to-right serial routing. So, let's say you have a Parametric EQ, Distortion, and Compressor in an insert chain, in that order. If the fourth effect is Reverb, raising the Level slider applies Reverb to the output of Memory V independently of the other three effects.

i In practice, this can make a big difference. Reverb, for example, is often the final effect in a chain. If the chain is entirely serial, all the post-FX sound is inside the reverb space. You may or may not want that result. If you prefer the reverb only affect the pre-FX instrument sound, switch to Send routing.

14.2. Selecting an effect



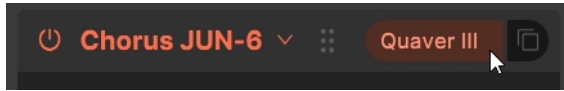
Click the name field at the top of any of the effects slots (you can also click any empty square that says “none” above it) to bring up the effects selection menu. The effects are divided into five categories to make choosing a little easier.

- **Spatial:** Reverb, delays, and tape echo
- **Dynamics:** Compressor and Multiband Dynamics
- **Filter/EQs:** Multi-mode synth-like filter and parametric equalizer
- **Distortion:** Distortion effect with 16 different algorithms; Bitcrusher
- **Modulations:** Super Unison, choruses, flangers, phaser, and stereo panner

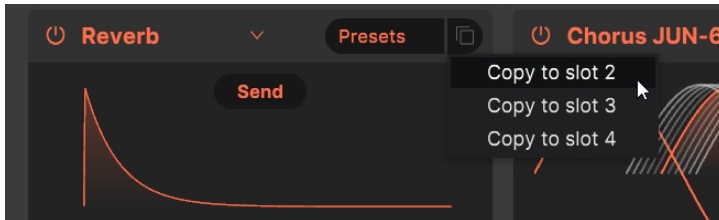
We will go through all the effects in detail below.

14.3. Effect top row functions

Before we get to the individual effects, there are a couple of important functions that are common to all of them and live in the top row header of any loaded effect.



- **Power button:** Bypasses the effect.
- **Name:** The currently loaded effect and where you click to pull up the list of effects.
- **Drag and drop:** If you hover your mouse over an effect, a small bundle of 6 dots appears in the effect header. You can click and drag on the dots to rearrange the effects order.
- **Presets:** A selection of preset configurations of the effect, and where you can save your own.
- **Copy:** Copy one effect to another slot. When you click on the Copy icon, a list pops up where you can choose which slot to copy it to. Any existing effect will be replaced.

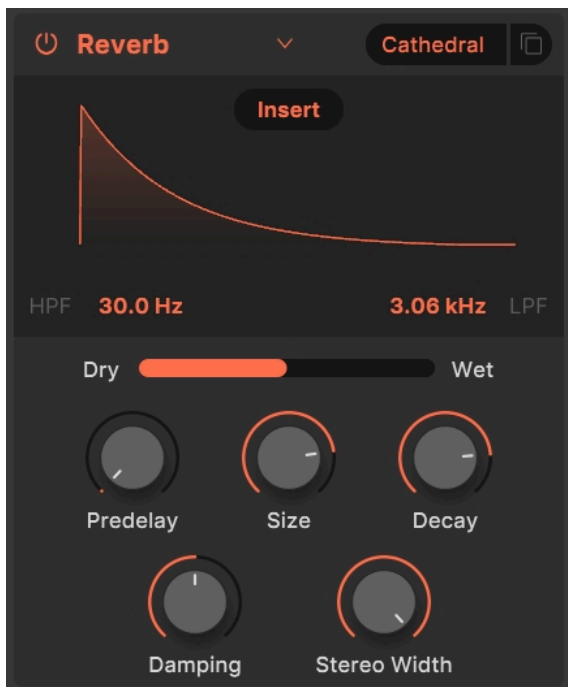


The top part of the effect visualizes some of the parameters and tries to give you a sense of what it's doing. If you click and drag in the visualizer, you'll find that you can intuitively control some of those values.

14.4. Effects List

What follows are details of all 18 effects that can be loaded into any of the four effects slots.

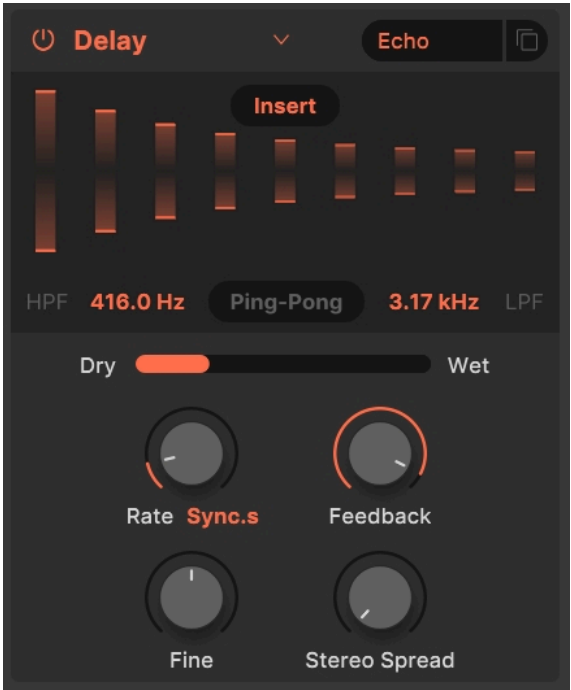
14.4.1. Reverb



Reverb is the sound of a space – a recording studio, concert hall, stairwell, tiled bathroom, you name it. Reverb is often used as the final effect in a chain to blend everything else that's going on into a single acoustic space, lending cohesiveness to the sound. Clicking and dragging up and down in the visualizer changes the Decay, whereas dragging left and right changes the size.

Feature	Description
HPF	High-pass filter, reduces the low frequencies below the set value.
LPF	Low-pass filter, cuts out the high-frequency content above the set value.
Slider	As an insert, the slider blends between the dry (before the effect) and wet (after reverb) sound. As a Send, it sets the amount of signal sent to the reverb.
Predelay	Sets the amount of time before the input signal is affected by the reverb.
Size	Adjusts the room's size: counter-clockwise makes it smaller, clockwise makes it larger.
Decay	Determines the length of time the reverb effect will last.
Damping	Controls the rate at which high frequencies decay.
Stereo Width	Adjusts the reverb from mono to an increasingly wide stereo space.

14.4.2. Delay

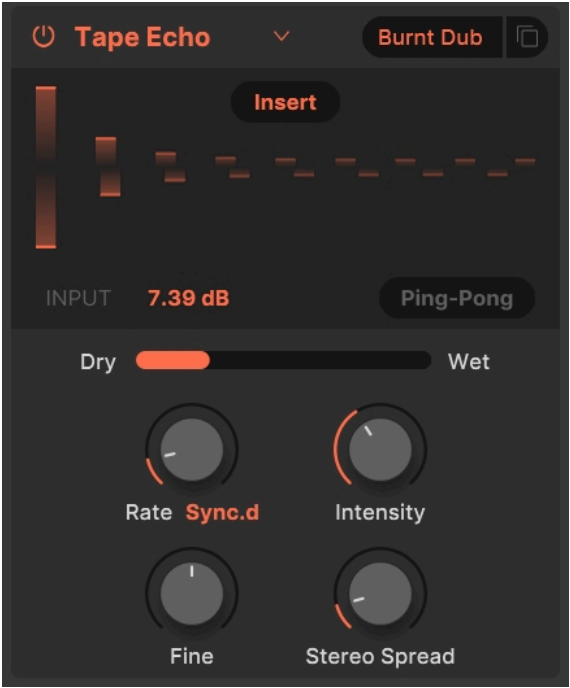


Delay is an effect that makes a copy of an input sound and repeats it at a set time period. We used Feedback to send the delayed sound back into the Delay to generate another repeat. We often experience it as an echo. How quickly and how many times it's repeated is defined by the rate and feedback controls. The visualizer shows the relative distance between repeats, the strength of each one and its stereo width. Clicking and dragging up and down in the visualizer changes the Feedback, whereas side-to-side changes the Rate.

Feature	Description
HPF	High-pass filter that reduces low frequencies in the delayed signal below the set value.
LPF	Low-pass filter that cuts out high-frequency content in the delayed signal above the set value.
Ping-Pong	Swaps between Classic L/R delay, where Stereo Spread introduces an offset between left and right for stereo effects, and Ping-Pong mode, where left and right delays alternate at a panning distance set by Stereo Width.
Slider	As an Insert, the slider blends between the dry (before the effect) and wet (after the Delay) sound. As a Send, it sets the amount of signal sent to the Delay.
Rate	Changes the length of time between each delayed signal. It can be from 2ms to 2000ms, or 2 seconds, or synced to tempo with Straight, Triplet, or Dotted options. Sync options can be selected by clicking on the current mode next to 'Rate'.

Feature	Description
Feedback	Sets how much of the delayed signal is fed back into the effect, which we hear as the number of repetitions before the echoes fade away. At maximum settings, this can lead to self-oscillation, where the echoes continue to build indefinitely.
Fine	Fine tunes the delay time ± 50 ms for very precise settings.
Stereo Spread/Width	In Classic (non-Pin-Pong) mode, the Stereo Spread introduces an offset between left and right delays. In Ping-Pong, it becomes Stereo Width and increases the severity of the left/right width from mono to hard panning.

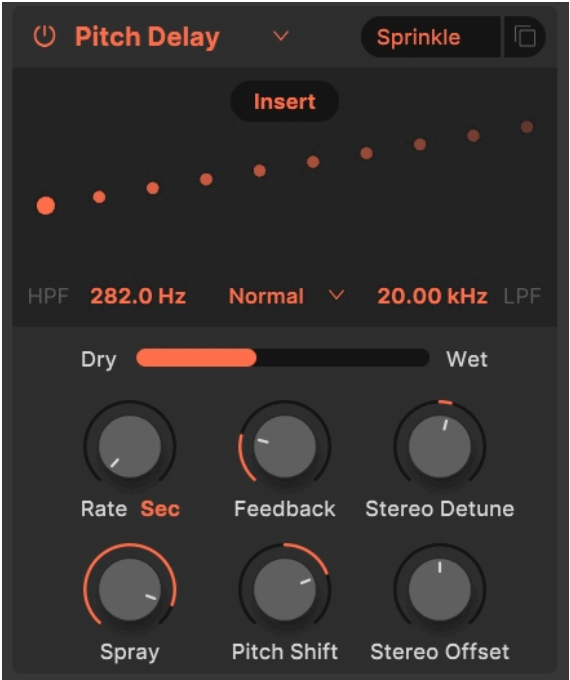
14.4.3. Tape Echo



A Tape Echo is a different sort of delay effect. It's modeled on the idea of using tape loops and playback heads to generate repeating echoes of the input signal. Because of the analog technology and the character of tape, it tends to impart warmth, saturation, and a certain amount of instability and loss of high frequencies that gets worse with each echo. Clicking and dragging up and down in the visualizer changes the Intensity, whereas side-to-side movement changes the Rate.

Feature	Description
Input	Sets the input gain to the Tape Echo from -12dB to +12dB. At positive dB values, the resulting echoes will be overdriven.
Ping-Pong	Swaps between Classic L/R delay, where Stereo Spread introduces an offset between left and right for stereo effects, and Ping-Pong mode where left and right delays alternate at a panning distance set by Stereo Width.
Slider	As an insert, the slider blends between the dry (before the effect) and wet (after the Echo) sound. As a Send, it sets the amount of signal sent to the Tape Echo.
Rate	Changes the length of time between each delayed signal. It can be from 10ms to 1000ms, or 1 second, or synced to tempo with Straight, Triplet, or Dotted options. Sync options can be selected by clicking on the current mode next to "Rate".
Intensity	Controls the amount of effected signal fed back into the Tape Echo, which determines the number of repetitions until the echoes fade away. At maximum intensity, the echo will loop indefinitely with ever-decreasing fidelity.
Fine	Fine tunes the delay time +50ms for very precise settings.
Stereo Spread/Width	In Classic (non-Pin-Pong) mode, the Stereo Spread introduces an offset between left and right delays. In Ping-Pong it becomes Stereo Width and increases the severity of the left/right width from mono to hard panning.

14.4.4. Pitch Delay



Pitch Delay adds a pitch-shifting element to an analog-style delay effect so that echoes can be higher or lower in pitch to the input signal. This can create harmonies and runs of notes along with some very weird shimmering and deteriorating sounds. Clicking and dragging up and down in the visualizer changes the Pitch Shift, whereas side-to-side movement changes the Rate.

Feature	Description
HPF	High-pass filter that reduces low frequencies in the delayed signal below the set value.
LPF	Low-pass filter that cuts out high-frequency content in the delayed signal above the set value.
Delay Mode	Gives a choice between Normal, which only repeats the Pitch Shift, and Octave Up or Octave Down, where an octave shift is added between the Pitch Shifts.
Slider	As an insert, the slider will blend between the dry (before effect) and wet (after Echo).
Rate	Changes the length of time between each delayed signal. It can range from 16ms to 2 seconds, or be synced to tempo with Straight, Triplet, or Dotted options. Sync options can be selected by clicking on the current mode next to "Rate".
Feedback	Controls the amount of pitch-shifted signal being fed back into the Pitch Delay. Each repetition gets a further pitch shift. With Pitch Delay, the repetitions tend to pitch themselves past the filter settings quite quickly, so self-oscillation or indefinite repeats are not possible.
Stereo Detune	Detunes between left and right channels.
Spray	Adds jitter and small amounts of randomization to the delay time.
Pitch Shift	Sets the pitch shift in semitones up or down to +-24.
Stereo Offset	Adjusts the time offset between left and right channels to widen the stereo image.

14.4.5. Compressor



A Compressor is used to control the dynamic range of a sound: it reduces the difference between the softest and loudest levels a sound can have. It does this by reducing the gain by a certain amount (the ratio) once the audio reaches a certain level (the threshold). The meter on the side of the visualizer will show you how much compression is being applied.

Clicking and dragging up and down in the visualizer changes the Ratio, whereas dragging left and right changes the Threshold.

Feature	Description
Make-up	As a signal is compressed, the level is reduced. Enabling Make-up will automatically restore the overall level of the compressed signal while maintaining the compression.
Slider	Blends between the dry (before effect) and wet (after Compression) signal. Typically, compression is set fully wet.
Threshold	Sets the level where compression will begin. Any sound that reaches or passes the threshold will be compressed.
Ratio	Determines the amount of compression to be applied once the threshold is reached.
Output Gain	Manually change the overall output level +/- 36dB.
Attack	Adjusts the speed with which the compression will be applied once the threshold is reached.
Release	Sets how quickly the compression stops once the signal drops below the threshold.

14.4.6. Multiband



The Multiband compressor features three independent bands that can be used for compression or expansion. Each band works on a separate frequency range, so you can process the bass, middle, and high frequencies separately. It's designed to work on the overall sound of your patches to give them a polished, mastered quality, but you can also use them for sound design and other effects as you see fit.

Central to its operation are the three bar-shaped columns. These represent the threshold and ratio of each band. The upper bars control compression; the lower bars, expansion. To control the compression or expansion ratio, click the relevant block and drag up or down. You'll see horizontal parallel lines begin to emerge from the solid color as the ratio approaches unity. When the 1:1 ratio is met, the parallel lines align with the lines outside the bars, indicating that no compression or expansion is being applied. To set the threshold of the upper or lower bar drag up or down on the leading edge.



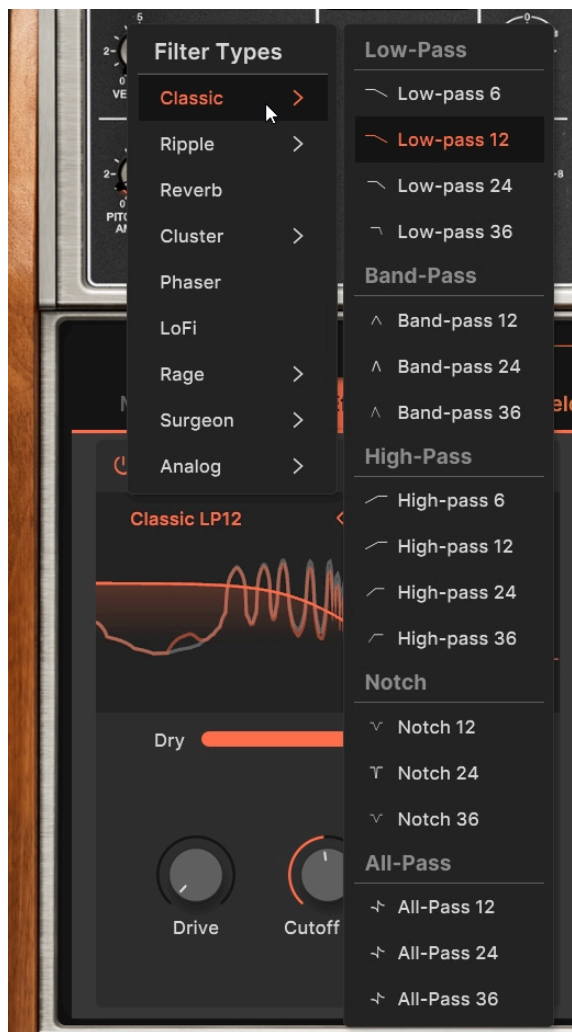
The upper bar compresses any signals that exceed the threshold, lowering their level by the ratio. The lower bar will expand any signals that are below the threshold, increasing their level by the ratio.

Feature	Description
Threshold	Set in the visualizer by dragging on the leading edge of the bars.
Ratio	Set in the visualizer by dragging inside the bars.
Power Switch	The two power switches beneath the visualizer will turn off the low or high band leaving you with a two-band compressor.
Crossover Frequency	the frequency values next to the power buttons set the frequency at which the Low and Middle bands crossover, and the Middle and High bands crossover. Low to Mid crossover can be set from 30Hz to 3kHz, the Mid to High can be set from 300Hz to 15kHz.
Mode	Switch between 'Above & Below' for both compression and expansion, and 'Above only' for compression.
Amount	Blends between the dry (before effect) and wet (after Compression) signal. Typically compression is set fully wet.
Out Low	Output control for the Low band.
Out Mid	Output control for the Middle band.
Out High	Output control for the High band.
Input	Sets the input gain from 124dB to +24dB.
Attack	Adjusts the speed with which the compression/expansion will be applied once the threshold is reached.
Release	Sets how quickly the compression/expansion stops once the signal drops below the threshold.
Output	Sets the overall make-up gain.

14.4.7. Filters



If a vintage emulation of an original Moog ladder filter on the Memory V's front panel isn't enough for you, then how about every filter you can possibly think of? Filters gives you 9 filter types with over 40 modes and configurations, ranging from classic emulations to strange LoFi and Reverb filters pulled from our flagship synthesizer, Pigments.



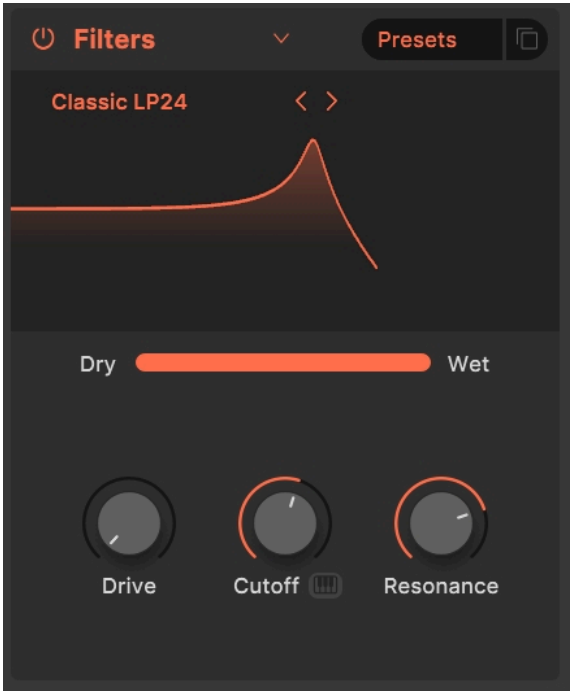
For the most part, they share the same controls and do similar things, but can offer a very different character and shape to your tone. The visualizer has a spectral analyzer superimposed behind the filter shape to show you how the sound is being affected. Clicking and dragging in that space will change the Resonance up and down and the Threshold from side to side.

