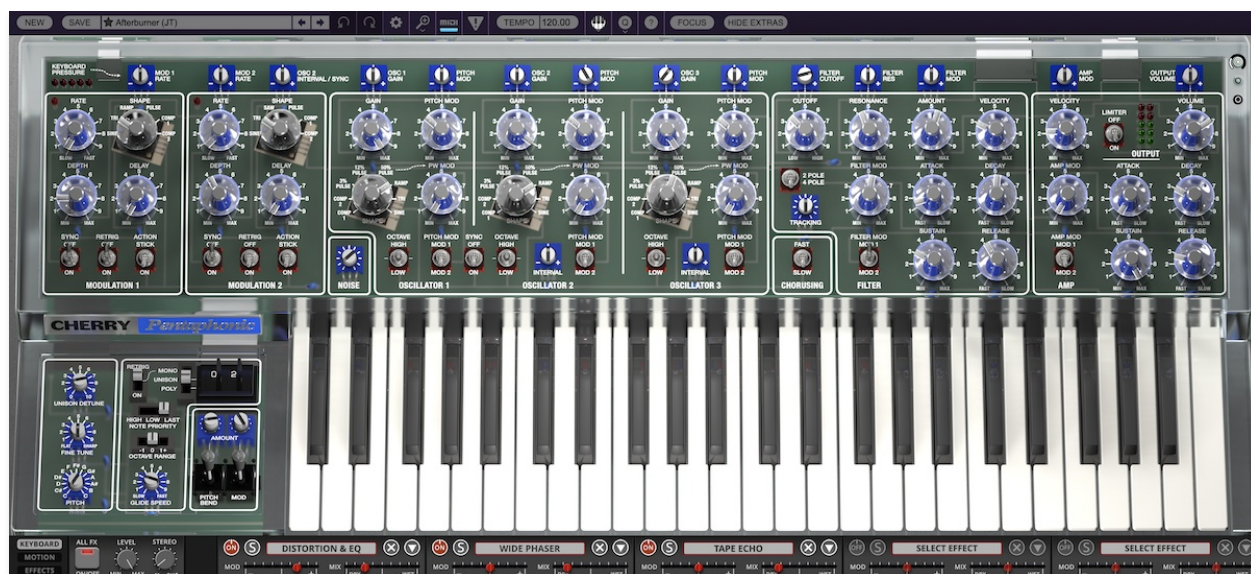


About Pentaphonic



About Pentaphonic

Some synthesizers become classics because they were everywhere. The Gleeman Pentaphonic became one because it almost wasn't anywhere at all.

Introduced in the early 1980s by brothers Bob and Al Gleeman, the Pentaphonic was created in Mountain View, California, during an extraordinary period in synthesizer history. Bob Gleeman wanted the sound and flexibility of the emerging programmable polyphonic synthesizers of the day in a smaller, more portable instrument. His brother Al, a computer hardware designer, approached the problem from the engineering side and developed an unusual five-voice synth built around three oscillators per voice, analog filtering and amplification, modulation, envelopes, chorusing, and a compact 37-note keyboard. Later versions added programmable patch storage and other refinements.

The Pentaphonic arrived at a key moment in electronic instrument history. Synths such as the Sequential Circuits Prophet-5 had established programmable polyphony as the new standard, while a rapidly growing generation of Japanese synthesizers was about to make polyphonic instruments more affordable and widely available. MIDI and the digital synthesizer revolution were just around the corner. The Pentaphonic appeared in that narrow space between eras, combining the sonic impact of an American polyphonic analog synthesizer with an unusually computer-oriented design of its own.

Then there was the Pentaphonic Clear. As if building one of the rarest synths of the era wasn't distinctive enough, Gleeman Instruments built an eye-catching transparent version housed in clear acrylic. Intended in part for stage use, the Clear exposed the instrument's internal circuitry instead of hiding it behind metal and wood. The result looked less like a conventional keyboard and more like something from a science-fiction film.



Only a very small number of Pentaphonic instruments were ever produced, and surviving examples are now prized by collectors. Exact production totals vary among historical sources, but there's little disagreement about the instrument's rarity. Rarity alone, however, wouldn't have sustained the Pentaphonic's reputation. Its sound did that.

Players who encountered the original were struck by its unusually rich sonic character: sharp, three-oscillator leads, rich, chorused, strings, warm

resonant filtering, and a clarity that distinguished it from many of its competitors. Former Gleeman dealer Joey Swails remembered the instrument as exceptionally beautiful sounding, particularly for lush pads and strings. Jazz pianist Oscar Peterson was reportedly so taken with a Pentaphonic after encountering one in a San Francisco-area music store that he spent roughly two hours playing it before grabbing one for himself.

That combination of sound, scarcity, unusual engineering, and personality has made the Pentaphonic an object of fascination for synthesizer collectors and historians. It has also created an obvious problem: very few musicians have ever had the opportunity to actually play one.

But Cherry Audio's Pentaphonic changes that.

Cherry Audio has rescued this remarkable instrument from relative obscurity and a handful of surviving vintage examples, to faithfully translate its distinctive character into software, where musicians, producers, sound designers, collectors, and synth aficionados can explore it for themselves.

But the goal wasn't to simply preserve a rarity. Pentaphonic puts its three-oscillator architecture, rich polyphonic character, expressive filtering, modulation, and unmistakable early-'80s personality inside a modern instrument designed to be played, programmed, recorded, and expanded way beyond what was practical or even possible on the original hardware.

There's a certain poetic justice in that. The original Pentaphonic began because Bob Gleeman wanted an extraordinary synthesizer that was easier to take with him. And now it fits inside a laptop.

Key Features

Pentaphonic combines the distinctive architecture and character of the original Gleeman instrument with the convenience and enhanced capabilities possible in a modern softsynth.

Highlights include:

- Three oscillators with independently selectable wave shapes, levels, tuning relationships, and modulation
- Two versatile modulation sections for creating vibrato, pitch movement, pulse-width animation, filter modulation, and other evolving effects
- Three stunning UI themes, including two clear panel designs with controllable opacity, inspired by the various looks the Pentaphonic sported during its existence

- Switchable 2-pole and 4-pole filtering with resonance, keyboard tracking, envelope modulation, and velocity response
- Independent Filter and Amp ADSR envelopes
- Performance controls for pitch bend, modulation, glide, tuning, note priority, polyphonic and unison operation, and unison detuning
- Built-in chorusing for classic width and movement
- Integrated effects processing for expanding the original instrument into modern production territory
- MIDI controller mapping and Cherry Audio's current MIDI Learn system
- Standalone operation or plug-in use inside a compatible DAW

You can understand a great deal of the instrument simply by following the signal from the oscillators through the filter and amplifier, then adding modulation, performance control, and effects as needed.

Technical Assistance

Cherry Audio's installation, authorization, and automatic-update systems are designed to keep setup straightforward. If you encounter a problem, help is available through the Cherry Audio user forums and technical support system.

The **Cherry Audio Forums** are useful for general questions, sound-design discussions, product information, and advice from other Cherry Audio users.

For account, installation, authorization, or technical issues requiring direct assistance, contact **Cherry Audio Technical Support**.

Cherry Audio Forums:

<https://forums.cherryaudio.com/>

Cherry Audio Technical Support:

<https://cherryaudio.kayako.com/>

The next chapter, **Getting Started**, covers installation, authorization, audio and MIDI configuration, controller setup, and the quickest route to making your first sounds with Pentaphonic.

Getting Started



Getting Started

Pentaphonic can run as a standalone instrument or as a plug-in inside a compatible DAW. This chapter covers system requirements, installation and activation, initial audio and MIDI setup, basic editing conventions, MIDI controller assignment, and the quickest route to making your first sound.

SYSTEM REQUIREMENTS

WINDOWS

- Windows version 7 or newer
- 64-bit operating system required
- 3.4 GHz Quad-Core computer with 8GB of RAM recommended
- 196 MB Available disk space
- Internet connection for product download and activation

MACOS

- macOS version 10.13 or newer
- 64-bit operating system required
- Intel or Apple Silicon processor
- 3.4 GHz Quad-Core or Apple Silicon CPU with 8GB of RAM recommended
- 196 MB available disk space

- Internet connection for product download and activation

Installing Pentaphonic

Download the current Pentaphonic installer from your Cherry Audio account or the download location provided with your purchase.

To download and install Pentaphonic:

1. Sign in to your Cherry Audio account and locate Pentaphonic in your product library.
2. Download the appropriate installer for macOS or Windows.
3. When the download is complete, locate the installer on your computer and double-click it to begin installation.
4. Follow the on-screen installation instructions and select the desired standalone and plug-in formats.
5. When installation is complete, close the installer.

Note that the installer filename may include Pentaphonic's current version number, so the exact filename may differ from examples shown in this guide.

Activating Pentaphonic

Pentaphonic requires authorization through your Cherry Audio account.

When launching Pentaphonic for the first time, follow the login and authorization instructions that appear on screen. Because Cherry Audio's authorization system may change over time, always follow the instructions presented by the current version of the software.

Once authorized, Pentaphonic can be launched either as a standalone application or as an instrument plug-in inside a compatible DAW.

Using Pentaphonic as a Standalone Instrument

The standalone version of Pentaphonic can be played without opening a DAW. This is useful for exploring presets, designing sounds, practicing, or simply using Pentaphonic as a software instrument on its own.

Before playing, make sure Pentaphonic is using the correct audio output and MIDI input devices.

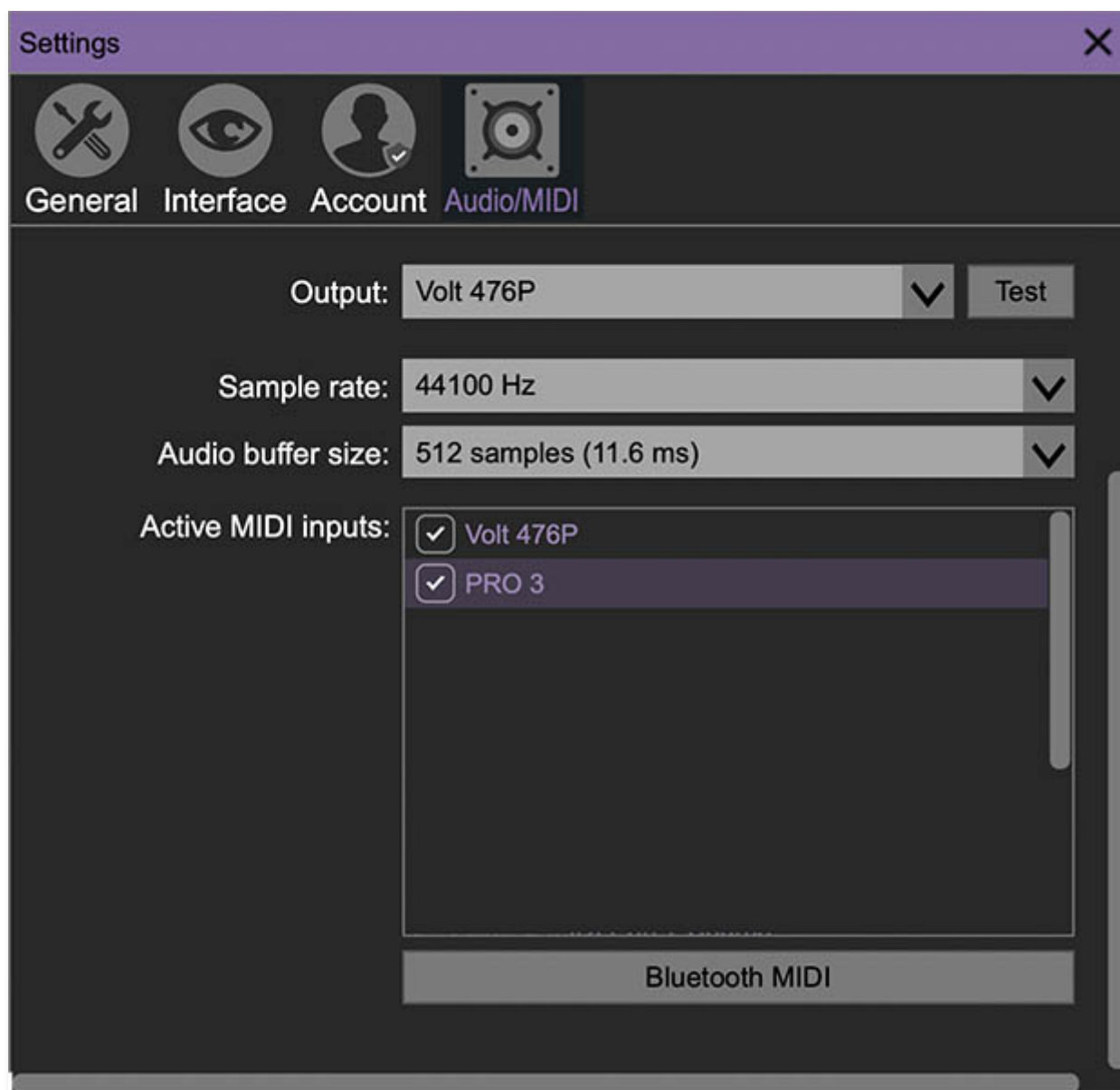
Configuring Audio and Midi

Cherry Audio's current standalone instruments provide an **Audio/MIDI** tab in Settings for selecting the audio output, sample rate, buffer size, and active MIDI inputs. This tab appears only in the standalone version because plug-in versions receive their audio and MIDI routing from the host DAW.

To configure Pentaphonic for standalone use:

1. Launch the standalone Pentaphonic application.
2. Click the **Settings** gear icon in the top toolbar.
3. Select the **Audio/MIDI** tab.
4. Choose the desired audio device from the **Output** menu.
5. Select the desired **Sample Rate**.
6. Select an appropriate **Audio Buffer Size**.
7. Under **Active MIDI Inputs**, enable the MIDI keyboard or controller you want to use.
8. Play your MIDI controller and confirm that Pentaphonic produces sound.

More than one MIDI input can be enabled if your setup uses separate keyboards, pad controllers, knob or fader controllers, or other MIDI devices. For more information on audio and MIDI configuration, see the [Settings](#) chapter.



Audio Buffer Size

The Audio Buffer Size determines the balance between playing latency and processing stability.

- Lower buffer settings generally reduce the delay between playing a note and hearing the result, making Pentaphonic feel more immediate when performing.
- Higher buffer settings give the computer more time to process audio and can help prevent clicks, crackles, or dropouts when the system is under heavier load.

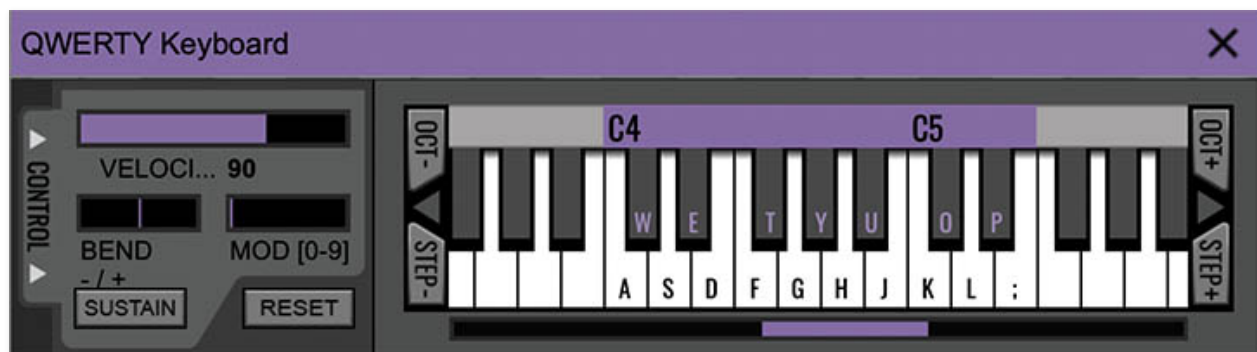
For normal playing, choose the lowest buffer setting that operates reliably on your system.

An external audio interface will generally provide better low-latency performance than a computer's built-in audio hardware, although the best setting depends on your computer, interface, sample rate, and overall system load. Cherry Audio uses this same latency-versus-stability approach in its current standalone instruments.

Playing Pentaphonic Without a MIDI Controller

If you don't have a MIDI keyboard connected, Pentaphonic can use your computer keyboard to trigger notes. Click the circular keyboard icon in the top toolbar to open Cherry Audio's **QWERTY Musical Typing Keyboard**.

The Musical Typing Keyboard lets you play notes from the computer keyboard or directly with the mouse. It also provides access to keyboard range, velocity, pitch bend, modulation, and sustain controls. This provides a convenient way to audition presets, test your installation, or work with Pentaphonic when a hardware controller isn't available. For more information on The QWERTY Musical Typing Keyboard, see the [QWERTY Musical Typing Keyboard](#) chapter.



Using Pentaphonic in a DAW

Pentaphonic can also be used as an instrument plug-in inside a compatible digital audio workstation. The exact procedure varies somewhat between DAWs, but the basic process is the same.

To use Pentaphonic in a DAW:

1. Launch your DAW.
2. Create a new software instrument or instrument track.
3. Insert Pentaphonic as the instrument plug-in.
4. Select or arm the track as required by your DAW.

5. Play your MIDI controller and confirm that Pentaphonic receives MIDI and produces audio.

If Pentaphonic doesn't appear in the DAW's plug-in list immediately after installation, quit and relaunch the DAW so it can scan newly installed plug-ins.

When Pentaphonic runs as a plug-in, audio routing, MIDI input, sample rate, and buffer size are normally managed by the host DAW rather than by Pentaphonic itself.

Useful Editing Conventions and Key Shortcuts

Pentaphonic uses Cherry Audio's standard editing conventions. These make everyday programming faster and are worth becoming familiar with before diving into the instrument in detail.

Adjusting Controls

Click and drag a knob, slider, or switch to change its value.

Cherry Audio's current Settings allow knob response to be configured for **Vertical Drag**, **Horizontal Drag**, or **Rotary Drag**. Mouse-wheel adjustment can also be enabled or disabled.

Entering an Exact Value

When **Settings > Interface > On Control Double-Click** is set to **Edit Value**, double-click a compatible control, type the desired value, then press **Enter** or **Return**.

This is useful when a parameter needs an exact setting rather than an approximate mouse adjustment.

Resetting a Control

The same double-click preference can instead be set to **Sets Default Value**. When this option is selected, double-clicking a control returns it to its default setting.

Because double-click behavior is user-configurable, check this setting if double-clicking a control doesn't produce the result you expect.

Tooltips

Pentaphonic displays parameter values and other useful information in tooltips while controls are adjusted.

Cherry Audio's current Settings let you configure tooltip delay and whether tooltips appear when parameters are adjusted manually or by automation.

Tooltips are especially useful while learning the instrument because they provide precise parameter values without requiring those values to be permanently printed across the panel.

Using MIDI Learn

MIDI Learn lets you map a physical knob, slider, wheel, button, or other MIDI control to an onscreen Pentaphonic parameter.

This is especially useful if your controller has familiar synthesizer controls. Mapping hardware filter, envelope, or modulation controls to their Pentaphonic counterparts can make programming feel considerably more hands-on.

Cherry Audio's current MIDI Learn system allows assignments to be created directly by right-clicking the parameter you want to control.

Assigning a MIDI Controller

To assign a hardware control using MIDI Learn:

1. Right-click the Pentaphonic control you want to map. For example, right-click **FILTER CUTOFF**.
2. Choose **MIDI Learn**.
3. Move the knob, slider, wheel, or other control on your external MIDI controller that you want to assign.
4. Pentaphonic learns the incoming MIDI controller and maps it to the selected onscreen parameter.
5. Move the hardware control again to confirm that the Pentaphonic parameter follows it.

During MIDI Learn, Cherry Audio's current instruments display a colored overlay indicating that the selected control is waiting for incoming controller data. The overlay disappears once the assignment has been completed. If you enter MIDI Learn accidentally, right-click the control and choose **Stop Learning**.

For more information MIDI configuration, see the [MIDI Controllers Setup](#) chapter

Edit Value	(205.66 Hz)
Return To Default Value	(24000.00 Hz)
MIDI Learn	(MIDI CC 33)
Unlearn	
Unlearn All	

The MIDI Tab

Click **MIDI** in Pentaphonic's top toolbar to display the MIDI tab.

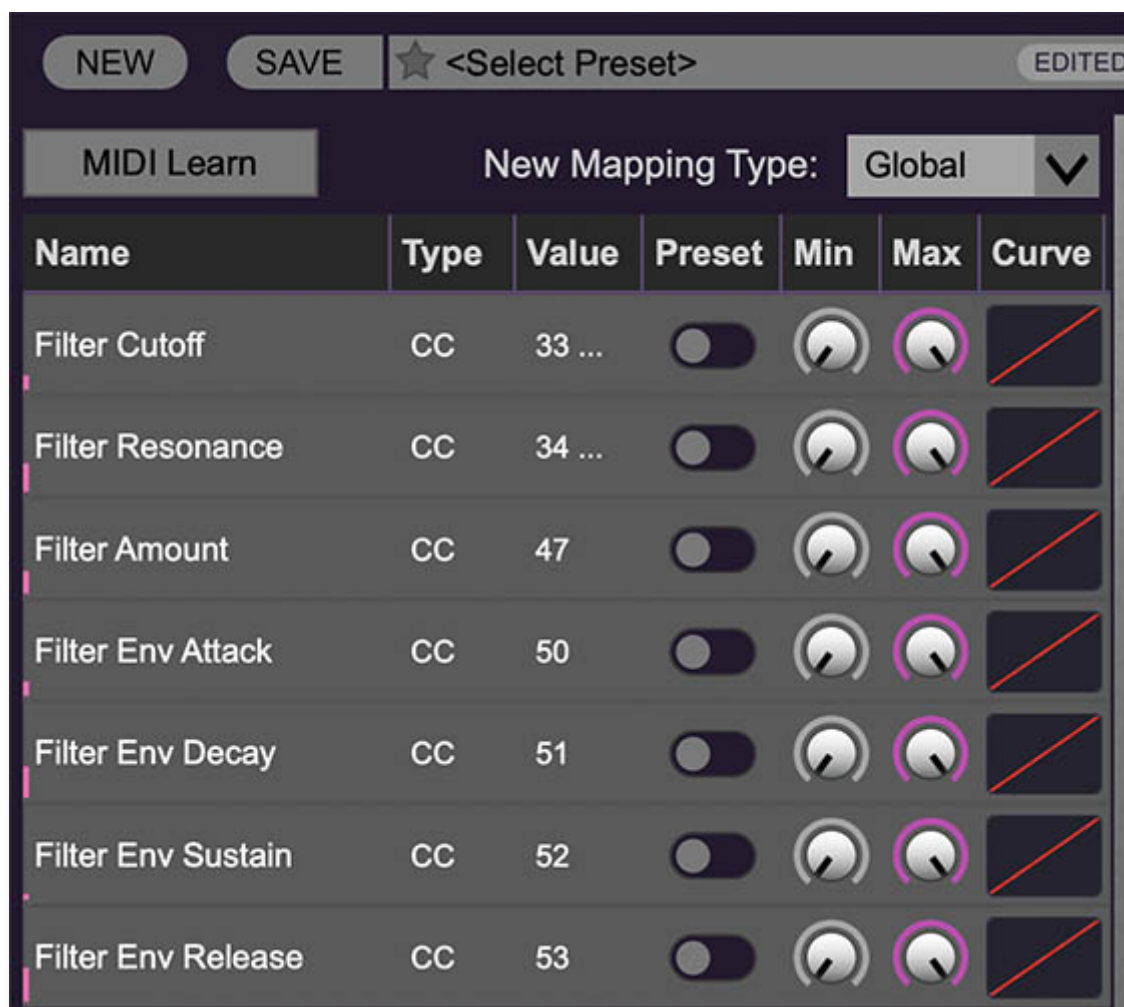
The MIDI tab provides a central location for viewing and editing controller assignments. Cherry Audio's current implementation lets you examine assigned controls, adjust their operating ranges, invert their response, alter controller curves, and remove assignments.

It also provides a faster way to assign several controls at once.

To assign multiple controls from the MIDI tab:

1. Click **MIDI** in the top toolbar.
2. Click **MIDI Learn**.
3. Click the first Pentaphonic control you want to assign.
4. Move the desired hardware control.
5. Click another Pentaphonic control.
6. Move the next hardware control.
7. Continue assigning controls as needed.
8. Click **Stop Learning** when you're finished.

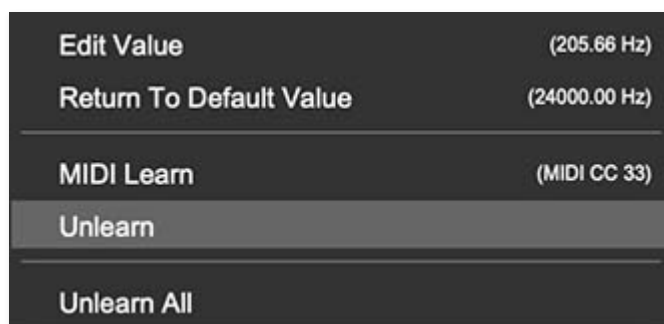
A single hardware control can be assigned to more than one Pentaphonic parameter. Combined with individual range, inversion, and curve settings, this can create useful performance macros in which one hardware gesture changes several aspects of a sound at once. For more information on the MIDI Tab, see the [MIDI Controllers Setup](#) chapter.



Removing MIDI Assignments

Right-click an assigned parameter in the MIDI tab and choose **Unlearn** to remove its controller assignment.

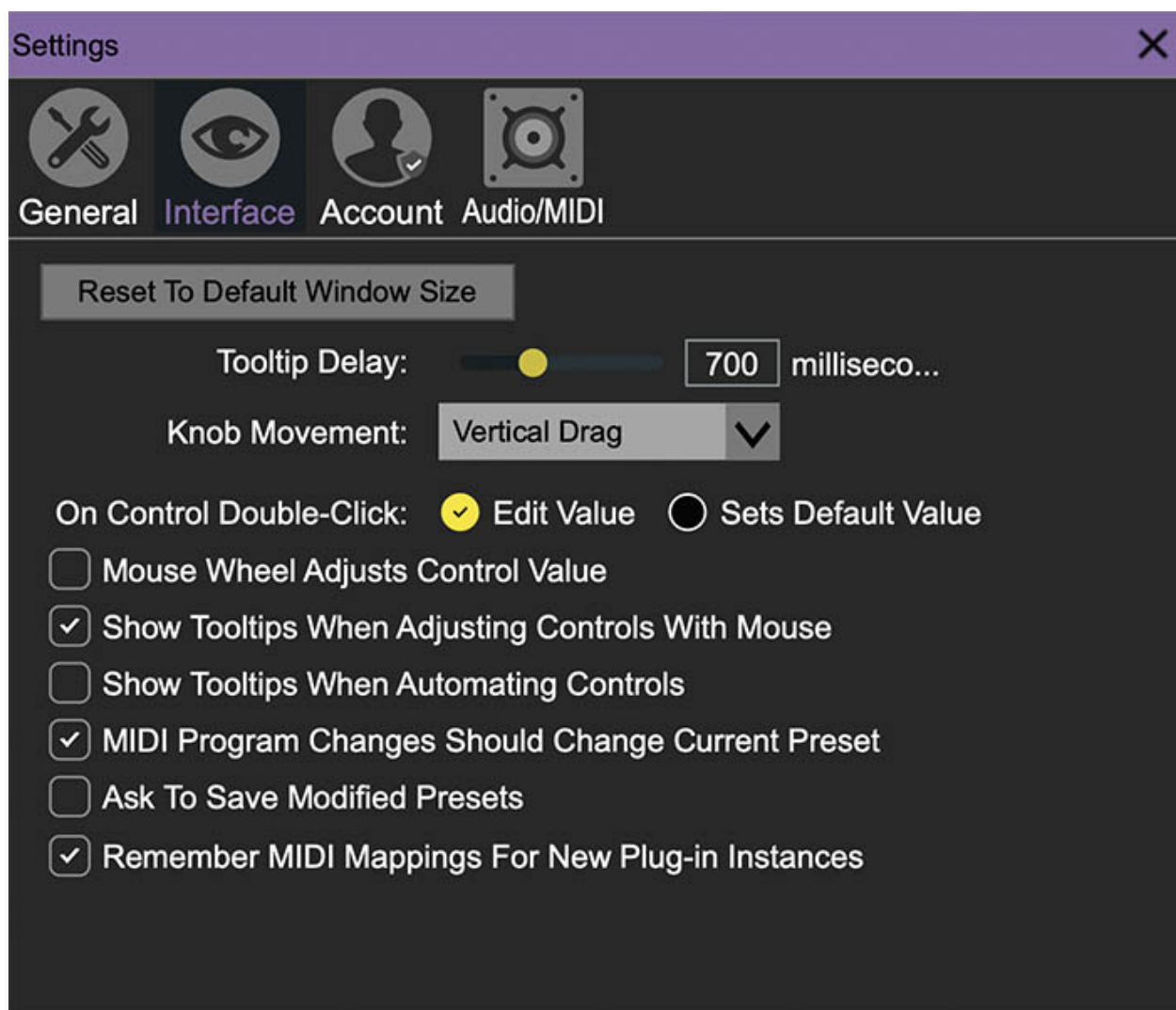
Choose **Unlearn All** when you want to remove all controller assignments. Cherry Audio displays a warning before clearing the complete mapping set.



Remembering MIDI Mappings

Cherry Audio's current Settings include **Remember MIDI Mappings For New Plug-in Instances**. When enabled, the instrument remembers the MIDI Tab controller settings when additional plug-in instances are opened.

This is particularly useful when you regularly use the same hardware controller with Pentaphonic. Once your preferred filter, modulation, envelope, and performance controls are mapped, you can reuse the same hardware layout rather than rebuilding it for every new instance.



Your First Sound

Once Pentaphonic is running, the fastest way to get acquainted is simply to play it.

Start by exploring several factory presets. Listen to how different sounds use oscillator combinations, tuning, filter movement, envelope shape, modulation, chorusing, and effects. Then begin adjusting the controls that have the most immediate impact on the sound.

A good first exploration might look something like this:

1. Load a preset that interests you.
2. Play single notes and chords across several octaves.
3. Adjust **OSC 1 SHAPE** and listen to how the waveform changes the basic timbre.
4. Experiment with **OSC 2 SHAPE** and **OSC 3 SHAPE**, listening to how the three oscillators combine.
5. Adjust **FILTER CUTOFF** to move the sound from bright and open to progressively darker.
6. Raise **FILTER RES** and listen to the increasing emphasis around the cutoff frequency.
7. Adjust **FILTER AMOUNT** and the Filter envelope controls to hear how brightness develops over the life of each note.
8. Experiment with **MODULATION 1** or **MODULATION 2** and increase **DEPTH** to introduce movement.
9. Switch **CHORUSING** between its available settings and listen to the change in width and motion.
10. Open the **Effects** view and experiment with one of the available effects.
11. Return to the main panel and change only one or two controls at a time.
12. When something interesting happens, keep going.

You don't need to understand every part of Pentaphonic before you begin creating useful sounds. Most of its fundamental synthesis controls are directly accessible on the main panel, and the basic signal path is straightforward.

Start with what you can hear immediately. The deeper modulation, performance, and effects features will make considerably more sense once you understand the sound you're trying to shape.

A Few Useful Starting Points

If you're new to Pentaphonic, these controls provide especially quick ways to understand the instrument:

- **OSC 1, OSC 2, and OSC 3 SHAPE** establish the harmonic character of the three oscillators.

- **OSC 1, OSC 2, and OSC 3 GAIN** determine how strongly each oscillator contributes to the sound.
- **FILTER CUTOFF** provides the most immediate tonal shaping.
- **FILTER RES** emphasizes frequencies around the cutoff point.
- **FILTER AMOUNT** determines how strongly the Filter envelope moves the cutoff.
- **FILTER ATTACK, DECAY, SUSTAIN, and RELEASE** shape the development of brightness over time.
- **AMP ATTACK, DECAY, SUSTAIN, and RELEASE** shape the volume contour.
- **MODULATION 1 and MODULATION 2** add movement to pitch, wave shape, filter, amplitude, and other destinations.
- **CHORUSING** adds width and animation.
- **UNISON DETUNE** thickens stacked voices.
- **Effects** extend the basic synth architecture with additional processing and ambience.

You don't need to use all of these at once. In fact, it's usually better not to.

Begin with one oscillator and establish the basic sound. Add the second and third oscillators when you know what you want them to contribute. Then shape the result with the filter and envelopes before introducing modulation and effects.

Three oscillators can sound incredible. But three oscillators all demanding equal attention can also sound overwhelming.

If You Don't Hear Anything

If Pentaphonic is running but you don't hear sound, check the following:

- Make sure the correct audio device is selected in **Settings > Audio/MIDI** when using the standalone application.
- Make sure your MIDI keyboard or controller is enabled under **Active MIDI Inputs**.
- Confirm that **OUTPUT VOLUME** is turned up.
- Make sure at least one oscillator **GAIN** control is raised.
- Check the Amp envelope, particularly its Sustain setting.

- Make sure **FILTER CUTOFF** isn't set so low that most or all of the oscillator signal is being removed.
- If using Pentaphonic in a DAW, make sure the instrument track is selected, enabled, or record-armed as required by the host.
- Confirm that the appropriate MIDI input is reaching the Pentaphonic track.
- Check that your audio interface, speakers, or headphones are connected and operating normally.
- If a MIDI note becomes stuck, click the **MIDI Panic** button in the top toolbar.

Once Pentaphonic is producing sound, you're ready to begin exploring the instrument in detail. The chapters that follow work through its controls and signal path section by section, beginning with the sound-generating architecture itself.



Pentaphonic Overview

Cherry Audio Pentaphonic takes the unusual architecture and sonic character of the original Gleeman Pentaphonic and expands it into a considerably more capable modern instrument. The basic idea remains refreshingly approachable: three oscillators create the raw sound, a lowpass filter shapes its harmonic content, an amplifier controls its level over time, and modulation brings the whole system to life.

What Cherry Audio has added around that foundation is substantial. Pentaphonic includes two expanded modulation sections, velocity and keyboard tracking, additional filter options, broader performance controls, keyboard pressure routing, an arpeggiator, an advanced 4 x 16-step polyphonic sequencer with parameter animation, and a five-slot effects system.

The result is an instrument that can still be approached like a straightforward subtractive synthesizer, but can travel considerably further once you begin using its modern performance, modulation, sequencing, and effects features.

The original instrument followed a similarly direct architecture. Each of its five voices contained three digitally controlled oscillators, a 4-pole lowpass filter, a VCA, and separate Filter and Amp envelopes. A microcomputer handled voice assignment, pitch, sequencer memory, gates, and triggers. Cherry Audio preserves that fundamental organization while

expanding nearly every part of it for contemporary production and performance.

Modulation 1 and Modulation 2

At the far left of the main panel are **MODULATION 1** and **MODULATION 2**.

The original Gleeman contained a single low-frequency triangle-wave modulation source with Rate, Depth, and Destination controls. It could create pitch vibrato, amplitude tremolo, or filter movement.

Cherry Audio expands that idea substantially by providing two modulation sections, each with its own **RATE**, **SHAPE**, **DEPTH**, and **DELAY** controls, along with **SYNC**, **RETRIG**, and **ACTION** options. This makes modulation much more flexible than it was on the hardware, allowing the two sections to perform different musical jobs at the same time.

One modulation source might provide a slow, continuous filter sweep while the other introduces delayed vibrato. They can also interact with oscillator pitch, gain, filter behavior, amplitude, and other destinations throughout the synth.

The important idea for now is simple: Modulation 1 and Modulation 2 are Pentaphonic's primary motion generators. Later chapters will examine their waveforms, ranges, triggering behavior, and routing in detail.



Oscillators

The heart of Pentaphonic is its three-oscillator voice architecture.

Each oscillator includes its own **GAIN**, **SHAPE**, octave, and modulation controls. Oscillators 2 and 3 also provide additional pitch-relationship controls, allowing the three oscillators to reinforce one another, form musical intervals, or create more complex harmonic structures.

One of the most distinctive elements retained from the original Gleeman is the oscillator waveform selection.

The original instrument provided eight fixed waveforms:

COMP 1, COMP 2, 3% PULSE, 12% PULSE, 50% PULSE, RAMP, TRI, and SIN.

COMP 1 and COMP 2 were unusual complex waves created specifically for the Pentaphonic. The original Gleeman Pentaphonic manual described the pulse waves as useful for woodwind-like sounds, Ramp for strings, and Triangle and Sine for pipe-like tones and bass reinforcement. Cherry Audio preserves these characteristic waveforms while adding modern modulation capabilities around them.

This makes the oscillator section an excellent place to begin exploring Pentaphonic. A single oscillator can produce a clear, focused sound. Two can add intervals or beating (via the Chorus control). All three together can create the large, polished harmonic character for which the original instrument became known.



Noise

The Noise source sits beside the oscillator bank and provides an additional non-pitched sound source.

Noise can add breath, air, grit, percussion, wind-like textures, and transient detail. Used subtly, it can keep a sustained patch from sounding overly smooth. Used more aggressively, it can become the primary sound source for effects and synthesized percussion.

Like the oscillators, Noise ultimately becomes part of the signal that is shaped by the Filter and Amp sections.



Chorusing

The **CHORUSING** section is an important part of Pentaphonic's heritage. On the original Gleeman, Chorusing was not a conventional audio chorus effect. Instead, it slightly altered the tuning of Oscillators 2 and 3 relative to Oscillator 1. The original **SLOW** setting produced approximately $\pm 0.39\%$ detuning, while **FAST** increased this to approximately $\pm 0.78\%$. The result was slower or faster beating among the three oscillators.

This is an important distinction because the effect begins at the sound source itself. Rather than processing an already completed synth signal, chorusing creates movement through the tuning relationship among the oscillators. Cherry Audio retains the familiar **FAST/SLOW** Chorusing control on the main panel.



Filter

After the sound sources are combined, the signal moves into the **FILTER** section. The Filter determines how much harmonic content passes through the synth. Lower **CUTOFF** settings remove more upper-frequency content and create darker tones. Higher settings allow more harmonics through and produce a brighter, more open sound.

RESONANCE emphasizes frequencies around the cutoff point, allowing the filter to move from gentle tonal shaping toward sharper, more pronounced resonant effects.

The original Pentaphonic used a 4-pole, 24 dB/octave lowpass filter for each voice. At maximum resonance, the filters could self-oscillate. Cherry Audio expands this architecture with switchable **2-POLE / 4-POLE** operation, along with **TRACKING**, **VELOCITY**, additional modulation control, and other modern conveniences.

The Filter also includes its own ADSR envelope. The **AMOUNT** control determines how strongly that envelope affects Cutoff, while **ATTACK**, **DECAY**, **SUSTAIN**, and **RELEASE** determine how the filter changes over the life of each note.

This interaction between oscillator harmonic content, base Cutoff, Resonance, and the Filter envelope is one of the most important relationships in Pentaphonic and what gives the synth its character.



Amp and Amp Envelope

After filtering, the signal enters the **AMP** section. The Amp controls the volume contour of each played note. Its **ATTACK**, **DECAY**, **SUSTAIN**, and **RELEASE** controls determine whether a sound begins immediately or fades in, remains steady or falls away, stops sharply or trails naturally after a key is released.

The Filter and Amp envelopes work independently. This means brightness and loudness do not have to follow the same contour. For example, a sound can begin immediately in volume while slowly becoming brighter, or it can open brightly at the beginning and become darker while its volume remains sustained.

Pentaphonic also expands the original Amp architecture with **VELOCITY** and modulation controls, allowing playing dynamics and modulation sources to influence the final level.



Output

The **OUTPUT** section controls Pentaphonic's final level.

The stereo LED meters provide visual feedback for output level, while **VOLUME** sets the final signal level. A switchable **LIMITER** provides protection against unwanted output peaks.

When programming sounds, it's useful to remember that oscillator Gain, resonance, envelope behavior, polyphony, effects, and overlapping release tails can all contribute to final level. Set Output Volume with the loudest realistic passage in mind rather than judging level from a single note.



Keyboard Pressure

Running across the top of the main synthesis panel is the **KEYBOARD PRESSURE** modulation strip.

This is one of Cherry Audio's most significant expansions of the original instrument.

A series of bipolar amount controls allows keyboard pressure to influence numerous parts of the sound, including modulation rate, oscillator behavior, filter parameters, Amp modulation, and Output Volume.

This turns aftertouch or pressure into a highly flexible performance source rather than a single hardwired expression control.

A patch might begin relatively restrained, then become brighter, wider, more animated, or louder as additional pressure is applied.

We'll examine each pressure destination and its behavior in the Performance Controls chapter.



Panel Themes

The three circular buttons at the upper-right corner of the panel let you change Pentaphonic's visual theme. The choices are loosely inspired by different historical appearances of the original Gleeman hardware.

AUDITIES THEME: Displays the Audities-inspired panel appearance, with portions of the instrument's internal components visible beneath the surface treatment.

TRANSPARENT THEME: Recreates the striking transparent look associated with the clear-bodied Gleeman instruments, allowing the internal circuitry and components to become part of the visual design.

BLACK THEME: Displays the conventional dark Pentaphonic panel used throughout most of this guide.

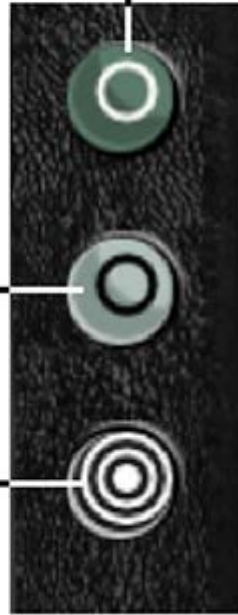
The **Audities** and **Transparent** theme buttons also act as opacity controls. Click and drag either button to increase or decrease the theme's opacity, revealing more or less of the internal components beneath the panel.

This feature is cosmetic and doesn't alter the sound or operation of Pentaphonic, but it provides a nice visual nod to the unusual hardware history that helped make the original instrument so memorable

Audities Theme

Transparent Theme

Black Theme





Performance Controls

The lower-left portion of the Keyboard view contains Pentaphonic's performance controls.

These determine how played notes are assigned and articulated and provide immediate access to tuning and expressive performance behavior.

Visible controls include **MONO**, **UNISON**, and **POLY** operation, **HIGH**, **LOW**, and **LAST** note priority, **RETRIG**, **UNISON DETUNE**, **FINE TUNE**, chromatic **PITCH** transposition, **OCTAVE RANGE**, **GLIDE SPEED**, and Pitch Bend and Mod performance controls.

Several of these ideas have direct ancestors in the original Gleeman.

The hardware Pentaphonic supported Mono and Poly modes, with high-note priority in Mono. Its Glide control operated in monophonic mode, and the original Pitch control transposed the complete instrument chromatically across a one-octave range.

Cherry Audio extends these ideas with additional voice modes, note priorities, unison operation, and contemporary performance control.



Three Main Views

Pentaphonic's lower panel changes according to the **KEYBOARD**, **MOTION**, and **EFFECTS** buttons at the lower-left corner.

The upper synthesis panel remains available while these lower views change, so sound design, sequencing, performance, and effects remain closely connected.

Keyboard View

KEYBOARD displays the on-screen keyboard and Performance Controls.

This is the most direct view for conventional playing and sound design. It keeps the keyboard visible while leaving the main synthesis panel fully accessible above.

Use Keyboard view when programming oscillators, filters, envelopes, modulation, or performance behavior without needing the sequencing or expanded effects interfaces.



Motion View

Click **MOTION** to replace the keyboard with Pentaphonic's Arpeggiator and Sequencer.

The **ARPEGGIATOR** occupies the left side and provides pattern, direction, range, synchronization, speed, swing, probability-style Chance, and Feel controls. It can turn held notes into conventional repeating figures or more animated performance patterns.

The **SEQUENCER** occupies the center and right side of the Motion view. It provides a 16-step programming area, four pattern memories, multiple playback modes, keyboard-control options, Live Record, Step Program modes, synchronization, Swing, Chance, Feel, and additional sequence-length or multiplication choices.

The **PARAMETER ANIMATOR** extends the sequencer beyond note playback. Visible targets include **CUTOFF**, **RES**, **MOD**, and **GAIN**, allowing step-based motion to become part of the patch itself.

This represents a major expansion over the original Gleeman sequencer.

The 1982 instrument included a real-time polyphonic recorder that could loop a recorded phrase while the keyboard remained playable. Keyboard notes could even steal voices from the sequence when necessary. Cherry Audio takes that original performance-oriented idea much further with programmable steps, multiple patterns, parameter animation, playback direction, probability-style controls, and synchronization to a modern production environment.

The detailed Motion chapter will cover programming notes, ties, patterns, live recording, transposition, utility functions, and Parameter Animator presets step by step.



Effects View

Click **EFFECTS** to display Pentaphonic's five-slot effects environment.

Five large effect bays allow processors to be selected and arranged as part of the preset. Each slot includes its own effect selection and lower-strip controls for modulation and wet/dry balance.

The left side of the Effects view contains the **GLOBAL EFFECTS MOD** section, with controls for modulation speed, waveform, delay, synchronization, Mod Wheel interaction, and key reset.

An **ALL FX** section provides overall effect on/off, Level, and Stereo controls.

Effects can therefore serve two roles. They can provide conventional finishing duties such as ambience, width, dynamics, or delay, but they can also become part of the sound-design process itself, particularly when modulation is used to animate effect parameters. Effects don't necessarily need to be the final coat of paint. Sometimes they're part of the instrument.



Pentaphonic Signal Flow

At the broadest level, Pentaphonic follows a familiar subtractive synthesizer path.

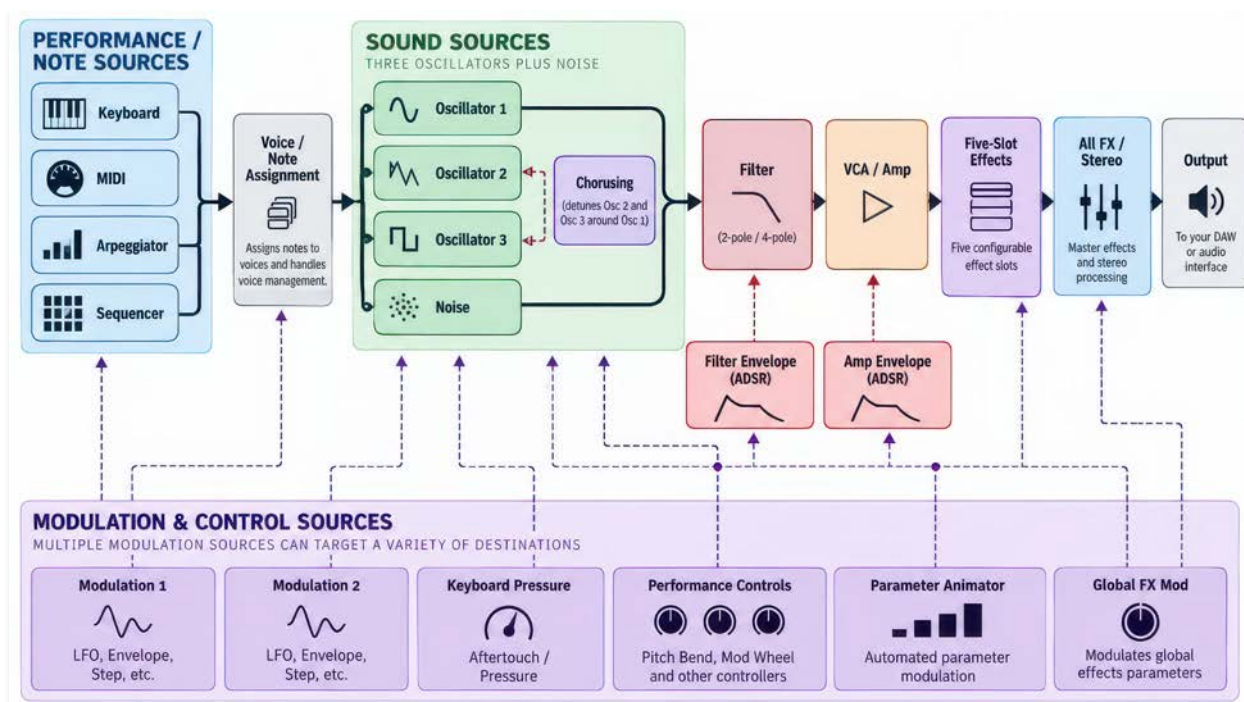
Its three oscillators and Noise source create the raw sound. The oscillator Gain controls determine their relative contribution. The resulting signal enters the Filter, where Cutoff, Resonance, modulation, and the Filter envelope shape its harmonic content. The Amp and its envelope then determine how the sound develops in level over time.

The completed synth signal can then be processed by Pentaphonic's five-slot effects system before reaching the final Output.

What makes Pentaphonic more elaborate is everything that can influence those stages from outside the main audio path.

Modulation 1 and Modulation 2 can animate multiple synthesis parameters. Keyboard Pressure provides real-time expressive control. Performance controls determine pitch, articulation, glide, and voice behavior. The Arpeggiator and Sequencer generate note movement, while the Parameter Animator can impose step-based changes on sound parameters. The Global Effects Mod section extends modulation into the effects environment.

The basic signal flow therefore remains easy to understand even though the surrounding control system can become considerably more sophisticated.



Start with the three oscillators, Filter, and Amp and you have a very capable subtractive synthesizer. Begin adding dual modulation, pressure, motion sequencing, parameter animation, unison, and effects, and the same architecture can move into considerably more elaborate territory.

That balance between simplicity at the center and sophistication around the edges is one of Pentaphonic's strongest design qualities.

The chapters that follow examine each section in detail, beginning with the oscillators and sound sources.

Top Toolbar and Preset Browser



The dark purple strip at the top of Pentaphonic contains the newly designed Preset browser, navigation, "under-the-hood" settings, UI zoom and focus control, and more.

New- Opens a new blank patch preset. If an unsaved patch is currently open or you've modified an existing saved patch, a dialog asks if you'd like to save the patch in its current state. This greatly reduces the possibility of losing an edited unsaved patch.

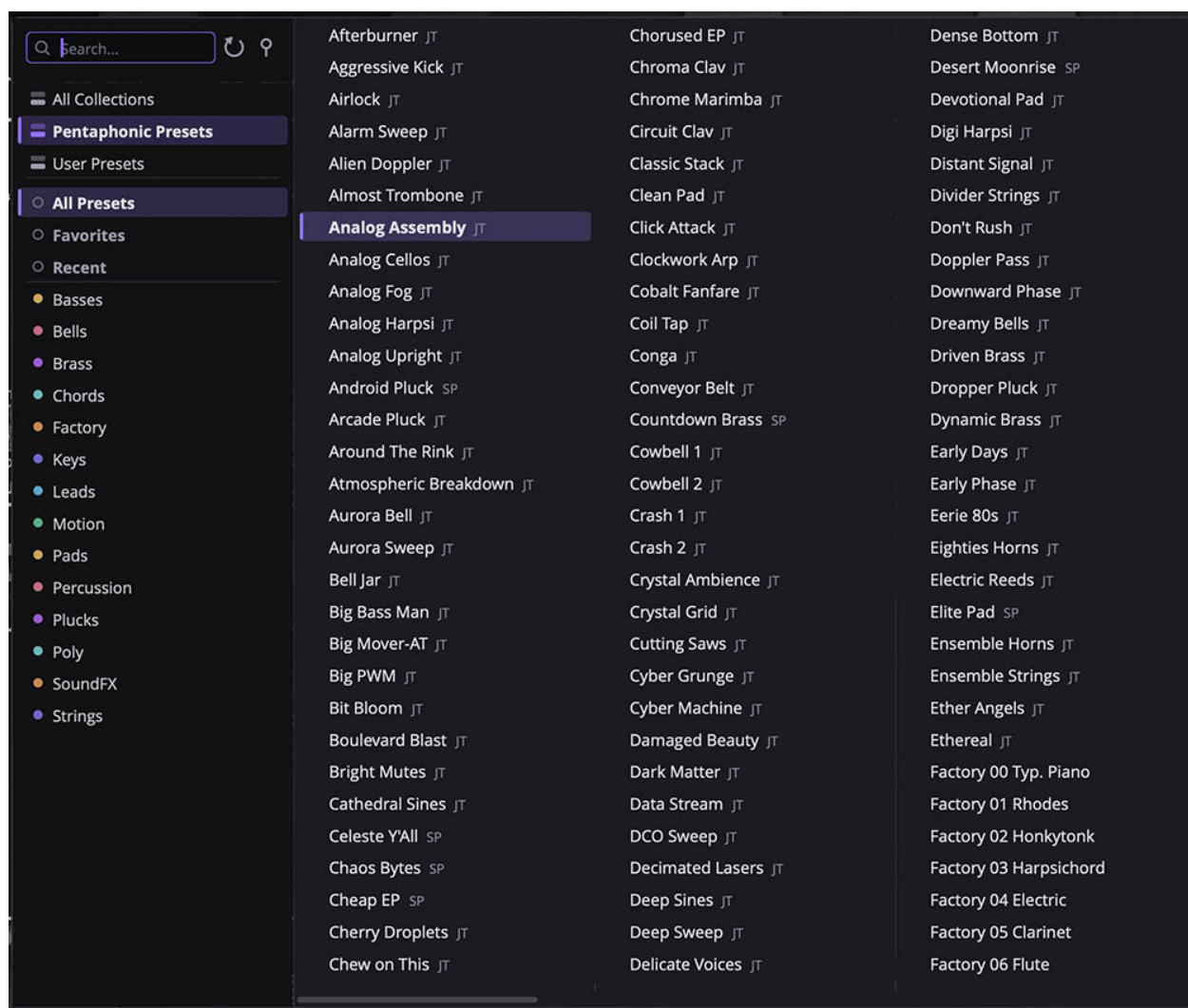
Save - Use this to save patch presets. There are a couple of levels of hierarchy that appear in the Save Preset box, which correlate to the Preset Browser below.

- **Collection**- This is the top level of organization, and contains entire "sets" of presets. The *Pentaphonic Presets* are the factory collection. There is also a *User Presets* collection for storing user presets, but you're

free to create your own collections. To create a new collection, click in the *Collection* text field (where it says *User Presets* above) and type a name. User-created sounds can be freely saved to any collection; we like to keep them separated for organizational purposes. Select a collection in the left panel to filter the display of presets on the right to just those presets.

- **All Collections** - Displays the available presets from all of the collections below, and any you may add in the future, such as the Foundation Preset Pack from Cherry Audio.
- **User Presets** - Waiting for your creations!
- **Category**- Within each *Collection* are a number of sound categories. As with collections, you're free to create as many categories as you like. To create a category, click in the *Category* text field of the *Save* dialog window and type a new category name.
- **Name**- The name for an individual sound preset. To save a patch, simply type the name in the *Name* field and click *Save*. Note that if you add characters into parentheses after the name, those characters are displayed as a suffix to the main name. You can use this as a handy way to indicate functionality (such as AT for aftertouch) or the name/initials of the sound designer.
- **Keywords**- You can add descriptive words such as "huge," "noisy," "poly," etc., to patches to make them appear when terms are typed in the *Search* field. Use commas to separate multiple keywords entries.

Presets now also include the initials of the sound designer who created the patch.



The Preset Browser

A preset browser with a presentation of the Collections, Search, filters for All/Favorites/Recent, and Presets by Category.

Browsing Patches- Patches can be browsed by clicking the *<Select Preset>* field. To select a preset collection, click in the area that says *<All Collections>* or on the downward-facing arrow next to it.

Clicking on the left-side categories narrows down which patches are displayed.

- **All Presets** will show presets from all collections and categories.
- **Favorites** displays presets that you have designated as favorites (by clicking the **star** icon next to the preset name in the preset name field).
- **Recent** displays recently used presets.
- **Refresh-** This is the circular arrow button to the right of the downward arrow; clicking this checks the Cherry Audio server for new or updated

presets.

Preset- Step Back/Forward Arrows- These step to the previous or next preset. macOS [⌘+left/right arrow key] or Windows [CTRL+left/right arrow key] will navigate through presets back and forth in the currently selected collection/category.

Undo/Redo- These circular arrows will undo or redo the last action. It remembers many steps, so if you really loused something up, keep on (un)clickin'...

Settings- This is where user preferences for user interface, audio interfaces, user account, and more are configured. See the **Settings** section for full information.

Importing Presets with drag-and-drop

Presets (user or third-party) can be imported singly or en masse (as a single compressed ZIP file) simply by dragging and dropping from the desktop anywhere on the user interface.

If a single *.preset file is dragged and dropped, the sound is immediately loaded and the standard Save Preset dialog appears; this lets you save the sound to the instrument's preset browser. Note that you don't have to save the sound to preset browser; if you just want to hear and play the sound, click the Cancel button in the Save Preset dialog - the sound will still be loaded.

Compressed zip files containing multiple sounds can also be drag and dropped onto the UI. This works the same as with single sounds, but instead of the Save Preset dialog, you'll see the Import Preset Collection dialog. The presets will be added as a new collection and available in the categories for which they were tagged.

If you wish, you can selectively import presets simply by dragging and dropping the file(s) onto the user interface. You can select multiple presets.

Do not zip them. These preset files will be automatically duplicated and translated to v2 format as single-layer whole presets, as v1 did not support layers or splits. They will be added to your v2 User Presets collection under the category "V1 Presets." The integrated effects associated with v1 presets - Phaser, Ensemble, Echo, Reverbs -- are automatically assigned to Cherry Audio's latest effects and effects chain system in the Upper Layer effects chain. The original Phaser is the new Wide Phaser Effect, Ensemble becomes Flanger & Chorus, Echo becomes Digital Delay, and Reverb becomes Digital Reverb Room, Hall, or Plate).

Zoom Magnifying Glass- Click to resize the interface window. Selecting *100%* returns the user interface to native size.

MIDI tab- Opens the MIDI controllers tab for configuring internal and hardware MIDI controls. See the **MIDI Controllers Setup and MIDI Tab** section for full information.

! (MIDI Panic)- Click to send an all-notes-off message in case of rare, "make this #\$!%ing thing shut up?!?" stuck-note incidents.

Tempo (Standalone Version Only)- Displays Pentaphonic's current internal tempo setting. Pentaphonic's internal tempo affects the LFO, Arpeggio, and the Echo section rates when their corresponding *Sync* buttons are enabled. The tempo setting can be changed by moving the mouse up and down anywhere in the tempo section, or by double-clicking the number and entering the desired BPM value.

The tempo display only appears in the standalone version of Pentaphonic. VST, AU, and AAX plug-in versions receive tempo data from their host DAW app.



QWERTY Musical Typing Keyboard- Opens an onscreen keyboard allowing a standard QWERTY computer keyboard to be used for playing music notes. For more information, see the **QWERTY Musical Typing Keyboard (MTK)** section.



? (Help)- Clicking this launches your web browser and opens the help document you're already reading. Confusing circular logic at its finest.

Cherry Audio Pentaphonic Synthesizer logo- Clicking this displays “about” information, and shows the version number and current registered user ID.

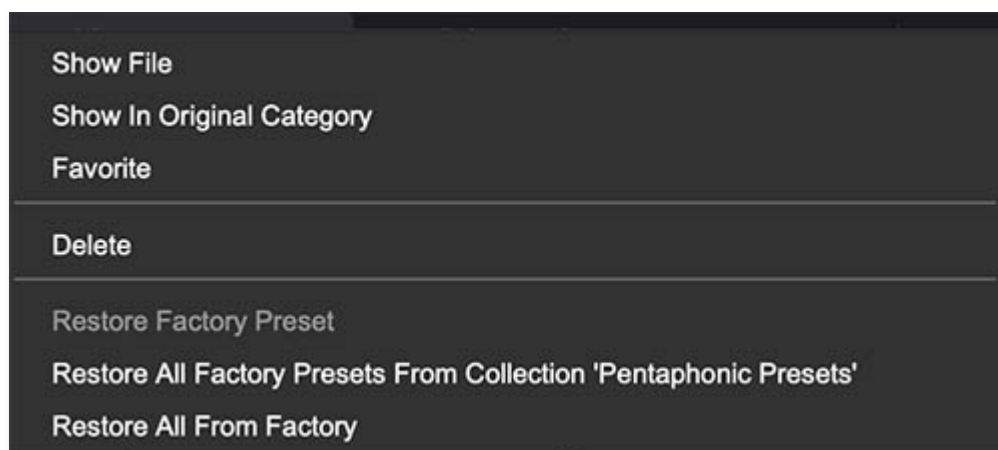
Focus Button



Since the original instrument is over three feet wide and your display likely isn't, it was necessary to ensmallinate lots of things (sure, that's a word). If you're using a tiny laptop, this could make things hard to see. With this in mind, the *Focus* button conveniently enlarges Pentaphonic's user interface to roughly twice its normal size within the current window size. Unlike the *Zoom* "magnifying glass" function, *Focus* doesn't affect the current window size. By default, the patch panel section fills the current window, but the view can be scrolled vertically and horizontally with a mouse wheel, track pad, or Apple Mighty Mouse finger-scrolling. Or if you're the last person on earth still using a single-button mouse, scroll bars will appear at the window edges when in *Focus* mode. (Drop us a line from your AOL account, umkay?)