Here are the common controls, but the exact behaviour depends on the filter type.

Feature	Description
Filter name	Click on the filter name to bring up the list of filter types, or use the left/right arrows to step between them.
Slider	Blends between the dry (before effect) and wet (after filter) signal.
Drive	Applies distortion before the filter.
Cutoff	Sets the cutoff frequency where filtering starts to occur.
Key Tracking	The little keyboard icon turns on keyboard tracking, which changes the cutoff frequency based on your keyboard notes.
Resonance	Emphasizes the frequencies around the cutoff.

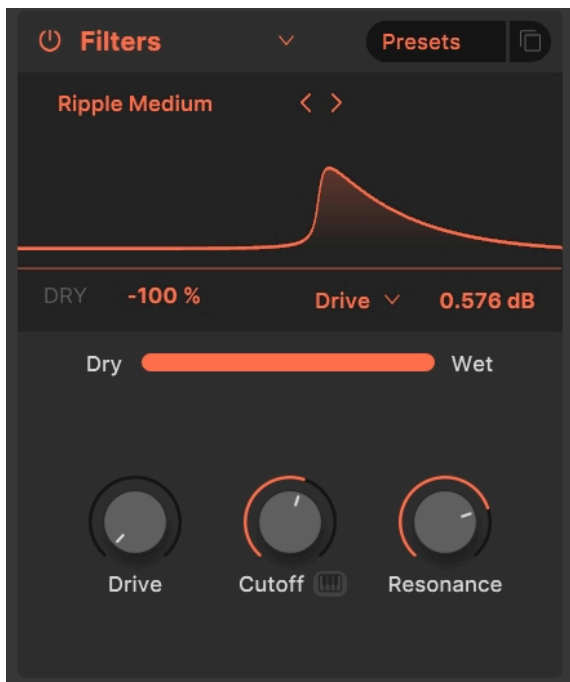
Here's a summary of the different filter types.

14.4.7.1. Classic



Regular, standard filter type featuring 17 modes spread across Low-Pass, Band-Pass, High-Pass, Notch, and All-Pass, with varying degrees of severity.

14.4.7.2. Ripple



The Ripple Filter brings together a series of all-pass filters that allow all frequencies to pass with equal gain while altering their phase relationships, causing some frequencies to be delayed. This can produce deep phase shifts and rich tonal variations. A unique form of distortion is available through a choice of Drive or a positive or negative feedback loop. Three types of Ripple filter are available: Subtle, Medium, and Hard. Each one adds more all-pass filters to the system and deepens the phase shifting.

14.4.7.3. Reverb



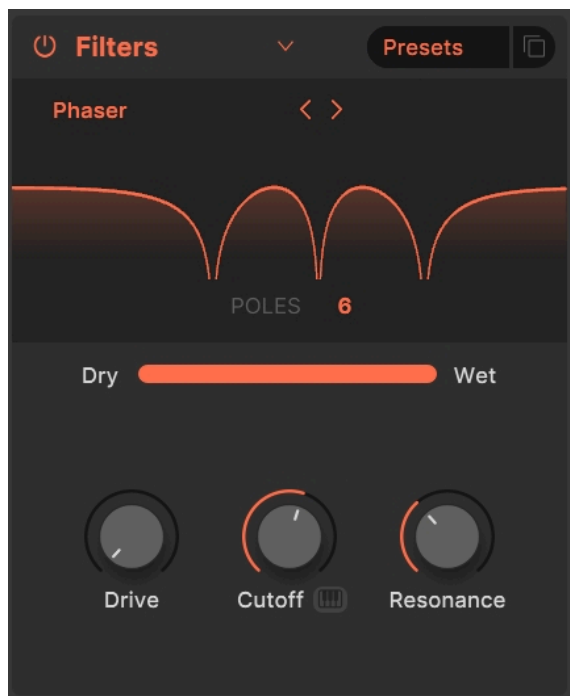
Uses a very short burst of reverb to modify the timbre of the sound rather than give it a sense of space. Damping increases the speed at which high frequencies decay, and Reverb Drive applies distortion to the output.

14.4.7.4. Cluster



Also called multi-peak filters, and give us a total of seven options. The Peak, Bandpass, and Notch varieties all allow you to select from one to five peaks or notches. The Low-pass + High-pass types are, as the name suggests, a simple combination of these two types of filters.

14.4.7.5. Phaser



This filter is based upon an audio effect that has made frequent appearances in popular music since the 1960s. It is similar to a comb filter in that it uses a series of peaks and notches to process the input signal, which are usually then modulated with an LFO. This phaser also allows you to define the number of peaks (poles) that will be used.

14.4.7.6. Lofi



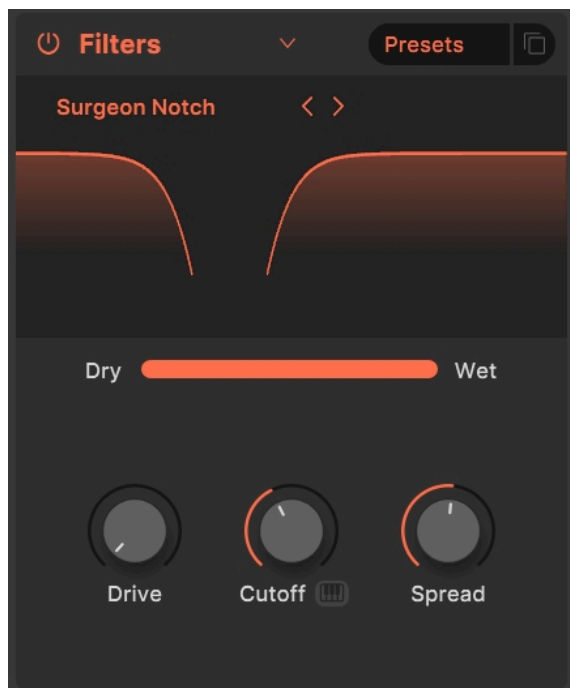
The LoFi filter seeks to add a pleasant, grungy quality to the sound via downsampling. The intended effect is not as drastic as what a bit-crusher might do. Notably, the amount of distortion doesn't build up when more notes are played, but instead stays consistent. To take the edge off things, there are pre- and post-filter low-pass filters that can be applied to varying degrees.

14.4.7.7. Rage



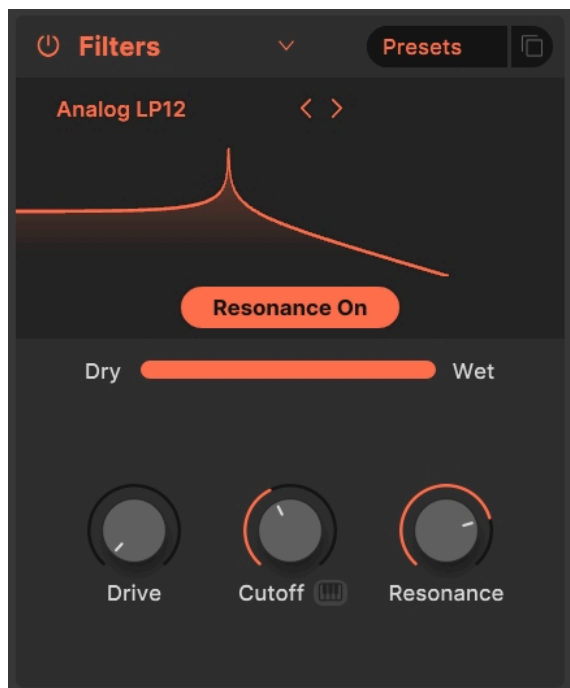
The Rage filter is all about distortion. There are five Rage filter modes, that radically alter the character and color of the output by occupying a feedback loop designed to feed the resonance. Diode offers sharp, asymmetric clipping; Distortion brings a balanced overdrive; Softclip is a smoother, warmer saturation; Tape adds a little compression and shaves off the edges; and Transistor is aggressive, bright, and edgy. All of them are bundled up with a resonant filter that emphasizes their energy.

14.4.7.8. Surgeon



This is an extremely steep filter (64 dB per octave) with four Modes available – low-pass, high-pass, notch, and bandpass

14.4.7.9. Analog



A pair of analog emulated filters that bring characterful tones via a 12dB/Oct low-pass and a 6dB/Oct high-pass. Both have Resonance limiters that keep things mellow and prevent self-oscillation.

14.4.8. Param EQ



The Parametric Equalizer lets you sculpt tone precisely to improve a sound's spectrum balance, as opposed to the broad tonal strokes you get from a synth filter or tone controls. It can be used to gently or surgically boost or cut certain frequencies, alter the overall sound, or remove problem frequencies.

It has five bands, and you can adjust the frequency, gain (boost or cut), and Q (how wide the band is around the selected frequency) for each. In fact, the ability to tweak the frequency and bandwidth is just what “parametric” means. Clicking in the visualizer, you can select bands directly and then drag up and down to change the Gain, and side to side to change the frequency of the band.

Feature	Description
Band Select	Click on the band; Low-Shelf, 1, 2, 3 or High-Shelf and then the rest of the controls are directed to that band.
Scale	Scales the overall intensity of the EQ relative to each band.
Frequency	Sets the center frequency of the current band. The frequency range varies depending on the selected band.
Gain	Boosts or cuts the selected band.
Q	The bandwidth or resonance of the selected band.

14.4.9. Distortion



The Distortion effect features multiple algorithms ranging from soft clipping to heavy saturation and extreme foldings. Additional controls such as Bias and a Peak EQ allow you to refine the harmonic response, including keyboard tracking for more precise control.

The visualizer displays the distortion curve and tone controls for the chosen algorithm. The tone controls appear as a 2-band parametric EQ when changing the Peak Frequency, Peak Width, Low Gain or Peak Gain. You can click and drag to alter the Drive, which affects the distortion curve.

There are 14 distortion algorithms that take on some classic shapes, original ideas, and wavefolding.



Otherwise, the controls are the same.

Feature	Description
Auto Gain	Enables volume compensation at the distortion output. This ensures there's a consistent output when you increase or lower the gain, so you can increase saturation without overloading the effect.
Keytrack	Keyboard tracking of the Peak Frequency.
Peak Freq	The frequency of the Peak EQ.
Peak Width	Defines the bandwidth of the Peak EQ.
Slider	Blends between the dry (before effect) and wet (after distortion) signal.

Feature	Description
Drive	Determines the amount of distortion or wavefolding up to 48dB.
Bias	Changes the harmonic character of the distortion by adding even harmonics.
Output	Brings the output level under control from +3dB down to -24dB.
Low Gain	Adjusts how the low frequencies drive the distortion and operates a low shelf in the Peak EQ.
Peak Gain	Boosts or cuts at the Peak Frequency.

14.4.10. Bitcrusher



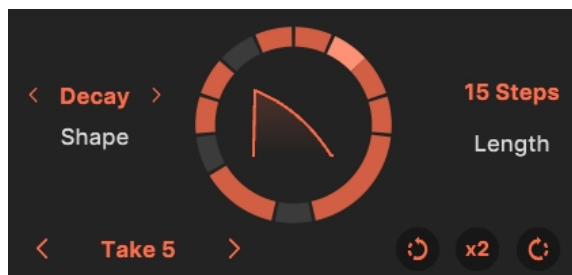
This bit-reducing effect offers several ways to deconstruct the sound. As the number of bits used to express the sound is reduced, details and fidelity are casually thrown away. Downsampling is another form of audio entropy that can provide just the right measure of de-evolution to your sound. As the sample rate is reduced, aliasing is introduced in the higher harmonics, which can produce sub-harmonics as well. For a truly lo-fi experience, the sample rate can be reduced to as low as 1/80th of the original. Clicking and dragging in the visualizer gives you control over Bit Depth (up and down) and Down Sample (side to side).

Feature	Description
Downsampling Mode	Smooth or not so smooth interpolation of the downsampling.
Slider	Blends between the dry (before effect) and wet (after Bitcrusher) signal.
Bit Depth	Reduces the number of bits used to render the sound. Range: from 16 down to 1.5 bits.
Down Sample	Divides the sample rate used to represent the signal. Range: 1.00x to 80.0x.
Jitter	Adds randomness to the downsampling frequency.
Scale	Increases bit quantization precision at lower volumes.
HP Freq	Sets cutoff of the input high-pass filter to remove low frequencies.
LP Freq	Sets cutoff of the input low-pass filter to remove high frequencies.

14.4.11. Trance Gate



Trance Gate creates chopping, gating, and stutter effects known from trance music, but it's useful in any application where you might want sequenced breaks in the sound. It loops a sequence of gates, from 2 to 32 steps, and you have a selection of envelope shapes to choose from to give the gates a character beyond a simple on and off.



The visualizer has an animated circular display that shows the movement of the sequence in real time and is always synced to the tempo. In the middle is the current envelope shape, which is selectable on the left. On the right, you can select the number of steps, while clicking on the steps in the circle turns them on and off. You can tie steps to create more interesting rhythms by clicking on an active step and dragging it into any number of following steps. You can also shift the sequence clockwise or anticlockwise and double its length with a single button press.

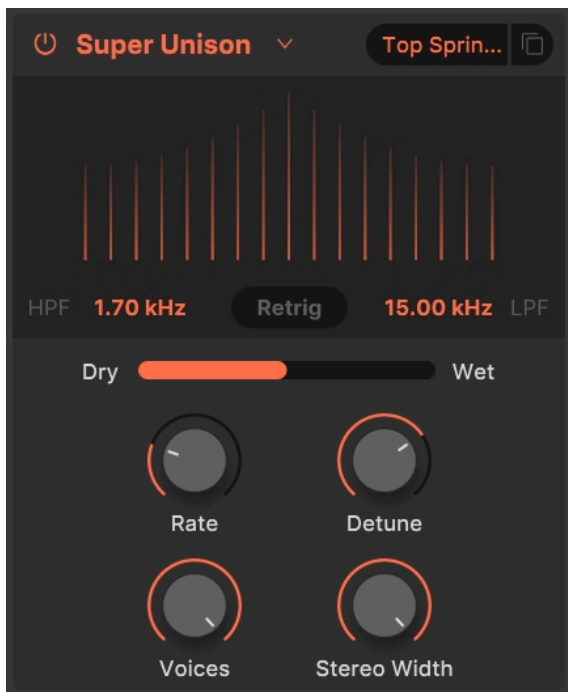
Here's a description of all the parameters:

Feature	Description
Shape	Use the left and right arrows to scroll through Classic, Triangle, Decay, Rise, and Trapeze envelopes that shape the volume of the sound during an active step.
Length	The length of the sequence from 2 to 32 steps. Click and drag to select.
Pattern Presets	Select from a bunch of curated Trance Gate favorites. You can also save your own.
Rotate	Rotate the pattern left or right to change the start of the sequence. The sequence always starts from the 12 o'clock position.
Duplicate	Doubles the length of the sequence and duplicates the pattern.
Slider	Blends between the dry (before effect) and wet, gated signal.
Rate	Sets the speeds of the sequence in divisions of the Global tempo. You can choose from all divisions, even divisions, dotted and triplets.
Morph	Changes the shape of the envelope. This could be pulse-width modulation for the square and trapezoidal shapes, or changing the slope curve for the ramp-type shapes.
Ratchet	Sub-divides the steps to create roll and ratchet effects. Tied steps will subdivide as a whole, giving a different result to single steps.
Retrig	When enabled, it restarts the sequence on every new note. When disabled, the sequence just continues to run.
Reset	Resets the sequence to the beginning after the set length of time. It can be set from 1 to 16 bars.

i When used as a plugin, the Tempo refers to the Tempo of your DAW. When in standalone mode, the Tempo can be found in the Audio MIDI settings under the Hamburger menu in the Upper Toolbar.

Remember to reach for the Undo button in the lower toolbar to back out of any undesired changes. When you get a sequence you like, use the Save as operation in the effect presets menu.

14.4.12. Super Unison



Not unlike a synth's Unison mode, this effect adds up to 8 duplicates of the input signal to itself, with the option to detune and modulate them to give fat and juicy sounds. The visualizer shows the number of voices and indicates the amount of detuning between them, along with their relative levels. Clicking and dragging in the visualizer up and down changes the detuning, while side-to-side movement adds or removes voices.

Feature	Description
HPF	High-pass filter that reduces low frequencies in the wet signal below the set value.
LPF	Low-pass filter that cuts out high-frequency content in the wet signal above the set value.
Retrig	Retriggers the detuning on every note for a more focused and consistent sound.
Slider	Blends between the dry (before effect) and wet, unison-infused signal. As you slide towards the wet end, the level of the voices increases until they reach an equal maximum level.
Rate	Sets the speed of modulation applied to the detuning of the unison voices. Ranges from zero to 1Hz.
Detune	Sets the amount of detuning between the voices.

Feature	Description
Voices	Adds additional unison voices to the original from 1 to 8.
Stereo Width	Controls how the unison voices are spread in the stereo field.

14.4.13. Chorus



Chorus is a modulation effect that uses a modulated delayed copy of itself to create a thick, warm, ensemble sound from a simple input. It can be taken to warbly and wobbly extremes or used for adding subtle movement and detuning. Clicking and dragging in the visualizer up and down changes the Feedback, while side-to-side movement increases the delay between the original and the copy.

Feature	Description
Shape	Switch between sine wave or triangle wave modulation for a smoother flow or a slightly more direct movement back and forth.
Stereo	Switch between a stereo or mono output. In stereo mode, the left and right channels are modulated slightly differently.
Voices	sets the number of voices in the Chorus from 1 to 3.
Slider	Blends between the dry (before effect) and wet, chorused signal.
Rate	Speed of the LFO modulating the delay time from 0.1Hz to 5Hz.

Feature	Description
Depth	The amount of modulation being applied to the delay time.
Delay	The actual static delay time between the original and the copy from 0.6ms to 20ms.
Feedback	The amount of effected signal being fed back into the Chorus.

14.4.14. Chorus JUN-6



A Chorus effect modeled after the one found in a popular range of Japanese polysynths from the 1980s. It's generally regarded as iconic and is still a sought-after sound today. It has fewer controls than the other Chorus effect, but has a pleasing character that's very difficult to describe. Clicking and dragging in the visualizer up and down changes the Depth, while side-to-side movement increases the modulation rate.

Feature	Description
Slider	Blends between the dry (before effect) and wet, chorused signal.
Rate	Speed of the LFO modulating the delay from 0.051Hz to 15Hz. This can also be synced to tempo in straight, dotted or triplet timings.
Depth	The amount of modulation being applied by the LFO.
Phase	Offsets the phase of the modulator waveform from 0 to 180 degrees.

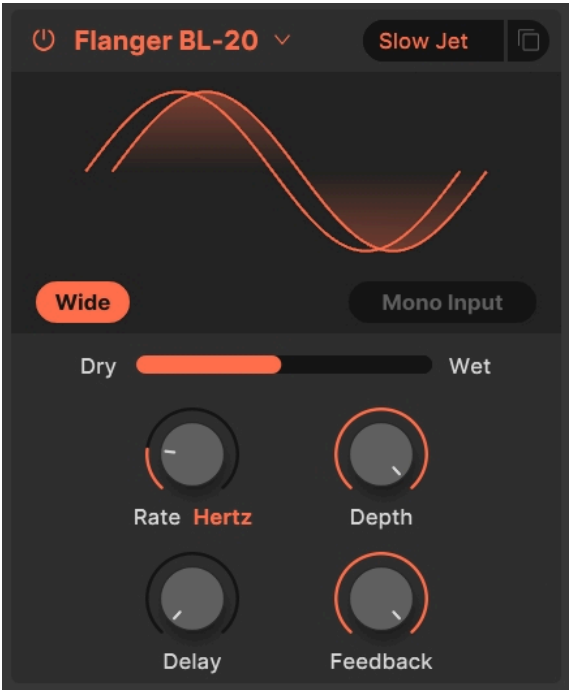
14.4.15. Flanger



The Flanger works in a similar way to the Chorus in that it uses a modulated, delayed copy of itself to produce the effect. However, in a flanger, the delay time is much shorter, and it has a more intense character akin to something like a comb filter. Clicking and dragging in the visualizer up and down changes the Feedback, while side-to-side changes the delay length.