Using *Focus* mode couldn't be easier - just click the *Focus* button the top menu bar. To return to standard view, click *Reset*. **There's also a superfast key shortcut** - on Mac, hold the ⌘ [COMMAND] key and click the mouse; in Windows, hold the [OPTION] key and click the mouse. Focus can be reset with the same key shortcuts.

Preset List Right-Click Functions



Show File- This displays the selected preset in the Mac or Windows folder containing it. This is useful for backing up or sending a preset file to another user.

Show In Original Category- Selects the preset within its category, i.e. the category will highlight in the left preset menu. The *Show In Original Category* command only displays if the preset was selected within the *<All Presets>*, *<Favorites>*, or *<Recent>* categories.

Favorites- Favorited presets will show in when the *<Favorites>* category is selected. A star will display next to the preset name. Right-click on the preset and reselect *Favorite* to un-favorite it.

Delete- Deletes the selected preset.

Restore Factory Preset- If one of the factory (i.e. not user) patches is edited and saved, selecting this command restores the patch to its unaltered "factory" setting. This menu will be grayed-out for user bank patches.

Restore All Factory Presets From Collection "Pentaphonic Presets" - If any patches from the "factory" bank are edited and saved, selecting this command restores *all* of them to their unaltered factory setting.

Restore All From Factory- If any patches from the factory banks are edited and saved, selecting this command restores *all* of them to their unaltered factory setting. At the time of writing, the bank mentioned above is the only factory bank, so this function and the *Restore All Factory Presets From Collection 'Pentaphonic Presets'* above have the same effect.

Show File- This displays the selected preset in the Mac or Windows folder containing it. This is useful for backing up or sending a preset file to another user.

Oscillators



Pentaphonic's three oscillators provide the raw material for nearly everything that follows. Each can contribute a simple fundamental tone, a harmonically rich waveform, a tuned interval, or a modulated component inside a much larger sound.

The basic architecture comes directly from the original Gleeman Pentaphonic. Each of its five voices contained three digitally controlled oscillators, giving the instrument 15 oscillators in total. The original oscillator sections shared **GAIN**, **SHAPE**, and **OCTAVE** controls and were designed to be stable immediately after power-up, without the warmup and tuning drift associated with many analog oscillators of the period.

Cherry Audio retains the unusual waveform set that gave the Gleeman much of its personality, but expands the oscillator architecture with pitch modulation, pulse-width modulation, oscillator synchronization, interval tuning, keyboard-pressure control, and additional modulation routing.

At its simplest, Pentaphonic can behave like a straightforward three-oscillator subtractive synth. Set the three oscillators to compatible octave ranges and waveforms, balance their Gain controls, then shape the combined result with the Filter.

But the real character begins to emerge when the oscillators are given different jobs. One can provide the main body of the sound, another can add

a musical interval or chorusing, and the third can contribute brightness, low-frequency reinforcement, or contrasting waveform content.

Controls Common to the Oscillators

Although Oscillators 1, 2, and 3 have a few individual features, they share a common set of basic controls.

Gain

GAIN: (*Min to Max*) Sets the level of the oscillator in the combined sound. Higher settings make the oscillator more prominent, while lower settings allow it to serve as a supporting component beneath the other sound sources.

Gain is more than a matter of making all three oscillators equally loud. A useful three-oscillator patch often has a clear hierarchy: one oscillator provides the foundation, another adds color or detuning, and the third supplies reinforcement or an interval.

Tip: When a patch begins to sound crowded, try lowering one oscillator instead of changing its waveform or tuning. The problem may simply be that too many elements are competing at equal level.



Shape

SHAPE: (*COMP 1, COMP 2, 3% PULSE, 12% PULSE, 50% PULSE, RAMP, TRI, SINE*) Selects the oscillator waveform.

These eight shapes are one of Pentaphonic's defining characteristics and are carried directly from the original Gleeman design. **COMP 1** and **COMP 2** are

unusually complex waveforms created for their distinctive harmonic qualities.



The remaining shapes move through progressively more familiar synthesizer territory:

COMP 1 and **COMP 2** provide complex harmonic spectra unlike the conventional waveforms found on most subtractive synthesizers.

3% PULSE produces an extremely narrow pulse with a thin, bright, nasal character.

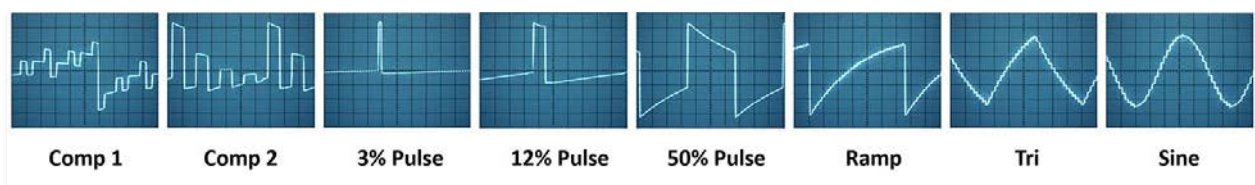
12% PULSE is wider and fuller but retains the hollow quality associated with asymmetric pulse waves.

50% PULSE is a symmetrical square wave, producing a strong fundamental with prominent odd-numbered harmonics. Pulse width modulation is applied to the 50% wave, but not to the 3% or 12% Pulse waves.

RAMP is the sawtooth waveform. It contains both odd and even harmonics and provides plenty of upper-frequency material for the Filter to shape.

TRI provides a smoother, rounder sound with substantially fewer upper harmonics.

SINE contains the least harmonic complexity and is useful for pure tones, low-frequency reinforcement, and softening brighter oscillator combinations.



The Two Comp Waveforms

COMP 1 and COMP 2 deserve special attention because they're part of what makes Pentaphonic sound unlike a generic three-oscillator synth.

The original manual described them simply as two new “complex waveshapes” included for their unique harmonic qualities. Their stepped and irregular shapes contain a more complicated mixture of harmonics than Triangle, Sine, or the conventional pulse waves.

Musically, they're useful whenever a patch needs harmonic interest before the Filter or effects are added. Try them for metallic keyboard tones, unusual pads, bells, digital-analog hybrids, or patches that need an edge without resorting to aggressive modulation.

A particularly useful technique is to combine a COMP waveform at moderate level with a more familiar Ramp, Pulse, or Triangle oscillator. The conventional waveform establishes the recognizable body of the sound, while the COMP oscillator adds spectral detail around it.

Octave

OCTAVE: (*LOW, STANDARD, HIGH*) Sets the oscillator's octave range. Leave the toggle in the center position for the standard octave, move it up to shift the oscillator one octave higher, or move it down to shift the oscillator one octave lower.

The original Pentaphonic used a two-position LOW/HIGH switch. Cherry Audio adds a center Standard position. Rather than providing numerous organ-footage settings, each oscillator could simply be shifted between two broad registers.

Matching all three oscillators in the same octave produces a dense, unified sound. Splitting them between High and Low distributes the harmonic energy across a wider range. For example, two oscillators in High and one in Low can add weight beneath a lead or pad without requiring additional effects or EQ.



Pitch Mod

PITCH MOD: (*Min to Max*) Sets the amount of oscillator pitch modulation supplied by the selected modulation source.

Each oscillator can receive pitch modulation from Pentaphonic's modern modulation system. Small amounts are useful for vibrato and subtle instability. Larger amounts can create dramatic sweeps, special effects, and more obviously synthetic pitch movement. The source switch beneath the control selects the modulation section that supplies the movement (MOD 1 or MOD 2).

PITCH MOD SOURCE: (*MOD 1, MOD 2*) Selects Modulation 1 or Modulation 2 as the source for the oscillator's Pitch Mod control.

Because the oscillators can use different modulation sources and depths, they don't all have to move together. One oscillator can receive conventional vibrato while another remains stable, or two oscillators can use different modulation shapes or rates to create more complicated beating and harmonic motion.

This is one of Cherry Audio's substantial expansions of the original design. The hardware Pentaphonic had a single modulation section whose Pitch destination affected oscillator pitch globally.



PW Mod

PW MOD: (*Min to Max*) Sets the amount of pulse-width modulation applied to the oscillator's 50% Pulse wave from the selected modulation source. PW Mod is not applied to the 3% or 12% Pulse waves.

PW MOD SOURCE: (*MOD 1, MOD 2*) Selects Modulation 1 or Modulation 2 as the pulse-width modulation source.

Pulse-width modulation changes the relationship between the high and low portions of a pulse waveform over time, altering its harmonic content without

changing the played pitch. Slow modulation produces the familiar moving, animated quality associated with classic PWM pads and strings.

This is another important Cherry Audio addition. The original Gleeman did **not** provide continuous pulse-width control. Instead, it offered three fixed pulse shapes at 3%, 12%, and 50%. Pentaphonic retains those characteristic starting shapes while adding modulation possibilities unavailable on the original hardware.



Oscillator 1

Oscillator 1 serves as a natural reference point for the three-oscillator structure.

It includes the shared **GAIN**, **SHAPE**, **OCTAVE**, **PITCH MOD**, and **PW MOD** functions and can be used alone for simple sounds or as the central pitch around which Oscillators 2 and 3 are tuned.

A useful way to learn Pentaphonic is to begin with Oscillator 1 by itself. Choose each Shape in turn and listen without effects or heavy filtering. This gives you a reliable sense of the raw harmonic vocabulary before additional oscillators begin altering the picture.



Hearing the Waveforms Clearly

To audition Pentaphonic's oscillator waveforms:

1. Start from a simple or initialized preset.
2. Raise Oscillator 1 **GAIN** to a comfortable level.
3. Lower Oscillator 2 and Oscillator 3 **GAIN** to minimum.
4. Open the Filter sufficiently to hear the oscillator clearly.
5. Disable or reduce effects if necessary.
6. Set Oscillator 1 **SHAPE** to **SINE**.
7. Play sustained notes and move through **TRI**, **RAMP**, the three **PULSE** shapes, **COMP 1**, and **COMP 2**.
8. Listen to how each waveform changes the amount and distribution of harmonic content before any additional filtering or processing.

This is worth doing at least once. The COMP waves in particular make much more sense when heard beside the conventional shapes.

Oscillator 2

Oscillator 2 adds two important pitch-related features beyond the shared oscillator controls: **SYNC** and **INTERVAL**.



Interval

INTERVAL: *(-12 to +12 semitones)* Transposes Oscillator 2 relative to the played note in discrete semitone steps. Use it to create fixed musical intervals such as thirds, fourths, fifths, octaves, or more dissonant relationships.

Because the control is quantized to semitones, it isn't intended for fine detuning or subtle oscillator beating. Use **CHORUSING** for that purpose. Its **SLOW** and **FAST** settings introduce the slight pitch differences that create slower or faster beating between the oscillators.



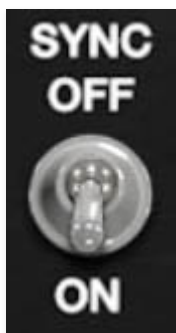
Sync

SYNC: *(On/Off)* Synchronizes Oscillator 2 to Oscillator 1. With Sync enabled, Oscillator 1 acts as the master oscillator, forcing Oscillator 2 to restart its waveform each time Oscillator 1 begins a new cycle.

The characteristic sync sound becomes audible when **Oscillator 2's pitch is shifted relative to Oscillator 1**. Adjust Oscillator 2's **INTERVAL** control to create a fixed pitch relationship, or use **PITCH MOD** to move Oscillator 2's pitch dynamically. As Oscillator 2 moves farther from Oscillator 1, its waveform is repeatedly reset at different points in its cycle, producing the bright, increasingly complex harmonics associated with oscillator sync.

Oscillator 2 must also be audible in the mix, so make sure its **GAIN** control is turned up. With Oscillator 2 Gain at minimum, the synchronization is still occurring, but there's no Oscillator 2 signal to hear.

Tip: For a classic animated sync sound, enable Sync, raise Oscillator 2 Gain, then apply Pitch Mod to Oscillator 2. The modulation changes Oscillator 2's pitch while Oscillator 1 remains the master, turning what would normally be a pitch sweep into a moving harmonic sweep.



Oscillator 3

Oscillator 3 provides the same principal sound-building controls as the other oscillators and includes its own **INTERVAL** control.



Interval

INTERVAL: *(-12 to +12 semitones)* Transposes Oscillator 3 relative to the played note in discrete semitone steps. Use it to create fixed musical intervals such as thirds, fourths, fifths, octaves, or more dissonant relationships. Because both Oscillators 2 and 3 have independent Interval controls, Pentaphonic can build three-note structures inside a single played note.

For example, Oscillator 1 can establish the root, Oscillator 2 can supply a fifth, and Oscillator 3 can add an octave or another chord tone. This can be especially effective in Mono or Unison operation, where a single key can trigger a much larger harmonic structure.

Be careful with fixed intervals in ordinary polyphonic playing. An interval relationship that sounds impressive on one note is duplicated for every note in a chord, and harmonic density accumulates very quickly.

Building a Three-Oscillator Sound

The best way to understand Pentaphonic's oscillator section is to build sounds incrementally rather than turning everything up at once.

To build a balanced three-oscillator patch:

1. Set Oscillators 2 and 3 **GAIN** to minimum.
2. Raise Oscillator 1 **GAIN** and choose the waveform that best represents the core sound.
3. Set its **OCTAVE** to the desired register.
4. Raise Oscillator 2 **GAIN** gradually.
5. Choose a contrasting or complementary Shape for Oscillator 2.
6. Adjust its **OCTAVE** and **INTERVAL** as needed.
7. Bring in Oscillator 3 at a lower level.
8. Choose its Shape and Interval according to the role you want it to play.
9. Balance the three Gain controls rather than automatically setting them equally.
10. Only after the raw oscillator blend works musically, begin shaping it with the Filter, envelopes, modulation, Chorus, and effects.

This approach makes it much easier to identify what each oscillator is contributing.

Noise

NOISE: (*Min to Max*) Sets the level of the Noise source. The Noise control adds a non-pitched noise source to the oscillator mix.

Noise contains energy across a broad range of frequencies rather than producing a fixed musical pitch. This makes it useful for breath, hiss, wind, percussion, attack transients, and less obviously tonal textures. At low levels, Noise can add a subtle layer of imperfection behind sustained oscillator sounds. At higher levels, it can become the primary material for synthesized percussion or effects.

Because Noise has no conventional pitch, the Filter becomes especially important. Closing the Filter creates darker rushing or rumbling textures, while higher Cutoff settings preserve brighter hiss and attack detail.



Adding Noise to a Plucked Sound

To use Noise as an attack transient:

1. Create a basic oscillator patch with a fast Amp Attack.
2. Add a small amount of NOISE.
3. Lower the Filter Cutoff enough that the noise doesn't dominate the sustained sound.
4. Use a short Filter-envelope Decay so the brighter portion of the sound is strongest at the beginning of the note.
5. Adjust Noise until the attack gains texture without sounding like a separate noise layer.

Even a small amount can help a synthesized pluck feel less perfectly smooth.

Chorusing

Pentaphonic's **CHORUSING** section is closely tied to the oscillator architecture and belongs conceptually with the sound sources rather than with the later effects processors.



On the original Gleeman, Chorusing altered the tuning of Oscillators 2 and 3 around Oscillator 1. **SLOW** produced approximately $\pm 0.39\%$ detuning, while **FAST** doubled that spread to approximately $\pm 0.78\%$. The result was slower or faster beating among the three oscillator banks. In other words, this wasn't a conventional chorus effect applied after the synth. The thickness was created at the oscillator level.

CHORUSING: (*SLOW, FAST*) Selects the chorusing mode.

SLOW produces gentler, slower beating among the oscillators.

FAST produces more rapid beating and a more animated ensemble effect.

Chorusing is especially effective when all three oscillators use related waveforms and octave settings. With contrasting intervals or heavy pitch modulation already present, additional chorusing can sometimes make the tuning feel overly diffuse.

Creating a Classic Three-Oscillator Pad

To build a broad Pentaphonic-style pad:

1. Set all three oscillators to the same **OCTAVE**.
2. Select **RAMP** for Oscillator 1.
3. Select **RAMP** or **12% PULSE** for Oscillator 2.
4. Select **TRI** or **RAMP** for Oscillator 3.
5. Use Oscillator 1 as the strongest level and reduce Oscillators 2 and 3 slightly.
6. Set Oscillator 2 and Oscillator 3 Interval controls to 0 semitones.
7. Select **SLOW CHORUSING**.
8. Use a moderately low Filter Cutoff with some Filter-envelope Amount.
9. Give the Amp envelope a slower Attack and Release.
10. Add only as much effects processing as the sound actually needs.

The Chorusing should provide motion before a conventional chorus, delay, or reverb is added. This is part of the Pentaphonic character rather than merely an effect placed on top of it.

Making Creative Use of the Oscillators

Pentaphonic's oscillator section is simple enough to understand quickly but unusually rich once its controls begin interacting.

- **Use COMP as seasoning rather than the whole sound.** Keep a Ramp or Pulse oscillator as the recognizable foundation and blend COMP 1 or COMP 2 underneath for more unusual harmonic detail.

- **Use different octaves before reaching for effects.** A Low oscillator beneath two High oscillators can make a patch feel substantially larger without increasing modulation or stereo processing.
- **Let one oscillator stay stable.** If Oscillators 2 and 3 are receiving Pitch Mod, leaving Oscillator 1 relatively steady can preserve a clear tonal center.
- **Try different modulation sources.** Assign one oscillator to Modulation 1 and another to Modulation 2. Even modest differences in rate or shape can create movement that never repeats exactly.
- **Animate the 50% Pulse selectively.** PWM on one oscillator can be more effective than applying the same motion to all three.
- **Use intervals sparingly in polyphonic sounds.** A fifth or octave inside each voice can become enormous once full chords are played.
- **Combine fixed musical intervals with Slow Chorus.** Fixed pitch relationships and continuous oscillator beating solve different problems and can work beautifully together.
- **Build the raw sound before adding effects.** If the three oscillators already form a convincing tone, the five-slot effects system can enhance it rather than rescue it.

The original Pentaphonic earned much of its reputation from exactly this kind of simple architecture. Three oscillators, a distinctive set of waveforms, and carefully chosen tuning relationships were capable of producing unusually rich sounds before elaborate processing entered the picture. Fans particularly praised its thick pads, strings, and beautifully clear three-oscillator character.

Cherry Audio's additional modulation, synchronization, interval controls, pressure routing, and effects extend that vocabulary considerably. But the same principle still applies.



Filter and Filter Envelope

Pentaphonic's Filter takes the harmonically rich output of its three oscillators and Noise source and shapes it into something more musically useful. Lowering the cutoff removes upper harmonics and darkens the sound. Raising resonance emphasizes frequencies around the cutoff point. The dedicated Filter envelope can then move the cutoff automatically each time a note is played, turning a static oscillator tone into a pluck, sweep, brass-like attack, slowly opening pad, or something considerably stranger.

The original Gleeman Pentaphonic used one 4-pole lowpass filter per voice, with a 24 dB/octave response. Cherry Audio retains that fundamental architecture but expands it with switchable 2-pole and 4-pole operation, keyboard tracking, velocity response, and direct modulation from either Modulation 1 or Modulation 2.

Filter Controls

Cutoff

CUTOFF: (*40 Hz to 24,000 Hz*) Sets the filter cutoff frequency. Frequencies below the cutoff pass through relatively unaffected, while frequencies above it are progressively reduced.

Higher settings allow more upper harmonics through, producing a brighter and more open sound. Lower settings remove more high-frequency content, making the sound darker, softer, and rounder. Cutoff is the filter's starting point. The Filter envelope, keyboard tracking, Velocity, and Filter Mod all work relative to this base setting.

This relationship is important. If Cutoff is already set very high, there may be little room for the Filter envelope to open it any further. Lowering Cutoff gives the envelope more room to create an audible sweep.

Tip: If increasing Filter **AMOUNT** doesn't seem to be doing much, lower **CUTOFF** first. The envelope may be working perfectly well but have nowhere left to move.

Resonance

RESONANCE: (*0 to 100%*) Emphasizes frequencies around the filter cutoff point.

Low settings add subtle definition around the cutoff frequency. Higher settings create a stronger peak, making filter movement more obvious and giving the sound a sharper, more pronounced tonal character. The Pentaphonic filter can reach self-oscillation at maximum resonance.

Resonance and Cutoff interact closely. Moving Cutoff changes both the brightness of the oscillator signal and the frequency at which the resonant peak occurs.

Tip: Moderate Resonance settings are often more useful than maximum values. A small resonant peak can add articulation and character without overwhelming the oscillator tone.

Filter Slope

2-POLE / 4-POLE: (*2-Pole, 4-Pole*) Selects the steepness of the lowpass filter response.

The original Gleeman Pentaphonic used a 4-pole, 24 dB/octave filter. Cherry Audio adds a gentler 2-pole mode, giving the modern instrument two distinctly different tonal responses.

2-Pole

The 2-pole setting produces a shallower response, conventionally equivalent to approximately 12 dB/octave. More upper-frequency content remains above the cutoff point, giving the filter a brighter, more open character. Use it for pads, strings, layered sounds, brighter polyphonic patches, or anytime you want filtering without removing too much harmonic detail.

4-Pole

The 4-pole setting produces the steeper 24 dB/octave response associated with the original Pentaphonic.

It removes upper harmonics more decisively and generally produces a darker, more focused sound with a stronger interaction between Cutoff and Resonance. Use it for basses, leads, resonant sweeps, percussive patches, and sounds that benefit from more pronounced filtering.

Tip: Don't think of 2-Pole as simply a weaker filter. Its shallower slope can preserve valuable harmonic detail in pads and complex three-oscillator sounds that might become overly dark in 4-Pole mode.

Tracking

TRACKING: (*0 to 100%*) Determines how strongly the filter cutoff follows keyboard pitch.

Increasing Tracking causes the filter to open progressively as higher notes are played, helping upper notes retain brightness while lower notes remain darker and fuller. Without sufficient tracking, a fixed low Cutoff setting can make notes progressively duller as you move up the keyboard. Increasing Tracking helps maintain a more consistent tonal balance across the playing range.

Tip: Moderate Tracking is useful for pads, brass, strings, and other sounds that need to remain clear across several octaves. Lower values can be effective for dark basses and intentionally muted upper registers.

Filter Amount

AMOUNT: (*0 to 100%*) Sets how strongly the Filter envelope affects Cutoff.

At 0%, the Filter envelope has no effect on Cutoff, regardless of the Attack, Decay, Sustain, and Release settings. Increasing Amount allows the envelope

to move the filter through a progressively wider range.

Cutoff and Amount should generally be considered together:

- **CUTOFF** establishes where the filter begins.
- **AMOUNT** determines how far the envelope moves it from that starting point.

A low Cutoff with high Amount can create a dramatic opening sweep. A higher Cutoff with moderate Amount produces a more subtle change in brightness.

Understanding Cutoff and Amount

This is one of the most important relationships in the entire Filter section.

If Cutoff is very low and Amount is high, the envelope can create a large tonal movement from dark to bright. If Cutoff is already near maximum, increasing Amount may appear to have little effect because the filter has very little remaining range available above its starting point. When programming envelope-driven filter sounds, it's often faster to establish Cutoff and Amount first, then fine-tune the ADSR timing.

Velocity

VELOCITY: (0 to 100%) Sets how strongly incoming note velocity affects the filter response.

At 0%, playing harder or softer doesn't alter the filter's brightness. Increasing Velocity allows stronger key strikes to produce a brighter filter response. This can make Pentaphonic considerably more expressive. A patch can remain warm and subdued when played softly, then become brighter and more assertive as playing velocity increases.

The audible effect depends on the Cutoff and Amount settings. If the filter is already completely open, additional velocity may produce relatively little change.

Tip: Moderate Velocity settings often produce the most natural results.

Filter Mod

FILTER MOD: (0 to 100%) Sets the amount of modulation applied to the filter cutoff from the selected modulation source.

The switch beneath the control selects either **MOD 1** or **MOD 2**.

FILTER MOD SOURCE: (*MOD 1, MOD 2*) Selects which modulation section controls the Filter Mod amount.

Slow modulation can create gradual tonal movement in pads and sustained sounds. Faster settings can produce rhythmic sweeps, pulsing textures, or more pronounced modulation effects.

Because Modulation 1 and Modulation 2 can operate independently, the filter can use whichever source best suits the patch. For example, Modulation 1 might provide slow oscillator movement while Modulation 2 drives a faster filter pulse.

Creating a Simple Filter Sweep

To add cyclic filter movement:

1. Lower **CUTOFF** until the oscillator tone becomes noticeably darker.
2. Select **MOD 1** or **MOD 2** beneath **FILTER MOD**.
3. Raise **FILTER MOD** gradually.
4. Adjust the selected modulation section's **RATE**.
5. Choose the desired modulation **SHAPE**.
6. Adjust the modulation Depth and Filter Mod amount until the movement has the desired intensity.

Start with a relatively slow rate. Filter modulation is easiest to understand when you can clearly hear the cutoff opening and closing.

Filter Envelope

Pentaphonic's Filter envelope creates a changing control signal every time a note is triggered. This signal is applied to Cutoff according to the **AMOUNT** setting.

The envelope follows the familiar four-stage ADSR structure:

Attack determines how quickly the filter moves toward its maximum envelope level.

Decay determines how long it takes to fall from that peak toward the Sustain level.

Sustain establishes the level maintained while the note remains held.

Release determines how long the filter takes to return toward its resting position after the note is released.

Unlike the original hardware, Cherry Audio Pentaphonic significantly extends the available envelope times. The original Pentaphonic synth provided approximately 5 milliseconds to 5 seconds for Attack, Decay, and Release. The Pentaphonic software provides much longer Decay and Release ranges, allowing slowly evolving pads, drones, and atmospheric textures that would have been difficult to create on the original instrument.

Attack

ATTACK: (*5 ms to 7715 ms*) Sets how long the Filter envelope takes to rise from its starting level to its maximum level after a note is triggered.

Short settings create an immediate filter opening and are useful for basses, plucks, percussion, and sharply articulated sounds. Longer settings cause the sound to brighten gradually after the note begins, making them useful for pads, strings, swells, and evolving textures.

Attack becomes audible only when **AMOUNT** is raised and Cutoff leaves enough room for the envelope to move the filter.

Tip: For slowly opening pads, lower Cutoff, raise Amount, and increase Attack. The volume can arrive first while the timbre gradually opens afterward.

Decay

DECAY: (*8 ms to 19,727 ms*) Sets how long the Filter envelope takes to fall from its maximum level to the Sustain setting.

Short Decay settings create a quick drop in brightness after the initial attack. Longer settings allow the filter to continue evolving over several seconds. The result depends heavily on Sustain. If Sustain is set to 100%, there may be little or no audible Decay because the envelope has nowhere lower to go.

Tip: For classic analog brass, use a fast Attack, moderate Decay, and medium Sustain. The filter opens quickly, then settles into a slightly darker held tone.

Sustain

SUSTAIN: (*0 to 100%*) Sets the Filter envelope level maintained while a note remains held after the Attack and Decay stages have completed.

Low Sustain settings allow the filter to close substantially after the initial attack. Higher Sustain settings keep the held portion of the sound brighter. Unlike Attack, Decay, and Release, Sustain controls a level rather than a period of time. The Sustain setting also establishes the starting point for the Release stage.

Tip: Use low Sustain for plucks and percussive patches. Use medium or high Sustain for pads, strings, organs, and sustained leads that should remain harmonically open while held.

Release

RELEASE: (*8 ms to 19,727 ms*) Sets how long the Filter envelope takes to return toward its resting level after a note is released.

Short settings cause the filter to close quickly when the key is released. Long settings allow the tonal contour to continue evolving during the release tail.

Filter Release is easiest to hear when the Amp envelope also has enough Release time for the sound to remain audible. If the Amp closes immediately, the Filter envelope may still be moving internally, but there will be little left to hear.

Tip: Matching Filter and Amp Release settings creates a natural, unified decay. Different values can produce more interesting results, such as a sound that becomes progressively darker as it fades away.

Programming the Filter

The Filter becomes much easier to understand when its controls are approached in a logical order rather than adjusted simultaneously.

Creating a Basic Filter Envelope

To create a simple envelope-driven filter sweep:

1. Choose a harmonically rich oscillator waveform such as **RAMP** or one of the Pulse shapes.
2. Set the Filter to **4-POLE**.
3. Lower **CUTOFF** until the raw oscillator sound becomes noticeably darker.
4. Raise **AMOUNT** until the Filter envelope produces a clear sweep.
5. Set **ATTACK** relatively fast.

6. Set **DECAY** to a moderate value.
7. Lower **SUSTAIN** so the filter settles after the initial attack.
8. Set **RELEASE** to suit the Amp envelope and musical role of the sound.
9. Adjust Cutoff and Amount together until the sweep has the desired range.
10. Add Resonance only after the basic filter movement is working.

Making Creative Use of the Filter

Pentaphonic's Filter can do considerably more than simply make bright sounds darker. Here are some examples to inspire you.

Create a Resonant Pluck

Lower Cutoff, raise Resonance moderately, increase Amount, then use a very fast Attack, short Decay, low Sustain, and short Release. The Filter envelope creates a bright transient at the beginning of each note, then rapidly settles into a darker body.

Add Brightness Without an Obvious Sweep

Use a fast Attack, short Decay, relatively high Sustain, and a modest Amount setting. Instead of producing a dramatic filter sweep, the envelope adds a brief bright accent at the beginning of the note. This works especially well for basses, brass, and keyboard sounds.

Make a Pad Evolve Slowly

Use a lower Cutoff, moderate Amount, long Attack, high Sustain, and long Release. The sound gradually opens after each note begins and continues evolving as notes overlap. Pentaphonic's extended envelope times make this especially effective for ambient pads and slow-moving textures.

Use Velocity for Expressive Filtering

Set Cutoff somewhat lower than you normally would, then increase **VELOCITY**. Soft notes remain darker, while harder notes open the filter more. This is particularly useful for polyphonic patches because the sound can respond to the performance rather than relying entirely on automatic modulation.

Combine Envelope and LFO Movement

The Filter envelope and Filter Mod don't have to perform the same job. Use the envelope to create the basic shape of each note, then apply a smaller amount of slow Filter Mod to keep sustained notes moving after the envelope has settled. A pad might brighten gradually through the envelope while the selected modulation source gently sweeps the cutoff back and forth underneath it.

Contrast 2-Pole and 4-Pole

Program a sound in 4-Pole mode first, then switch to 2-Pole without changing anything else. The difference can be surprisingly significant.

The 4-Pole response generally produces a darker, more focused result. The 2-Pole mode preserves more upper harmonic content and can make dense three-oscillator patches feel more open. Neither is inherently better. Choose the one that leaves the right amount of harmonic information for the sound you're building.

Filter Programming Tips

- **Start with Cutoff and Amount.** Establish the filter's resting position and envelope range before spending too much time adjusting the ADSR.
- **Use bright oscillator shapes when learning.** Ramp, narrow Pulse, and COMP waveforms make filter movement easier to hear than Sine or Triangle.
- **Don't automatically maximize Resonance.** Moderate settings often provide better definition while preserving the body of the oscillators.
- **Let the Filter and Amp envelopes differ.** Brightness and volume don't have to rise and fall together.
- **Use Tracking to maintain balance across the keyboard.** This becomes especially helpful with low Cutoff settings and wide playing ranges.
- **Add modulation after the envelope works.** A good envelope establishes the note's basic articulation; Filter Mod can then provide continuing movement.
- **Try 2-Pole before reaching for EQ.** If a patch feels overly dark or closed, changing the filter slope may preserve the character you want

more naturally than simply raising Cutoff.

Once the Filter envelope is working musically, the next stage is the **Amp and Amp Envelope**, which determines how those filtered voices develop in volume from the moment a note begins until it finally fades away.



Amp, Amp Envelope, and Output

After the oscillators have generated the sound and the Filter has shaped its harmonic content, Pentaphonic's **AMP** section determines how that sound behaves in volume over time.

The Amp includes its own ADSR envelope, along with velocity response and modulation. This makes it possible to create everything from sharp plucks and percussive attacks to sustained organs, swelling pads, and long atmospheric fades. The adjacent **OUTPUT** section then controls the final level leaving Pentaphonic and includes a switchable Limiter for keeping unexpected peaks under control.

The original Gleeman Pentaphonic also used a dedicated amplifier envelope for each voice. Cherry Audio retains that fundamental architecture while extending its timing range considerably and adding velocity, modulation, modern output metering, and limiting.

Amp

The Amp is essentially Pentaphonic's final level-control stage before effects and output processing. Its envelope determines when a note becomes audible, how its volume changes while the key is held, and how quickly it disappears after the key is released.

This makes the Amp envelope one of the strongest influences on how a patch feels to play. The same oscillator and Filter settings can behave like a plucked string, organ, brass instrument, or slow pad simply by changing the Amp envelope.

Velocity

VELOCITY: (*0 to 100%*) Sets how strongly MIDI note velocity affects the amplitude of played notes.

At minimum, notes play at a more consistent level regardless of how hard or softly they're struck. Increasing Velocity makes playing dynamics have a greater influence on volume, so softer notes become quieter and harder notes become louder. This can make a patch considerably more expressive, particularly for piano-like sounds, plucks, leads, and other sounds where performance dynamics matter. For pads and sustained textures, lower Velocity settings can be useful when you want the sound to remain relatively even as chords are played.

Tip: Velocity doesn't have to do all of the expressive work. Pentaphonic also allows keyboard pressure and other modulation sources to influence the sound after the note has begun, while velocity captures the force of the initial key strike.

Amp Mod

AMP MOD: (*0 to 100%*) Sets how strongly the selected modulation source affects amplitude.

The switch beneath the control selects either **MOD 1** or **MOD 2** as the modulation source.

AMP MOD SOURCE: (*MOD 1, MOD 2*) Selects Modulation 1 or Modulation 2 as the source for Amp Mod.

At low settings, Amp Mod can add subtle movement to sustained sounds. Increasing the amount produces increasingly obvious changes in volume. With a repeating modulation waveform, this produces the classic amplitude-modulation effect commonly known as **tremolo**. Slow modulation can create gentle swells or pulses. Faster modulation produces more pronounced

rhythmic movement and, at sufficiently high rates, can move into more complex tonal territory.

Creating a Simple Tremolo

To add tremolo to a sound:

1. Select **MOD 1** or **MOD 2** beneath **AMP MOD**.
2. Raise **AMP MOD** gradually.
3. Set the selected modulation section to a smooth repeating Shape.
4. Adjust its **RATE** to set the speed of the tremolo.
5. Adjust **AMP MOD** to control the intensity.
6. Fine-tune the modulation section's Rate and Shape until the movement fits the sound.

A relatively low Amp Mod setting often works best for pads, electric-piano-style sounds, and sustained chords. Higher values can create deliberately exaggerated pulsing effects.

Amp Envelope

Pentaphonic's Amp envelope determines how the volume of each note develops from the moment it begins until it finally fades away.

The envelope follows the familiar ADSR structure:

Attack controls how quickly the note reaches full level after being triggered.

Decay determines how quickly the volume falls from the Attack peak toward the Sustain level.

Sustain sets the level maintained while the note remains held.

Release determines how long the sound takes to fade after the note is released.

Unlike the Filter envelope, which changes timbre, the Amp envelope directly controls whether and how loudly the sound can be heard.

Attack

ATTACK: (*5 ms to 7715 ms*) Sets how long the Amp envelope takes to rise from silence to its maximum level after a note is triggered.

Very short Attack settings produce an immediate onset and are useful for plucks, basses, percussion, keyboard sounds, and sharply articulated leads. Increasing Attack causes the sound to fade in more gradually. Longer settings are useful for pads, strings, atmospheric layers, and other sounds that should emerge rather than strike.

Creating a Slow Volume Swell

To create a gradually fading-in sound:

1. Increase Amp **ATTACK**.
2. Set **SUSTAIN** relatively high.
3. Use enough **RELEASE** to allow notes to fade naturally when released.
4. Play and hold a chord.
5. Adjust Attack until the sound reaches full level at the desired rate.

For an evolving pad, try giving the Filter envelope a different Attack time. The volume and brightness can then develop independently.

Decay

DECAY: (*8 ms to 19,727 ms*) Sets how long the Amp envelope takes to fall from its maximum Attack level to the Sustain level.

Short Decay settings create a rapid drop after the beginning of the note. Longer settings allow the initial peak to linger before settling. The audible effect of Decay depends on the Sustain setting. With Sustain at 100%, there is effectively no lower level for the envelope to decay toward, so changing Decay may have little audible effect. Lower Sustain values make Decay increasingly important.

Sustain

SUSTAIN: (*0 to 100%*) Sets the volume level maintained while a note remains held after the Attack and Decay stages are complete.

At 100%, the sound remains at full level while the key is held. Lower values allow the sound to fall from its Attack peak to a quieter held level. At 0%, the envelope falls all the way to silence after the Decay stage, even if the key remains held. This is particularly useful for plucked and percussive sounds. Unlike Attack, Decay, and Release, Sustain controls a **level**, not a length of time.

Release

RELEASE: (*8 ms to 19,727 ms*) Sets how long the Amp envelope takes to fade to silence after a note is released.

Short Release settings stop notes quickly and produce tighter articulation. Longer settings allow notes to linger after the keys are released, making them useful for pads, strings, ambient textures, and sounds intended to overlap. Pentaphonic's extended Release range allows extremely long fades compared with the original hardware, making it possible to create slowly dissolving textures and substantial overlaps between successive notes.

Tip: Long Release times can build level quickly when several notes overlap. Keep an eye on the Output meters, particularly when playing dense chords or using additional effects.

Using the Filter and Amp Envelopes

Pentaphonic's Filter and Amp envelopes are independent, and some of the instrument's most interesting sounds come from letting them do different things. If both envelopes use similar settings, brightness and volume tend to evolve together. This can produce natural, cohesive articulation.

Different settings create more complex behavior.

For example:

- A **fast Amp Attack** with a **slow Filter Attack** produces a note that begins immediately but gradually becomes brighter.
- A **slow Amp Attack** with a **fast Filter Attack** allows the bright portion of the sound to appear before the volume fully develops.
- A **long Amp Release** with a **shorter Filter Release** causes the sound to become darker as it fades.
- A **short Amp envelope** combined with a dramatic Filter envelope can create highly percussive plucks and synth percussion.

Creating a Basic Pluck

To create a short, percussive amplitude shape:

1. Set Amp **ATTACK** close to minimum.

2. Use a relatively short **DECAY**.
3. Set **SUSTAIN** to 0% or a low value.
4. Use a short **RELEASE**.
5. Adjust the Filter envelope separately to shape the brightness of the attack.

The Amp envelope determines how long the sound exists, while the Filter envelope determines how its harmonic content changes during that time.

Creating a Sustained Pad

To create a smooth pad envelope:

1. Increase Amp **ATTACK** for a gradual fade-in.
2. Set **DECAY** relatively long.
3. Set **SUSTAIN** high.
4. Increase **RELEASE** so notes continue after the keys are released.
5. Adjust the Filter envelope independently to add tonal movement.

Long Amp Release settings are particularly effective when combined with Pentaphonic's polyphony and effects, but they can also cause several released notes to overlap. Adjust overall level accordingly.

Output

The Output section controls Pentaphonic's final signal level and provides visual monitoring and peak protection.

Volume

VOLUME: (0 to 100%) Sets Pentaphonic's overall output level.

This control affects the complete instrument rather than the level of an individual oscillator or voice. Use the oscillator Gain controls to balance sound sources within the patch, the Amp envelope to shape individual notes, and **VOLUME** to set the final level delivered by Pentaphonic.

Avoid using Output Volume to compensate for an unnecessarily loud internal patch. If a sound is excessively hot because all three oscillator Gains,

resonance, effects, and overlapping release tails are contributing large amounts of level, it's generally better to balance those elements first.

OUTPUT METERS

The LED meters display Pentaphonic's stereo output level. Use them to keep an eye on the combined result of the synthesizer voices and effects, particularly when playing dense chords, using Unison, applying heavy resonance, or programming long Release times. A patch that appears comfortably quiet while playing a single note may become substantially louder when several voices and effects overlap.

Limiter

LIMITER: *(On/Off)* Enables Pentaphonic's output limiter.

The Limiter helps control excessive signal peaks before they reach the final output. This is particularly useful with sounds that can produce sudden increases in level, such as resonant filter patches, heavily stacked voices, aggressive modulation, high effect levels, or long overlapping envelope releases. A limiter works by restraining peaks that would otherwise exceed its operating threshold, helping keep the output under control without requiring you to anticipate every possible combination of notes and modulation.

For routine sound design, leaving the Limiter enabled provides a useful measure of protection against unexpected peaks. It can be especially helpful while experimenting with unfamiliar presets or making substantial parameter changes. However, the Limiter shouldn't be used as a substitute for sensible gain staging. If it's working constantly because the patch is excessively loud internally, reduce oscillator Gains, effects levels, resonance, or Output Volume as appropriate.

The aim is for the Limiter to catch occasional peaks, not constantly wrestle the patch into submission.

When the Limiter Is Especially Useful

The Limiter can be particularly helpful when:

- using **UNISON** or other voice-stacking behavior
- playing dense polyphonic chords
- using high Filter **RESONANCE**

- programming long Amp **RELEASE** times that cause many voices to overlap
- adding effects that substantially increase level
- using strong amplitude or filter modulation
- experimenting with unfamiliar presets or extreme parameter settings

If you're deliberately testing dynamics, gain structure, or downstream processing, you may occasionally choose to disable the Limiter. In most everyday playing and sound-design situations, however, it provides a useful final safeguard.

Making Creative Use of the Amp Envelope

The Amp envelope does more than determine whether a sound is short or long. Small changes can dramatically alter the musical role of a patch.

Fast Attack + high Sustain produces immediate sustained sounds suitable for organs, many leads, and straightforward synth tones.

Fast Attack + short Decay + low Sustain creates plucks, mallets, and percussive sounds.

Medium Attack + medium Sustain can produce softer brass and ensemble-style articulation.

Long Attack + high Sustain + long Release creates pads and swelling textures.

Low Sustain + very long Decay creates sounds that gradually fade while a key remains held, useful for bells, plucks, and evolving synthetic percussion.

Different Filter and Amp envelopes create movement that feels more organic than simply copying the same ADSR settings between the two sections.

Amp and Output Programming Tips

- **Start with the Amp envelope when defining articulation.** Decide whether the patch should pluck, sustain, swell, or fade before fine-tuning modulation and effects.
- **Use Velocity to keep static patches expressive.** Even modest velocity response can make repeated notes feel less mechanical.
- **Use Amp Mod after the basic envelope works.** The envelope establishes the note shape; modulation can then add continuing motion.
- **Let Filter and Amp Release differ.** A sound can darken as it fades, brighten during its release, or maintain its timbre throughout.
- **Watch overlapping tails.** Long Release values can produce beautiful textures, but eight fading voices are considerably louder than one.
- **Use Output Volume as the final level control.** Balance the synthesis architecture first, then set the overall patch level.
- **Treat the Limiter as insurance, not a mixing strategy.** It's there to catch unexpected peaks rather than permanently flatten an overdriven patch.



Modulation 1 and Modulation 2

Pentaphonic's two Modulation sections are the main sources of repeating and delayed movement within the instrument. They can animate oscillator pitch and pulse width, sweep the Filter, modulate amplitude, and interact with several other destinations throughout the synth.

The original Gleeman Pentaphonic used a single low-frequency triangle-wave modulation source with Rate, Depth, and Destination controls. Cherry Audio expands that idea considerably by providing two independent modulation generators, each with multiple wave shapes, delay, tempo synchronization, retriggering, and performance control from the MOD Action Stick.

At their simplest, Modulation 1 and Modulation 2 behave like conventional LFOs. Choose a waveform, set its speed and depth, then route it to a destination such as oscillator Pitch Mod, Filter Mod, or Amp Mod. Because the two modulation sections operate independently, however, they can perform very different jobs at the same time. Modulation 1 might provide a slow filter sweep while Modulation 2 adds vibrato, or one can animate oscillator pulse width while the other creates tremolo. That independence is where much of Pentaphonic's sonic movement begins.

Modulation 1 and Modulation 2

The two sections share the same basic control layout:

- **RATE**
- **SHAPE**
- **DEPTH**
- **DELAY**
- **SYNC**
- **RETRIG**
- **ACTION STICK**

The principal visible difference is the ramp direction available from the Shape control. Modulation 1 includes a rising **RAMP**, while Modulation 2 provides a falling **SAW** shape. This gives the two sections naturally complementary directional modulation options.

Rate

RATE: (*0.10 Hz to 30 Hz*) Sets the speed of the modulation cycle when the modulation section is running freely.

At the low end of the range, modulation unfolds slowly and is useful for gradual filter sweeps, evolving oscillator movement, or gentle amplitude changes. Increasing Rate produces progressively faster modulation. Moderate settings are useful for vibrato and tremolo, while faster values can create more intense pitch, filter, and amplitude effects.

The audible result depends heavily on the destination. A Rate that produces a natural vibrato when applied to pitch may create a very different effect when routed to Filter Cutoff or Amp level.

Tip: When learning a modulation routing, start with a relatively slow Rate. Once you can clearly hear what is changing, increase the speed until the movement suits the sound.

Shape

SHAPE: (*varies by modulation section*) Selects the waveform used to create the modulation pattern.

The waveform determines how the modulation value changes over each cycle.

Modulation 1 Shapes

RAMP creates a repeating upward-moving modulation shape.

PULSE alternates abruptly between two modulation levels, making it useful for rhythmic switching and stepped effects.

COMP 1 and **COMP 2** provide more complex modulation patterns derived from Pentaphonic's distinctive Gleeman-inspired waveform vocabulary.

SINE produces a smooth, rounded modulation cycle.

TRI creates a linear rise and fall.

Modulation 2 Shapes

Modulation 2 provides the same general selection except that its directional waveform is **SAW** rather than Ramp.

SAW produces a repeating downward-moving modulation shape. This makes Modulation 1 and Modulation 2 especially useful as complementary sources. One can rise while the other falls, or each can be routed to a different destination for opposing movement.



Choosing a Shape

For conventional vibrato and tremolo, **SINE** or **TRI** are usually the most natural starting points.

Use **RAMP** or **SAW** when you want modulation to move persistently in one direction before restarting. Use **PULSE** for abrupt rhythmic changes. Use **COMP 1** and **COMP 2** when you want less predictable or more characterful movement.

Depth

DEPTH: (*0 to 100%*) Sets the amount of continuously applied modulation generated by the selected Modulation section when **ACTION STICK** is off.

At 0%, no continuous modulation is applied. Increasing Depth produces progressively stronger modulation at destinations using that source.

Depth works together with the modulation amount at the destination. For example, an oscillator's **PITCH MOD** control determines how strongly the selected modulation source affects pitch, while the modulation section's **DEPTH** establishes the strength of the modulation signal being sent to it. This two-stage relationship provides useful control over a patch.

You can think of it this way: **DEPTH** determines how much continuous modulation the source generates, while the destination's modulation control determines how strongly that modulation affects the parameter.

When **Action Stick** is on, modulation can instead be brought in manually with the **MOD Action Stick**. In this mode, the stick position and **MOD AMOUNT TRIMMER** determine the performed modulation amount, allowing Depth to remain at minimum when no continuous modulation is desired.

Setting Continuous Modulation Amount

When **ACTION STICK** is off, the **DEPTH** control determines how much modulation is continuously generated by the selected Modulation section. The destination control then determines how strongly that modulation affects the parameter.

To set a continuous modulation amount:

1. Turn **ACTION STICK** off for the Modulation section you want to use.
2. Choose **MOD 1** or **MOD 2** at the desired modulation destination.
3. Raise the destination's modulation amount. For example, increase an oscillator's **PITCH MOD**, the Filter's **FILTER MOD**, or the Amp's **AMP MOD**.
4. Set the Modulation section's **DEPTH** to a moderate value.
5. Adjust **RATE** and **SHAPE** until the modulation is easy to hear.
6. Fine-tune **DEPTH** and the destination amount together until the modulation has the desired intensity.

The two controls perform different jobs: **DEPTH** sets how much continuous modulation the source generates, while the destination amount determines how strongly that modulation affects the selected parameter.

TIP: If you want modulation to remain absent until you introduce it manually, turn **ACTION STICK** on instead and leave **DEPTH** at minimum. You can then

bring the modulation in with the **MOD Action Stick** and set its maximum range with the **MOD AMOUNT TRIMMER**.

Delay

DELAY: (*0 ms to 5000 ms*) Sets how long Pentaphonic waits before the modulation is applied after a note is triggered.

At 0 ms, modulation begins immediately. Increasing Delay postpones the onset of modulation by as much as five seconds.

Delay is especially useful for performance-oriented sounds because it allows the beginning of a note to remain stable before modulation gradually enters. A classic example is delayed vibrato. The note begins with a steady pitch, then vibrato appears after the note has been held for a short time.

Creating Delayed Vibrato

To create delayed vibrato:

1. Turn **ACTION STICK** off.
2. Select **MOD 1** or **MOD 2** as an oscillator **PITCH MOD** source.
3. Set the modulation **SHAPE** to **SINE** or **TRI**.
4. Choose a moderate **RATE** appropriate for vibrato.
5. Raise **DEPTH**.
6. Increase the oscillator's **PITCH MOD** amount slightly.
7. Raise **DELAY** until the note begins cleanly before the vibrato appears.
8. Fine-tune Pitch Mod and Depth so the vibrato remains musical rather than exaggerated.

Delayed vibrato can make lead sounds feel much more natural because the modulation enters after the initial pitch has been clearly established.

Sync

SYNC: (*Off/On*) Synchronizes the modulation rate to tempo rather than allowing it to run freely in Hertz.

With **SYNC** off, **RATE** operates over its normal 0.10 Hz to 30 Hz range. With **SYNC** on, the modulation rate is expressed in musical note divisions and follows tempo. In the standalone version of Pentaphonic, this timing follows

Pentaphonic's own tempo setting. When Pentaphonic is used as a plug-in inside a DAW, synchronization follows the DAW session tempo instead.

This is especially useful for rhythmic modulation such as tempo-locked filter movement, tremolo, pulse-width animation, or other repeating patterns that should remain aligned with the music.

Retrig

RETRIG: *(Off/On)* Determines whether the modulation waveform restarts when a new note is triggered.

With Retrig enabled, the modulation cycle begins again from its starting point when a note is played. This produces more predictable modulation because each note begins at the same part of the waveform. With Retrig disabled, the modulation runs continuously. New notes enter wherever the modulation cycle happens to be at that moment. Both behaviors are musically useful.

Use Retrig when you want repeated notes to produce consistent movement. Leave it off when you want modulation to feel less mechanically tied to note attacks.

Retriggered vs. Free-Running Modulation

A retriggered Ramp applied to Filter Cutoff might cause every note to begin dark and brighten in the same way. With Retrig off, each note may begin at a different point in that sweep, creating more continuously evolving movement.

For pads and sustained textures, free-running modulation often feels more organic. For rhythmic patches and sound effects, retriggering can provide greater precision.

Action Stick

ACTION STICK: *(Off/On)* Enables control of the Modulation section from the **MOD Action Stick** in the Performance Controls section.

With **ACTION STICK** off, modulation is applied continuously according to the Modulation section's **DEPTH** setting.

With **ACTION STICK** on, the MOD Action Stick provides real-time control over the modulation. The stick operates like a conventional modulation wheel, with a range of **0 to 100%**. At its fully lowered position, no Action

Stick modulation is applied. Push the stick upward to progressively increase modulation.

The **MOD AMOUNT TRIMMER** directly above the Action Stick sets how much modulation is available at the top of the stick's travel. This allows you to establish a comfortable maximum amount, then bring modulation in expressively while playing.

If you want modulation to be introduced entirely from the Action Stick rather than applied continuously, leave **DEPTH** at minimum. This is especially useful for vibrato: a lead sound can begin with a steady pitch, then gradually introduce vibrato by raising the Action Stick during a sustained note.



Adding Vibrato with the Action Stick

To create manually controlled vibrato:

1. Select **MOD 1** or **MOD 2** as the desired oscillator **PITCH MOD** source.
2. Choose **SINE** or **TRI** as the modulation Shape.
3. Set a moderate **RATE**.
4. Set the oscillator **PITCH MOD** amount to establish the desired sensitivity.
5. Switch **ACTION STICK** to **ON**.
6. Leave **DEPTH** at minimum if you want no continuous vibrato while the Action Stick is down.
7. Set the **MOD AMOUNT TRIMMER** to establish the maximum amount of vibrato available from the stick.
8. Play a sustained note.
9. Push the **MOD Action Stick** upward to gradually introduce vibrato.

10. Fine-tune Rate, Pitch Mod, and Mod Amount until the response feels natural..

This is useful for expressive lead playing because vibrato can be added selectively rather than affecting every note automatically.

Routing Modulation

Modulation 1 and Modulation 2 become useful only when they're assigned to something. Several controls throughout Pentaphonic provide dedicated Mod 1/Mod 2 source switches. These currently include:

- Oscillator **PITCH MOD**
- Oscillator **PW MOD**
- Filter **FILTER MOD**
- Amp **AMP MOD**

Each destination has its own amount control, allowing the same modulation source to affect several parameters at different depths.

For example, Modulation 1 could simultaneously:

- add a small amount of vibrato
- animate pulse width
- move Filter Cutoff
- introduce gentle tremolo

Because each destination has an independent amount, the effects don't have to be equally strong. That makes a single modulation source capable of creating coordinated movement across the entire patch.

Using MOD 1 and MOD 2 Independently

One of the greatest advantages of Pentaphonic's dual-modulation architecture is that movement doesn't have to come from a single repeating cycle.

Example: Slow Filter Movement with Faster Vibrato

To use the two modulation sections for different jobs:

1. Turn **ACTION STICK** off.
2. Set **Modulation 1** to a slow Rate.
3. Choose **SINE** or **TRI**.
4. Select **MOD 1** as the Filter Mod source.
5. Raise **FILTER MOD** until a gentle sweep is audible.
6. Set **Modulation 2** to a faster Rate.
7. Choose **SINE** or **TRI**.
8. Select **MOD 2** as an oscillator Pitch Mod source.
9. Raise **PITCH MOD** slightly.
10. Balance the two modulation Depth settings.

The Filter now moves slowly while pitch vibrato operates at a completely different rate.

This type of independent movement can make sustained sounds feel considerably more alive than routing everything from a single LFO.

Creating Tremolo

Amplitude modulation creates repeating changes in volume.

To create tremolo:

1. Turn **ACTION STICK** off.
2. Select **MOD 1** or **MOD 2** beneath **AMP MOD**.
3. Choose **SINE** or **TRI** as the modulation Shape.
4. Set a moderate **RATE**.
5. Raise the modulation section's **DEPTH**.
6. Increase **AMP MOD** until the desired amount of volume movement is audible.
7. Adjust Rate for the desired speed.

Use low amounts for subtle movement and higher values for obvious rhythmic pulsing. For sharper amplitude switching, try the **PULSE** Shape instead.

Creating Filter Modulation

Modulating Cutoff is one of the most musically useful applications of the modulation system.

To create a repeating filter sweep:

1. Turn **ACTION STICK** off.
2. Lower Filter **CUTOFF** so there is room for the filter to open.
3. Select **MOD 1** or **MOD 2** as the **FILTER MOD** source.
4. Raise **FILTER MOD**.
5. Set the selected Modulation section to **SINE** or **TRI**.
6. Choose a relatively slow **RATE**.
7. Raise **DEPTH** until the sweep becomes clearly audible.
8. Adjust Cutoff and Filter Mod together to establish the desired range.
9. Try **RAMP**, **SAW**, or **PULSE** once the basic modulation is working.

A repeating Ramp or Saw creates directional sweeps, while Pulse creates abrupt alternation between two filter states.

Pulse-Width Modulation

Pentaphonic's pulse-width modulation applies specifically to the **50% PULSE** waveform. The other oscillator shapes, including the 3% and 12% Pulse waveforms, are fixed and aren't affected by PW Mod.

To create pulse-width movement:

1. Set the desired oscillator **SHAPE** to **50% PULSE**.
2. Choose **MOD 1** or **MOD 2** as the oscillator's **PW MOD** source.
3. Raise **PW MOD** gradually.
4. Set the selected modulation Shape to **SINE** or **TRI**.
5. Use a relatively slow **RATE**.
6. Increase modulation **DEPTH** until the pulse width begins to animate noticeably.

Pulse-width modulation changes the harmonic content of the 50% Pulse waveform without altering the fundamental played pitch. This is especially effective for pads, strings, and ensemble-style sounds, where slow PW modulation can add continuous internal movement. Combined with Pentaphonic's **CHORUSING**, it can produce a particularly rich, animated texture.

Using the Two Directional Shapes

The directional shapes in Modulation 1 and Modulation 2 are especially useful when you want movement that doesn't simply travel back and forth.

RAMP in Modulation 1 repeatedly rises before returning to its starting point.

SAW in Modulation 2 repeatedly falls before returning.

Try routing them to different destinations at the same Rate.

For example:

- Ramp can open the Filter while Saw modulates oscillator pitch downward.
- Ramp can increase amplitude while Saw reduces Filter brightness.
- Opposing movement can be applied to different oscillators for complex animated textures.

Because the cycles can operate independently, even relatively simple routings can produce surprisingly elaborate results.

Making Creative Use of Modulation

Pentaphonic's dual modulation system is most effective when it's used with some restraint. A small amount of motion applied in several places often sounds more interesting than extreme modulation applied everywhere.

- **Use one Modulation section for motion and the other for performance.** Let Mod 1 run continuously while Mod 2 is controlled by the Action Stick.
- **Use different rates.** Slow Filter movement combined with faster vibrato keeps a patch evolving at more than one timescale.
- **Use different Shapes.** A smooth Sine on one destination and Pulse on another creates a mixture of fluid and rhythmic motion.

- **Delay only one modulation source.** A patch can begin with one type of movement and introduce another after the note has been held.
- **Leave one oscillator stable.** Modulating every oscillator equally can blur the pitch center. Keeping one relatively steady often makes the result stronger.
- **Use Retrigger selectively.** A retriggered rhythmic modulation can coexist with a free-running modulation source for a useful mixture of precision and variation.
- **Use the Action Stick musically.** Vibrato, Filter movement, or tremolo can become gestures rather than permanent properties of the patch.
- **Try very slow modulation.** Movement doesn't always need to call attention to itself. Long, slow cycles can keep pads and drones from feeling static.

Modulation Programming Tips

When a modulation routing isn't behaving as expected, check both the modulation source and its destination. If **ACTION STICK** is off, make sure the Modulation section is generating enough **DEPTH**. If **ACTION STICK** is on, make sure the **MOD AMOUNT TRIMMER** is raised and push the MOD Action Stick upward. In either case, the destination must also have sufficient modulation amount.

If nothing seems to be happening:

1. Check that the correct **MOD 1 / MOD 2** source is selected.
2. Increase the destination modulation control.
3. If **ACTION STICK** is off, increase modulation **DEPTH**.
4. If **ACTION STICK** is on, raise the **MOD AMOUNT TRIMMER** and push the MOD Action Stick upward.
5. Slow **RATE** enough that the movement is easy to identify.
6. Use a simple Shape such as Sine or Triangle.
7. Check **DELAY**, since a long Delay may make the modulation appear inactive immediately after a note begins.

Once the connection is working, reduce the amounts and refine the Rate, Shape, Delay, and triggering behavior musically.

Pentaphonic's core audio path is deliberately straightforward. Its two Modulation sections are where that static architecture begins to breathe.

The next chapter, **Performance Controls**, takes that movement out of the purely automatic realm and puts more of it under the player's hands, including voice modes, note priority, tuning, glide, Pitch Bend, the MOD Action Stick, and Pentaphonic's extensive **Keyboard Pressure** controls.



Performance Controls

Pentaphonic's Performance Controls determine how the synth responds to the notes you play and what happens when you lean into a performance with pitch bend, modulation, glide, unison, or keyboard pressure.

This part of the instrument has strong roots in the original Gleeman Pentaphonic. The original hardware included Mono and Poly keyboard modes, high-note priority, glide, chromatic transposition, fine tuning, and a spring-loaded performance joystick. Cherry Audio builds considerably on those ideas with Unison operation, selectable note priority, up to 16 voices of polyphony, adjustable pitch-bend range, a dedicated Pitch Bend Stick, a dedicated Mod Action Stick, and an extensive Keyboard Pressure system capable of reaching numerous synthesis parameters.

The controls can be divided into three general areas:

- **Voice and keyboard behavior**, including Mono/Unison/Poly modes, polyphony, note priority, Retrig, and Glide.
- **Tuning and transposition**, including Unison Detune, Fine Tune, Pitch, and Octave Range.
- **Real-time expression**, including Pitch Bend, the Mod Action Stick, and Keyboard Pressure.

Voice Mode

The three-position voice mode selector determines how Pentaphonic allocates its available voices when notes are played.

VOICE MODE: (*Mono, Unison, Poly*) Selects Pentaphonic's basic voice behavior.

Mono

MONO restricts the instrument to one played note at a time.

This is ideal for basses, leads, solos, and other sounds where single-note articulation, note priority, glide, and expressive pitch movement are important.

Mono operation also makes oscillator intervals particularly useful. Because one key produces one complete three-oscillator voice structure, Oscillators 2 and 3 can be transposed to musical intervals without the harmonic density that can result when the same interval structure is repeated across a full chord.