Feature	Description
Shape	Switch between sine wave or triangle wave modulation for a smoother flow or a slightly more direct movement back and forth.
Stereo	Switch between a stereo or mono output.
Feedback Polarity	Switches between traditional Additive Feedback and more radical Subtractive Feedback.
Slider	Blends between the dry (before effect) and wet signal after the Flanger.
Rate	Speed of the LFO modulating the delay from 0.01Hz to 10Hz. This can also be synced to tempo in straight, dotted or triplet timings.
Depth	The amount of modulation being applied by the LFO.
Delay	The delay time between the original and the copy from 0.01ms to 10ms.
HP Freq	Sets cutoff of the input highpass filter to remove low frequencies.
LP Freq	Sets cutoff of the input lowpass filter to remove high frequencies.
Feedback	Adds feedback for a harsher or “ringing” sound. The maximum is 99% to avoid runaway self-oscillation.

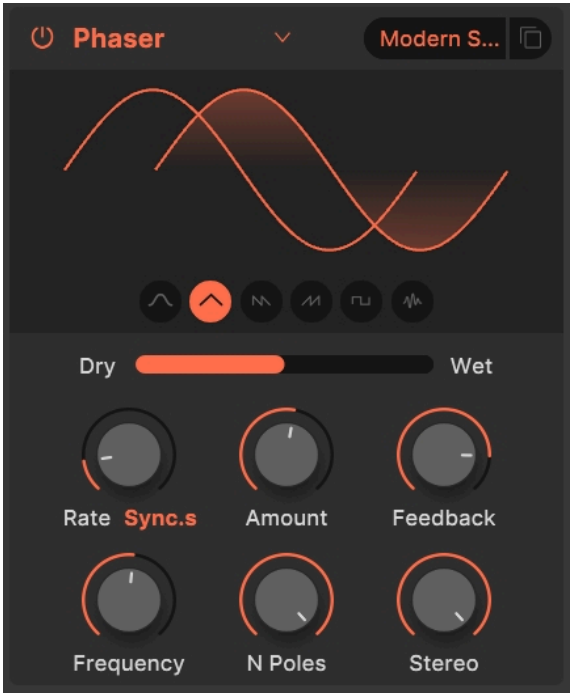
14.4.16. Flanger BL-20



The Flanger BL-20 is based on the sound of the rare and beautiful-sounding Bel BF-20 hardware flanger from the 1970s. It works in the same way as a regular Flanger but has a unique analog character and is capable of everything from subtle motion to wild sweeping resonant tones. Clicking and dragging in the visualizer up and down changes the Feedback, while side-to-side changes the delay length.

Feature	Description
Wide	Inverts the phase of the right channel to give a wider stereo field.
Mono Input	If enabled, a stereo input is summed to mono before the effect.
Slider	Blends between the dry (before effect) and wet signal after the Flanger.
Rate	Speed of the LFO modulating the delay from 0.17Hz to 5Hz. This can also be synced to tempo in straight, dotted or triplet timings.
Depth	The amount of modulation being applied by the LFO.
Delay	The delay time between the original and the copy.
Feedback	Sets the amount of signal being fed back into the Flanger.

14.4.17. Phaser



A Phaser creates its effect by splitting the signal in two, changing the phase through an all-pass filter and mixing them back together to produce a notch-style comb filter. In this case, it's a twelve-stage phaser filter to produce multiple notches that are then modulated with a versatile LFO that sweeps through the frequency spectrum, causing that familiar “whooshing” sound. Clicking and dragging in the visualizer up and down changes the Feedback, while side-to-side changes the Frequency of the harmonic center.

Feature	Description
LFO Shape	Choose from 6 LFO waveforms for familiar sweeping effects, gating, and randomization.
Slider	Blends between the dry (before effect) and wet signal after the Phaser.
Rate	Speed of the LFO modulating the all-pass filter from 0.1Hz to 10Hz. This can also be synced to tempo in straight, dotted or triplet timings.
Amount	The depth of modulation being applied by the LFO.
Feedback	Controls the amount of Phaser resonance.
Frequency	Sets the base frequency of the filter.
N Poles	Determines the number of filter poles or stages of the Phaser.
Stereo	Gradually moves the output from mono to stereo.

14.4.18. Panner



This is an LFO-driven effect that moves the signal from left to right in the stereo field. It can move the signal left and right ever-so-slightly from center, or it can swing wider and wider until it covers the entire range. It can also refrain from panning low-frequency signals, creating a sense of stability in the bass. Clicking and dragging up and down alters the Amount, or width, of the effect; dragging side to side does nothing.

Feature	Description
Mono Bass	When enabled the low-end frequencies are not panned and remain mono.
Pan Mode	Toggles whether the signal pans according to a Linear volume relationship between the sides, or a Natural, gentler logarithmic curve.
Invert	Inverts the LFO output, changing the "direction" of panning.
Amount	Controls the width of panning.
Rate	Speed of the LFO modulating the panning from 0.1Hz to 20Hz. This can also be synced to tempo in straight, dotted or triplet timings.
Cutoff	Sets the crossover frequency for the Mono Bass function from 50Hz to 200Hz.
Pan	Controls the position of the center so you can offset it in the stereo field.

15. MODULATORS



If you thought the Memory V was a little light on modulation, restricted to the original configuration of a single LFO, an envelope, and OSC3, then you are going to enjoy the Modulators. Three slots for a choice of 5 advanced modulation sources for sophisticated movement and parameter manipulation.

They are really easy to use, simple to assign to parameters, have a unique approach to modulation, and are easily identifiable by their color.

Modulator	Color	Description
Envelope [p.115]	Orange	An ADSR envelope with delay.
Function [p.118]	Green	A multi-segment generator.
Random [p.127]	Purple	A generator of unpredictable values.
Voice Modulator [p.130]	Teal	A per-voice value generator.
Mod Sequencer [p.131]	Pink	A step-sequencer for modulation.

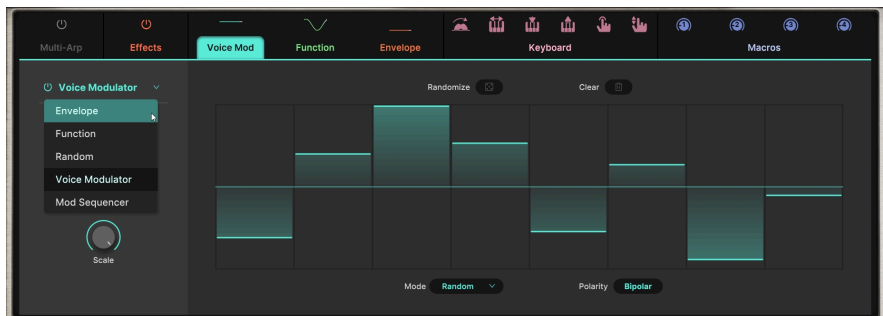
The Modulator section can be found as three tabs after the Effects section in the Advanced view.



Each of the three tabs can have the same or different Modulators loaded. Above each tab you get a useful display of the modulator in action. This is also where you perform the drag-and-drop of the modulator to a destination parameter.

15.1. Loading a Modulator Source

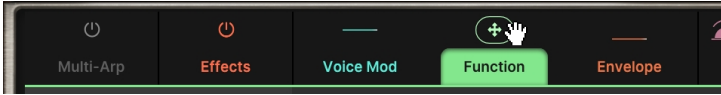
To load a modulator source, simply click on one of the tabs and select the source from list on the left.



They can also be disabled/enabled using the power button to the left of the list.

15.2. Assigning a Modulator

Before we can play with the Modulators and hear what they do, we'll have to assign them to control a parameter. They can control any knob in the main Memory V interface or any parameter in the other Advanced view tabs, including other Modulators.



Hover your mouse over the Modulator display, just about the tab, and it will turn into a drag-and-drop assignment tool. Click and hold to capture the tool and then drag it onto any knob or parameter.



As you drop the assignment onto the knob, a colored "Quick Edit" knob/circle appears underneath. This controls the depth of modulation going to that parameter. It will appear whenever you hover your mouse over the knob being controlled, and you can simply move your mouse over it to edit it.

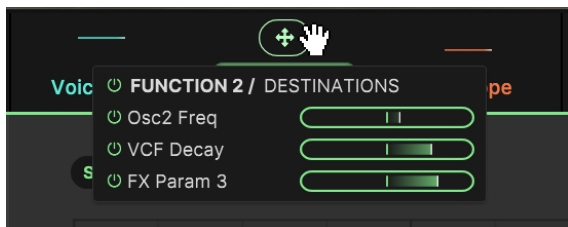


As you hover over or change the amount knob, it will display the current amount value along with the range of values the Modulator is modulating.

You can also assign it to more than one parameter; simply repeat the process and drag the Modulator onto another knob. Or have multiple Modulators assigned to a single knob.

 To assign a Modulator to another Modulator or control something on another tab in the Advanced view simply hover the mouse over the tab, and it will come into focus.

15.3. View and edit assignments



To view and edit the assignments for any Modulator, hover the mouse over the tab; they'll be displayed as a list. You'll also see a colored band around any assigned parameters to make them easier to locate. The list also lets you disable any modulation without removing it by clicking its power button.

 During normal usage, the total modulation of any knob in the main synthesizer interface will be animated in orange regardless of which or how many modulators are assigned to it



1. A modulated knob will have an animated orange band around. The orange color is not related to the similar orange of the Envelope Modulator.
2. Hovering a mouse on the knob will display the assigned Modulator Amount knobs, along with the knob's current value.
3. Hovering the mouse over one of the Modulator Amount knobs will show the amount of modulation in the correct color around the knob, and display the values in text.

15.4. Removing an assignment

To remove an assignment, double-click on its Quick Edit knob underneath the destination. This first sets the value to zero. Then, when your cursor leaves the area, the Quick Edit knob disappears. If you want to disable the modulation without removing it (so that you can hear other things better, for example), use the on/off buttons in the Source View lists. Don't forget to make use of the Undo/Redo buttons if you change or remove an assignment by accident.

15.5. Swapping Modulation Sources

Selecting a different modulation source for one of the three available slots does not change any of the assignments for that slot – a source assigned to multiple destinations will retain them all. On the destination end, the Quick Edit knobs always reflect the order of modulation slots/ sources from left to right in the modulation view.

When you change the modulation source the only thing that changes in terms of assignment is the color of the Quick Edit knob.

15.6. Modulation Sources

Let's have a look at each modulation source in more detail.

15.6.1. Envelope

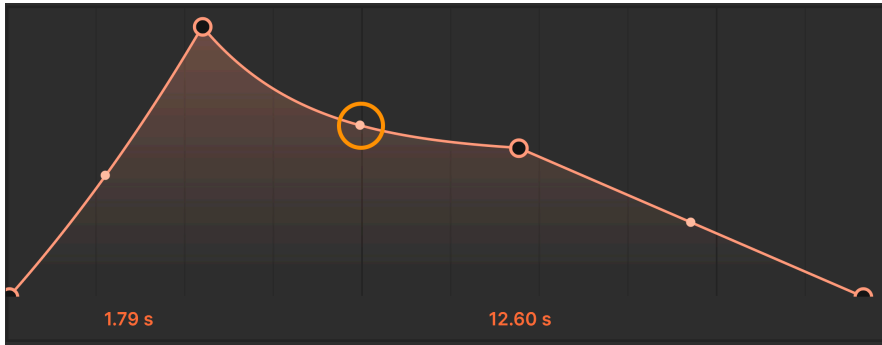


The Envelope modulator is essentially a synth envelope generator, with the addition of an adjustable delay before the attack phase begins. You can adjust its main settings with either the knobs or by moving the breakpoints in the graphic visualizer. Try it, and you'll see their actions mirror each other.



Each parameter mirrors the position of a breakpoint in the graphic envelope.

15.6.1.1. Envelope Curves



Grab the handle to adjust the shape of the envelope segment

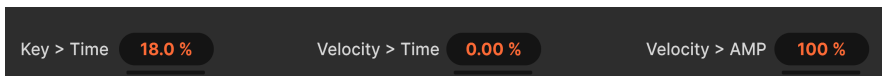
You can also adjust the shape of the envelope segment between each breakpoint. Hover over the small dot in the center of a segment. Up and down arrows will appear. Now, click and drag the segment into the desired shape.

15.6.1.2. Main envelope parameters

The main envelope parameters work as expected:

- **Delay:** Adds a time lag before the attack phase begins.
- **Attack:** Sets the time it takes for the envelope to rise to peak level once a note is played.
- **Decay:** Sets the time it takes for the envelope to fall from peak level to the sustain level.
- **Sustain:** Adjusts the sustain level at which the envelope remains as long as a note is held.
- **Release:** Sets the time it takes for the envelope to fall from the sustain level when a note is released.

15.6.1.3. Envelope MIDI modulations



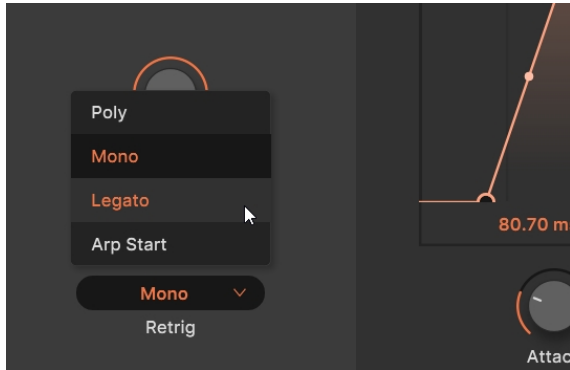
Three more parameters let MIDI notes and velocity affect the envelope for added expression.

- **Key > Time:** Envelope times (attack, decay, release) become more sensitive to keyboard note
- **Velocity > Time:** Envelope times (attack, decay, release) become more sensitive to MIDI velocity
- **Velocity > Amp:** Scale parameter becomes more sensitive to velocity

15.6.1.4. Envelope Scale

The Scale knob at the far left sets a ceiling on the overall modulation output of the envelope. You can think of it as determining the Envelope's peak level at the top of the attack phase.

15.6.1.5. Envelope Retrigger



The retrigger settings determine what actions will start the envelope over from the beginning of its cycle, and how notes are affected.

- **Poly:** Each new note starts the cycle over only for that note, i.e., every note gets its own cycle.
- **Mono:** Each new note starts the cycle over for all currently held notes.
- **Legato:** New notes played legato (before previous notes are released) will not retrigger the envelope.
- **Arp Start:** Envelope retriggers at the beginning of any active Multi-Arp track.

To get familiar with these, assign an Envelope to something quite audible, like a filter cutoff. Then play notes, listen, and watch the tracer puck glide along the envelope curve, looking for when it goes back to the beginning.

15.6.2. Function



The Function generator can be thought of as a highly flexible envelope-meets-LFO – if the two were fused by a mad scientist. The concept is that you can create any kind of modulation shape you can imagine.

15.6.2.1. Rate

The Function's rate can run free or be synced to project tempo via a drop-down menu accessed by clicking on the current Rate setting.

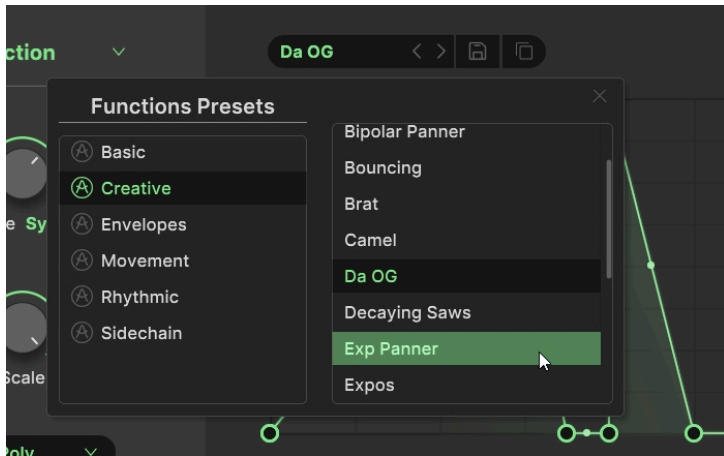
The options are:

- **Hertz:** Free-running time set as a frequency from 0.025Hz to 50Hz.
- **Sync:** All tempo divisions are available when you turn the knob.
- **Sync Straight:** Only even-numbered tempo divisions.
- **Sync Triplets:** Contains triplet tempo divisions where three notes are played in the time of two.
- **Sync Dotted:** Contains dotted tempo divisions, which add half the value of the note to itself.

15.6.2.2. Scale

As with the Envelope, the leftmost knob sets the scale (overall output) of the function while preserving all of its time and level relationships.

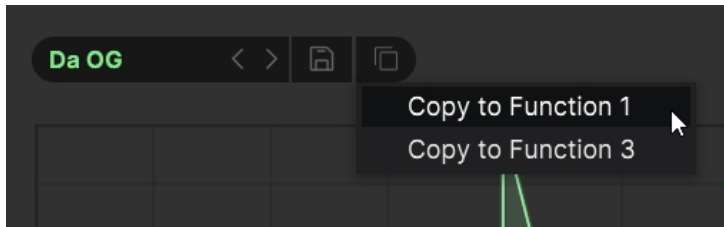
15.6.2.3. Function Presets



Function categories are on the left; individual presets on the right.

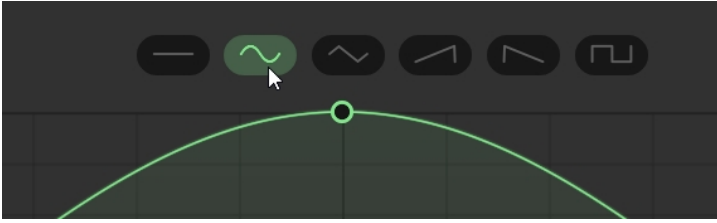
Before we create our own functions, click on the Presets field to see the factory selections and get an idea of just how many shapes a function can take. On the left are general categories of functions, and within each are a bunch of possibilities listed on the right. Click the disk icon to save your own creations. A user category will then appear in the left column of the menu.

15.6.2.4. Function Copy



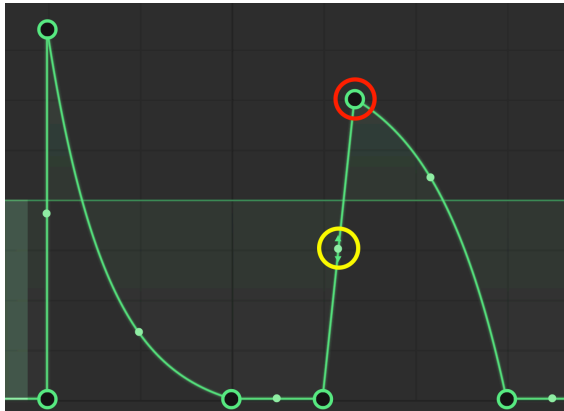
Click the double-document icon to copy the selected Function's settings to another Function occupying either of the other two slots. If a different modulation source (Envelope, Random, or Mod Sequencer) is currently in the target slot, then it will load up another Function for you over the top.

15.6.2.5. Function LFO Shapes



In addition to this preset library, there are six basic waveshapes intended for use with the Function as an LFO or for starting your own shape: flat, sine, triangle, ramp, saw, and square.