Unison

UNISON stacks multiple voices together on the same played note, creating a larger, denser sound.

The **UNISON DETUNE** control spreads the tuning of the stacked voices, allowing Unison to range from a relatively focused reinforcement to a much heavier ensemble-style sound. Unison is particularly effective for basses, leads, drones, and large single-note textures. Because several voices can sound simultaneously for every played note, Unison can produce substantially more level and harmonic density than ordinary Mono operation. Keep an eye on the Output meters, especially when using high Resonance, long Release times, or effects.

Poly

POLY allows multiple notes to sound simultaneously, making it the normal choice for chords, pads, strings, keyboard sounds, and polyphonic sequences. The number of simultaneously available voices is determined by Pentaphonic's **Polyphony** setting. The original Gleeman was limited to five voices. Cherry Audio Pentaphonic expands this substantially, providing as many as 16 voices for modern polyphonic playing.

Polyphony

POLYPHONY: (*1 to 16 voices*) Sets the maximum number of voices Pentaphonic can play simultaneously.

The two lever controls at the upper-right of the voice-mode area adjust the voice count: The **right lever** increments the number of available voices. The **left lever** decrements it. The current value appears in the numerical display between them. Increasing polyphony allows more simultaneously held and releasing notes to overlap. This is particularly useful for sustained pads, long Amp Release settings, arpeggiated material, and passages using the Sustain pedal. Reducing polyphony can be musically useful as well. Artificially limiting the voice count can create more vintage-style voice stealing and force phrases to behave more like early polyphonic hardware.

NOTE: You can also access and easily change the number of voices for POLY and UNISON from a pop-up menu by right-clicking (CTRL+click on Mac) within the black lever area.

Choosing a Polyphony Setting

For ordinary playing, there's generally no harm in using enough voices to accommodate the musical part. A 16-voice setting is useful for pads and passages with long Release times, while lower values can make a patch behave more tightly and economically.

Tip: A sound with a two-second Release may continue using voices long after the keys have been released. If chords unexpectedly cut each other off, increase Polyphony before assuming something is wrong with the envelope.

Retrig

RETRIG: (*Off/On*) Determines whether a newly played note retriggers the envelopes during monophonic-style playing.

With Retrig enabled, playing a new note causes the envelopes to begin again, giving each note a newly articulated attack. With Retrig disabled, overlapping or legato notes can transition without restarting the envelopes, producing smoother connected phrases. This distinction is particularly important for Mono and Unison leads.

For a sharply articulated synth bass, enable Retrig so every note receives a fresh envelope attack. For a fluid lead line, turn Retrig off and play legato. The pitch can move between notes while the envelope continues from its existing state.

Creating a Legato Lead

To create a smooth monophonic lead:

1. Select **MONO**.
2. Turn **RETRIG** off.
3. Increase **GLIDE SPEED** slightly.
4. Select **LAST** Note Priority.
5. Use a moderate Amp Sustain level.
6. Play overlapping notes rather than releasing each key before playing the next.

The result is a fluid line in which pitch changes can connect naturally instead of every note behaving like a completely new musical event.

Note Priority

NOTE PRIORITY: (*High, Low, Last*) Determines which note Pentaphonic gives priority when more than one key is held in a monophonic-style voice mode.

HIGH gives priority to the highest held note. **LOW** gives priority to the lowest held note. **LAST** gives priority to the most recently played note. The original Gleeman Pentaphonic used high-note priority in Mono mode. Cherry Audio adds Low and Last options, giving you much more control over articulation.

Making Musical Use of Note Priority

HIGH is useful for lead playing where a held lower note can act as an anchor while higher notes are articulated above it. **LOW** works particularly well for bass lines, allowing a low held note to dominate while higher notes are briefly played above it. **LAST** behaves most like many modern monosynths and is often the most natural choice for conventional melodic playing.

Try all three with Glide enabled. Note priority can change the phrasing of the same keyboard performance much more dramatically than its small switch might suggest.

Tuning and Transposition

The left side of the Performance section provides global controls for tuning, transposition, and unison spread.

Unison Detune

UNISON DETUNE: (*0 to 100%*) Sets the amount of pitch spread between voices when Pentaphonic is operating in Unison mode.

At low settings, stacked voices remain closely tuned and primarily increase weight and density. Increasing Unison Detune spreads the voices progressively farther apart, creating a wider and more animated ensemble effect. Small amounts are excellent for thick basses and focused leads. Larger values work well for intentionally broad leads, drones, and more exaggerated stacked textures.

Remember that Unison Detune and Chorusing serve related but different purposes. Unison Detune spreads stacked voices in Unison mode, while Pentaphonic's **CHORUSING** creates beating through the pitch relationships of the oscillators themselves.

Creating a Large Unison Lead

To create a broad Unison sound:

1. Select **UNISON** mode.
2. Begin with **UNISON DETUNE** at a low setting.
3. Play a sustained note.
4. Increase Detune until individual voices begin to spread audibly.
5. Stop before the pitch center becomes less focused than the musical part requires.
6. Add **SLOW CHORUSING** if additional oscillator movement is desired.
7. Reduce Output level if the stacked voices substantially increase overall volume.

Often the most impressive Unison setting isn't the maximum one. A little disagreement among voices can sound enormous, but too much can make them sound overwhelming.

Fine Tune

FINE TUNE: (*-100% to +100%*) Adjusts Pentaphonic's overall tuning slightly flat or sharp relative to its standard pitch.

The center position leaves the instrument at normal tuning. Turn the control toward **FLAT** to lower the tuning or toward **SHARP** to raise it. Fine Tune is useful for matching Pentaphonic to another instrument, compensating for nonstandard tuning in a recording, or deliberately shifting the entire synth slightly away from concert pitch.

Unlike the oscillator **INTERVAL** controls, Fine Tune isn't intended to create fixed musical intervals. It adjusts the overall tuning of the complete instrument.

Pitch

PITCH: *(0 to 12 semitones)* Transposes Pentaphonic upward in discrete semitone steps across a one-octave range.

The control is labeled chromatically from C through C, making musical transposition quick and straightforward. At the starting **C** position, no transposition is applied. Turning clockwise moves the instrument upward through C#, D, D#, and so on until the upper C, which transposes the instrument by one octave. This is useful when a sound needs to be shifted into another key or register without changing the notes being played or sequenced.

The original Gleeman included a similar chromatic transpose function, one of the more unusual conveniences on a compact analog-era polysynth.

Octave Range

OCTAVE RANGE: *(-1, 0, +1 octave)* Transposes the keyboard range by whole octaves.

The center setting is the standard range. Move the switch left to transpose one octave down. Move it right to transpose one octave up. Use Octave Range for broad register changes and the Pitch control for chromatic transposition within the octave.

Together they make it easy to put Pentaphonic exactly where it belongs in an arrangement.

Glide Speed

GLIDE SPEED: *(0 to 100%)* Sets how quickly pitch moves from one played note to the next when glide is used.

Lower settings produce quicker transitions. Higher settings produce slower, more obvious pitch glides.

Glide is most useful for monophonic and Unison leads, basses, and special effects, where notes can slide into one another rather than jumping immediately to their new pitches. Small amounts can make melodic playing feel more fluid without producing an obvious portamento effect. Higher settings create the familiar long synth glide between widely separated notes.

Creating an Expressive Glide Lead

To add controlled glide to a lead:

1. Select **MONO** or **UNISON**.
2. Choose **LAST** Note Priority.
3. Turn **RETRIG** off for smoother legato phrasing.
4. Set **GLIDE SPEED** to a low or moderate value.
5. Play overlapping notes.
6. Gradually increase Glide Speed until the transitions become as obvious as desired.

Try wide intervals when setting Glide. A small pitch interval may make even a substantial Glide setting difficult to judge.

Pitch Bend and Mod Action Sticks

Pentaphonic provides separate performance levers for pitch bending and modulation. This expands on the original Gleeman's two-axis joystick while preserving the idea that expressive control should be immediately available from the performance panel.

Pitch Bend

PITCH BEND STICK: *(-100% to +100%; default 0%)* Provides real-time control over pitch bend. The center position is 0%. Moving the stick upward bends the pitch upward, while moving it downward bends the pitch downward.

PITCH BEND AMOUNT TRIMMER: *(0 to 12 semitones; default 2 semitones)*
Sets the maximum pitch-bend range in either direction.

Move the **PITCH BEND STICK** upward or downward to bend played notes above or below their normal pitch. The Amount Trimmer determines how far the pitch can travel. Small ranges are useful for subtle performance inflections. A setting of two semitones works well for conventional lead playing and guitar-like bends, while larger ranges can produce octave dives, dramatic sweeps, and sound effects.

Setting Up a Conventional Pitch Bend

To create a whole-step pitch bend:

1. Set **PITCH BEND AMOUNT TRIMMER** to **2 semitones**.
2. Play and hold a note.
3. Move the **PITCH BEND STICK** upward or downward.
4. Release the stick to return to the original pitch.

For more extreme whammy-bar-style effects, increase the **PITCH BEND AMOUNT TRIMMER** toward 12 semitones.

Mod

MOD ACTION STICK: *(0 to 100%; default 0%)* Provides real-time control over modulation from Modulation 1 and/or Modulation 2 when their **ACTION STICK** switches are enabled.

MOD AMOUNT TRIMMER: *(0 to 100%)* Sets the maximum amount of modulation available from the Mod Action Stick. Lower settings keep the Action Stick response subtle, while higher settings allow greater modulation depth as the stick is raised.

The Action Stick works together with the **ACTION STICK** switches in Modulation 1 and Modulation 2. Enable **ACTION STICK** for the modulation source you want to control, then use the stick to bring that modulation into the performance as needed.

This makes the Action Stick especially useful for gestures such as introducing vibrato only after a note has begun, rather than having vibrato present continuously.

Adding Vibrato with the Action Stick

To use the MOD Action Stick for expressive vibrato:

1. Select **MOD 1** or **MOD 2** as the desired oscillator **PITCH MOD** source.

2. Choose **SINE** or **TRI** as the modulation Shape.
3. Set a suitable modulation **RATE**.
4. Set the oscillator **PITCH MOD** amount to establish the desired sensitivity.
5. Turn the modulation section's **ACTION STICK** switch **ON**.
6. Leave **DEPTH** at minimum if you want no continuous vibrato when the Action Stick is down.
7. Set the **MOD AMOUNT TRIMMER** to establish the maximum amount of vibrato available from the stick.
8. Play and hold a note.
9. Push the **MOD Action Stick** upward to gradually introduce vibrato.
10. Fine-tune Rate, Pitch Mod, and Mod Amount until the response feels natural.

This allows the beginning of the note to remain stable while vibrato is introduced as an expressive gesture.

Keyboard Pressure

Across the top of Pentaphonic's main synthesis panel is the **KEYBOARD PRESSURE** strip.



Keyboard Pressure provides another layer of real-time expression. Instead of moving a lever, you apply additional pressure to held keys on a controller capable of transmitting keyboard pressure or aftertouch. Pentaphonic can route that pressure to numerous synthesis parameters simultaneously, allowing a single physical gesture to reshape a sound in surprisingly sophisticated ways.

Each Keyboard Pressure assignment uses a **bipolar amount control**. The center position applies no pressure modulation. Turn the control toward **+** to make increasing pressure move the destination in the positive direction. Turn it toward **-** to reverse the response.

This bipolar behavior is particularly useful because pressure doesn't always have to mean "more." For example, pressing harder might open the Filter

while simultaneously reducing the level of one oscillator.

Keyboard Pressure Destinations

The visible Keyboard Pressure destinations include:

MOD 1 RATE

Allows pressure to change the speed of Modulation 1.

MOD 2 RATE

Allows pressure to change the speed of Modulation 2.

OSC 2 INTERVAL / SYNC

Provides pressure control related to Oscillator 2's interval/synchronization behavior.

OSC 1 GAIN

Changes Oscillator 1 level according to keyboard pressure..

OSC 1 PITCH MOD

Changes the amount of pitch modulation applied to Oscillator 1.

OSC 2 GAIN

Changes Oscillator 2 level according to keyboard pressure..

OSC 2 PITCH MOD

Changes Oscillator 2 Pitch Mod amount.

OSC 3 GAIN

Changes Oscillator 3 level according to keyboard pressure..

OSC 3 PITCH MOD

Changes Oscillator 3 Pitch Mod amount.

FILTER CUTOFF

Opens or closes the Filter according to key pressure.

FILTER RES

Changes Filter Resonance.

FILTER MOD

Changes the amount of modulation applied to the Filter.

AMP MOD

Changes Amp modulation amount.

OUTPUT VOLUME

Changes overall Pentaphonic output level according to pressure.

This collection of destinations makes Keyboard Pressure more than a conventional aftertouch-to-vibrato connection. It can behave almost like a

performance macro system.

Creating an Expressive Pressure Patch

A particularly effective pressure assignment is to make a sound become brighter and more animated as you press harder.

To create a pressure-responsive lead or pad:

1. Set **FILTER CUTOFF** somewhat lower than you ultimately want the sound to reach.
2. Turn the Keyboard Pressure **FILTER CUTOFF** amount toward +.
3. Add a smaller positive amount to **FILTER RES** if desired.
4. Route one modulation section to oscillator Pitch Mod.
5. Turn the appropriate Keyboard Pressure **PITCH MOD** amount slightly toward +.
6. Play and hold a note or chord.
7. Increase pressure gradually.

The sound can now open in brightness while simultaneously gaining vibrato or other modulation. This creates considerably more expression than assigning pressure to volume alone.

Pressure-controlled Oscillator Blending

Because Keyboard Pressure can control individual oscillator Gain, it can also change the oscillator mixture while notes are held. For example, a soft performance might emphasize a mellow Triangle or Sine oscillator, while additional pressure brings in a brighter Ramp, Pulse, or COMP waveform.

To create a pressure-controlled oscillator blend:

1. Build a patch using at least two oscillators with contrasting Shapes.
2. Set one oscillator relatively more prominent with its Gain control.
3. Set another oscillator to a lower Gain.
4. Turn the quieter oscillator's Keyboard Pressure **GAIN** amount toward +.

5. If desired, turn the first oscillator's pressure Gain amount slightly toward -.
6. Hold a note or chord and increase pressure.

Instead of merely getting louder, the sound changes its internal harmonic balance as you play. This is an excellent way to make sustained pads and leads feel more alive.

Pressure-controlled Modulation Speed

Keyboard Pressure can also control the Rate of Modulation 1 or Modulation 2. A slow vibrato can become faster as pressure increases, or a leisurely filter cycle can accelerate during a held chord. Use this carefully. Small changes in modulation speed often feel expressive; enormous changes can sound like the LFO has become a chaos engine.

Making Creative Use of Performance Controls

Pentaphonic's Performance section becomes most powerful when several controls work together rather than being treated as isolated conveniences.

- **Mono + Last Priority + Glide + no Retrigger** creates smooth legato lead behavior.
- **Unison + modest Unison Detune + Slow Chorus** produces a large sound without requiring excessive effects.
- **Low Note Priority** is particularly effective for bass playing when upper notes are used as ornaments.
- **Reduced polyphony** can deliberately introduce vintage-style limitations into an otherwise modern instrument.
- **Pitch Bend Amount around two semitones** works well for conventional expressive lead playing; wider ranges are ideal for dramatic synth gestures.
- **Use the Mod Action Stick for optional movement.** Vibrato often feels more musical when introduced deliberately rather than permanently applied.

- **Use Keyboard Pressure to change timbre, not merely volume.** Filter Cutoff, oscillator balance, and modulation depth usually provide more expressive results than simple loudness changes.
- **Use positive and negative pressure amounts together.** Increasing one oscillator while decreasing another can create genuine timbral transformation from a single gesture.
- **Keep pressure assignments subtle at first.** Several modest changes occurring simultaneously can feel dramatic even when no individual destination is moving very far.

Performance Programming Tips

When designing a playable patch, it helps to distinguish between **automatic motion** and **performed expression**. Modulation 1 and Modulation 2 can keep a sound moving without intervention. The Performance Controls allow you to decide what changes because of the way you play.

A useful approach is to build the basic sound first, then ask three questions:

What should happen when I play harder initially?

Use Velocity in the Filter and Amp sections.

What should happen after I'm already holding the note?

Use Keyboard Pressure.

What do I want to control deliberately with my left hand?

Use Pitch Bend and the Mod Action Stick.

When those three forms of expression are given different jobs, a preset can feel remarkably responsive without becoming complicated to perform.

The next chapter is Motion, where Pentaphonic moves beyond individual performance gestures into repeating musical structures.



Motion Controls

Click **MOTION** at the lower-left corner of the Pentaphonic interface to replace the keyboard with the complete Motion view. Click **KEYBOARD** to return to the performance controls, or **EFFECTS** to open the expanded effects view.

The Motion Controls are where inspiration meets automation. They combine an Arpeggiator, a polyphonic 16-step Sequencer with four pattern memories, and a Parameter Animator capable of changing synthesis parameters step by step. Pentaphonic has one Motion engine. That makes the workflow especially immediate: one Arpeggiator, one Sequencer, one Parameter Animator, and one **START/STOP** control.

The three systems serve different but complementary purposes:

- The **Arpeggiator** turns notes you play, or notes supplied by the Sequencer, into repeating patterns.
- The **Sequencer** stores notes, chords, rests, ties, and complete musical patterns.
- The **Parameter Animator** changes synthesis parameters independently at each sequence step, allowing the sound itself to move along with, or independently from, the notes.

A sequence can contain notes and Parameter Animator data simultaneously. It can also operate purely as a modulation sequence by disabling **NOTES TRIGGER**, allowing a held sound to evolve rhythmically without the Sequencer retriggering notes.

Arpeggiator

The Arpeggiator turns played or sequenced notes into repeating patterns. Hold a chord and Pentaphonic reorganizes its notes according to the selected **Pattern, Direction, Range, Speed**, and groove settings. At its simplest, the Arpeggiator can produce a familiar rising or falling synth pattern. With Leap,

Random, Chance, a wider Range, and Sequencer triggering, it can produce much more elaborate melodic movement.



On

ON: (*Off/On*) Turns the Arpeggiator on or off. With On disabled, incoming notes play normally. With On enabled, the selected note source is processed by the Arpeggiator.

Trigger: Keys and Seq

The **KEYS** and **SEQ** buttons determine where the Arpeggiator receives its note material.

Keys

KEYS: Uses notes played from the keyboard or an external MIDI controller. This is the traditional arpeggiator workflow. Hold a chord and Pentaphonic reorganizes its notes according to the selected Pattern, Direction, Range, and timing settings.

Seq

SEQ: Uses notes and chords stored in the Sequencer. The Sequencer provides the harmonic or melodic material while the Arpeggiator creates additional movement from it. If a sequence step contains a chord, for example, the Arpeggiator can break that chord into individual notes according to its Pattern and Direction settings.

Tip: Use **KEYS** when you want to perform the Arpeggiator directly. Use **SEQ** when you want the Sequencer to provide the structure while the Arpeggiator adds another layer of activity.

Hold

HOLD: *(Off/On)* Keeps the Arpeggiator running after played keys are released.

Play another note or chord to replace the currently held note set.

Hold is especially useful when you want both hands free for Filter sweeps, Action Stick gestures, effects changes, or other sound-design adjustments.

Sync

SYNC: *(Off/On)* Synchronizes the Arpeggiator to musical tempo. With Sync off, **SPEED** operates freely. With Sync on, Speed selects musically related timing divisions. In the standalone version of Pentaphonic, Sync follows Pentaphonic's internal Tempo setting. When Pentaphonic is used as a plug-in, synchronization follows the host DAW session tempo. This makes it easy to keep arpeggiated patterns rhythmically locked to a track.

Speed

SPEED: Sets the Arpeggiator playback rate. Slower settings create spacious, deliberate patterns. Faster settings turn held notes into rapid streams. The LED above the control flashes at the current playback rate, providing a useful visual reference. When Sync is enabled, Speed selects tempo-related divisions rather than a freely running rate.

Pattern

Pentaphonic provides four Arpeggiator pattern behaviors.

Arp

ARP plays the available notes as a conventional arpeggio. Notes are sorted and played according to the selected Direction and Range. Use it for classic

synth arpeggios, bass patterns, rolling chords, and steady repeating figures.

Leap

LEAP moves the notes through a wider octave pattern rather than simply stepping through the chord in conventional order. The result is a more animated, jumping figure with larger melodic intervals than a standard arpeggio. Leap becomes especially effective with Range 3 or 4.

Tip: Try Leap with a seventh chord, a wide octave range, and tempo-synchronized delay. Pentaphonic usually requires very little encouragement before things become cinematic.

Order

ORDER plays notes according to the order in which they were originally entered rather than sorting them by pitch. This turns the keyboard into a simple phrase-entry device. Play several notes in a particular order, enable Hold, and Pentaphonic preserves that ordering as the basis of the Arpeggiator pattern. Selecting the opposite Direction reverses the entered order.

Random

RANDOM selects notes unpredictably from the available note set. Unlike a conventional repeating arpeggio, the melodic order changes from cycle to cycle. Random works particularly well with moderate Chance settings and delay or reverb, where omitted or rearranged notes leave space for the effects to fill.

Direction

Direction determines how the selected Pattern moves through its note order.

UP: Plays from the lowest note toward the highest.

DOWN: Plays from the highest note toward the lowest. In Order mode, this reverses the note-entry order.

DOWN/UP: Moves downward through the pattern and then upward.

UP/DOWN: Moves upward through the pattern and then downward.

The two alternating directions can produce slightly different accents at their turning points depending on how the pattern interacts with its available notes and Range.

Range

RANGE: (*1 to 4 octaves*) Sets how many octaves the Arpeggiator spans. **1** keeps the pattern close to the notes originally played. Higher values extend the pattern through additional octaves, producing progressively wider melodic movement. Range can dramatically change the character of even a simple chord. A three-note triad at Range 1 may become a long cascading pattern at Range 4.

Tip: Wider isn't automatically better. Range 1 or 2 often works best for basses and focused patterns. Range 3 or 4 is excellent for leads, pads, and more expansive textures.

Swing

SWING: Adds shuffle by delaying alternating arpeggiated events. At minimum, notes play with even spacing. Increasing Swing creates a progressively stronger long-short rhythmic feel. Add Swing after establishing the basic Pattern and Speed. It's generally easier to hear what the control contributes once the notes themselves are already working.

Chance

CHANCE: (*30% to 100%*) Sets the probability that each Arpeggiator event will play. At 100%, all events sound. Lower values introduce skipped notes and rhythmic gaps. Moderate Chance settings can add subtle variation to a repeating pattern. Lower settings create increasingly sparse and unpredictable results.

Tip: Chance and delay make good partners. The missing notes create openings, while delay repeats can preserve a sense of rhythmic continuity.

Feel

FEEL: (*Pull to Push*) shifts the Arpeggiator timing slightly behind or ahead of the beat. Turn toward the negative side to relax the pattern slightly behind the beat. Turn toward the positive side to push it slightly forward. Unlike Swing, which changes the timing relationship between alternating notes, Feel shifts the overall rhythmic attitude of the pattern. Small adjustments usually work best. Feel is a nudge, not an eviction notice for the drummer.

Arpeggiator Ideas

Classic Analog Arpeggio

Select **ARP**, choose **UP** or **UP/DOWN**, set Range to 1 or 2, enable Sync, then choose a suitable Speed. Add a modest amount of Swing if the pattern feels overly rigid.

Cascading Pattern

Select **LEAP**, set Range to 3 or 4, and lower Chance slightly. Bright Ramp, Pulse, or COMP oscillator combinations work especially well. Add a synchronized delay for additional movement.

Ordered Phrase

Select **ORDER** and play several notes in the desired sequence. Enable Hold, then use the Direction buttons to play the entered phrase forward, backward, or in alternating directions.

Generative Pattern

Select **RANDOM**, reduce Chance moderately, and use a wide Range. Add a long delay or reverb and let the missing and reordered notes create space.

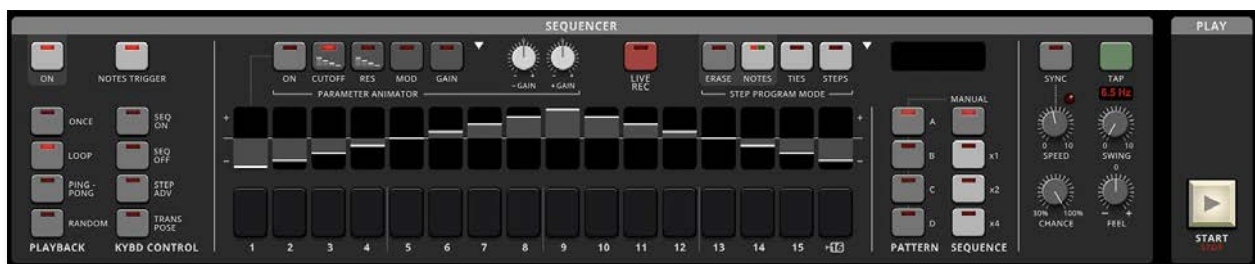
Polyphonic Sequencer

Pentaphonic's Sequencer is a **16-step polyphonic pattern engine** with four independent pattern memories labeled **A, B, C, and D**.

Each step can contain:

- a single note
- a chord
- a rest
- tied note information

Unlike many classic step sequencers, Pentaphonic isn't restricted to monophonic lines. Entire chords can be stored on individual steps, making it equally useful for bass lines, melodic phrases, rhythmic chord progressions, and evolving harmonic patterns.



The Sequencer is a major evolution of the original Gleeman Pentaphonic's real-time polyphonic recorder. The 1982 hardware could record and loop polyphonic keyboard performances while leaving the keyboard available for live playing. Cherry Audio expands that basic concept with step programming, four patterns, multiple playback modes, pattern chaining, groove controls, live recording, transposition, and parameter animation.

Sequencer On

ON: (*Off/On*) Turns Sequencer playback on or off. When disabled, stored sequence data doesn't play. When enabled, playback follows the selected Playback and Keyboard Control settings.

Notes Trigger

NOTES TRIGGER: (*Off/On*) Determines whether the Sequencer triggers its stored notes. With Notes Trigger enabled, stored notes and chords play normally. With Notes Trigger disabled, the note portion of the sequence is suppressed while the Parameter Animator can continue running. This turns the Sequencer into a dedicated modulation source. It's one of Motion's most useful tricks: hold a sustained note or chord manually and allow the Parameter Animator to reshape the sound underneath it.

Step Buttons 1-16

The 16 lower buttons represent the Sequencer steps.

The illuminated step indicates the current playback or editing position.

Each step can contain an individual note or a complete chord. Empty steps act as rests, and ties can extend material from earlier steps.

Setting the Pattern Length

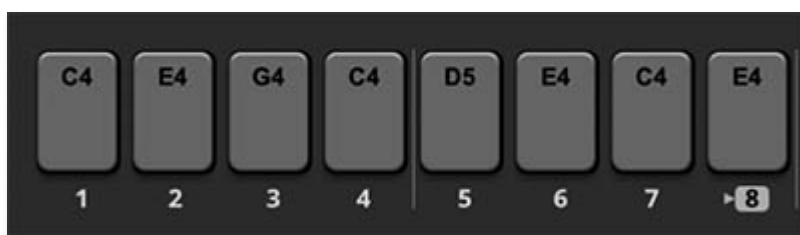
Click the number beneath a step to make it the final active step in the pattern.

For example:

- Click **8** for an eight-step pattern.
- Click **12** for a 12-step pattern.
- Click **16** to use all sixteen steps.

Shorter and odd-numbered patterns can produce especially interesting movement when synchronized to conventional 4/4 music.

Tip: Try pattern lengths of 5, 7, 11, or 13 steps. As the sequence repeats against the bar line, the accents continually shift without requiring any additional programming.



Playback Modes

Four Playback buttons determine how Pentaphonic moves through the active pattern.

Once

ONCE plays the pattern once and then stops. Use it for triggered phrases, fills, transitions, one-shot effects, or sequences that should behave like individual musical events rather than continuous loops.

Loop

LOOP repeats the pattern continuously. Use it for bass lines, ostinatos, repeating chord progressions, rhythmic modulation, and most conventional sequencing.

Ping-Pong

PING-PONG plays forward through the active pattern and then backward. This is useful for symmetrical melodies, reversing chord motion, and

Parameter Animator shapes that should change direction without jumping directly from the last step back to the first.

Random

RANDOM selects active sequence steps unpredictably. Use it for generative textures, irregular note movement, unpredictable chord changes, and Parameter Animator patterns that should avoid obvious repetition. Random playback combined with reduced Chance can become extremely sparse, which may be exactly what a heavily reverberated or delayed patch needs.

Keyboard controls

The **KYBD CONTROL** buttons determine how played notes interact with Sequencer playback.

Seq On

SEQ ON causes keyboard playing to start the Sequencer. Use it when a sequence should begin as part of the performance.

Seq Off

SEQ OFF prevents keyboard notes from starting the Sequencer. Playback can instead be controlled with the Motion **START/STOP** control. Use this when the sequence should operate independently from manual keyboard performance.

Step Adv

STEP ADV causes each key press to advance the Sequencer by one step. This removes the Sequencer from its normal clocked behavior and makes your playing determine the timing. Use it for manually paced phrases, irregular rhythms, stuttering effects, or performances where the sequence should breathe with the player rather than obey a steady clock.

Transpose

TRANSPOSE lets played keyboard notes transpose the running sequence. A single programmed riff, bass line, or chord progression can therefore be moved through different keys without rewriting its note data.

Tip: Program the sequence around a convenient tonal center, then use Transpose to perform the pattern harmonically. This is particularly effective for bass riffs and repeating melodic figures.

Live Record

LIVE REC records a keyboard performance into the current pattern in real time. Use Live Record when the shape and feel of a performance matter more than entering every event step by step.

Recording a Sequence in Real Time

To record a sequence using Live Record:

1. Select Pattern **A**, **B**, **C**, or **D**.
2. Set the desired pattern length.
3. Choose a Playback mode.
4. Enable Sync and select the desired Speed if the sequence should follow musical tempo.
5. Click **LIVE REC**.
6. Play the desired notes or chords on Pentaphonic's keyboard or an external MIDI controller.
7. Disengage Live Record when recording is complete.
8. Play the sequence and make any necessary edits using the Step Program controls.

Tip: Establish the tempo and pattern length before recording. It's considerably easier to perform into a known rhythmic framework than to discover halfway through that your magnificent seven-note phrase is being captured by a four-step loop.

Step Program Mode

Step Program Mode provides precise tools for entering and editing the sequence one step at a time. The four modes are **ERASE**, **NOTES**, **TIES**, and **STEPS**.

Notes

NOTES enters or replaces note data on a selected step.

Programming a Note or Chord

To enter notes step by step:

1. Select **NOTES**.
2. Click the desired destination step.
3. Play a note or chord on your MIDI Controller or the on-screen keyboard.
4. Select another step.
5. Continue until the pattern contains the desired material.

Because each step can store several notes, Pentaphonic can sequence complete chord progressions rather than just monophonic melodies.

Erase

ERASE removes stored note information from the selected step. Use it to create a rest, remove an unwanted chord, or clear an event without resetting the entire pattern.

Erasing a Step

1. Select the step that you want to clear.
2. Click the **ERASE** button. The step is cleared.

Ties

TIES extends the note or chord from the preceding step through one or more following steps. Instead of retriggering the note at each step, Pentaphonic sustains the existing note or chord, making Ties useful for legato melodies, held chords, syncopated bass lines, and phrases containing a mixture of short and long notes.

The important thing to remember is that the Tie is placed on the step that extends the preceding note, not on the step containing the original note.

To tie a note or chord across steps:

1. Use **NOTES** mode to enter a note or chord on the step where you want the sound to begin. For example, enter a note on **Step 1**.
2. Select **TIES** in the Step Program Mode section.

3. Click the **next step** through which you want the note to continue. For example, click **Step 2**.
4. Step 2 now acts as a Tie, extending the note or chord from Step 1 instead of triggering a new note.
5. To extend the note farther, click additional consecutive steps while **TIES** remains selected. For example, clicking Steps 2, 3, and 4 causes the note entered on Step 1 to sustain across all four steps.
6. Start the Sequencer and listen to the result. The original note or chord should sound once and remain held through the tied steps.

Example: To make a chord entered on Step 5 sustain for three steps, enter the chord on **Step 5**, select **TIES**, then click **Steps 6 and 7**.

Tip: Think of a Tie step as saying, *“keep holding whatever the previous step was playing.”* A Tie therefore needs valid note or chord data immediately before it, either from a normal note step or from an existing chain of tied steps.

Steps

STEPS sets the total number of active steps in the currently selected Sequencer pattern, whether **A, B, C, or D**. A pattern doesn't have to use all 16 steps. You can shorten it to 12, 8, 6, 5, or any other length that suits the musical phrase.

Each of the four patterns can have its own step length. This can be creatively useful when chaining patterns, since different lengths can make the sequence feel less repetitive and can shift accents in interesting ways as one pattern gives way to another.

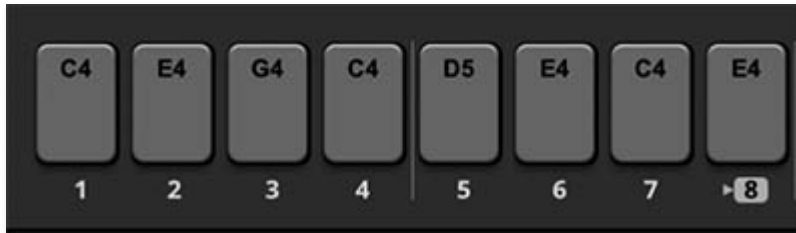
To set the Sequencer pattern length:

1. Select the desired pattern: **A, B, C, or D**.
2. Select **STEPS** in the Step Program Mode section.
3. Click the step you want to use as the final active step in that pattern.
4. Pentaphonic sets the pattern length to that step number.
5. The selected step number appears with a rectangle around it, indicating the end of the active pattern.

You can also set the pattern length directly by clicking the number beneath the desired final step, without first selecting **STEPS**.

For example, clicking **8** creates an eight-step pattern.

Tip: Try giving Patterns A, B, C, and D different lengths. An 8-step pattern followed by a 7-step or 11-step variation can create subtle rhythmic displacement and keep a chained sequence from feeling overly predictable.



Programming a Sequencer from Scratch

The following workflow provides a reliable way to build a pattern without trying to solve every Motion parameter at once.

To create a basic sequence:

1. **Select a Pattern.** Start with Pattern A. Patterns B, C, and D can later become variations.
2. **Set the Length.** Eight steps make a good starting point because the pattern is short enough to hear and edit quickly.
3. **Choose Playback.** Select Loop so the pattern repeats continuously while you work.
4. **Set Timing.** Enable Sync and choose an appropriate Speed. Leave Swing, Chance, and Feel near their neutral settings initially.
5. **Enter Notes.** Select Notes, click Step 1, and play a note or chord. Continue through the pattern.
6. **Leave Rests.** Empty steps often make a sequence more musical than filling all sixteen.
7. **Add Ties.** Extend selected notes or chords across following steps when the sequence feels too clipped.
8. **Adjust Groove.** Add Swing, Chance, or Feel only after the basic note pattern works.

9. **Create a Variation.** Copy Pattern A to B and change only a few elements.
10. **Add Parameter Animation.** Once the musical pattern works, use the Parameter Animator to introduce step-based changes to the sound.

Tip: Program with modest effects at first. Reverb and long delays have an admirable ability to make almost anything sound profound, including timing problems.

Patterns A, B, C, and D

Pentaphonic provides four independent sequence patterns.

Each pattern stores its own notes, chords, rests, ties, pattern length, and corresponding Parameter Animator sequence.

A useful organizational approach is:

Pattern A: Main phrase

Pattern B: Variation

Pattern C: Alternate harmony or breakdown

Pattern D: Fill or transition

The four patterns can be selected manually or chained into longer arrangements.

Sequence: Manual, x1, x2, x4

The **SEQUENCE** controls determine how the A-D patterns are selected and repeated.

Manual

MANUAL plays the currently selected pattern.

Use the A, B, C, or D buttons to switch patterns manually.

x1

x1 chains the selected A-D patterns and plays each once before advancing to the next.

Select the patterns you want to include by enabling their A, B, C, or D buttons.

After the last selected pattern plays, the sequence returns to the first.

x2

x2 plays each selected pattern twice before advancing.

x4

x4 plays each selected pattern four times before advancing.

Tip: Use Pattern A for the principal idea and B for a busier variation. Select x4 to let the main pattern establish itself for several passes before the variation appears.

Sequencer Timing and Groove

The Sequencer has its own **SYNC**, **SPEED**, **SWING**, **CHANCE**, and **FEEL** controls independent of the Arpeggiator.

Sync

SYNC: (*Off/On*) locks Sequencer timing to musical tempo.

In standalone operation, Sync follows Pentaphonic's internal Tempo.

When Pentaphonic is used as a plug-in, Sync follows the host DAW session tempo.

With Sync disabled, Speed operates freely.

Speed

SPEED: (*.25 Hz - 30 Hz*) sets the Sequencer playback rate.

With Sync enabled, Speed selects musical timing divisions: 8 beats, 4 beats, 1/2 dotted, 1/2, 1/2 triplet, 1/4 dotted, 1/4, 1/4 triplet, 1/8 dotted, 1/8, 1/8 triplet, 1/16 dotted, 1/16, 1/16 triplet, 1/32 dotted, 1/32, 1/32 triplet, 1/64 dotted, 1/64, 1/64 triplet.

With Sync disabled, the sequence runs at a freely adjustable rate.

Swing

SWING delays alternating sequence events to create shuffle.

Add it after the basic pattern is working.

Chance

CHANCE: (*30% to 100%*) sets the probability that programmed note events will play.

At 100%, all notes are triggered.

Lower values introduce missing events and rhythmic variation without altering the stored pattern.

Feel

FEEL: (*-100% to 100%*) shifts Sequencer timing slightly behind the beat toward Pull or ahead toward Push.

As with the Arpeggiator, small adjustments usually produce the most musical results.

Tip: Establish the notes first, then introduce one groove control at a time. Swing, Chance, and Feel can each add life. Aggressively applying all three at once can also cause the sequence to develop opinions of its own.

Parameter Animator

The **PARAMETER ANIMATOR** turns the Sequencer into a 16-step modulation system. Where the Sequencer controls which notes play, the Parameter Animator controls how selected synthesis parameters change from step to step.

Pentaphonic provides four directly selectable Parameter Animator targets:

- **CUTOFF**
- **RES**
- **MOD**
- **GAIN**

Only one Animator lane is displayed for editing at a time, but each target can store its own animation data. Whenever a target contains an assigned animation pattern, a small step-pattern icon appears on its target button. This provides an immediate visual reminder that animation data exists for that parameter, even when another Animator lane is currently selected.

The horizontal indicator inside each of the sixteen upper step areas represents that step's Parameter Animator value. Values above the center line represent positive movement, while values below the center line represent negative movement.

This makes it possible to create rhythmic filter patterns, alternating accents, gradual ramps, waves, and other modulation shapes directly within the sequence. The step-pattern icons also make it easy to see at a glance which of the four Animator targets are already contributing movement to the sound..



Parameter Animator On

ON: (*Off/On*) enables or disables Parameter Animator playback. When disabled, the stored Parameter Animator values remain in the pattern but don't affect the sound.

Cutoff

CUTOFF selects Filter Cutoff as the Parameter Animator target. Each step can therefore make the sound brighter or darker independently of the note sequence. This is particularly effective for rhythmic bass lines, repeating chords, and sustained sounds that need evolving tonal movement.

Res

RES selects Filter Resonance as the Parameter Animator destination. Each step can raise or lower Resonance relative to the setting that was in place when the Sequencer began playing.

Small changes can add useful accents and make selected steps feel more pronounced without dramatically changing the patch. Larger values can push

certain steps into sharper, more resonant territory, which is useful for rhythmic emphasis and more animated filter patterns.

Mod

MOD animates the three oscillator **PITCH MOD** controls together. As the Sequencer moves from step to step, the Parameter Animator raises or lowers all three Pitch Mod amounts relative to the positions they were in when playback started.

This makes MOD especially useful for changing the intensity of pitch modulation rhythmically. A sequence can move from nearly steady oscillator pitch on one step to stronger vibrato or more pronounced pitch movement on the next, without changing the underlying Modulation 1 or Modulation 2 settings. Because the movement is relative, the three Pitch Mod controls retain the balance you established before starting the Sequencer. The Animator simply pushes them higher or lower from those starting positions.

Gain

GAIN animates the three oscillator **GAIN** controls together. Each step raises or lowers their levels relative to the Gain settings that were in place when the Sequencer began playing.

This can add rhythmic emphasis, create pulsing dynamics, or make selected steps feel heavier or lighter without changing the programmed notes themselves. Because the movement is relative, the oscillator mix you created remains the reference point. If Oscillator 1 is louder than Oscillators 2 and 3 before playback begins, Parameter Animation changes the three Gain controls from those starting positions rather than forcing them to the same absolute value.

This makes GAIN particularly useful for adding motion to an already balanced three-oscillator patch without undoing the mix that gives the sound its character.

- Gain and + Gain

Two controls labeled **- GAIN** and **+ GAIN** appear beside the Parameter Animator. They provide separate scaling for the negative and positive portions of Parameter Animator movement respectively. Their control range is +1% - 500%.

This architecture is useful because a bipolar animation shape doesn't necessarily need equal movement in both directions. You may want a Filter pattern to open dramatically above its base setting while dipping only slightly below it, for example.

Editing Parameter Animator Values

Drag the horizontal indicator for an individual step vertically to change its value.

Move upward for positive modulation.

Move downward for negative modulation.

The center position represents a neutral value.

Creating a Rhythmic Filter Pattern

To animate Filter Cutoff:

1. Turn Parameter Animator **ON**.
2. Select **CUTOFF**.
3. Set several step values above and below the center line.
4. Start the Sequencer.
5. Adjust the values while the pattern repeats.
6. Use the Parameter Animator Gain controls to establish an appropriate modulation range.
7. Fine-tune individual steps until the filter movement complements the notes rather than simply repeating them.

The visual relationship between the sequence steps below and Parameter Animator values above makes rhythmic modulation particularly easy to understand.

Using Parameter Animation without Sequenced Notes

The Parameter Animator doesn't require the Sequencer to trigger notes.

To use the Parameter Animator as a modulation sequencer:

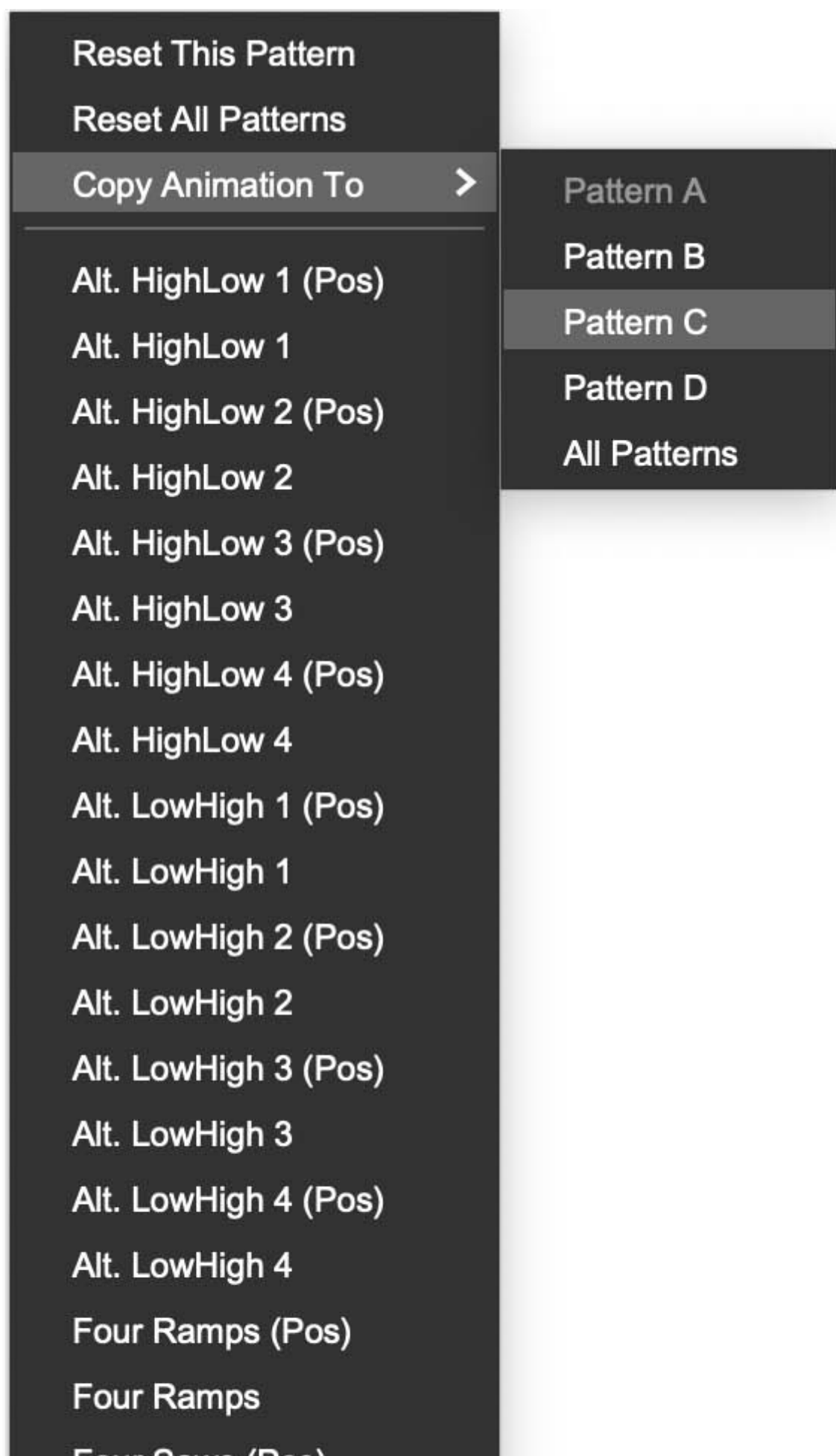
1. Turn the Sequencer **ON**.
2. Turn Parameter Animator **ON**.
3. Select a parameter such as **CUTOFF**.
4. Draw or load the desired Parameter Animator pattern.
5. Turn **NOTES TRIGGER** off.
6. Start Motion playback.
7. Hold a note or chord manually.

The held sound now remains continuous while the Parameter Animator changes its timbre step by step.

This is especially effective for pads, drones, and sustained chords because the rhythm comes from the changing sound rather than repeated note attacks.

Parameter Animator Preset Menu

Click the small triangle above the Parameter Animator to open its preset and utility menu. The menu contains both management commands and ready-made animation shapes.



Four Saws (Pos)

Four Saws

Long Ramp (Pos)

Long Ramp

Long Saw (Pos)

Long Saw

Rhythm 1

Rhythm 2

Rhythm 3

Rhythm 4

Rhythm 5

Two Ramps

Two Saws

Wavy 1 (Pos)

Wavy 1

Wavy 2 (Pos)

Wavy 2

Reset This Pattern

Reset This Pattern clears the Parameter Animator values for the currently selected pattern and returns them to neutral.

Reset All Patterns

Reset All Patterns clears Parameter Animator data for all four patterns.

Copy Animation To

Copy Animation To > copies the current animation pattern to another Pattern destination, A, B, C, D, or All. Use it to create related variations without redrawing the modulation shape from scratch.

Parameter Animator Shapes

The menu contains several families of ready-made shapes.

Alternating High/Low and Low/High

The **Alt. HighLow** and **Alt. LowHigh** presets create alternating step values.

Versions 1 through 4 provide different repeating relationships.

Use them for rhythmic Filter Cutoff changes, Resonance accents, amplitude variation, and other alternating effects.

Ramps and Saws

The menu includes:

Two Ramps

Four Ramps

Long Ramp

Two Saws

Four Saws

Long Saw

Ramp shapes create gradual movement across part or all of the pattern. Saw shapes move progressively and then reset sharply. Use them for filter sweeps, evolving gain changes, repeating modulation cycles, and patterns that should build or fall across several steps rather than alternate immediately.

Wavy 1 and Wavy 2

Wavy 1 and **Wavy 2** create smoother rising and falling contours. These are excellent for pads and modulation that should feel more fluid than an obviously stepped sequence.

Rhythm 1-5

The five **Rhythm** presets provide more complex step patterns with varied accents. Use these when you want a useful rhythmic animation quickly without drawing every step manually.

Positive-Only Shapes

Preset names ending in **(Pos)** use positive values only. The corresponding versions without **(Pos)** use both positive and negative values. Positive-only

shapes are useful when a parameter should move away from its base setting in only one direction. Bipolar versions move above and below the center value, creating more balanced or dramatic movement.

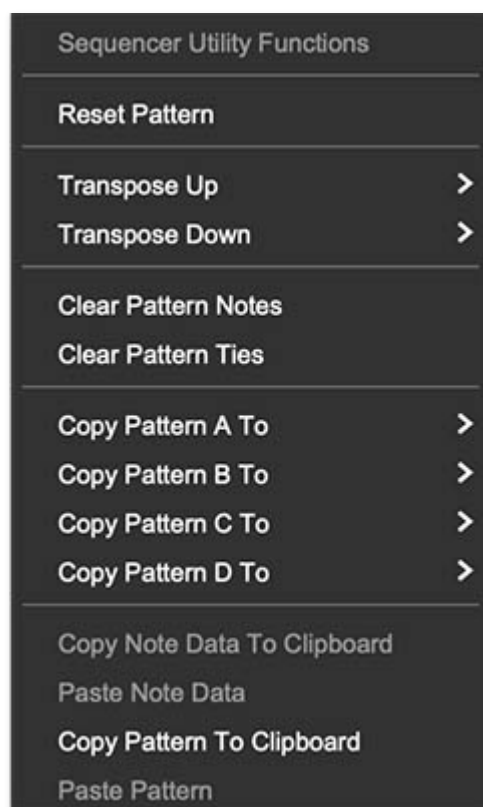
Tip: Load a preset shape, listen to it in context, then edit individual steps. A preset is a starting point, not a binding legal agreement.

Sequencer utility Menu

Click the small triangle near the **STEP PROGRAM MODE** controls to open the **Sequencer Utility Functions** menu. These commands provide quick ways to clear, transpose, duplicate, and transfer sequence material without having to edit the pattern one step at a time.

The Sequencer utilities operate on the note-sequencing portion of Motion.

Parameter Animator data is managed separately from its own menu, so resetting or copying Sequencer material doesn't automatically reset the corresponding Parameter Animation.



Reset Pattern

Reset Pattern clears the current Sequencer pattern and returns its sequence data to the default state. Use it when you want to start over with a

clean note pattern without disturbing the Parameter Animator data associated with that pattern.

To clear Parameter Animator values as well, use **Reset This Pattern** from the Parameter Animator menu.

This separation can be useful. You can completely replace the musical sequence while keeping an existing filter, resonance, modulation, or gain animation intact.

Transpose Up / Transpose Down

Transpose Up and **Transpose Down** shift all stored notes in the current pattern by a fixed musical interval. This provides a fast way to move an entire riff, bass line, melody, or chord progression into another key or register without re-entering its notes.

Transpose Up opens a submenu with:

- **+1 semitone**
- **+12 semitones**

Transpose Down opens a submenu with:

- **-1 semitone**
- **-12 semitones**

Use the one-semitone commands for chromatic key changes and the 12-semitone commands to move the entire pattern up or down by one octave.

Tip: This is particularly useful after creating a pattern variation. Copy a pattern to another slot, transpose the copy, then switch or chain the two patterns for an instant harmonic change.

Clear Pattern Notes

Clear Pattern Notes removes all stored notes and chords from the current pattern.

Use it when you want to rebuild the musical content from scratch while retaining other Sequencer information, or when you want the Motion system to function primarily as a **Parameter Animator**.

Because note data and tie data are managed separately, use **Clear Pattern Ties** as well if you want to remove any stored ties from the pattern.

Clear Pattern Ties

Clear Pattern Ties removes all ties from the current pattern while leaving its stored notes and chords in place.

This is useful when a sequence has become too legato or when you want each programmed note or chord to retrigger independently.

It's also a quick way to change the articulation of an existing pattern without altering its pitches.

Copy Pattern A/B/C/D To

The four **Copy Pattern A To**, **Copy Pattern B To**, **Copy Pattern C To**, and **Copy Pattern D To** commands duplicate an entire Sequencer pattern into another pattern slot.

Select the command corresponding to the pattern you want to copy, then choose the destination from its submenu. This is one of the fastest ways to create variations because you can begin with an existing musical idea rather than rebuilding it from scratch.

Creating a Pattern Variation

1. Program the main musical idea in **Pattern A**.
2. Choose **Copy Pattern A To > Pattern B**.
3. Switch to **Pattern B**.
4. Change a few notes, chords, ties, or the pattern length.
5. Switch between A and B manually or include both in a pattern sequence.

Because Pattern B begins as an exact copy, even fairly substantial edits tend to retain a recognizable relationship to the original phrase.

Copy Note Data to Clipboard

Copy Note Data To Clipboard copies the note or chord data from the currently selected Sequencer step. First select the step whose musical content you want to copy, then choose this command. This is useful when several steps should contain the same note or chord, or when you want to reuse a particular voicing elsewhere in the pattern without playing it again.

Paste Note Data

Paste Note Data places the previously copied note or chord data into the currently selected Sequencer step. Select the destination step first, then choose **Paste Note Data**. This allows individual musical events to be duplicated without replacing the rest of the pattern.

Copy Pattern to Clipboard

Copy Pattern To Clipboard copies the complete current Sequencer pattern to the clipboard. Use this when you want to transfer an entire pattern rather than a single step's note data.

Paste Pattern

Paste Pattern replaces the current Sequencer pattern with the complete pattern stored in the clipboard.

Together, **Copy Pattern To Clipboard** and **Paste Pattern** make it easy to reuse complete sequence ideas without rebuilding them manually.

The distinction between the clipboard commands is worth remembering:

- **Copy/Paste Note Data** works with the musical content of an individual step.
- **Copy/Paste Pattern** works with the complete Sequencer pattern.
- **Parameter Animator data** is managed independently using the Parameter Animator menu.

Start/Stop

The large **START/STOP** button at the far right controls Motion playback. Press **START** to begin Motion playback. Press **STOP** to halt it. The behavior of the Arpeggiator and Sequencer still depends on their individual On, Trigger, and Keyboard Control settings.

Practical Motion Ideas

Transposable Bass Line

Program a short bass phrase into Pattern A and select **TRANSPOSE** under Keyboard Control. Use the keyboard to move the running pattern through

different keys. Keep Amp Release fairly short so successive notes remain distinct.

Sequenced Chord Progression

Enter complete chords rather than individual notes. Use Ties to hold selected chords longer than others, then copy Pattern A to B and alter the final few steps. Chain A and B to create a longer repeating progression.

Rhythmic Filter Sequence

Select **CUTOFF** in the Parameter Animator and load one of the alternating or Rhythm presets. Edit individual steps until the filter accents reinforce the note pattern. Try disabling Notes Trigger afterward and holding a sustained chord manually. The same animation suddenly becomes a rhythmic timbral pattern rather than a note sequence.

Arpeggiated Sequence

Program chords into the Sequencer. Set the Arpeggiator Trigger to **SEQ** and choose **LEAP**, **ARP**, or **ORDER**. The Sequencer determines when the harmony changes while the Arpeggiator generates movement within each chord. This can produce surprisingly elaborate results from very little note data.

Evolving Pad

Disable Notes Trigger and use Parameter Animator **CUTOFF** to create a slowly changing modulation pattern. Hold a sustained chord manually while the Animator changes the filter underneath it. Add a synchronized delay or reverb and use a non-16-step pattern length to keep the modulation cycle moving against the bar line.

Controlled Randomness

Use Random Sequencer playback with Chance below 100%. If the result becomes too sparse, raise Chance rather than immediately adding more notes. Randomness usually works best when given boundaries.

Avoiding Motion Overload

Pentaphonic's Motion Controls can generate a remarkable amount of activity. The difficult part is often knowing when the patch already has enough.

If a pattern becomes crowded:

- Turn off the Arpeggiator and listen to the Sequencer by itself.
- Disable the Parameter Animator and evaluate the notes.
- Shorten Amp Release if successive events blur together.
- Increase Chance if too many notes are disappearing.
- Reduce the Arpeggiator Range if it covers too much pitch territory.
- Simplify the Parameter Animator shape.
- Reduce delay or reverb if rhythmic definition begins to disappear.
- Try disabling Notes Trigger and letting modulation provide the movement instead of adding more notes.

Motion is usually most effective when it moves against something stable.

A held chord beneath an animated filter pattern can sound larger than sixteen notes, an arpeggio, four patterns, random playback, maximum Swing, three echoes, and a small constitutional crisis all happening simultaneously.

A Five-Slot Effects Chain for Enhanced Sound Design

Pentaphonic already gives you plenty to work with before an effect is added: three oscillators, distinctive Gleeman waveforms, sync, chorusing, dual modulation sections, expressive filtering, keyboard pressure, unison, sequencing, and parameter animation. Its **five-slot effects chain** takes that foundation considerably further.

With **22 studio-quality effects** available, each of the five slots can be used to add space, width, movement, color, dynamics, distortion, delay, modulation, or more radical transformation. A simple patch can become expansive and cinematic, a bright polyphonic texture can be softened or widened and placed in a convincing space, a sequence can gain rhythmic echoes and animated modulation, and an aggressive lead can be pushed into entirely new territory.

Because the chain provides five independent effect positions, Pentaphonic's effects are more than a finishing touch. They can become part of the sound-design process itself, extending the character of the synth well beyond the capabilities of the original hardware.

Controls and Concepts:

- **Five-Slots Effects Chain** – Host up to five Cherry Audio effects.
- **Effect Modulator** – Provides dedicated modulation for adding movement to effect parameters.

Tip: Start patches with no effects, then assign effects by role. Build the tone first. Then decide what needs movement, width, edge, or which should stay clean so the patch has definition.

Important Note

Effects can change gain. They can also emphasize certain frequencies and create peaks. This is why Pentaphonic contains a Limiter.

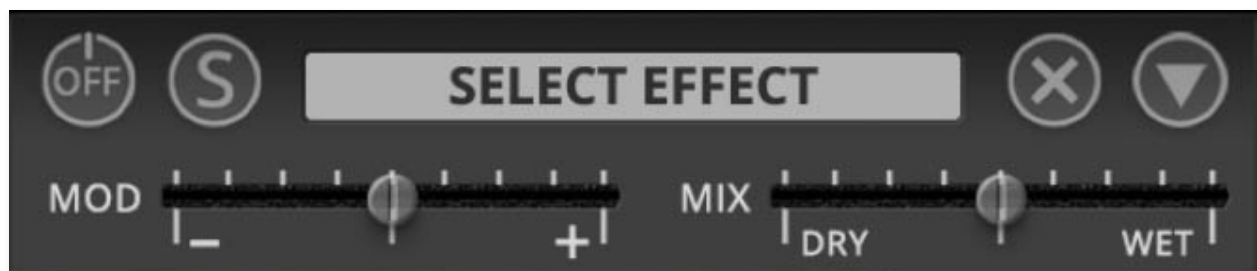
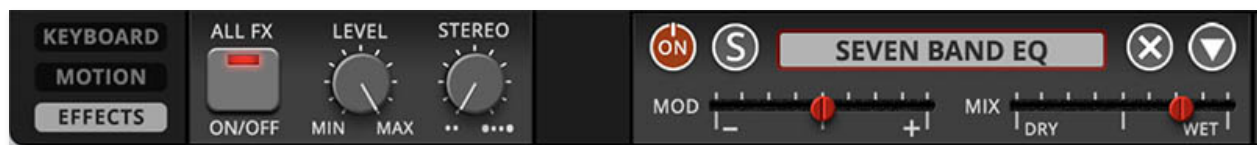


Tip: The mini FX panel is always visible, but click the **Effects** tab at the lower left for the full parameter view and deeper editing. Alternatively double-click the effects "footer" (the part with the always-visible mod and mix controls) to toggle the view from mini to full.

Quick Controls (Always Available)

Even if you're in Keyboard View, the most essential FX controls are always within reach, sitting neatly under the chain:

- **All FX On/Off** – Instantly bypasses the entire chain.
- **Level** – Adjusts the overall level of the chain.
- **Stereo** – Widens (or narrows) the stereo field after processing.



The Effect Modulator

Sometimes you may want to modulate a delay time or a phaser sweep for extra movement or a bit of weirdness. Enter the **Effect Modulator**. It's a dedicated LFO just for the effects. Used subtly, the Effect Modulator can add motion and depth. Push it harder, and things can get more dramatic and unstable. Either way, it's one of the quickest ways to make an effect feel more varied and animated.

Each effect has one specific parameter that is permanently tied, or "hard-wired," to the Effect Modulator. In other words, you don't assign modulation destinations manually. The destination is already chosen for you by the effect's design.