15.6.2.6. Breakpoints and grab handles



A breakpoint is circled here in red; a grab handle in yellow.

Functions let you create any curve or shape of modulation with two simple tools: **breakpoints** and **grab handles**.

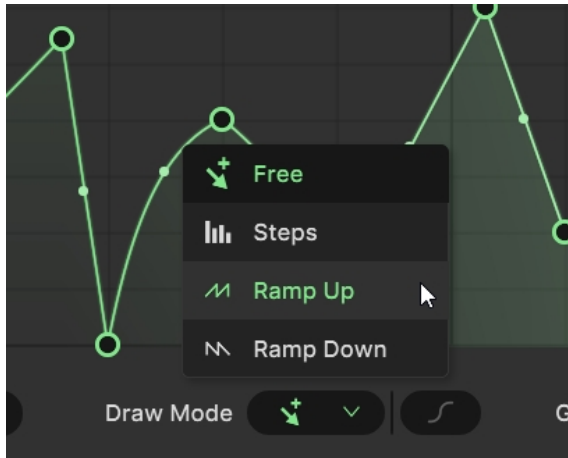
A breakpoint is a point in time at which the modulation changes direction, turns a corner, or adds a new segment. Left-click on the graph to add a breakpoint. Right-click on the point to delete it – a quick pop-up will appear to confirm your intention to delete.

Between any two breakpoints, there is a grab handle that you can drag to change the shape or intensity of the curve between those two points, much like with the Envelope. Leaving a handle in mid-position would create a more or less straight line between points. Dragging it as far as it will go in a direction generally creates a steep “knee” shape.

Between grab handles and breakpoints, any shape can be created, from a simple sine wave for an LFO to extremely complex shapes for maximum movement.

15.6.2.7. Drawing Tools

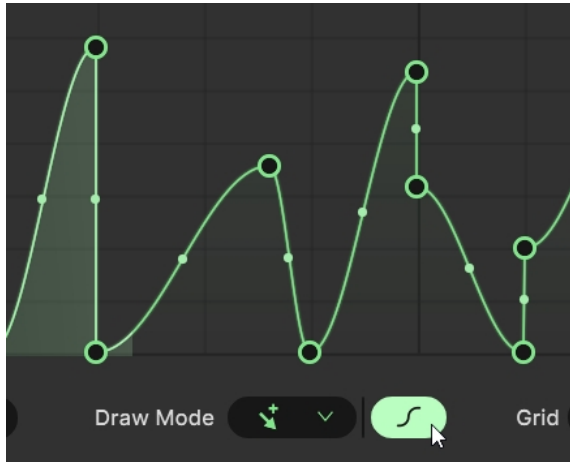
Click on Draw Mode to bring up the list of drawing tools. These can speed up your Function creation by letting you draw repeating shapes via click-dragging inside the visualizer.



- **Free:** Creates a single point that can be dragged to any position between two other points.
- **Steps:** Creates a straight line the width of the current grid setting which can be dragged to any height. A new line appears as you cross a grid line letting you easily create steps.
- **Ramp Up:** Creates a rising sawtooth pattern the width of the current grid setting.
- **Ramp Down:** Creates a falling sawtooth pattern the width of the current grid setting.

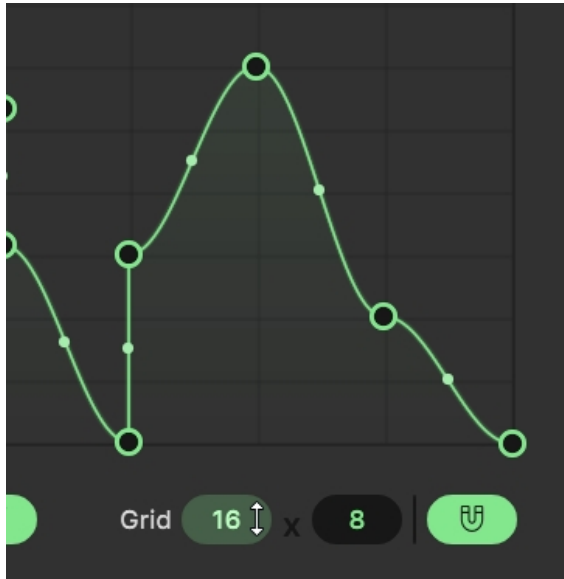
Position the mouse in the visualizer so that your cursor becomes a pencil icon, then drag and as you cross grid lines the pattern or shape repeats.

15.6.2.8. Curve



The S-shaped curve button to the right of the Draw Mode menu adds a smooth in-out transition to all points. This effectively adds curves to all diagonal lines, leaving vertical and horizontal ones unchanged.

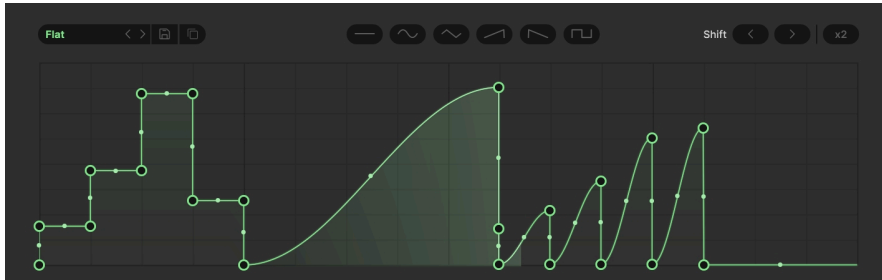
15.6.2.9. Grid and Magnetize



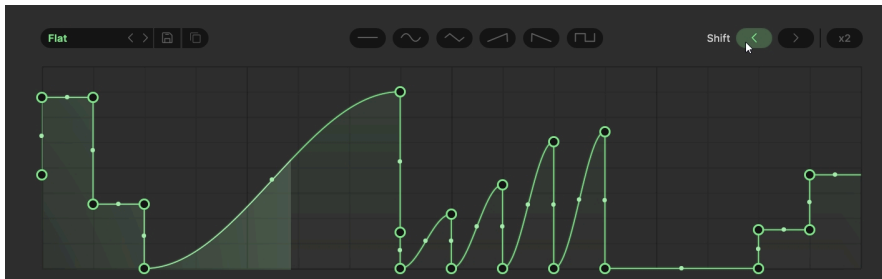
The Function visualizer has a faint grid overlayed in the background, which can be used as a guide to creating your function shapes. When the magnet button, at the bottom right, is lit, moving breakpoints around the display will have a magnetic pull towards the grid lines, making it easy to create rhythmic Functions and precise shapes. You can still place breakpoints off the grid, but if you want a freer hand, you should disable the magnet. This does not affect the Draw Mode shapes, as they always fit to the grid size.

The grid can be anywhere from 3 to 32 segments horizontally and 1 to 24 vertically. Drag up and down on the numerical fields to adjust the resolution.

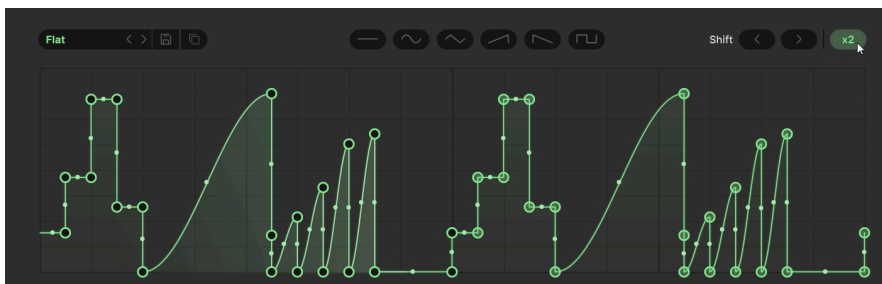
15.6.2.10. Shift and Duplicate



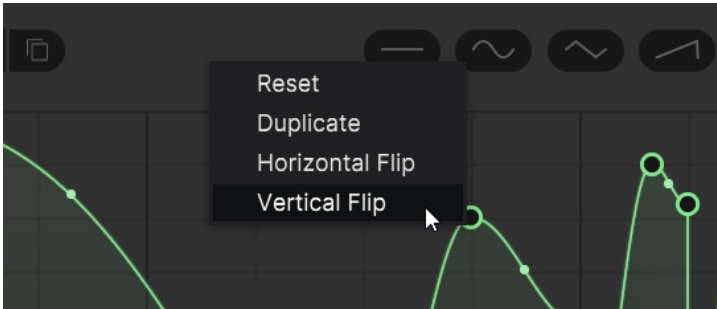
The Shift arrows at the top right move the Function forward or backward in time along the horizontal grid lines. As you shift it, the function wraps around so that the front appears at the back and vice versa, as below.



The "x2" button doubles the pattern of the function over the same amount of time fitting in twice the modulation. One result of this is that each duplication doubles the speed of the original pattern. You can repeat the duplication as far as the grid will allow a segment to be halved.



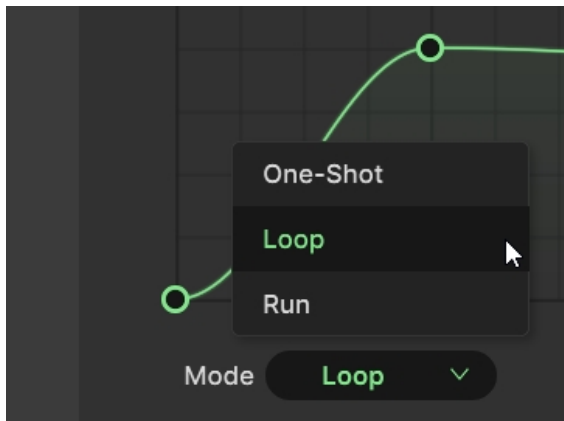
15.6.2.11. Additional Editing Tools



Right-click anywhere in the display other than on a breakpoint to bring up the above menu of editing options:

- **Reset:** Resets the function to “flatline” – be careful with this one!
- **Duplicate:** Creates a duplicate of the current function and places both in the space of the original giving you twice the modulation in the same time.
- **Horizontal Flip:** Creates a mirror image of the function horizontally
- **Vertical Flip:** Creates a mirror image of the function vertically

15.6.2.12. Function Mode

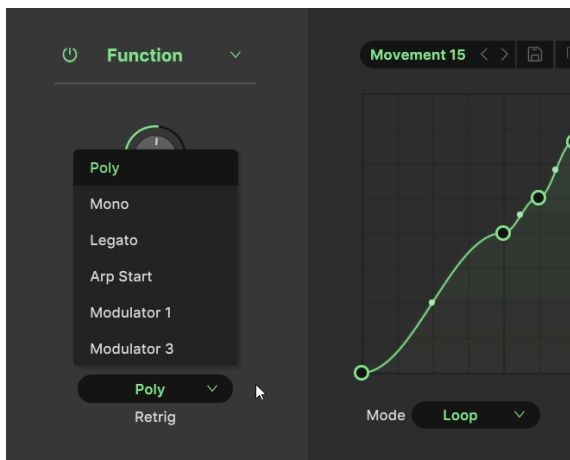


The Function Mode sets how the function plays and what happens when you get to the end; does it stop, does it loop, does it retrigger?

There are three options:

- **One-Shot:** The Function plays through once in response to a key press, and stops at the end.
- **Loop:** The Function loops constantly and is retriggered from the start on every key press.
- **Run:** The Function loops constantly regardless of any key presses, very much like an LFO.

15.6.2.13. Retrigger

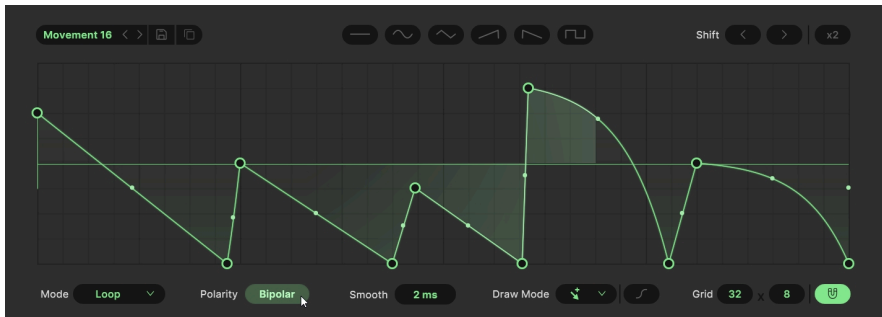


The Retriggering mode has an impact on the function retriggering in the Function mode. It should be noted that in Run mode, retriggering is not a factor, and so it's disabled whenever Run is selected.

You have a number of options.

- **Poly:** Polyphonic –each voice has its own independent function.
- **Mono:** Monophonic –triggered with each new note.
- **Legato:** Monophonic –not triggered for notes played legato.
- **Arp Start:** Triggers the function when the arpeggio starts rather than with individual notes.
- **Modulator 1-3:** Allows the Function to be triggered by one of the other modulators.

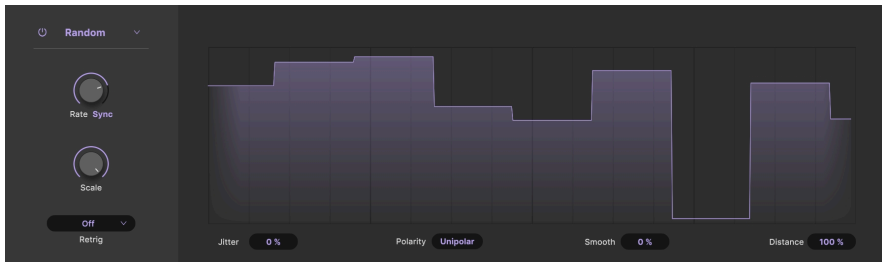
15.6.2.14. Polarity and Smooth



To the right of the Function Mode are two final parameters; Polarity and Smooth. Polarity toggles between unipolar where the function is always a positive influence on a knob, and Bipolar where a line appears across the centre and everything above it is positive and everything below has a negative pull on the parameter, as in the image above.

The Smooth value eases the sudden change in direction at breakpoints to help reduce clicks and audio artifacts.

15.6.3. Random



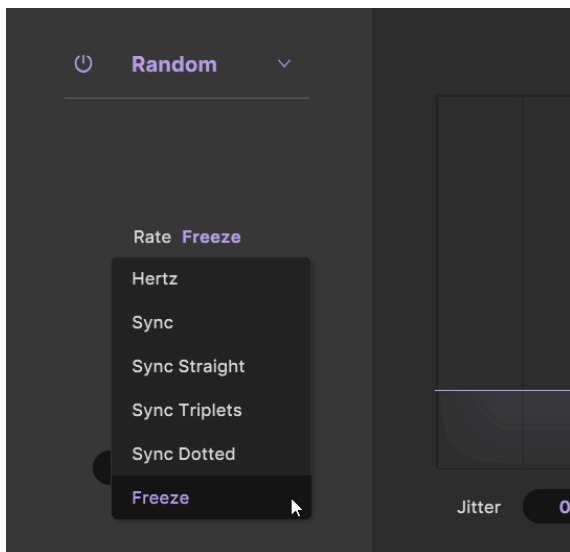
The Random function generates a continuous stream of random, unpredictable values. The values can be stepped or smooth, ordered or chaotic, and are perfect for adding rhythmic variations to carefully chosen parameters.

The four main controls along the bottom are as follows:

- **Jitter:** Adds a random amount of delay to the generation of the next value. It takes our very ordered pattern of steps or waves and messes with the width or regularity, so it becomes much less ordered.
- **Polarity:** toggles between unipolar, where the function is always a positive influence on a knob, and Bipolar, where a line appears across the center, and everything above it is positive and everything below has a negative pull on the parameter
- **Smooth:** Transforms the steps into flowing waveforms for smoother transitions between values.

- **Distance:** Sets the range within which a new random value can deviate from the current one. At 0%, the line becomes flat; at 100%, the values operate equally within the full range of values. Over 100% the values are scaled closer and closer to the maximum and minimum values until at 200%, the values flip between the top and bottom of the range.

15.6.3.1. Rate



The Function's rate can run free, frozen or be synced to project tempo via a drop-down menu accessed by clicking on the current Rate setting.

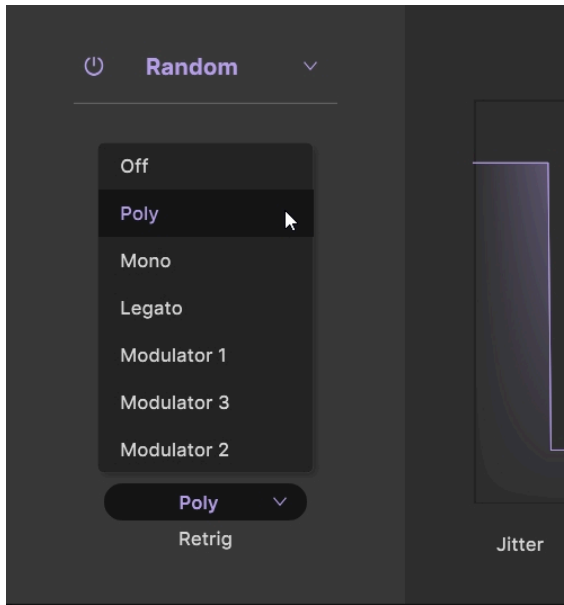
The options are:

- **Hertz:** Free-running time set as a frequency from 0.025Hz to 50Hz.
- **Sync:** All tempo divisions are available when you turn the knob.
- **Sync Straight:** Only even-numbered tempo divisions.
- **Sync Triplets:** Contains triplet tempo divisions where three notes are played in the time of two.
- **Sync Dotted:** Contains dotted tempo divisions, which add half the value of the note to itself.
- **Freeze:** Gives you a new value on every key press and holds, or freezes, that value until the next key press.

15.6.3.2. Scale

The Scale knob sets the Modulator's overall output while preserving all time and level relationships within it.

15.6.3.3. Retrigger

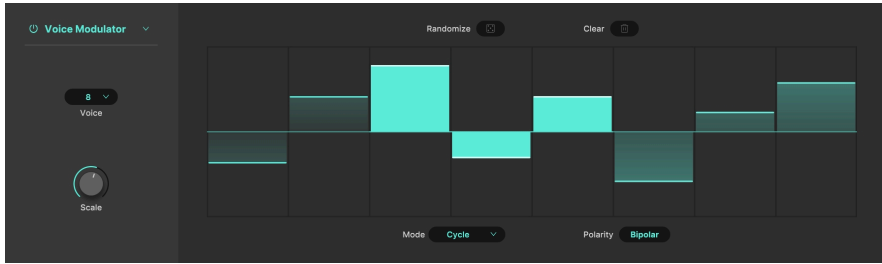


The Retriggering mode has an impact on when new values get generated. It should be noted that in all other Modulators, the visualizer shows values starting on the left and progressing to the right. In Random the new values emerge on the right and run to the left. So the visualizer is actually showing you past values rather than values coming up. This becomes clearer once you look into retriggering.

You have a number of options:

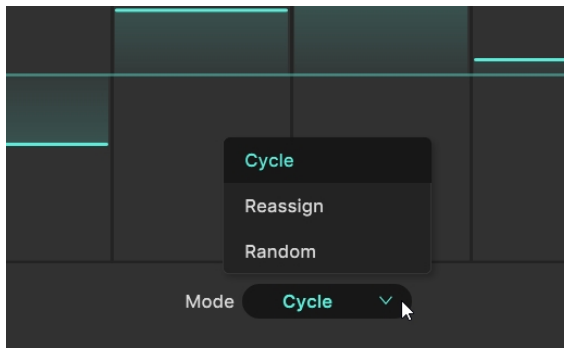
- **Off:** Random values are continuously generated according to the Rate and are unaffected by key presses.
- **Poly:** Polyphonic –A new value is generated on every key press, and each voice gets its own random value. So as you press more keys, those notes are being modulated with different values to other notes.
- **Mono:** Monophonic - A new value is generated on every key press, but the same values are used on all voices. So, chords are modulated the same as a single note.
- **Legato:** Monophonic – If the notes are played legato (you start a new note before the last note has finished) then a new value isn't triggered, the modulation continues to change in line with the Rate.
- **Modulator 1-3:** Allows the generation of a new value to be triggered by one of the other modulators.