To see which parameter is being modulated, look for the arrow labeled "**Mod**" on the effect's panel. That graphic points from the affected control

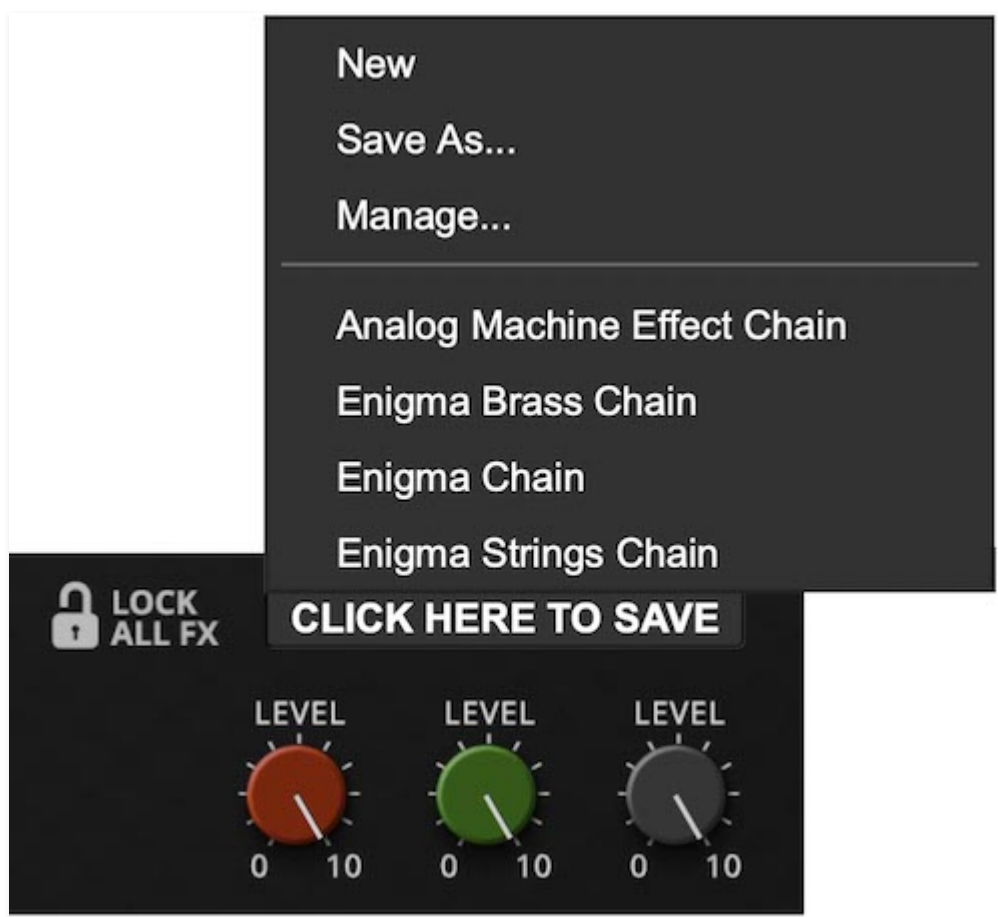
down toward the Effect Modulator, making it easy to spot the modulation target at a glance. If a control has that arrow, it's the one the Effect Modulator will affect.

This means every effect has its own built-in modulation relationship. On one effect, the Effect Modulator might animate delay time. On another, it might sweep a tonal or spatial parameter. The exact target depends on the effect, but the visual cue is always the same: Follow the “Mod” arrow.



Effect modulator controls include:

- **Speed** – 0.01 Hz to 20 Hz, or tempo-syncable from 1/64T to 8 beats. LED above flashes in time.
- **Waveform** – Ramp, sawtooth, triangle, sine, square, or random.
- **Delay** – Fade-in time for modulation (0-5000 ms).
- **Sync** – Locks modulation speed to host tempo.
- **Mod Wheel** – Lets your MIDI Mod Wheel scale the modulation depth in real time.
- **Key Reset** – Restarts the waveform with each key press.



Managing Effects Chains

Building and wrangling effects and effect chains is straightforward. Use the Effects menu dropdown (the triangle) to save and move effects and chains.

- **Add an Effect** – In the Effects View, click the *Select Effect* dropdown to pick your effect, then tweak away.
- **Delete an Effect** – Click the “X” next to its name.
- **Save a Chain** – Display the Full Effects view → Use the *Click Here To Save* dropdown menu → Save As. Name it, reuse later.
- **Recall a Saved Chain** – Load from the same dropdown.
- **Solo an Effect** – Hit the “S” button; all others mute.
- **Reorder** – Drag the effect by its top “grip” edge to rearrange.
- **Numerical Edit** – Double-click a knob/slider, type a value, press Enter.
- **Duplicate an Effect** – Click the triangle dropdown → Duplicate (places a copy right next to it).
- **Align Effects** – Click the triangle dropdown → Align All Effects to automatically shift all effects to the left, closing any empty slots in between.
- **Lock All FX** – Click the padlock icon to keep the current effects chain in place when switching presets. Any new preset you load will use your locked chain instead of its own, making it easy to carry your favorite effect setup from sound to sound.



Tips

- The **Effect Modulator + Mod Wheel** combo is excellent for live performance. Map it, and suddenly your phaser swoops in only when you push the wheel.
- Try saving a few **favorite chains** and re-using them across presets. Treat them like your personal pedalboards.
- Extreme stereo widening can be fun in headphones, but keep an ear on mono compatibility if you're making tracks.

The Effects

There are 22 effects in total to add potency to any sound. Whether you're after subtle polish, full-throttle grit, or spacey atmospheres, these effects add even more character to any patch.



Digital Delay

Delay pedals and tape echoes have been a keyboardist's sidekick for decades. The Digital Delay offers three classic flavors:

- **Digital** – Clean, pristine repeats.
- **Tape** – Warm, saturated echoes.
- **Ping Pong** – Echoes that bounce between left and right for stereo ambience.

Controls:

- **Delay Time** - Sets the gap between repeats (1 ms to 2000 ms). With Sync on, times follow the beat (1/64T to 8 bars). This can be controlled by the Effect Modulator.
- **Feedback** - Controls how many repeats you get. Low values = slapback echo; high values = infinite runaway.
- **Spread** - Adjusts the stereo width of the delayed signal.
- **Damp** - Softens repeats by filtering highs, making echoes darker and rounder.
- **Mod Rate / Mod Depth** - Adds modulation to delay time. Subtle settings = chorus shimmer; extreme = pitch warbles and glitching.

Tip: Try Digital mode with high feedback and a little modulation depth for a psychedelic wash that hovers on the edge of freak out.



Tape Echo

Few effects are as iconic as tape echo. Originally created with loops of magnetic tape and multiple playback heads, these machines defined the sound of countless dub records, psychedelic jams, and experimental soundscapes. the **Tape Echo** captures all that vintage character without the headaches of demagnetizing heads or replacing tape loops.

Controls:

- **Mode Selector** – Chooses which playback heads are active. Each mode offers different rhythmic subdivisions and textures, from simple single repeats to multi-head cascades.
- **Repeat Rate** – Sets the delay time. Lower values = slower, spaced-out repeats; higher values = rapid-fire echoes. With **Sync** engaged, rates lock to host tempo. Modulation can be applied here by the Effect modulator for even more vintage spaciness and psychedelic vibes.
- **Intensity** – Controls feedback (how much of the echo feeds back into itself). Low settings = quick fadeouts; higher values = dense, self-oscillating repeats and greater sonic mayhem.
- **Heads Indicators (1-3)** – Lights show which tape heads are active for the selected mode.

Tip:

For classic dub-style echo, select multiple heads with **Intensity** cranked high, then ride the **Repeat Rate** knob during playback for wild pitch sweeps. For more subtle use, stick to a single head and moderate intensity to add depth without overwhelming the mix.



Digital Reverb

Back in the '70s, reverb meant spring tanks or giant plates welded into studio walls. Digital reverbs were exotic, studio-only beasts. The Digital Reverb gives you a compact, modern reverb with three classic models:

- **Room** – Tight, natural ambience.
- **Hall** – Expansive, lush decay.
- **Plate** – Smooth, metallic sheen.

Controls:

- **Predelay** – Time before the reverb kicks in (0–150 ms). Longer predelays create a sense of bigger space. This can be controlled by the Effect Modulator.
- **Decay** – Length of the reverb tail, from short and snappy to cavernous. Modulation target. This can be controlled by the Effect Modulator.
- **Highpass / Lowpass Filters** – Shape the tone of the reverb by trimming boomy lows or harsh highs.
- **Mod Routing Switch** – Chooses whether modulation affects Predelay or Decay.

Tip: Use a short Room reverb on Strings to glue them into a mix, or a long Plate on Brass for cinematic atmosphere.



Galactic Reverb

When you need more than a room, hall, or plate to launch your sound into the stratosphere, reach for **Galactic Reverb**. Designed for cavernous, cosmic spaces, it excels at ambient washes, cinematic swells, or simply making your synth sound like it has left the building (and maybe the planet).

Controls:

- **Predelay** – Sets the time before the reverb begins (0–150 ms). Short settings keep things tight; longer values create separation between the dry attack and the wash of reverb. This can be controlled by the Effect Modulator.
- **Decay Time** – Determines how long the reverb tail lingers. Dial it short for manageable ambience, or long for infinite, space-drifting sustain.
- **High Freq** – Adjusts the tonal brightness of the reverb by shaping the high-frequency response. Higher settings yield shimmering, airy tails; lower settings make the reverb darker.
- **Low Freq** – Sets how much low end is preserved in the reverb. Keep it up for a massive, bass-heavy wash, or pull it back to avoid muddiness.
- **Damp Amount** – Controls the damping of reflections over time. Higher values cause the reverb tail to lose brightness as it decays, simulating natural absorption in real spaces.

Tip:

For lush pads, combine a long **Decay Time** with a rolled-back **Low Freq** and moderate **Damp Amount** to create a deep but clear ambient space. On leads, try adding a touch of **Predelay** so the note speaks with presence before the reverb bloom takes over.



Spring Reverb

Spring reverb is one of the most distinctive ambience effects in music history. From surf guitar twang to vintage organs to early synths patched through amps, its metallic, splashy character has a charm all its own. The **Spring Reverb** recreates the sound of physical springs housed in tanks, complete with extra controls that let you shape it far beyond the originals.

Controls:

- **Drive** – Pushes the input signal into the springs. Higher settings increase saturation and grit, adding vintage bite to the reverb.
- **Predelay** – Sets the time gap before the reverb begins (0–150 ms). Useful for keeping the dry attack clear before the spring kicks in.
- **Decay** – Adjusts how long the spring vibrations last. Low values yield short, splashy bursts; higher settings give longer, ringing tails. This can be controlled by the Effect Modulator.
- **Highpass / Lowpass** – Filters that trim unwanted lows or highs from the reverb signal. Use them to tame muddiness or harsh metallic overtones.
- **Tension** – Simulates the tightness of the springs. Looser adds a wobblier, more boingy character. Tighter adds a more controlled, refined response.

Tip:

For vintage organ vibes, set **Decay** short and **Tension** loose to get that splashy, percussive spring burst. For a more modern twist, roll back the **Lowpass**, tighten the **Tension**, and add a touch of **Drive** for a darker, thicker ambience.



Distortion & EQ

Sometimes clean just won't cut it. Distortion adds grit, attitude, and warmth. The Distortion & EQ effect offers four modes:

- **Tube** – Smooth overdrive like a cranked guitar amp.
- **Fuzz** – Aggressive, buzzy saturation modeled after germanium fuzz pedals.
- **Sat** – Tape-style saturation for warmth and compression.

- **EQ** – A standalone 3-band equalizer without added drive.

Controls:

- **Drive** – Amount of gain/saturation (active in Tube, Fuzz, and Sat modes). This can be controlled by the Effect Modulator.
- **Level** – Output volume to balance the effect.
- **Bass / Middle / Treble** – ± 15 dB gain for tone shaping.
- **Mid Band Frequency** – Selects which frequencies the Middle control boosts/cuts.
- **Modulation Target** – In Tube, Fuzz, and Sat modes, Drive is modulatable. In EQ mode, the Mid Band frequency can be modulated.

Tip: A touch of tape saturation can add body to pads without sounding distorted. Crank Fuzz on a Lead sound to make it snarl.



Dual Phaser

Phase shifters were everywhere in the '70s, and the legendary Mu-Tron Bi-Phase set the standard. The Dual Phaser brings that same rich, sweeping character times two.

Each phaser has its own controls, but you can sync them together or let them run wild independently.

Controls (per phaser):

- **Speed** – Sweep rate (0.01 Hz–8 Hz, or tempo-synced from 1/64T to 8 beats).
- **Depth** – Intensity of the phasing effect.
- **Stages** – Number of filters in the phaser circuit. More stages = deeper, more pronounced sweeps.
 - Phaser 1: 4 or 8 stages.
 - Phaser 2: 6 or 12 stages.
- **Resonance** – Emphasizes the notches for sharper, more hollow tones.
- **Mix** – Balances between Phaser 1 and Phaser 2. This can be controlled by the Effect Modulator.
- **Sync** - the **Sync switch** determines whether the two phaser stages run free and independent or whether one is locked to (synchronized with) the other:
 - **Off** (unsynced):
Each phaser has its own LFO running freely. This means they can drift in and out of alignment, creating evolving, swirling movement and complex stereo textures.
 - **On** (synced):
The second phaser's sweep is locked to the first. Instead of moving independently, both phasers cycle together, so you get a more unified, rhythmic phase motion. This setting is tighter and more predictable, useful when you want a consistent pulse or groove.

Tip: Try syncing both phasers at different stage settings (e.g., 4 vs. 12) for complex, evolving sweeps.



Flanger & Chorus

These two modulation effects use short delays to create movement and depth. Flanging mixes dry and very short-delayed signals for a sweeping “jet plane” comb-filter sound. Chorus uses slightly longer delays to thicken tones, simulating multiple instruments playing together.

Flanger Controls:

- **Speed** – LFO rate of the sweep (0.01 Hz–8 Hz, or tempo-synced).

- **Depth** – Amount of sweep applied.
- **Delay** – Sets the base delay time (1-13 ms). Shorter = brighter notches.
- **Resonance** – Boosts the notches, producing the classic jet-flange effect.

Chorus Controls:

- **Speed** – LFO rate of the sweep (0.01 Hz-8 Hz, or tempo-synced).
- **Depth** – Amount of sweep applied.
- **Waveform** – Shape of the LFO (sine, triangle, saw, ramp). Each yields a different flavor of movement.

Shared Control:

- **Mix** – Balances Flanger and Chorus. This can be controlled by the Effect Modulator.

Tip: Use a slow, shallow chorus on Brass to add width without getting in the way, or crank up flanging on a lead synth for '70s sci-fi vibe.



Envelope Filter

The Envelope Filter is a triggered modulation effect. Every time you play a key, it generates a filter sweep. Unlike a traditional envelope follower that reacts to signal volume, this one gives you consistent, predictable sweeps. Great for auto-wah effects, synth zaps, and funky textures.

Envelope Section:

- **Shape** – Pick an envelope contour (ramp, triangle, square, etc.). Shapes determine how the filter cutoff moves over time. Square acts more like an LFO.
- **PARA/POLY Switch**
 - **PARA (Paraphonic)**- One shared envelope and filter for all notes.
 - **POLY (Polyphonic)**- Each note triggers its own envelope and filter, enabling more detailed, note-specific modulation.

Length – Duration of the envelope sweep. Short = snappy; long = slow evolving.

- **Envelope Amount** – Sets how far the filter cutoff moves in response to the envelope.

Filter Section:

- **Cutoff** – Base frequency of the filter. The envelope adds/subtracts from this point.
- **2-Pole / 4-Pole** – Choose slope steepness: 2-pole = smoother; 4-pole = sharper. This can be controlled by the Effect Modulator.
- **Resonance** – Boosts frequencies at the cutoff, making sweeps more dramatic.
- **Drive** – Adds gain before the filter for extra grit and presence.

Other Controls:

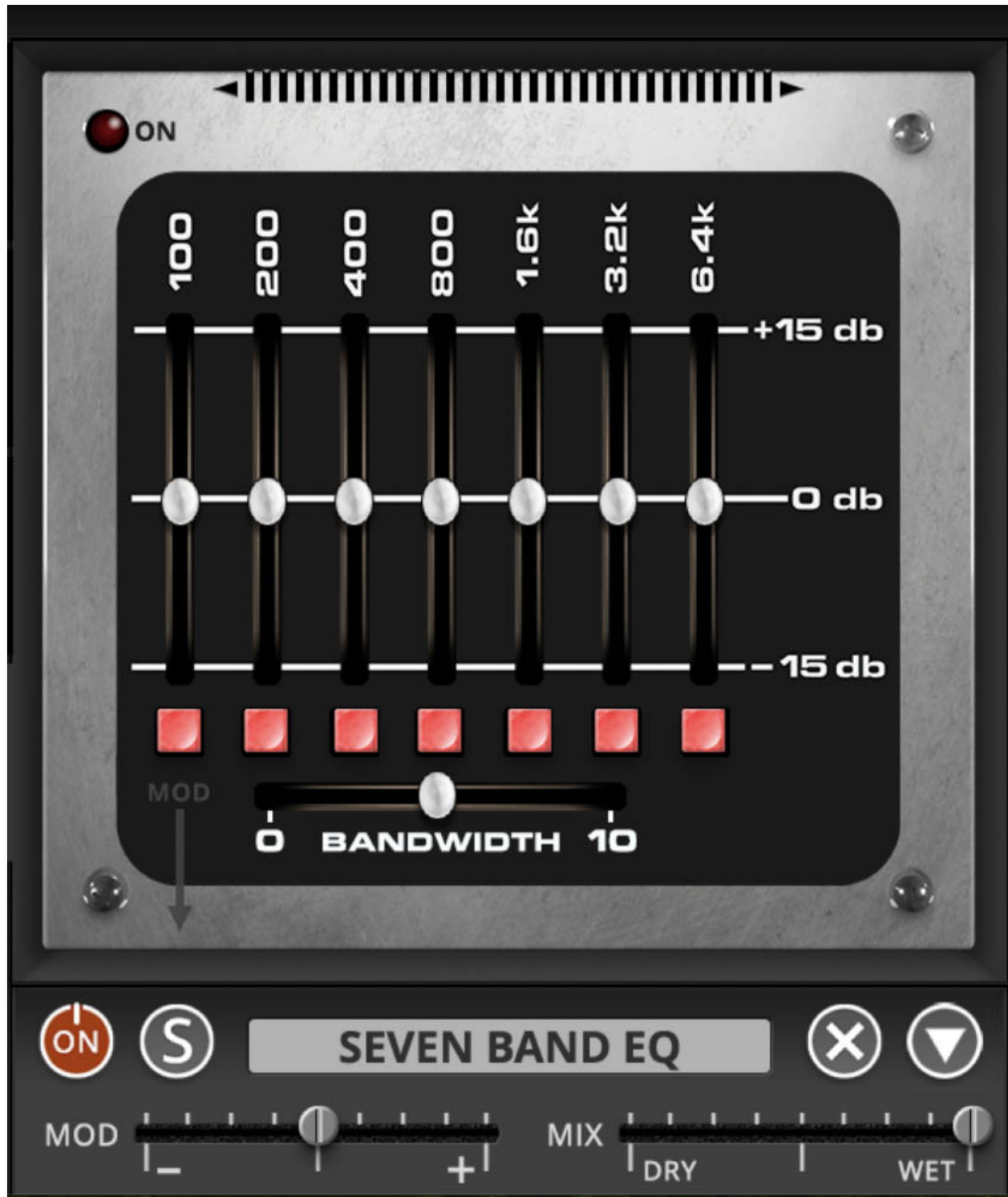
- **Gain (Trimmer)** – Balances the output level.
- **MOD Slider** – Adjusts how much modulation is applied.
- **MIX Slider** – Balances dry vs. processed.

Tip: Set a long ramp-up shape with high resonance on Strings for dramatic sweeps that evolve with each note, or go short and snappy for funky auto-wah leads.

Tip 2: Filters on Filters

You don't have to trigger the Envelope Filter with an envelope at all. Just leave the sensitivity low and it becomes a fixed filter instead. This essentially gives you an extra paraphonic filter that you can apply to the sound. Stack it with the synth's built-in filters, and the multiple filters line up in series to carve out shifting bands of tone. This technique is an excellent way to shape

formant-like textures, focus a patch more narrowly, or travel to new sonic realms the synth never imagined.



Seven Band EQ

Equalization is one of the most fundamental tools in shaping sound, and the **Seven Band EQ** makes it straightforward and musical. Modeled after classic graphic equalizers, this effect lets you boost or cut seven key frequency

ranges to sculpt tone, tame problem areas, or bring out character in any sound.

Controls:

- **Frequency Bands (100, 200, 400, 800, 1.6k, 3.2k, 6.4k Hz)** – Each vertical slider boosts or cuts its band by up to ± 15 dB. Push up to emphasize, pull down to reduce.
 - **100 Hz** – Sub-bass and low-end weight. This can be controlled by the Effect Modulator.
 - **200 Hz** – Warmth or muddiness.
 - **400 Hz** – Body and thickness (or boxiness if overdone).
 - **800 Hz** – Midrange punch.
 - **1.6 kHz** – Presence and edge.
 - **3.2 kHz** – Clarity and attack.
 - **6.4 kHz** – Brightness and air.
- **Bandwidth** – Adjusts how wide or narrow each band's effect is. Lower values = broader, smoother curves. Higher values = tighter, more surgical adjustments.

As with all other effects, the **Seven Band EQ** can be modulated, opening the door to rhythmic tone-shaping or evolving filter-like sweeps across multiple bands.

Tip: Use gentle boosts or cuts across a few bands for natural tone shaping. For example, trimming a little **200 Hz** mud while boosting **3.2 kHz** clarity on Brass. Or crank up **100 Hz** and **6.4 kHz** together to give synth basses thump and sparkle.



Ring Modulator

Ring modulation is the sound of science fiction ray guns, metallic clangs, and otherworldly textures. By multiplying your signal with an internal oscillator, it creates sum and difference frequencies that often sound inharmonic, robotic, or downright alien. The **Ring Modulator** gives you full control over how wild (or subtle) things get.

Controls:

- **Gain** – Adjusts the input level sent into the modulator. Higher gain means a stronger, more pronounced effect. This can be controlled by the Effect Modulator.
- **Range (High/Low)** – Switches the oscillator’s frequency range. Low is better for tremolo-like modulation; High ventures into bell tones and metallic territory.
- **Freq** – Sets the frequency of the carrier oscillator. Lower settings = slow, throbbing tremolo. Higher = clangorous sidebands.
- **Wave** – Selects the oscillator’s waveform: sine for smooth, or square for harsher, edgier modulation.
- **Rate** – Controls oscillator speed when in Low range (essentially tremolo rate). Syncs to tempo when **Sync** is enabled.
- **Amount** – Sets the depth of modulation, from subtle shimmer to total signal disintegration.
- **Drive** – Adds gain and harmonic grit after the modulation stage, thickening or dirtying up the output.

Tip: For classic sci-fi flying saucer tones, set **Range** to High, pick a sine wave, and crank **Freq** into the audio range. For more musical use, try Low range with Rate synced to tempo and it becomes a tempo-locked tremolo that adds groove without going completely alien.



Rotary Speaker

Few effects can transform a sound as completely as a rotary speaker. At slow speeds, it adds a rich swirl that can make pads, strings, and sustained chords feel wider, warmer, and more alive. Push it faster and the effect becomes more urgent, with pulsing lows, spinning highs, gritty cabinet color, and a Doppler shimmer that can edge into psychedelic territory. It can sound silky and spacious or rough and gritty.

That character comes from the interaction of two moving speaker elements inside the cabinet: a high-frequency horn and a low-frequency drum rotating at different speeds. As they sweep past the microphones, they continuously alter pitch, volume, tone, and stereo position. The Rotary Speaker effect models both rotor assemblies, along with their acceleration, cabinet character, microphone placement, and the small mechanical quirks that give a real rotary cabinet its unmistakable motion and depth.

Cabinet Type Controls:

Selects the rotary speaker cabinet model. Each cabinet has its own amplifier character, frequency response, and overall tonal balance.

- **122** – Models the warm, rounded character of a classic 122 rotary cabinet. This is the traditional choice for rich lows, smooth highs, and the familiar vintage rotary sound.
- **147** – Models a vintage 147 cabinet. Its basic character is similar to the 122, but its unbalanced input circuitry gives it a slightly different tonal response. It's a good choice when you want classic rotary movement with a subtly different edge and presence.
- **Custom** – Models a modified rotary cabinet fitted with higher-output drivers and amplification. It retains the broad character of the 122 and 147 models but sounds somewhat smoother, with more extended low- and high-frequency response.

Tip: Start with the 122 for warm pads, strings, and traditional organ-like textures. Try the 147 when a sound needs a little more midrange personality. Custom is especially useful for full-range synth patches that need deeper lows and clearer highs without losing the character of a rotary cabinet.

- **Diffuser** – Enables or disables the simulated diffuser fitted to the mouth of the rotating treble horn. With Diffuser enabled, the horn sounds smoother and less directional. Turning it off creates a brighter, more focused tone with a stronger sense of the horn sweeping past the microphones.
- Removing the diffuser became a popular real-world modification among players who wanted more upper-frequency bite and a more pronounced rotary effect.
- **Memphis** – Stops the bass rotor and holds it facing forward while leaving the treble horn free to rotate. This reduces low-frequency pulsing and Doppler movement while preserving the faster swirl of the horn.
- The result is a firmer, more stable bottom end, with most of the rotary movement concentrated in the mids and highs. It's especially useful on bass-heavy synth patches, where a fully rotating bass rotor can make the low end feel overly animated or unfocused.
- **Front Stop** – Forces the horn and bass rotor to settle in a forward-facing position whenever the rotary speed selector is moved to Stop. On a traditional cabinet, the rotors coast to a halt wherever inertia leaves them, so the stopped sound may vary slightly each time. Front Stop

makes the result consistent by placing both rotor openings in a predictable position.

Front Stop affects only the final resting position. It doesn't change the sound while the rotors are running in Chorale or Tremolo mode.

Horn Rotor Controls:

The Horn Rotor controls govern the rotating high-frequency horn.

- **Slow** – Sets the horn rotation speed in Chorale mode. Lower settings produce a gentle, gradual shimmer. Higher settings create more noticeable movement, even at the slow speed.
- **Fast** – Sets the horn rotation speed in Tremolo mode. Increasing it produces faster pitch movement and a more pronounced fluttering or swirling effect.
- **Accel** – Sets how long the horn takes to accelerate from Stop or Chorale speed to Tremolo speed. Lower settings reach the new speed quickly, while higher settings produce a slower, more dramatic ramp.
- **Decel** – Sets how long the horn takes to slow from Tremolo to Chorale or Stop. The horn assembly is relatively light, so it normally responds more quickly than the bass rotor. Separate acceleration and deceleration settings let you exaggerate or soften this mechanical behavior.

Bass Rotor Controls:

The Bass Rotor controls govern the rotating drum or baffle surrounding the cabinet's low-frequency speaker.

- **Slow** – Sets the bass rotor speed in Chorale mode.
- **Fast** – Sets the bass rotor speed in Tremolo mode.
- **Accel** – Sets how long the bass rotor takes to reach its faster speed.
- **Decel** – Sets how long the bass rotor takes to slow down.

Because the bass rotor represents a much heavier mechanical assembly, it normally accelerates and decelerates more slowly than the horn. Using different transition times for the two sections is an important part of the classic rotary-speaker sound. As the horn reaches speed first and the bass drum lingers in behind it, the effect passes through shifting combinations of motion, pitch, and phase.

Microphones

The microphone controls determine how the virtual cabinet is captured. These settings can change the character of the effect almost as much as the rotor speeds themselves.

- **Spread** – Sets the stereo separation of the horn microphones. Low settings produce a narrow or nearly mono image. Higher settings move the microphones farther apart around the horn, creating a wider and more dramatic stereo sweep.
- Spread is the Rotary Speaker effect's hard-wired Effect Modulator destination. Positive modulation widens the image around the current setting, while negative modulation narrows it. Used subtly, this creates a gentle breathing motion in the stereo field. At higher amounts, the sound can swell from a focused center image into a broad, sweeping panorama.
- **Distance** – Sets how far the microphones are placed from the cabinet. Close settings produce stronger pulsing, sharper movement, and a more intense sense of the rotors passing the microphones. Greater distances smooth the motion and allow the cabinet tone to blend more naturally.
- **Bal** – Balances the microphone levels of the bass rotor and treble horn. Turn it toward the bass side for more low-frequency weight and throb, or toward the horn side for a brighter, more animated swirl.

Type

Selects dynamic or condenser microphones independently for the horn and bass rotor. Because the two rotor sections occupy very different frequency ranges, changing either microphone can significantly alter the cabinet's tonal balance.

- **Horn: Dynamic, Bass: Dynamic** – Uses dynamic microphones on both rotors. This produces a punchy, direct sound with strong highs and firm lows, similar to a common live-miking setup.
- **Horn: Condenser, Bass: Dynamic** – Uses a condenser microphone on the horn and a dynamic microphone on the bass rotor. The horn sounds smoother and less biting while retaining extended high-frequency detail, and the low end remains tight and punchy.
- **Horn: Dynamic, Bass: Condenser** – Uses a dynamic microphone on the horn and a condenser microphone on the bass rotor. This preserves the horn's direct, energetic character while extending the depth and fullness of the low frequencies.

- **Horn: Condenser, Bass: Condenser** – Uses condenser microphones on both rotors. This provides the broadest frequency response, with deeper lows and smoother, more extended highs. It generally produces the most polished and studio-like sound of the four combinations.

Tip: Dynamic microphones emphasize the physical pulse and bite of the effect, while condensers capture a broader, smoother frequency range. For gritty leads, start with Dynamic/Dynamic. For expansive pads and polished stereo textures, try Condenser/Condenser.

Placement

Selects whether the microphones are positioned near the closed front or open rear of the rotary cabinet.

Front – Places the microphones near the cabinet’s closed front panel. This produces a mellower, woodier sound with softer highs and a stronger sense of the cabinet enclosure.

Back – Places the microphones near the open rear of the cabinet. This produces a brighter, more open sound with greater clarity and a more immediate sense of rotor movement.

Tip: Front placement works well when the rotary effect feels too bright or aggressive. Back placement helps darker patches cut through and makes fast Tremolo movement more clearly audible.

Rotary Speed Selector

- **Chorale** – Runs the horn and bass rotor at their respective Slow settings. Chorale is useful for gentle animation, wide pads, strings, and sustained sounds that need movement without an obvious pulsing effect.
- **Stop** – Allows both rotors to slow to a complete stop. The sound still passes through the selected cabinet and microphone model, but without rotational movement.
- **Tremolo** – Runs both rotors at their respective Fast settings. Despite the name, this produces far more than ordinary tremolo. The combination of changing volume, frequency response, stereo position, and Doppler pitch shift creates the characteristic fast rotary swirl.