15.6.4. Voice Modulator



The idea behind the Voice Modulator is that each voice has its own set value that can be used to alter a parameter. So, for instance, the filter cutoff could be different for each voice, or the tuning could be different, or the decay of the envelope. When used moderately, it could mimic the differences you have between voices in an old analog synthesizer. Or it can be used wildly to create large variations between voices.

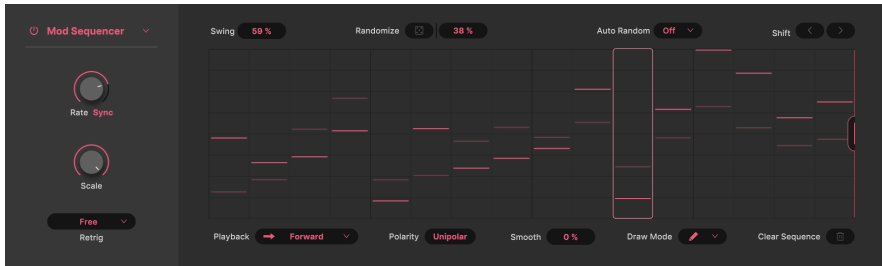
Each of the bars represents the modulation value for one voice. By clicking and dragging, you can set each of the bars to different values. The Mode then dictates how the values are assigned to the voices as you play.



- **Cycle** Each value is assigned in sequential order to the next note played. If you repeatedly play a note the Voice Modulator will cycle through each value in turn.
- **Reassign** Each value is assigned in sequential order to the next NEW note played. If you repeatedly play the same note the Voice Modulator will assign it the same value. It's only when you play a new note that it gets the next value.
- **Random** Each note is assigned a random value from the Voice Modulator.

Other controls are as follows: - **Voice** Sets the number of voices, and so the number of bars in the visualizer, available for values. This goes from 1 to 8. - **Scale** Sets the overall output of the Modulator while preserving all of the time and level relationships within it. - **Randomize** Generates a new set of randomized values - **Clear** Resets all voices to zero. - **Polarity** Toggles between unipolar, where the function is always a positive influence on a knob, and Bipolar, where a line appears across the centre and everything above it is positive, and everything below has a negative pull on the parameter.

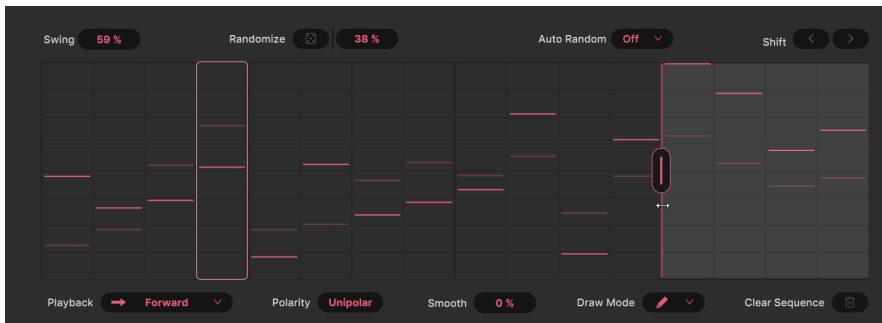
15.6.5. Mod Sequencer



A modulation sequencer works like a regular sequencer, except that its values move parameters rather than play notes. You could assign the Mod Sequencer to the PITCH of oscillator 2 and use it like a step-sequencer, but it's not calibrated or quantized to note or semitone values, so it wouldn't necessarily be tuneful. The idea here is that you write a sequence of values that modulate a destination in a rhythmic and repeatable way.

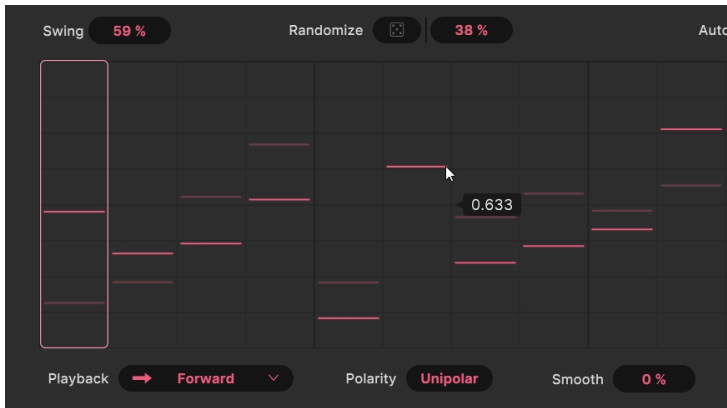
Mod Sequencer has up to 16 steps, numerous playback directions, can scale and randomize, be stepped or smooth, shifted and retriggered, can swing itself out of time, and automatically re-randomize itself. It's a very fun modulator.

15.6.5.1. Setting Pattern Length



Grab the handle at the edge of the sequence, usually on the far right, and slide it back and forth to set the overall length of the pattern.

15.6.5.2. Setting Step Values

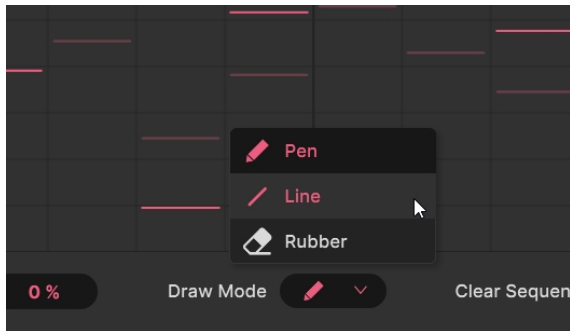


To set a step value, click anywhere in the grid at the step you wish to add or edit and simply drag up and down to fine-tune. The actual value will be displayed in a pop-up.



You don't have to click on an existing step line to edit it; the line will jump to wherever you click the mouse.

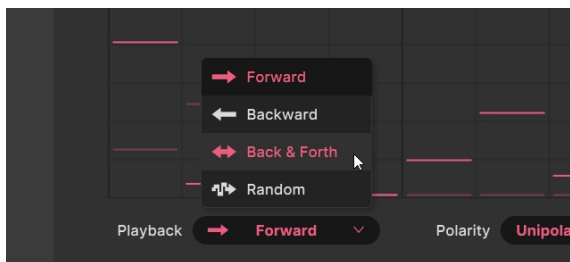
15.6.5.3. Drawing Modes



Mod Sequencer has a couple of drawing modes to speed up pattern creation. Click on the Draw Mode icon to show the pop-up.

- **Pen:** Free-drawing; drag the cursor across the grid, and new values will appear at each step
- **Line:** Creates an ascending or descending series of steps when you drag the mouse horizontally on the grid. Then, before you release the mouse, you can scale the steps by dragging vertically.
- **Rubber:** Eraser tool; click or drag across any steps to set them to zero.

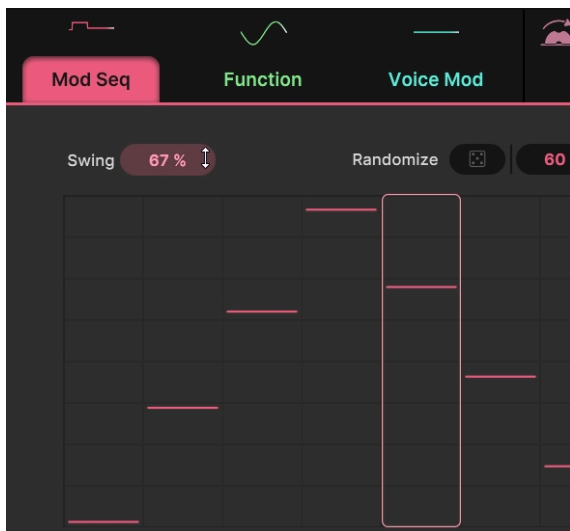
15.6.5.4. Playback Mode



The sequence can run in different directions. From the Playback pop-up menu, you can choose from:

- **Forward:** Sequence plays left to right
- **Backward:** Sequence plays right to left
- **Back & Forth:** Sequence plays in one direction, then reverses; first and last steps are repeated
- **Random:** Sequence jumps to random steps

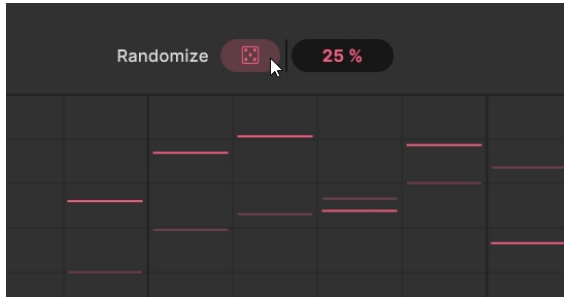
15.6.5.5. Swing



Introduces some swing to the rhythm of the playback by lengthening some steps and shortening others. The range is from 50% to 75%.

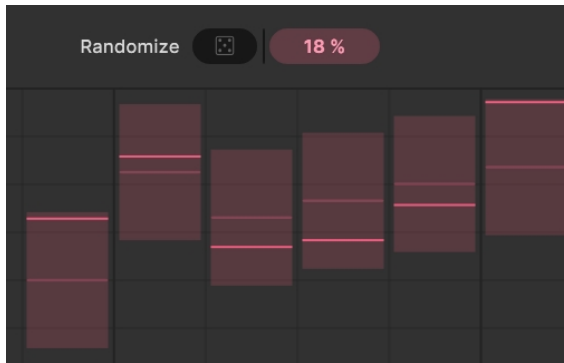
At 50%, the feel is completely straight and on the beat as the duration of each step is in an equal ratio. At 75%, it's developed a bit of a gallop as the duration is now at a ratio of 75 for one step and 25 for the next. You can find all sorts of feels in between.

15.6.5.6. Randomization



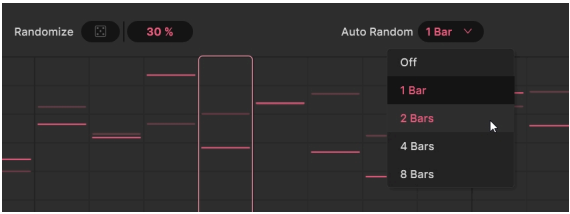
Click the “dice” icon to generate a completely random set of values for all steps. In any given step, the dimmer bar represents any manually set step value, and the brighter bar represents the new randomly generated one. If you continue to randomize, the dim original value stays the same as new random values appear.

The percentage field to the right of the dice restricts the range within which a random value can be generated above and below the original value. Hover over it, and the sequencer displays the ranges as vertical bars.



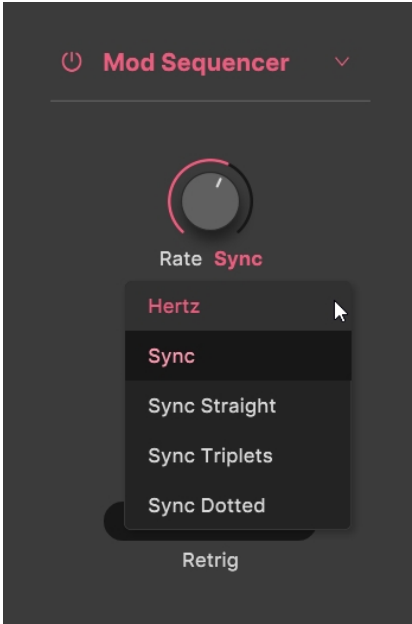
At 100%, random values can appear in the whole range of the Mod Sequencer. At 0%, the randomizer button can't produce any new values.

15.6.5.7. Auto-Random



You can also let the Mod Sequencer generate a new set of random step values every bar or every two, four, or eight bars using the above menu. The generation is still restricted by the percentage range value and always re-generates random values around the original value. This is a great way of adding subtle variations to a repeating pattern.

15.6.5.8. Rate and tempo Sync.

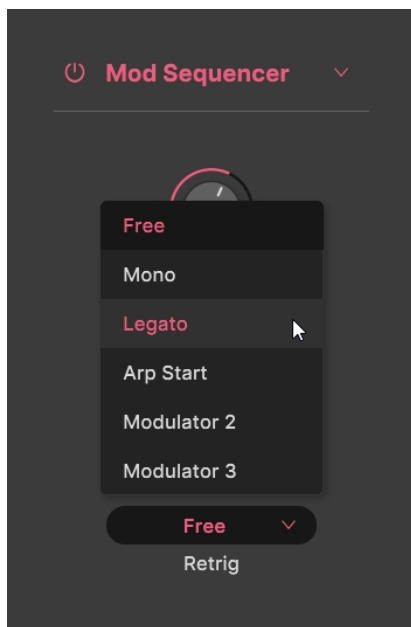


The sequencer can free-run or sync to project tempo. Access these options by clicking beneath the Rate knob:

The options are:

- **Hertz:** Free-running time set as a frequency from 0.1Hz to 20Hz.
- **Sync:** All tempo divisions are available when you turn the knob.
- **Sync Straight:** Only even-numbered tempo divisions.
- **Sync Triplets:** Contains triplet tempo divisions where three notes are played in the time of two.
- **Sync Dotted:** Contains dotted tempo divisions, which add half the value of the note to itself.

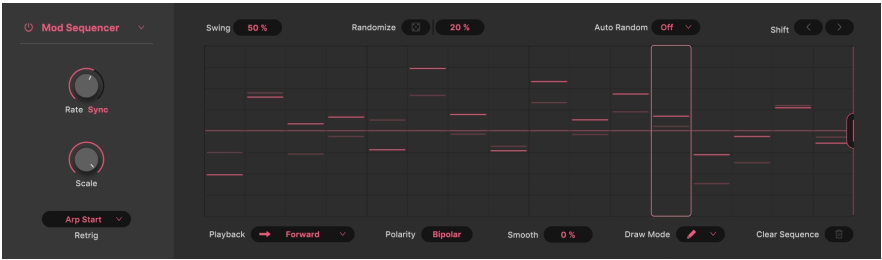
15.6.5.9. Retrig



You can determine which events will cause the sequencer to restart from the beginning of the pattern via the menu at the lower left of the window.

- **Free:** The sequence patterns runs continuously and are not triggered.
- **Mono:** The sequence restarts on any new note press.
- **Legato:** The same as Mono, but the sequence does not restart if notes are played legato, or overlapping.
- **Arp Start:** Restarts the sequence when the arpeggio starts a cycle rather than with individual notes.
- **Modulator 1-3:** Allows the sequence to be restarted by one of the other modulators.

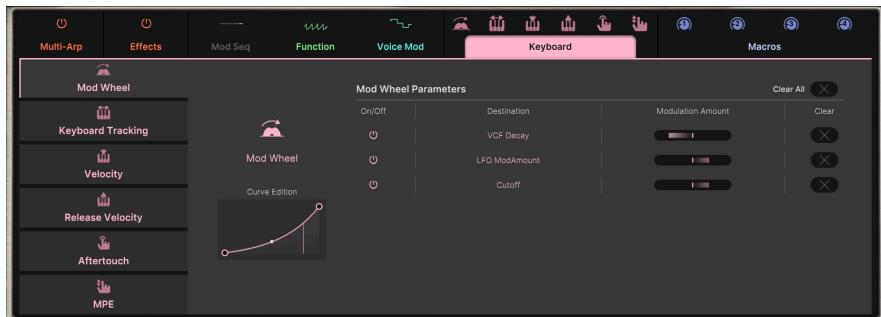
15.6.5.10. Other parameters



There are a handful of other parameters that complete the function set of the Mod Sequencer.

Feature	Description
Scale	Sets the overall output of the Modulator while preserving all of the time and level relationships within it.
Clear Sequence	Resets all voices to zero.
Polarity	Toggles between unipolar, where the function is always a positive influence on a knob, and Bipolar, where a line appears across the centre and everything above it is positive, and everything below has a negative pull on the parameter.
Smooth	Transforms the steps into flowing waveforms for smoother transitions between values.
Shift	The Shift arrows at the top right move the sequence forward or backward in time along the horizontal grid lines. As you shift it, the sequence wraps around so that the front appears at the back and vice versa.

16. KEYBOARD CONTROLS



The Keyboard Controls hold the keys to exploiting the expressive capabilities of your MIDI controller keyboard. It's where you can take incoming MIDI data and map it directly to parameters within Memory V. You want to map velocity to the release of an envelope? No problem! You want to key track the speed of the LFO? You can do that here. You want aftertouch to pull on the filter? It'll be done in a jiffy.

There are six performance controls that can be harnessed for modulation duties:

Features	Description
Mod Wheel	The most consistent modulator on any keyboard is the modulation wheel. The mapping here is in addition to the 'MOD WHEEL LFO AMOUNT' in the main Memory V interface.
Keyboard Tracking	Uses the value of the notes on the keyboard as the modulator. So the further you go up the keyboard, the higher the value being fed to the assigned parameter(s).
Velocity	Using your keyboard's velocity to modulate parameters.
Release Velocity	If you have compatible hardware, then this allows you to take how quickly a note is released and use it as a modulator.
Aftertouch	If you have compatible hardware, then you can use channel aftertouch or pressure to modulate assigned parameters(s).
MPE	Let's you use the forwards/backward slide of a controller that supports MIDI Polyphonic Expression (MPE) to control parameter(s).

The setup and configuration of these controls are the same. All that differs is the way you're using your keyboard controller to achieve it.



MPE control is enabled in the Settings Window and requires you to have an MPE-compatible controller.

16.1. Assigning Controls



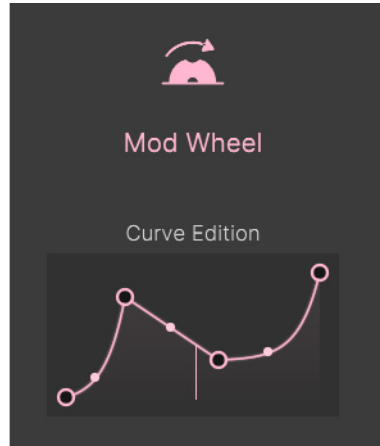
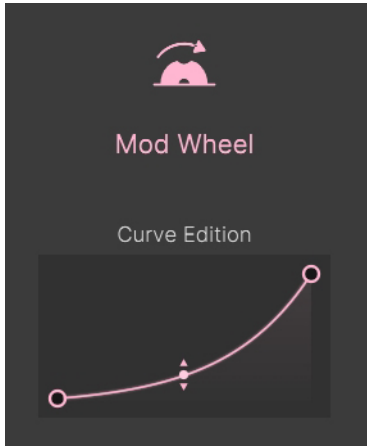
16.2. Parameters

Mod Wheel Parameters				Clear All
On/Off	Destination	Modulation Amount	Clear	
☐	Cutoff		☐	☐
☐	VCF Decay		☐	☐
☐	LFO ModAmount		☐	☐
☐	Osc2 PW		☐	☐

Using the Mod Wheel as an example (it's the same for the other controls) you can see that I've assigned it to four different parameters.

From here, you can turn them on or off with the power buttons, set the Modulation Amount either positively or negatively, or remove the assignment by clicking on the cross. Or you can clear them all with the click of a mouse. There's no limit to the amount of parameters you can assign to a control, and so the potential for modulation through performance is huge.

16.3. Curve Edition

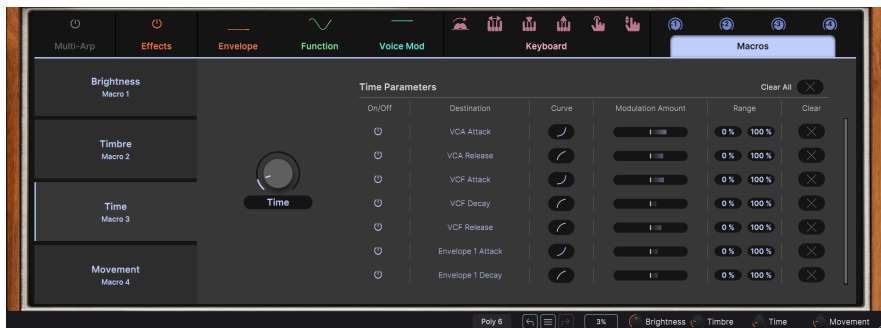


Each control is set, by default, to have a linear response. So as you move the mod wheel or play harder for velocity the change is consistent. This can be massively altered with the shape of the curve.

The curve on the left has been pulled a little to give a more exponential response. The one on the right is a little more radical, taking the movement of the Mod Wheel on a very different journey. You can create two new breakpoints by clicking in the space around the curve. You can then drag their position around and move the center points to create smooth curves between the points. Double-click breakpoints to remove them. The vertical line on the curve indicates the current value expressed by the control.

As with the other Modulators you drag and drop an assignment from the icons on the tab. You have a different icon for each of the six performance controls. When you drop the assignment, a little Quick Edit knob appears that lets you set the amount of modulation just like the other Modulator. However, with the Keyboard Modulator you have a much more comprehensive place to manage your assignments and modulation amounts in the main Keyboard window.

17. MACROS



Macros are a longtime staple of Arturia instruments. They let you assign multiple parameters to a single knob that then can affect large amounts of change with a single turn. There are four Macro knobs, and you'll find them in the Lower Toolbar and in the Preset Browser.

i By default the Macros are called *Brightness*, *Timbre*, *Time*, and *Movement*, and on the whole, the presets use these as suggestions for what the Macro might be controlling. However, you can rename them and use them however you wish.

17.1. Assigning Macros



Macros are assigned to parameters in the same way as the other Modulators by dragging the icon in the tab onto the knobs you wish to control. If you hover your mouse over the icon in the tab you'll be able to see exactly what's mapped to the Macro. First of all, it's in the list of parameters, then it's in a pop-up next to your mouse, and finally you'll see a band of color around the assigned knob showing exactly how it's mapped.

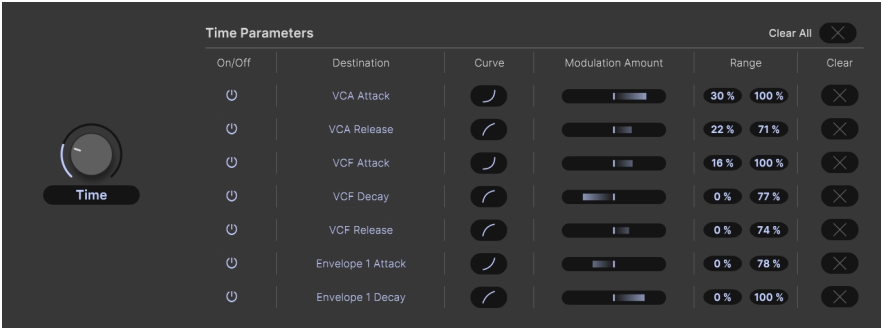
The tab pop-ups are useful because they let you do quick edits on the Macros without having the full Macros tab open.



If you hover the mouse over one of the assigned knobs, a lavender-coloured Quick Edit knob pops up that allows you to precisely adjust the range of modulation coming from the Macro. You can double-click the Quick Edit knob to remove the assignment.

Note All four Macros are represented by the same color Quick Edit knobs. To see which Macro they are assigned to, you need to hover your mouse over the Quick Edit knob, and it will be named in the pop-up.

17.2. Parameters



Using the Time macro (Macro 3) as an example, we have a number of things we can do to shape how the Macro controls the assigned parameters.

Feature	Description
On/Off	Disables the assignment without deleting it.
Destination	The parameter that's being controlled.
Curve	Response curve of the control. A straight line gives a linear rate of change as you turn the Macro, but you can click and drag to change the line into a curve to alter how the turn of the Macro changes the value.
Modulation Amount	Changes how much of the Macro will be sent to the destination. This can be positive to the right, or negative (inverted) to the left. So the Macro could be turning something down while it's being turned up. This mirrors the amount set on any Quick Edit knobs that pop-up when you hover your mouse over a control in the main synthesizer.
Range	Set the minimum and maximum range in which the modulation will occur.
Clear	Removes the assignment.

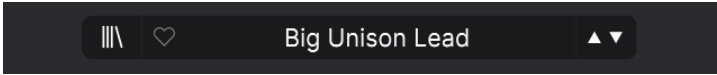
The large "Time" knob to the left is simply a mirror of the Macro knob itself and will change depending on which Macro is selected. You can rename it by clicking in the current name under the knob.



As you move the Macro knob, you will see the movement of orange modulation indicators around the knobs and parameters it has been assigned to. This is common for all modulators.

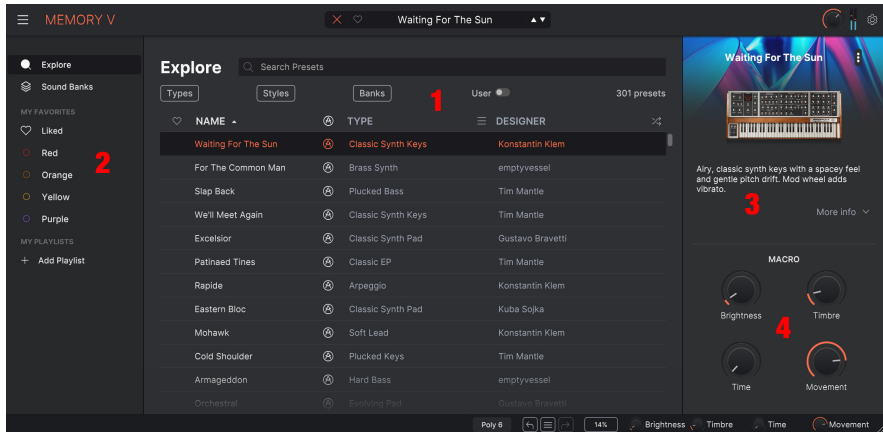
18. THE PRESET BROWSER

The Preset Browser is how you search, load, and manage sounds in Memory V. It can display different views but they all access the same Presets and subgroups of Presets.



To access the browser, click the browser button (the icon looks like books on a library shelf). To close the browser, click the **X** that appears in its place.

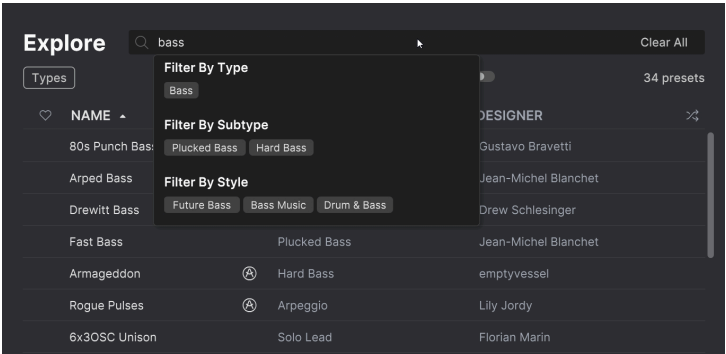
The browser has four main areas:



Number	Area	Description
1.	Search and Results [p.145]	Search Presets with text strings, and by tags for Type and Style
2.	Sidebar [p.152]	Manage Banks, Favorites, and Playlists
3.	Preset info [p.156]	Summary of Bank and Tags, Designer name, and description info for current Preset
4.	Macro knobs [p.158]	Knobs that change multiple parameters with one control movement

18.1. Search and Results

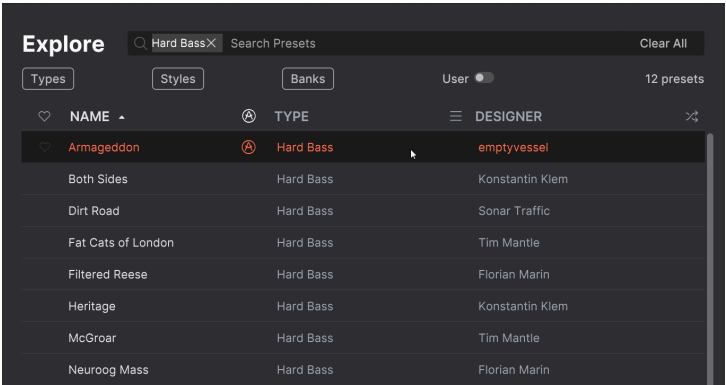
Click on the Search field at the top and enter any search term. The Results list beneath shows all Presets that fit your search. Click the X icon at right to clear your search terms.



The inset window shows real-time suggestions based on your search string

Notice a couple of things going on in the above example. In response to typing the letters “bass,” the main results list displays Presets with “bass” somewhere in the name. Also, the inset window that appears below the search bar dynamically updates other venues where “bass” is relevant. In this case, those are Subtypes, Styles, banks available in the Arturia Sound Store, and so on.

Click on any of the tags in this inset window to jump to the corresponding destination. For example, if you click on the *hardbass* tag, you’ll get a list of all Presets that have that tag:

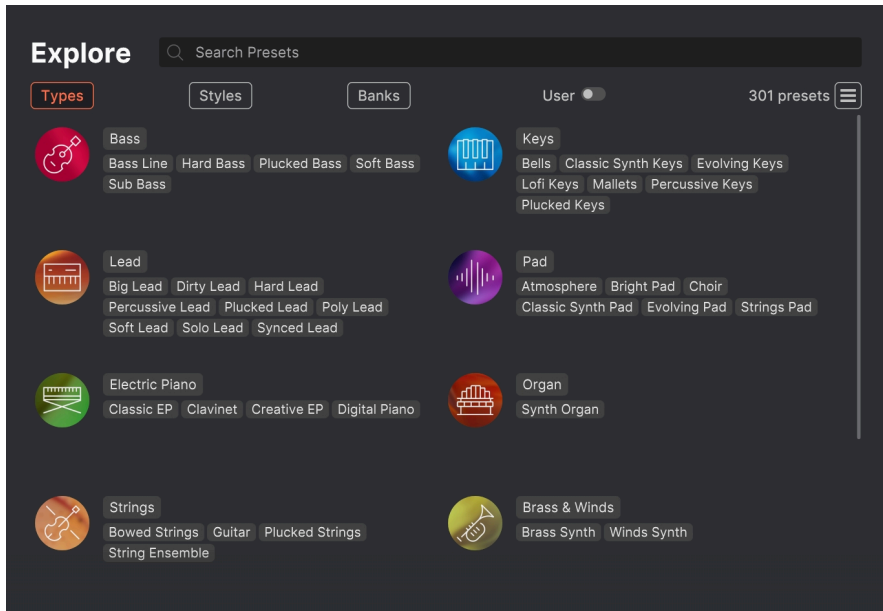


18.2. Using Tags as a filter

You can narrow (and sometimes expand) your search using different tags. There are two kinds of tags: *Types* and *Styles*. You can filter by one, the other, or both. Our extensive range of MIDI controller keyboards also allows you to browse sounds directly from the MIDI keyboard.

18.2.1. Types and Subtypes

Types are broad categories of instruments. Each has further subtypes that get more specific (bowed vs. plucked strings, for example). These appear under the broader Types.



Click any Type or Subtype tag, and the results will show only Presets that match that tag. You can also select multiple tags using Cmd-click (macOS) or Ctrl-click (Windows). For example, if you aren't sure whether the Pad Preset you're looking for was tagged with the subtype "Atmosphere" or "Bright Pad", select both to broaden the search.

Results columns can be sorted and reverse-ordered by clicking the arrow buttons to the right of their titles (Name, Type, Designer).

18.2.2. Styles

Styles refine your search according to even more detailed musical attributes. Accessed by the **Styles** button, this area has three further subdivisions:

- *Genres*: Identifiable musical genres such as decades, Trance, Techno, Synthwave, Disco, etc.
- *Styles*: General "vibe" such as Atmospheric, Dirty, Clean, Complex, Mellow, etc.
- *Characteristics*: Sonic attributes such as Analog, Evolving, Distorted, Dry, Rise, etc.

Explore

Types

Styles

Banks

User

301 presets

GENRES

60s70s80s90sAmbient
Bass MusicBerlinBreakbeat
ChiptuneCinematicClassical
DetroitDiscoDowntempo
Drum & BassDub/ReggaeDubstep
ElectroExperimentalFootwork
FunkFusionFuture Bass
Game AudioGrimeHard Techno
Heavy MetalHip Hop/TrapHouse
IDMIndie DanceIndustrial
Jazz/BluesJungleLatinLofi
MinimalModernPopPsytrance
ReggaetonRockSoul/R&B
SoundtrackSynthwaveTechno
TranceTrip HopTropical House
UK GarageWorld

STYLES

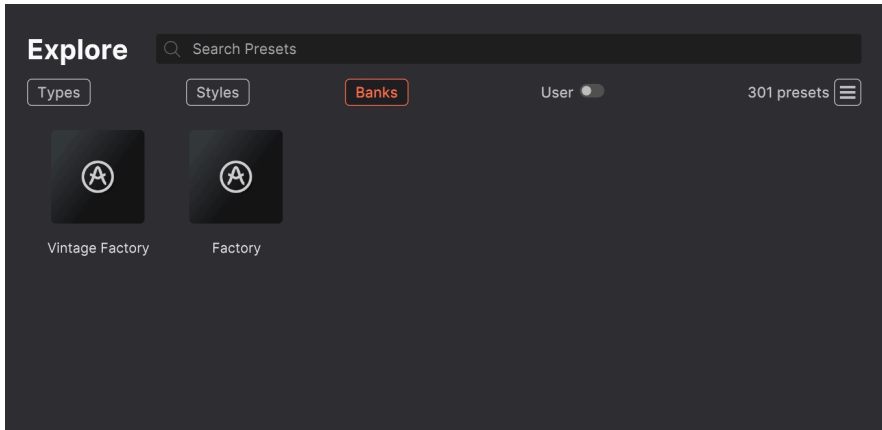
AcidAiryAtmosphericBizarre
BrightClassicCleanComplex
DarkDeepDirtyFunkyHard
HarshHugeMellowMelodic
PunchySadSharpSimpleSoft
SoundscapeThinWarm

CHARACTERISTICS

Ad LibsAcousticAdditiveAmp
AnalogArpeggiatedChordDelay
DigitalDistortedDryEnsemble
EvolvingFilteredFMGated
GlideGlitchHooverHybrid
LayeredLeslieLongNatural
NoisePhrasesProcessed
RandomReeseReverbRise
Sequence/LoopShortSlow Attack
SoloStabSyncedSynth
TransientVibrato

Click on any Style tag to select it. Click again (or right-click) to de-select it. Notice that when you select a tag, several other tags grey-out and become unselectable. This is because the browser is narrowing your search by a process of elimination. De-select any tag to remove that criterion and widen the search without having to start all over again.

18.2.3. Banks



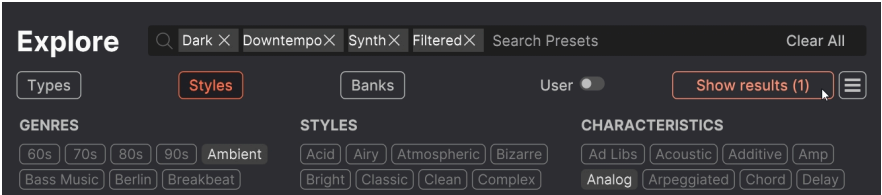
Factory banks in Memory V include Presets designed to lean into the vintage flavor

Next to the **Types** and **Styles** buttons is the **Banks** button, which lets you do your search (using all the methods above) within the factory or user banks.

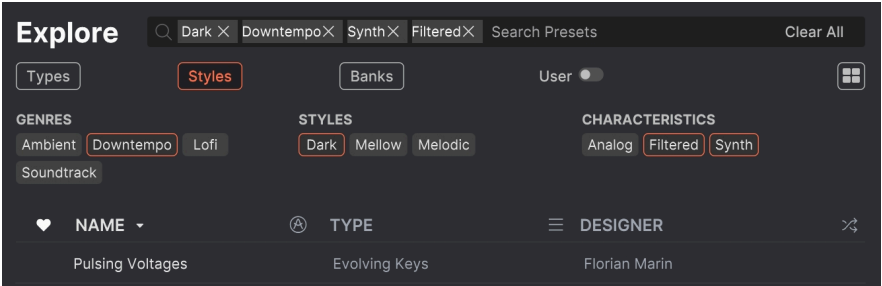


Here or in any search view, you can toggle the **User** switch to search only within User banks. Sound designers with a large portfolio are sure to find this handy!

18.3. Search Results window



When searching by tags and styles you won't see the list of results until you click on the **Show Results** button. You can also click the "hamburger" (three lines) icon next to Show Results. The icon will change to four panes, and you will be able to see the Presets that fit your selected tags, as well as other tags that apply to them, like so:



18.3.1. Sorting the Preset order

♥ NAME ▲	Ⓐ TYPE	≡ DESIGNER	✕
75 QUINT FILTER TRILL	Classic Synth Keys	Arturia	
76 QUINT OSCILLATOR TRI...	Classic Synth Keys	Arturia	
77 ACCORDION	Classic Synth Keys	Arturia	

Once you've found your list of presets through any of the searching methods you can sort them in a number of ways.

Click the **Heart Icon** to bring your favorited presets to the top.

Click the **NAME** header in first column of the Results list to sort Presets in ascending or descending alphabetical order.

Click the **TYPE** header in the second column to do the same thing by Type.

Click the **Arturia logo** to the left of **TYPE** to bring factory-featured Presets to the top of the list. These will appear just under any Presets you have [liked \[p.150\]](#).

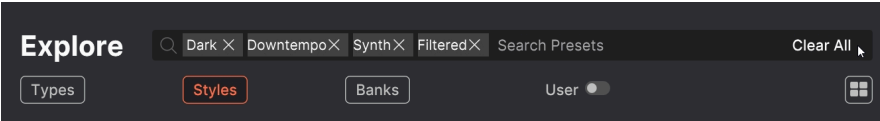
Click the **User** toggle switch to restrict your search to Presets in user banks.

The third column has two header options: **DESIGNER** and **BANK**. Click the icon with three lines to choose between the two. Then click either header name as with the other two columns to switch the alphabetical order.

NAME ▾	TYPE	DESIGNER
Dark Pressure	Sub Bass	✓ DESIGNER Vetti
Cyborg Extinction	Creative SFX	BANK Diego Tejeda
Cosmic Motion	Arpeggiator	Kuba Sojka

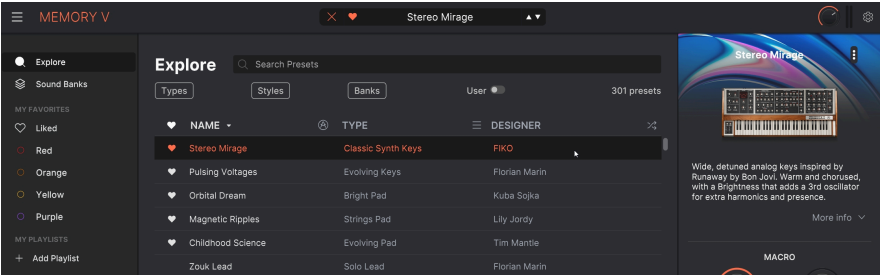
18.3.2. Clearing tags

Just above the Types, Styles, and Banks buttons, you will see labels for all the active tags in a search. Click the X next to any one to remove it (and thus broaden the results). Click **CLEAR ALL** to remove all tags.

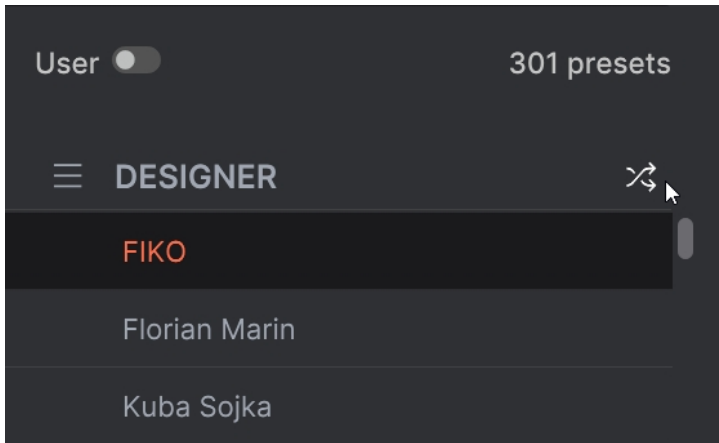


18.3.3. Liking Presets

As you explore and create Presets you can mark them as Liked by clicking the **heart** that appears to the left when you hover the mouse over a preset name. Later, click on the heart icon at the top to put all of your favorites at the top of the Results list.



18.3.3.1. Shuffle Presets



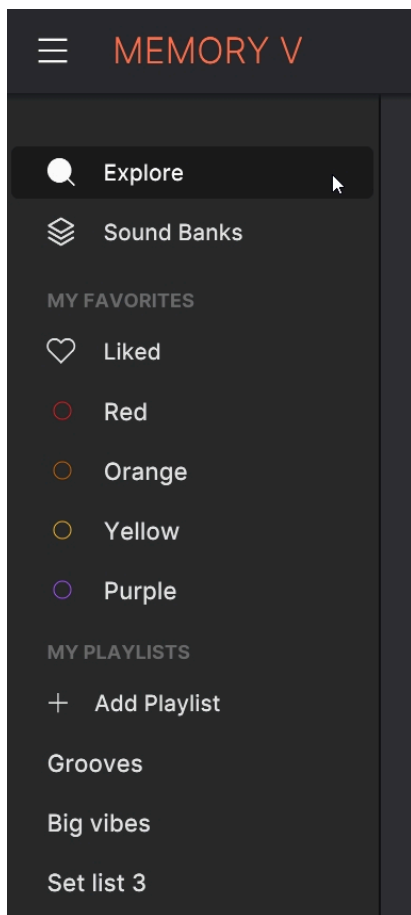
Clicking the “crossed arrows” button randomly reorders the Presets. This can be useful for finding something you like when your search results are a long list that takes time to scroll through – it might bring a killer Preset to the top. Shuffle mode is a toggle, so clicking it again will restore your search results to however they were previously sorted (by name, type, etc.).

Use as many of the sorting and filtering features as you need and you will find the exact sound you want every time.

18.4. Sidebar

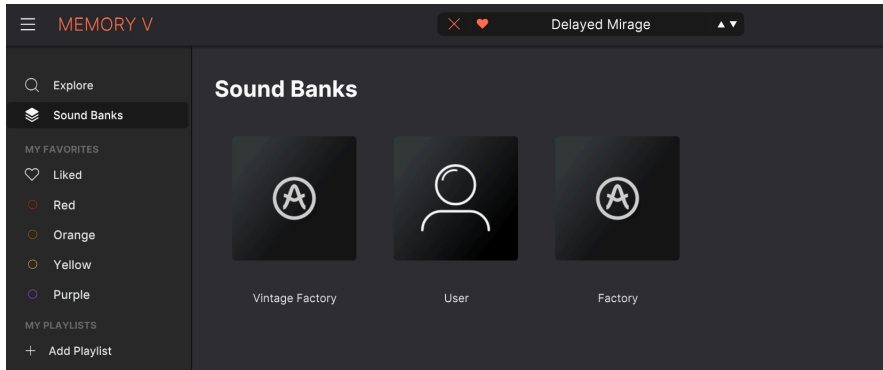
The leftmost section of the Preset Browser determines what is displayed in the [Search and Results \[p.145\]](#) section.

The topmost option is **Explore**:



The **Explore** section is the default, letting you search the current bank of Presets loaded into Memory V as we did in the previous section.

18.4.1. Sound Banks



Clicking **Sound Banks** brings up a window with all of the currently available Sound Banks, starting with the Factory bank. User banks appear next to it, and can be deleted, renamed, or exported by right-clicking them.

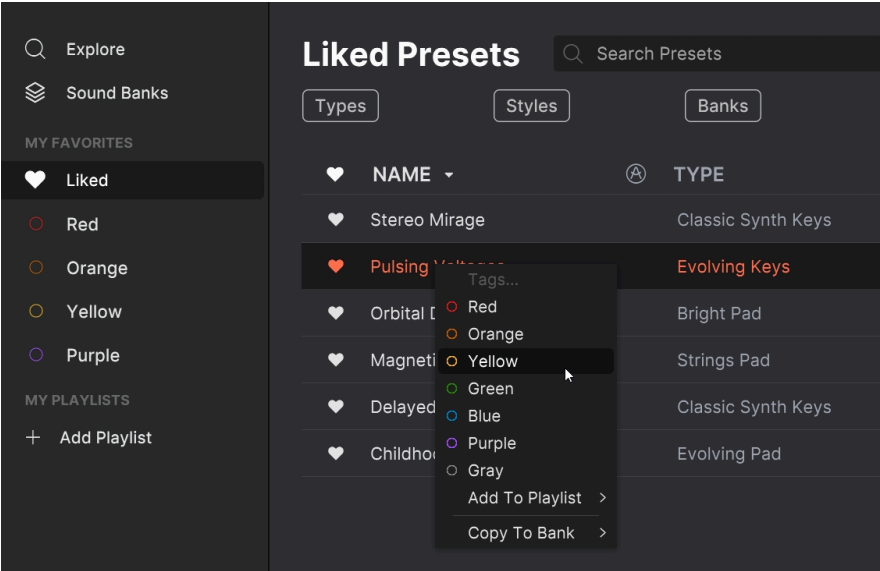
You can also add a user image in .png format to further personalize your user banks. Right-click on the desired User bank icon, then select *Import image* from the pop-up menu that appears. This menu also offers options to delete, rename, and export User banks.

18.4.2. My Favorites

The middle part of the Sidebar has a menu called **My Favorites**, which allows you to color-code certain groups of Presets for easy access. It also includes the **Liked** group, so you can quickly find Presets you've marked with the heart icon.

To decide which colors you'd like to display, hover over **My Favorites** and click **Edit**. Then use the toggle switches to select which colors you'd like to see or hide, then click **Done**.

Please note that you can also rename these favorites as desired. Just right-click on the color name in the sidebar and enter a new name.



To add Presets to a particular set of Favorites, simply drag-and-drop them over the appropriate color heading in the Sidebar, or right-click the Preset name and select the color. Then click on the color itself to display your grouping.

18.4.3. My Playlists

Explore

Sound Banks

MY FAVORITES

Liked

Red

Orange

Yellow

Purple

MY PLAYLISTS

+ Add Playlist

Grooves

Big vibes

Set list 3



Grooves

1 Song - Last updated on 20/05/2026 - 09:13

+ New Song

Song 1

1	Orbital Dream	Pad
2	Wurl is Your Suitcase	Electric Piano
3	West Coast Beef	Bass
4	Wake My Man	Lead
5	Teutonic Rock	Keys

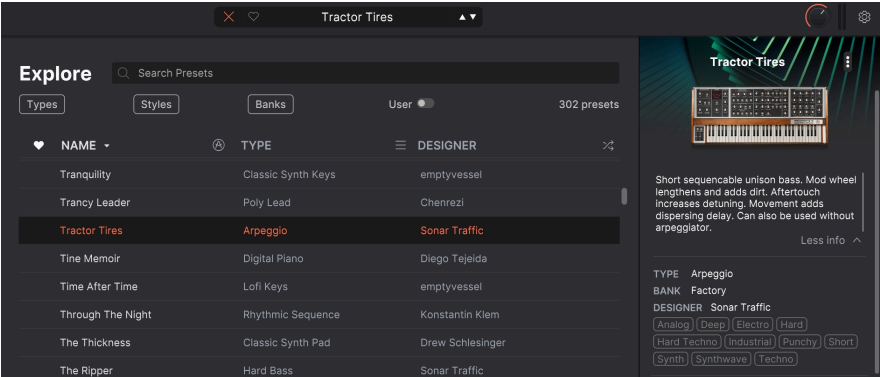
The bottom part of the sidebar displays any Playlists you have created or imported. Playlists are a very powerful management tool for set lists for gigs. Learn more about them in the [Playlists section \[p.159\]](#) below.



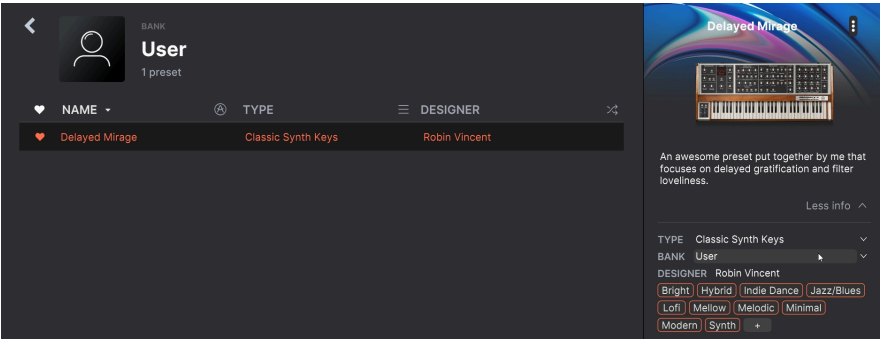
If you don't see anything here, it is because you haven't created any Playlists yet. Head to the [Playlists \[p.159\]](#) section at the end of this chapter to find out how.

18.5. Preset Info section

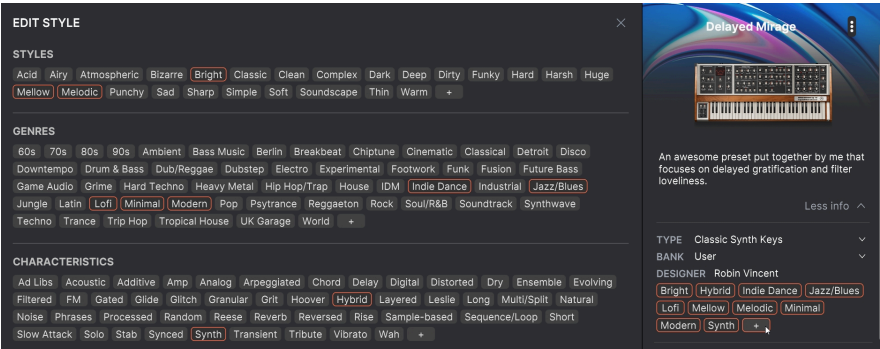
The right side of the browser window gives a brief description of each Preset.



If you click **More info** the bottom panel opens with Type, Bank and Designer information along with the tags that have been assigned to it. Factory Presets cannot be edited, however, everything within a User Preset is fair game.



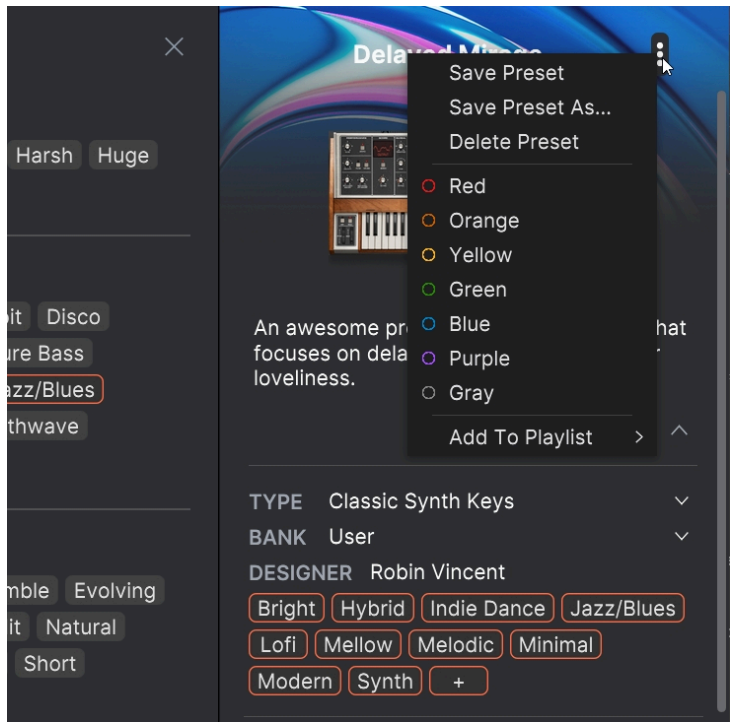
You can change the Type and Bank via pull-down menus, enter a Designer name, and click the + sign to add or delete Styles. When you click this icon, the results area is occupied by an edit list in which you can select and deselect Styles, Genres, and Characteristics:



Notice that each group has its own + icon at the end. Clicking this lets you create your own Styles, Genres, or Characteristics. Click the **X** at upper right when finished editing.

Type and Style changes you make here are reflected in searches. For example, if you remove the "Acoustic" Style tag and then save that Preset, it will not show up in future searches for Acoustic sounds. Again, all of this is possible only with user Presets.

Clicking on the three-dots icon at the top right pops up a management menu for the Preset.

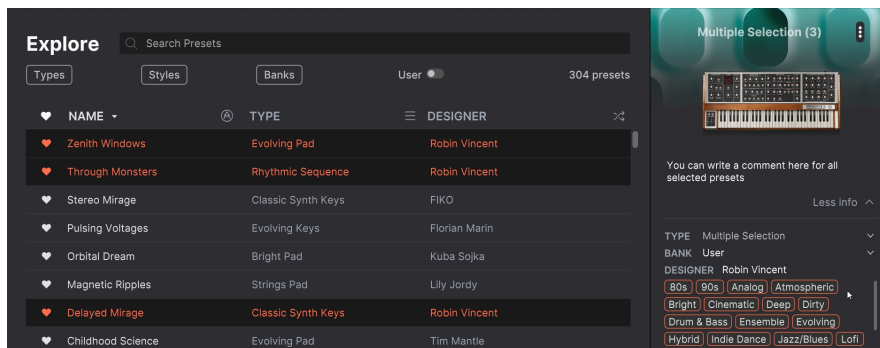


Options include *Save*, *Save As*, *Delete Preset*, and *Add to Playlist*, complete with an option to create a new [Playlist \[p.159\]](#). (You cannot overwrite or delete factory Presets, so the *Save* and *Delete* options appear for user Presets only.)

The dots with color icons allow you to add the Preset to a particular group of Favorites, which is described above.

18.5.1. Editing info for multiple user presets

If you'd like to move several User Presets to a different bank while preparing for a performance, or enter a single comment for several Presets at the same time, it's easy to do. Simply hold command (macOS) or ctrl (Windows) and click the names of the Presets you want to change in the Results list. Then enter the comments, change the Bank or Type, etc., and save the Preset.



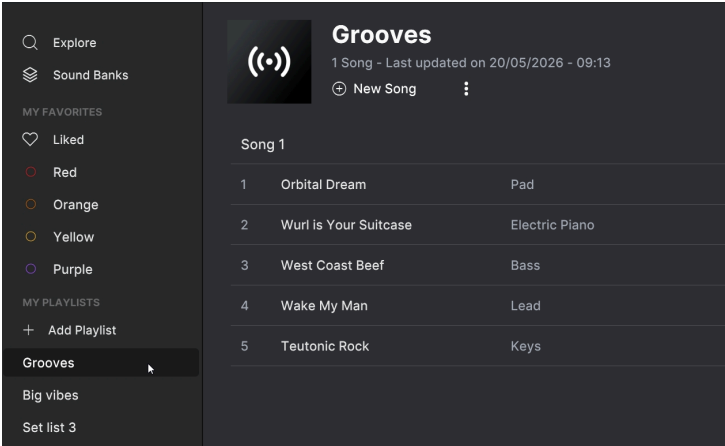
i If you want to alter the information for a Factory Preset you must first use the **Save As** command to re-save it as a User Preset.

18.6. Macro knobs

These are larger versions of the Macro knobs that you find in the Lower Toolbar. They give you a more grabable way to interact with the presets without having to close the Preset Browser.



18.7. Playlists

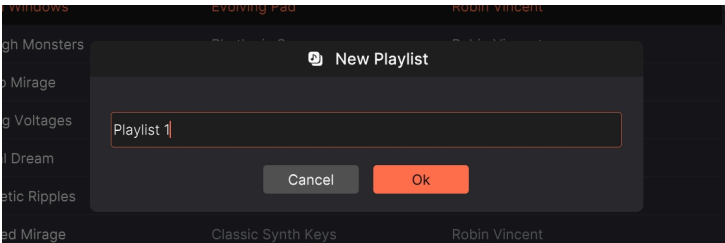


Playlists offer a powerful way to collect Presets into different groups for different purposes, such as a set list for a particular performance or a batch of Presets related to a particular studio project. Within a Playlist, Presets can be reordered and grouped into Songs, a handy addition to a set list.

The subheading *My Playlists* appears after the **My Favorites** section in the Sidebar. When you first start using Memory V, you'll have no Playlists yet – but it's very easy to create one!

18.7.1. Create your first Playlist

To get started, click **Add Playlist**. The following pop-up will appear, prompting you to name your Playlist.

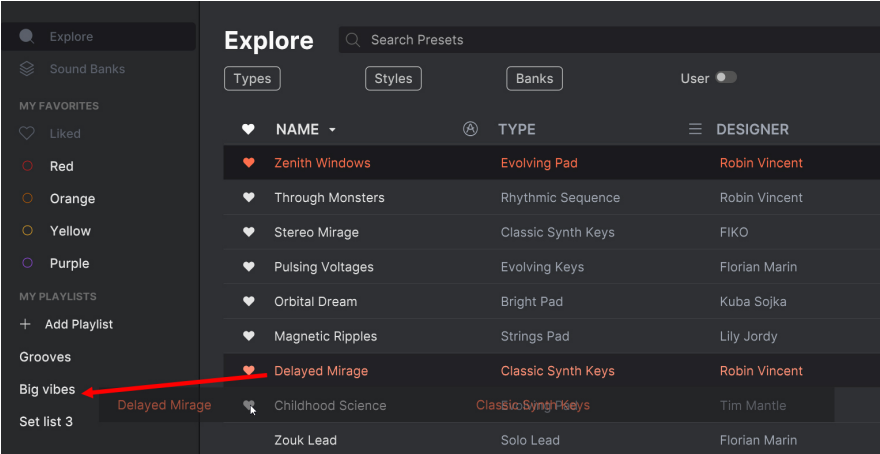


Once you've entered a name, that Playlist will now appear in the **My Playlists** section of the sidebar. You can create as many Playlists as you like.

Right-clicking on a Playlist name will pop up a set of options – you can *Rename*, *Duplicate*, *Delete*, or *Export* the Playlist to your computer, as a file with the ".aplst" extension.

18.7.2. Add a Preset

You can use all of the options in the Explore window to locate Presets for your Playlist. When you find a desired Preset, click-drag it onto the Playlist name.



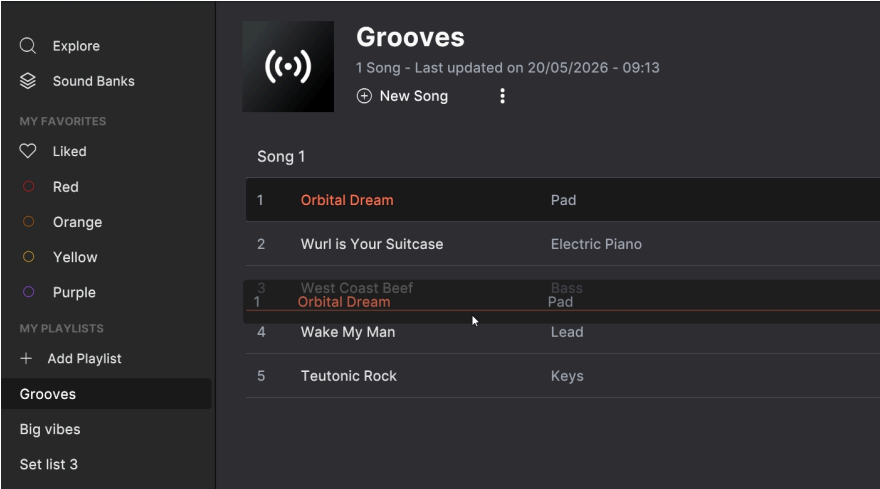
Dragging a preset to a Playlist

You can also right-click any preset and select "Add To Playlist" from the menu.

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

18.7.3. Re-order the Presets

Presets may be reorganized within a Playlist. For example, to move a Preset from slot 1 to slot 3, drag and drop the Preset to the desired location.



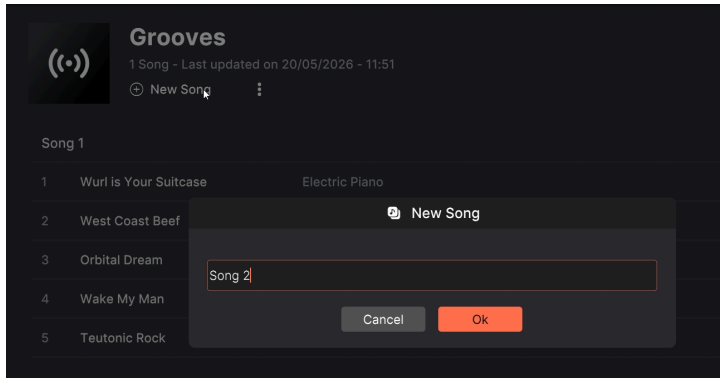
This will move other Presets up in the list to accommodate the new location of the Preset you just moved. A bright orange line will briefly appear at the “insert point.”

18.7.4. Remove a Preset

To delete a Preset from a playlist, select the Playlist, then right-click on the Presets name in the Results Pane to bring up a pop-up menu. This will only delete the Preset *from the Playlist*, not delete the Preset from the Memory V browser!

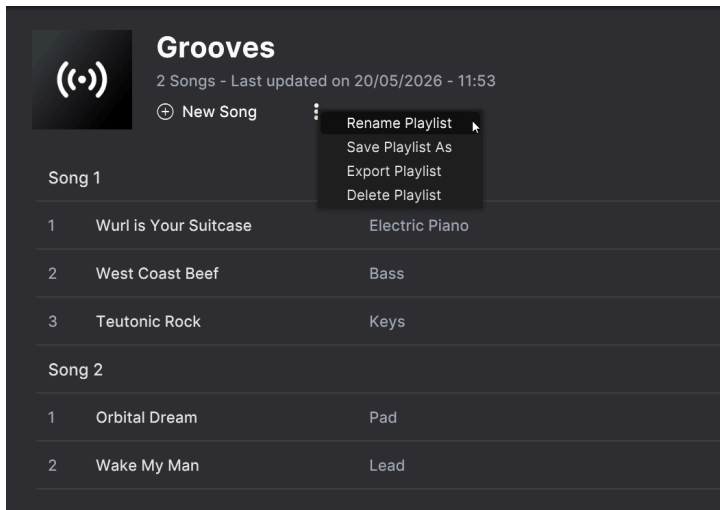
This menu also includes **Rename**, **Copy**, **Paste**, and **Duplicate** options. More management options are described below.

18.7.5. Song and Playlist Management



Any Playlist can be further divided into Songs, which is ideal for managing set lists for a live show. The **New Song** button creates a new Song at the bottom of the Playlist. You can name it, then click and drag it to position it in the Playlist and add Presets to it in the desired order. You can have multiple songs in each Playlist, and when dragging a song by its title, it brings all its Playlists with it – in order!

To access other Playlist management options, click on the three-dots icon next to the **New Song** button. This brings up a pull-down menu:



- **Rename Playlist:** Renames the current Playlist without making a copy.
- **Save Playlist As:** Creates a duplicate of the playlist with "Copy" appended to the name. You can change the name before saving.
- **Export Playlist:** Exports your Playlist to a location on your computer, with the filename extension ".aplst."
- **Delete Playlist:** Deletes the current Playlist but does *not* delete any of the Presets in it.



Playlists can also be imported by using the "Import..." option on the main menu under the Hamburger at the top left of Memory V.

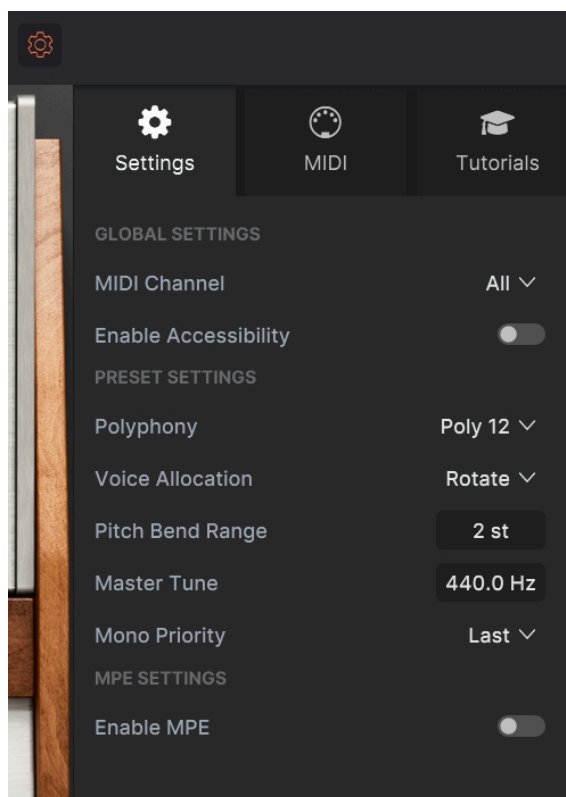
That's all there is to the Preset Browser! We hope you will enjoy many hours exploring the factory Presets and creating your own.

19. SIDE PANEL SETTINGS



If you press the cog wheel icon at the top right of Memory V, in the Upper Toolbar you will reveal a side panel that contains important MIDI settings, MIDI control information and the Tutorials.

19.1. Settings tab



Click on the **Settings** tab to access some specific MIDI settings that are split into Global, Preset and MPE.

19.1.1. Global

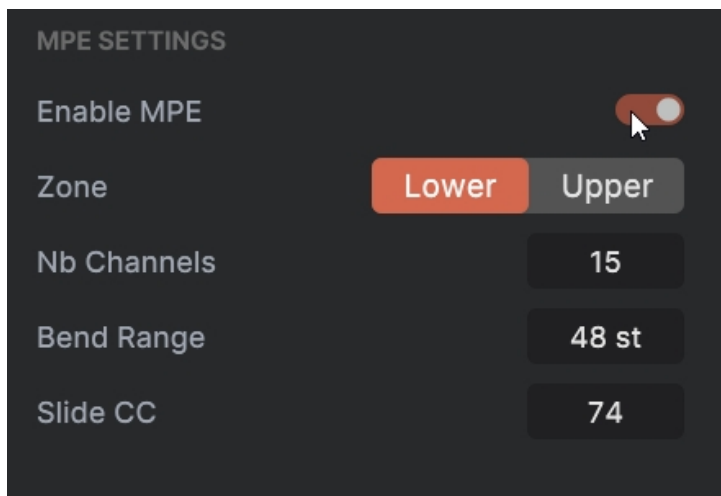
- **MIDI Channel:** Defines the MIDI Input channel for Memory V. It can be set to any channel 1-16 or "All" so it receives on all MIDI channels.
- **Enable Accessibility:** This enables any system-level accessibility tools to work with Memory V.

19.1.2. Preset Settings

- **Polyphony:** Sets the polyphony for the current patch. This is identical to the Polyphony section in the Lower Toolbar. The options are:
 - **Mono:** Plays a single note at a time and envelopes retrigger on every new note.
 - **Legato:** Plays a single note, but the envelope only retriggers if the previous note has been released, allowing you to play in a legato style.
 - **Poly 6:** The original polyphony count of 6 voices.
 - **Poly 12:** An expanded polyphony count of 12 voices
- **Voice Allocation:** Sets how voices are allocated and stolen when the polyphony limited it reached. Options are:
 - **Rotate:** New notes played will always use a new voice. If all voices are playing, an older voice will be stolen.
 - **Reassign:** When a voice is used to play a note once, that same voice will be reassigned each time you play that note again.
 - **Reset:** A single note will always use the same voice and new voices are only added with new notes. So rather than rotating through the voices, more voices are only added when needed.
 - **Reset Memory:** Same as Reset but where if a voice is used to play a note, the same voice will be reassigned to it when it's played again.
- **Pitch Bend Range:** Sets the range of the Pitch Wheel from 1 to 12 semitones. It mirrors the setting on the PITCH BEND AMOUNT knob over in the Performance panel.
- **Master Tune:** Global tuning control set by default to 440Hz. It can be tuned up or down 40Hz and mirrors the TUNE knob over in the Global panel.
- **Mono Priority:** Sets which note takes takes priority when playing in Mono mode. Settings are **Low** for the lowest note, **High** for the highest note and **Last** for the last note played.

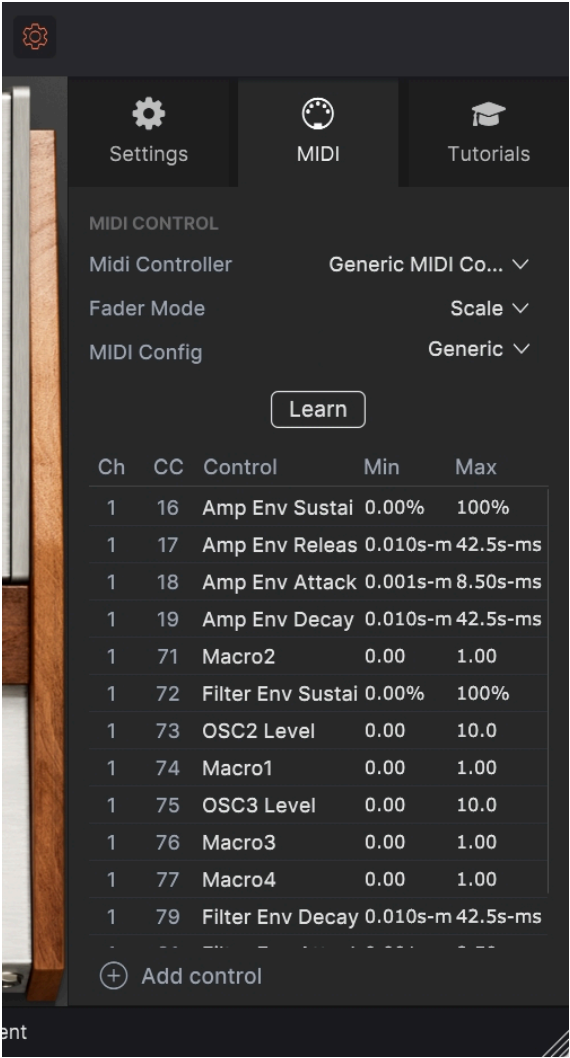
19.1.3. MPE Settings

If you are using an MPE compatible controller then click the button to enable full MIDI Polyphonic Expression for Memory V. A handful of extra settings will appear.



- **Zone:** If an MPE-capable controller can be split into lower and upper zones, this selects which zone sends the MPE messages.
- **Nb Channels:** Sets the maximum number of MIDI channels (and therefore simultaneous notes) on which MPE messages may be sent.
- **Bend Range:** Sets the maximum pitch bend range of each note, up to 96 semitones (48 by default). This should be set to the same value as on your hardware MPE controller.
- **Slide CC:** Selects the MIDI CC number used to send the slide information. By default, this is 74 but you can change it. When MPE is enabled, all the controls that listen to the selected CC will no longer receive it.

19.2. MIDI Tab

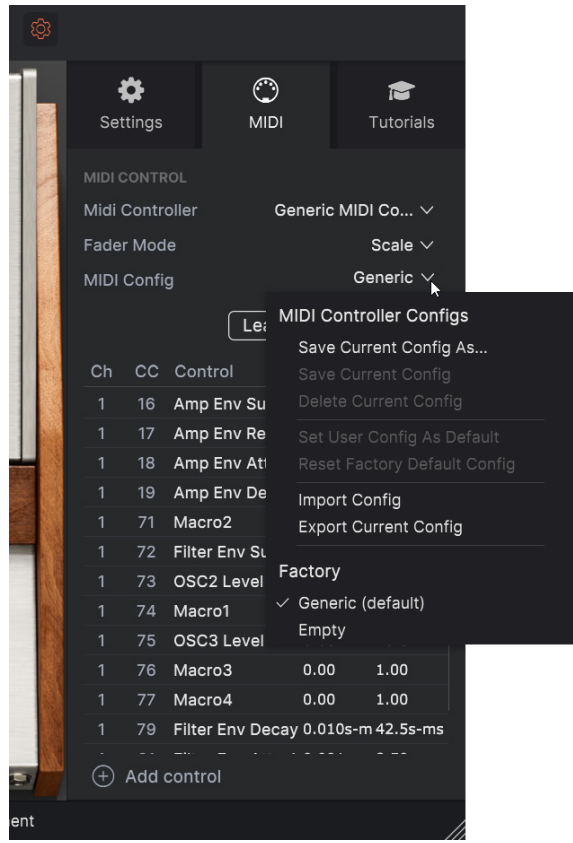


Click the **MIDI** tab in the side panel to access settings for your MIDI controller and to map hardware knobs and controls to on-screen parameters within Memory V.

19.2.1. MIDI Control

Memory V has direct support for a number of Arturia MIDI Controllers which can make mapping controls that little bit simpler. However, any MIDI controller should work just fine.

- **Midi Controller:** Select your Arturia controller from the drop down menu or choose "Generic MIDI Controller" for any other device.
- **Fader Mode:** Sets the pickup mode between hardware controls and on-screen controls. Or what happens when the hardware knob and the on-screen knob are at different values. Your options are:
 - **None:** As soon as you move the hardware control the on-screen control leaps to match the same value.
 - **Hook:** The on-screen control does not move until the hardware control passes through the same value.
 - **Scale:** The on-screen control scales itself to match the throw of the hardware control. So, if the on-screen knob is all the way over the right (maximum), and the hardware control is at 12 o'clock (halfway), the on-screen control will take the hardware position as the maximum and will turn completely to the left with only a half turn of the hardware knob.
- **MIDI Config:** Save and load different MIDI controller mappings and configurations.



MIDI Config options

19.2.2. MIDI Mapping

Click on **Learn** to enable MIDI Learn Mode.



MIDI Config options

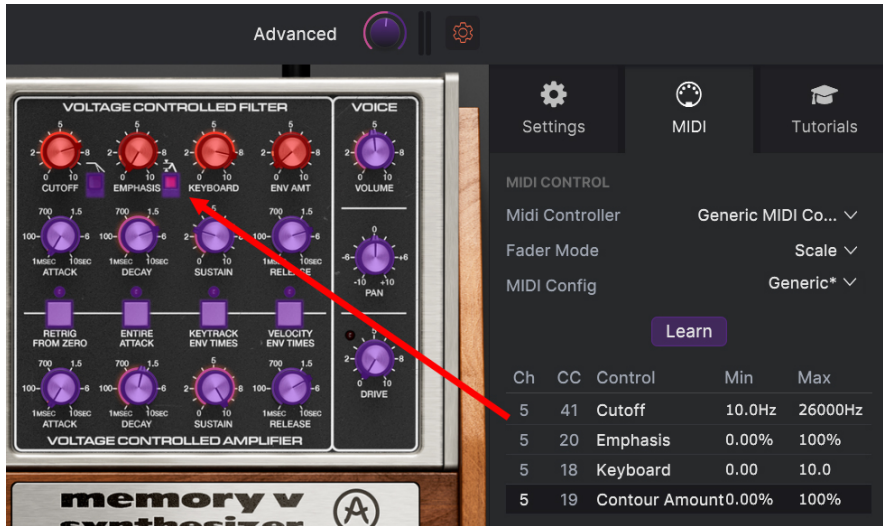
All knobs and controls with a purple glaze are available for hardware MIDI control. Those in red have already been assigned but there's no reason why you can't change the mapping on those if you wish.

All you need to do is click on a control you wish to assign and then move the hardware control on your controller. The control should turn red and the mapping is complete.

i You won't see anything move on the Memory V while in MIDI Learn Mode. You have to exit by clicking on **Learn** again, and then you'll see the on-screen knob move in response to your hardware one.

19.2.2.1. Assignment List

As you make assignments you'll see them detailed in the list under the **Learn** button. In the image below you can see how four hardware controls have been mapped to the Memory V filter controls.



The details in the assignment list can be edited, so you can change the MIDI channel, the CC controller number and set a Min/Max range for the control. A CC# can only be mapped to one control, so if you use the same hardware knob to map to a second on-screen control, the original assignment will be lost.

19.2.2.2. Manually add a Control

If you can't see the on-screen control that you wish to assign or if you'd like to see a list of all possible controls then click on **Add Control** at the bottom of the MIDI tab. This will bring up a list of everything that can be controlled so you can choose and configure it manually.

19.2.2.3. Reserved MIDI CC Numbers

Certain MIDI Continuous Controller (MIDI CC) numbers are reserved and cannot be reassigned to other controls. These are: - Pitch-bend - Modulation wheel (CC 01) - Expression controller (CC 11) - Sustain (CC 64) - All Notes Off (CC 123) - Aftertouch All other MIDI CC numbers may be used to control any assignable parameter in Memory V.

19.2.2.4. MIDI Learn Advanced View

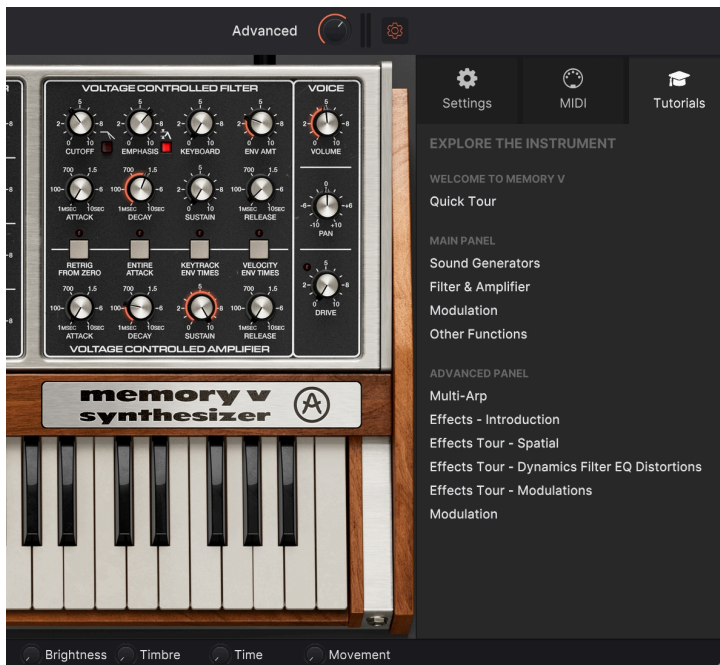
You can also map controls to anything in the Advanced view. It works in exactly the same way.



i You can't switch the Advanced view while in MIDI Learn Mode. You have to exit MIDI Learn, then switch to Advanced, then click Learn again.

19.3. Tutorials Tab

Memory V comes with integrated Tutorials that walk you through different features of the instrument. When you click on the **Tutorials** tab, you'll be presented with a list of chapters.



When you select a chapter, it will load a special preset and guide you through with step-by-step instructions on how to make the most of Memory V. As you go through the tutorial, parts of the control panel are highlighted to show you where to focus your attention.



Click the X in the upper right corner to exit a particular chapter, and click Exit Tutorials at the bottom of the table of contents to close the Tutorials tab entirely.

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