Moving between Chorale, Stop, and Tremolo doesn’t change the rotor speeds instantly. Each rotor transitions according to its own Accel and Decel settings, recreating the mismatched mechanical ramping of a physical cabinet.

Tip: For a spacious vintage pad, select Chorale, keep the rotor speeds near their center settings, use moderate Spread, and move the microphones slightly away from the cabinet.



Lushverb

If you want your sounds to swim in ambience, **Lushverb** is your go-to. As the name suggests, it's built for wide, dreamy reverberation that can be subtle

and supportive or massive and enveloping. With tone-shaping filters and built-in modulation, it excels at everything from natural roominess to lavish, evolving textures.

Where **Galactic Reverb** reaches for infinite, cosmic expanses, **Lushverb** focuses on silky smoothness and animated depth. It's the kind of reverb that enhances synths, vocals, and pads by wrapping them in a glowing halo.

Cabinet Controls:

- **Predelay** – Time before the reverb kicks in. Short gives an immediate wash. Longer gives a clearer separation between dry sound and reverb bloom. This can be controlled by the Effect Modulator.
- **Early Reflections** – Shapes the very first echoes you hear when a sound bounces off walls. Low settings keep things tight and intimate, like you're in a smaller space. Higher values push those reflections further forward, adding presence, punch, and a sense of real room before the tail blooms. Great for adding dimension without always using longer decay times.
- **Decay** – Sets the length of the reverb tail, from short ambience to cavernous sustain. Can be modulated. This can be controlled by the Effect Modulator.
- **Highpass / Lowpass** – Trim low-end rumble or high-end fizz in the reverb signal to keep mixes clean.
- **Damp** – Determines how much brightness is lost over time. Higher values give tails that darken as they fade.
- **Mod Rate / Mod Depth** – Add movement to the reverb tail by modulating its delay lines. Subtle settings = gentle shimmer; extreme settings create chorus-like animation.
- **Sync** – Locks modulation to host tempo for rhythmic effects.
- **Mod Switch (Predelay/Decay)** – Chooses whether modulation applies to the Predelay or Decay parameter.

Tip:

For ambient pads, set a long **Decay**, roll off some lows with the **Highpass**, and add a touch of **Mod Depth** for evolving atmospherics. For tighter mixes, use shorter **Predelay** and keep **Decay** moderate, adding just enough **Damp** to sit naturally under the dry sound.



Lo-Fi

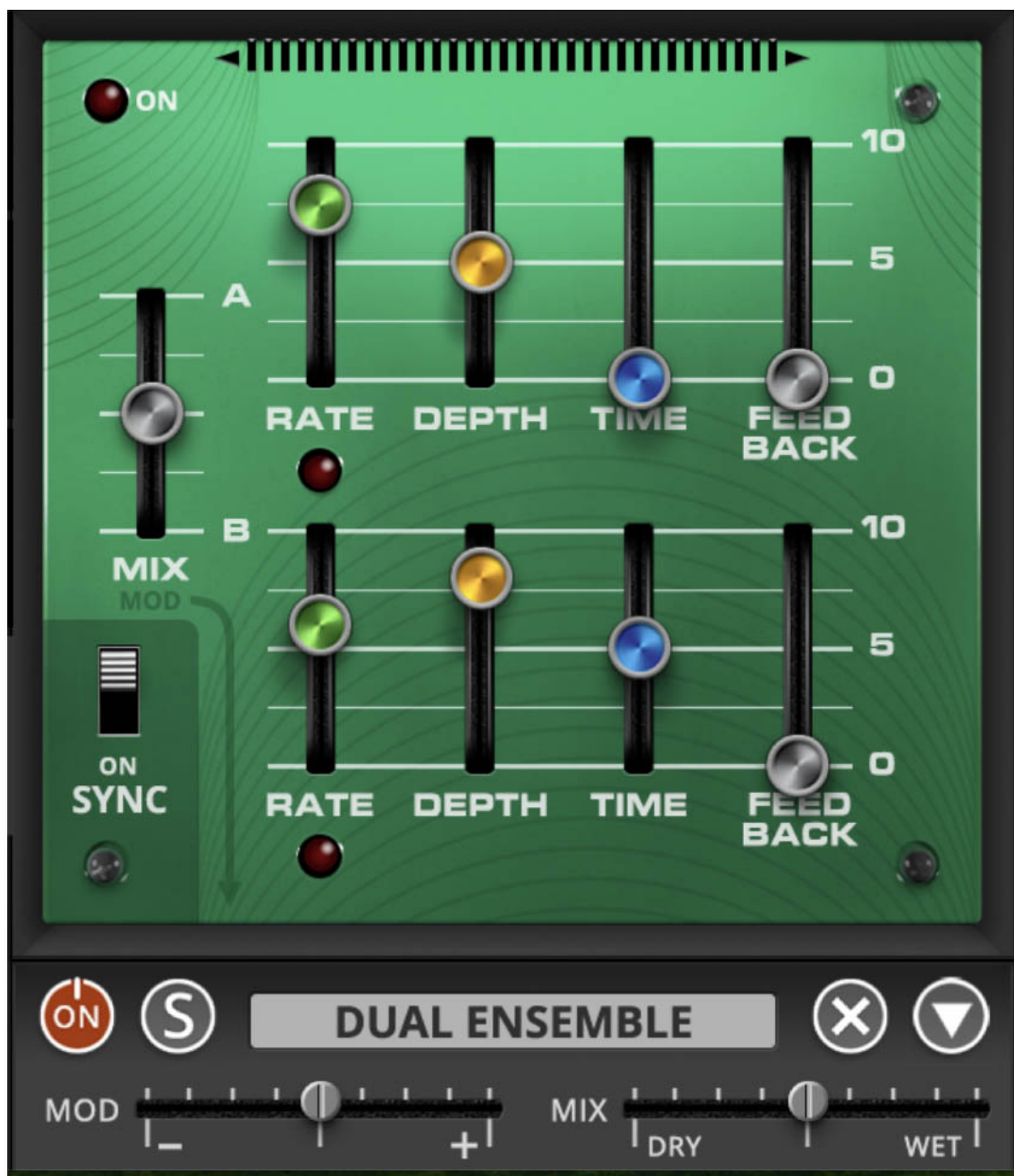
Sometimes perfection is the enemy of vibe. **Lo-Fi** is designed to rough up your sound with the kinds of imperfections that make old recordings feel warm and gritty. From dusty vinyl crackle to wobbly tape warble, this effect can take pristine synth tones and throw them straight into the basement of a 1970s record store.

Controls:

- **Vinyl** – Adds record-like crackle and pops. Higher settings = more frequent, louder artifacts.
- **Wow** – Simulates the slow pitch drift of a warped record or stretched tape.
- **Flutter** – Adds faster, jittery pitch variations, like a worn cassette transport.
- **Hiss** – Introduces broadband noise, reminiscent of tape or cheap electronics.
- **Hum** – Injects mains hum into the signal, with a switch for **50 Hz / 60 Hz** to match regional power noise flavors. This can be controlled by the Effect Modulator.
- **Random (center knob)** – Introduces unpredictable fluctuations across the effect parameters, enhancing the chaotic, analog feel.
- **Noise Gate** – To help keep the grit under control, Lo-Fi includes a **Gate**. Think of it as an automatic volume control. It lets your instrument through when you're playing, and slams the door shut when things go quiet, keeping hiss, hum, and crackle from hanging around between notes.
 - **Enable Button:** Switches the gate on and off.
 - **ATT (Attack):** How quickly the gate opens when you play a note. A fast attack gives you sharp, immediate entrances; a slower attack eases the noise in more gently.
 - **REL (Release):** How quickly the gate closes after the sound drops below the threshold. A short release cuts noise instantly. A longer release lets things fade more naturally.

Gate Tip: When using long-decay sounds (especially with reverb or delay), you might hear “chatter,” a sputtering, open-close-open stutter as the gate struggles to decide whether the tail is loud enough to keep. If that happens, try increasing the **Release** for smoother fades, or dial back your effect tails slightly. A touch of balance here makes the difference between vintage character and sounding like a broken speaker.

Lo-Fi Tip: For subtle retro flavor, add a touch of **Wow** and **Hiss** to synth pads. For full-on grit, crank **Vinyl** and **Hum** and let the **Random** knob do its thing. It's great for lo-fi hip-hop or downtempo textures that need a worn, nostalgic character.



Dual Ensemble

The lush, swirling sound of ensemble effects is a hallmark of vintage string machines and poly synths. The **Dual Ensemble** effect gives you two fully independent ensemble units for everything from subtle shimmer to deep, swirling motion.

Controls (for each Ensemble A & B):

- **Rate** – Sets the speed of the modulation (how fast the pitch/phase shifts). Slow adds gentle drift; fast adds warbly motion.
- **Depth** – Controls how far the pitch is detuned by the modulation. Low adds subtle thickening; high adds seasick wobble.
- **Time** – Adjusts the base delay time of the effect. Longer times = looser, more chorus-like feel; shorter times = tighter, phase-like coloration.
- **Feedback** – Feeds the delayed signal back into itself for resonance and more pronounced movement.

Shared Control:

- **Mix** – Balances between Ensemble A and Ensemble B. Use it to layer two different modulation speeds and depths for a rich, evolving chorus. This can be controlled by the Effect Modulator.

Tip: For classic string-machine shimmer, set both ensembles with slow **Rates** and low **Depths**, then balance them with the **Mix** slider. For a more psychedelic wash, give one ensemble a slow, deep drift and the other a faster, shallower variation. The interaction creates a lush, animated stereo field.

Note: If you're torn between **Dual Ensemble** and **Chorus/Flanger**, think of it this way: Ensemble excels at smooth, swirling textures with a vintage string-machine flavor, while Chorus/Flanger covers more dramatic sweeps, jet whooshes, and thicker doubling effects.



Dual Delay

Why settle for one echo when you can have two? The **Dual Delay** lets you run two independent delay lines side by side for everything from tight rhythmic interplay to wide, spacious echoes. Each delay has its own controls, and you can sync them to tempo, run them free, or send them bouncing across the stereo field in ping-pong mode.

Controls (per Delay Line 1 & 2):

- **Time** – Sets the delay length. With **Sync** engaged, times lock to tempo divisions; in **Free Run** they're adjustable in milliseconds.
- **Feedback** – Determines how many repeats occur. Low = quick slapback; high = long echoes or self-oscillation.
- **Damp** – Applies high-frequency damping to the repeats, making them darker and more natural as they fade.

Shared Controls:

- **Mix (1/2)** – Balances between Delay 1 and Delay 2. This can be controlled by the Effect Modulator.
- **Sync/Free Run Switch** – Toggles between tempo-synced and free-running time modes.
- **Spread** – Adjusts stereo spacing of the delays. Low = centered echoes; high = wide, panned echoes.
- **Ping-Pong** – Sends repeats alternating left and right for a classic stereo bounce.

Tip: For rhythmic complexity, set Delay 1 to dotted eighths and Delay 2 to quarters, then spread them wide for instant “U2-style” echo textures. For ambient sound design, keep both delays long, add plenty of **Damp**, and engage **Ping-Pong** for endless stereo wash.

Note: If you're wondering whether to reach for **Dual Delay** or **Digital Delay**, here's the difference: Digital Delay is quick and straightforward, with classic single-line flavors (digital, ping-pong). Dual Delay offers more flexibility, stereo interplay, and rhythmic layering. This is great when you want echoes to become part of the composition.



Compressor

Compression is a powerful tool for shaping the dynamics of your synths. It can make basses hit harder, leads sit firmly in a mix, and pads feel more even and controlled. The Compressor keeps things simple, with just the essential controls you need to add punch, presence, or smoothness to your patches. It operates with a fixed threshold of -12 dB and built-in auto makeup gain, ensuring consistent levels without extra balancing work, making it very plug-and-play. Dial in Attack and Release to taste, push the

Input until you like what you hear, and you're good. There's no need to trouble with gain staging or threshold hunting.

Controls:

- **Ratio (slider at top)** – Sets how much the signal is reduced once it passes the threshold. Lower ratios (4:1) create gentle smoothing. Higher ratios (12:1, 20:1) give firm control.
- **Input** – Adjusts how much signal is pushed into the compressor. More input equals more compression.
- **Output** – Balances the overall level after compression so the processed signal matches or exceeds the bypassed sound.
- **Attack** – Controls how quickly the compressor reacts, measured in milliseconds (ms). Fast is tight and snappy; slow allows more of the transient bite through.
- **Release** – Sets how quickly the compressor recovers, measured in milliseconds (ms). Fast = punchier feel; slow = smoother, sustained leveling.
- **VU Meter** – Shows how much gain reduction is being applied, so you can see the effect as well as hear it.
- **Auto Makeup Gain** – One common side effect of compression is that the overall signal level can drop as peaks are reduced. Normally you'd compensate for this with an Output (or Makeup Gain) control, nudging the level back up by ear. The Compressor effect saves you that step by including built-in auto makeup gain that you can switch on or off. With it on, as you increase compression, it automatically boosts the signal so your processed sound stays roughly as loud as the uncompressed version. The benefit is that you can focus on shaping punch and dynamics without constantly juggling output levels, making the Compressor faster and more intuitive to use.

Compressor Specs:

- Input: -20dB to +20dB
- Output: -20dB to +20dB
- Attack: .1ms to 200ms
- Release: 5ms to 3000ms
- Detector HP: 100Hz

- Threshold: -12dB
- Soft Knee (-3dB below threshold)

Tip: For synth bass, use a medium **Attack** and fast **Release** to keep the low end solid without losing punch. On pads, slower **Attack** and **Release** settings even out the dynamics, giving you a warm, flowing texture that sits perfectly under leads and arpeggios.

Note: the Compressor is the one effects unit that does not utilize the Effect Modulator, and has no mapping applied to it.



BBD Flanger

Flanging is all about mixing a signal with a very short, modulated delay, creating swooshing comb-filter effects. The **BBD Flanger** nails the character of vintage bucket-brigade analog units, known for their warm, slightly gritty sound compared to pristine digital models. This makes it ideal for thickening synths, adding movement to pads, or creating the classic jet plane sweep.

Controls:

- **Speed** – Sets the LFO rate that modulates the delay time. Slow is good for gradual sweeps; fast is good for rapid, shimmering motion. This can be controlled by the Effect Modulator.
- **Intensity** – Adjusts how much the LFO affects the delay time. Subtle settings are good for gentle movement; higher is good for deeper sweeps.
- **Manual** – Manually offsets the flanger’s delay time. Use it to set the starting point of the sweep or to park the flanger for static comb-filter tones.
- **Feedback** – Feeds part of the output back into the input. Low gives a smooth, subtle flange. High gives a resonant, metallic sweep with a signature jet-like sound.
- **Sync** – Locks the modulation rate to host tempo for time-synced sweeps.

Tip: For classic “jet whoosh” effects, set **Feedback** high, **Speed** slow, and **Intensity** deep. For subtler chorus-like thickening, keep **Intensity** low, **Manual** slightly offset, and a bit of **Feedback**.

Note: If you’re deciding between **BBD Flanger** and **Flanger/Chorus**, here’s the distinction: BBD Flanger delivers darker, warmer, more organic sweeps. This is perfect for vintage-style movement. Flanger/Chorus offers cleaner, brighter modulation and the flexibility to switch into chorus mode.



DCO Chorus

Inspired by the legendary stereo chorus of the Juno-60, the DCO Chorus adds rich, swirling movement to analog pads and is great for beefing up textures with that classic 80s spread. The Juno-60's original chorus gave its single-oscillator engine a depth and width that made it a hallmark of synthpop and electronic music.

Controls:

I – The first mode gives a rich chorus effect, adding width and shimmer. It's ideal for thickening pads, strings, and other sounds. This can be controlled by the Effect Modulator.

II – The second mode intensifies the chorus effect by increasing the modulation speed by 70%. It's great for lush textures, or anything where you want the synth to bloom.

I + II – Both modes engaged simultaneously. This third variation was a feature of the Juno-60 (pressing both buttons) and became a go-to trick for an unmistakably intense chorus. The modulation speed is faster, the depth shallower, and it uses a sine wave instead of a triangle wave.

Noise Level (knob) – Adds a subtle analog-style noise floor to the effect chain, helping the chorus feel less digital and more lived-in.

Tip: For a warm pad with some movement, set mode II, dial Noise Level low, and let the chorus breathe. Want your lead to spread? Use I + II, pull Noise Level up a bit, then stack a subtle delay behind it for full '80s width.



Panner

The Panner effect brings life and movement to your patch in the stereo field. Use it to animate a wandering pad, give your lead a swirling stereo motion, or simply place layers dynamically across the stereo field. By controlling how your sound moves left-to-right, how wide the sway is, and how quickly it sweeps, you can turn a static sound into a living soundscape. To trigger the Panner, press a key on the keyboard. If you continue to hold down a key (or keys), pressing other keys won't retrigger the effect.

Controls:

Rate (Min → Max) – Sets the speed of the movement across the stereo field. Lower settings slow down the pan sweep; higher settings make the motion rapid and rhythmic. This can be controlled by the Effect Modulator.

Width (Min → Max) – Determines how far the sound moves from left to right. At minimum the motion is subtle; at maximum it spans the full stereo spectrum.

Offset (Left ↔ Right) – Lets you set the starting point or bias of the movement. Move towards “Left” to start or favor the left side; move towards “Right” to start/favor the right.

Shape – Selects the modulation waveform used for panning (sine, triangle, saw, square). Different shapes give different character to the movement.

Smoothing (Hard ↔ Soft) – Controls how quickly the panning transitions occur: “Hard” gives abrupt jumps or sharp movement, “Soft” smoothens the glide between positions.

Mode Switch (Manual / ON / Trig Once / Trig ON) –

- **Manual:** Panning follows the Offset knob only – no automatic sweep.
- **ON:** Continuous automated panning according to Rate, Width, Shape, and Offset.
- **Trig Once:** On receiving a trigger event (i.e. pressing a key on the keyboard), the panning sweep runs once and then stops. In this mode, the Attack knob is active.
- **Trig ON:** On receiving trigger events, panning restarts automatically each time a key is pressed (if no other keys are currently held down). In this mode, the Attack knob is active.

Attack (Min → Max) – Active when Mode is set to Trig Once or Trig On. Sets how quickly the panning sweep begins after the trigger. Short values give an immediate sweep. Longer values ease in gradually.

SYNC (Off / On) – When ON, the Rate control syncs to the synth's own tempo setting (in standalone mode) or if used in a DAW, to the project tempo. When OFF, Rate is freely set in Hz.

Tip: For a slowly drifting stereo pad, set Width relatively high, Rate low (around 1 – 2), Shape to triangle, Mode to ON, and Smoothing to Soft. If you want a lead that jumps left-right on each note trigger, switch to Mode to Trig

Once, set Attack short, Width high, Rate moderate, and tie the trigger to your note-on event for dramatic stereo hops.



Pulser

The Pulser effect is a flexible 16-/32-step gate/sequencer built to inject rhythmic motion into sustained sounds or static patches. Think of it as a live, programmable tremolo, stutter or step-gate engine that sits on the end of

your signal chain and chops or paces your synth voice, turning pads, leads or drones into patterns that rhythmically pulsate with life.

Controls:

Attack (0-10) — Determines how hard the gate opens at each step. Lower values give sharp, abrupt cuts. Higher values soften the entrances so the gating effect is smoother and less choppy.

Sustain (0-10) — Sets how long the gate stays open during each active step. At maximum sustain, the silence holds for the length of the step.

Length (Min → Max) — Sets the number of active steps in the sequencer. In Single mode this runs from 2 -16 steps. In x32 mode the total length doubles (up to 32 steps).

Playback (Single / Dual / x32) —

- Single: Runs one sequencer of up to 16 steps.
- Dual: Enables two independent 16-step sequences running simultaneously (so you can layer or offset patterns).
- x32: Runs a single sequence of up to 32 steps (essentially the 16-step engine doubled).

Speed (Min → Max) — Controls the rate at which the sequence advances. Higher values make faster step changes; lower values slow things down for broad rhythmic movement. This can be controlled by the Effect Modulator.

Direction switch (► / ◄) — Determines playback direction: forward (►) or reverse (◄). Reverse mode can yield unexpected textures, especially when gating sustained patches.

Sync (Off / On) — When ON, the Speed parameter locks to your host tempo or internal clock; when OFF, Speed is free-running.

16 Step Buttons — Each button corresponds to one step in the sequence. Clicking a button toggles the gate on that step (active) or off (muted). A lit button means the signal passes; unlit means the gate is closed for that step.

Tip:

For a dramatic stutter effect, set Length to approximately 8, Speed moderate (so each step aligns with a 16th-note), Attack low for crisp gate opens, Sustain around mid for choppy rhythm. Use the forward direction. On the other hand, for evolving drone motion, try Length = 16, Speed = slow, Attack = high, Sustain = long, Direction = reverse, and use Sync = Off so the pattern drifts free of the tempo grid.

Power Tip: Rhythmic Crossfire

For bonus chaos, switch one Pulser to Dual mode and the other to x32, and let the overlapping cycles drift naturally out of sync.



Wide Phaser

The Wide Phaser is a four-stage Phaser effect. It delivers the deep, liquid sweep that made phasing one of the defining effects of the 1970s, then spreads the movement across the stereo field. Instead of the entire sound rising and falling through the same phase cycle, the left and right channels sweep at offset positions. The result is broad, fluid motion that seems to roll around the sound rather than simply pass through it.

At restrained settings, it adds a silky shimmer and gentle animation to pads, strings, and sustained chords. Increase the Depth and the sound becomes more hollow, vocal, and dramatically psychedelic.

- **Sync** – Locks the phaser's modulation rate to the current tempo. In the standalone version, it follows the synth's internal tempo. When used as a

plug-in, it follows the host DAW's project tempo. Turn Sync off for a freely adjustable sweep.

- **Rate** – Sets the speed of the phaser sweep. Low settings create slow, spacious movement that flows across sustained sounds. Higher settings produce faster, more animated motion. When Sync is enabled, the knob selects rhythmic note divisions rather than a freely running speed.
- **Depth** – Sets how far the phaser sweeps through its range. Low settings add subtle width and tonal movement. Higher settings produce deeper notches, stronger coloration, and the full swirling character of the effect. Depth is the Wide Phaser's hard-wired Effect Modulator destination. Subtle modulation can make the phaser gently breathe. More extreme settings create a deep, dramatic sweep.

Tip: For a wide vintage pad, set Rate slow, keep Depth around the middle of its range, and blend in enough wet signal to hear the stereo motion without washing out the original tone. For more psychedelic textures, increase Depth, slow the Rate, and use the Effect Modulator to make the sweep gradually expand and recede.

Rhythmic Tip: Enable Sync and try quarter-note or half-note sweeps on sustained chords. The stereo phase movement will rise and fall with the track instead of drifting freely, which can add a strong pulse without using another arpeggiator, gate, or tremolo. Note that changing the Rate while in Sync is on will result in a low-level thump as the phaser resets to match the new rate.

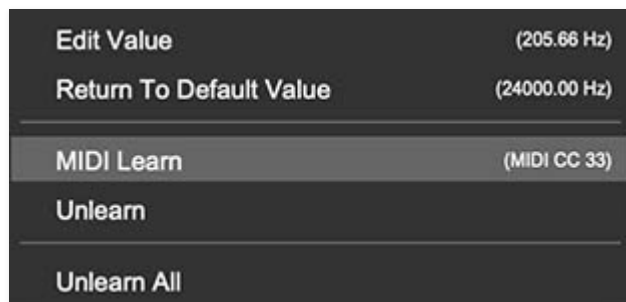
MIDI Controllers Setup and The MIDI Tab

Assigning internal and external hardware controls adds a whole new dimension of control and musicality to patches, and it's really easy to do. The MIDI Tab is where all controller assignments can be viewed and tweaked. First we'll show how to assign an external hardware controller to an on-screen control, then we'll go over all parameters in the MIDI Tab.

Basic External Hardware Control Assignment

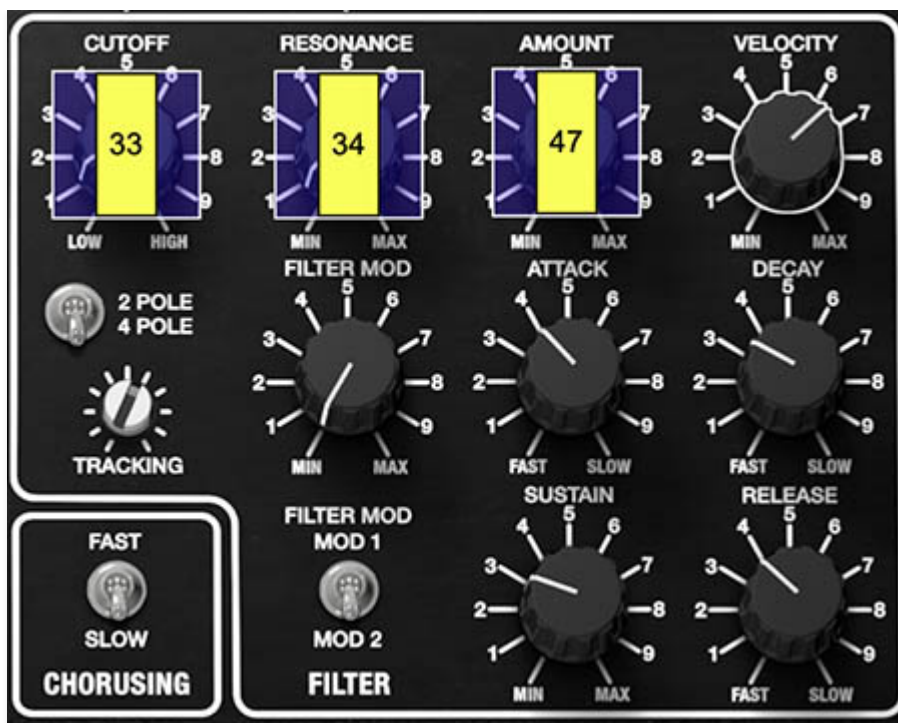
This is the quick, "I just want to assign a hardware control right now!," section. We recommend reading this entire section to best take advantage of Pentaphonic's MIDI control assignments.

In this example, we'll assign a hardware slider control to the Filter *Cutoff* knob.



Begin by right-clicking on the *Cutoff* knob in the Voltage Controlled Filter section and selecting *MIDI Learn*. A transparent purple overlay appears over the knob indicating that it's in learn mode. Now move the desired hardware control device. The purple overlay disappears and the hardware control will move the onscreen knob. If you change your mind (or accidentally select the wrong control), learn mode can be cancelled by right-clicking and selecting *Stop Learning*.

This is the basic procedure for assigning hardware controllers to almost any Pentaphonic control.



When in MIDI learn mode, any previously assigned controller numbers will show in squares. These indicate the MIDI continuous controller number of the assigned hardware control (these are also displayed in the *MIDI* library tab at left).

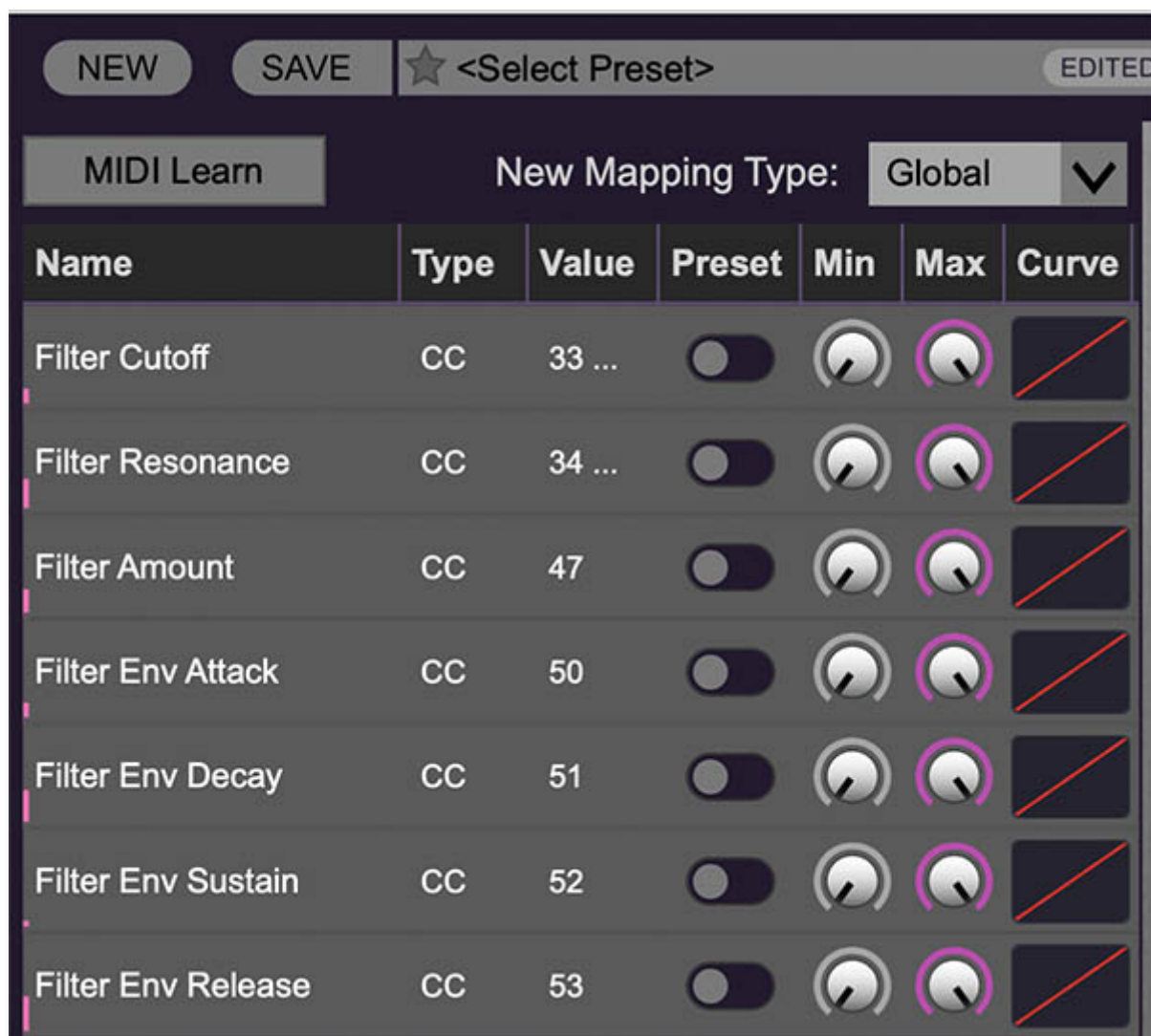
Once a MIDI controller has been assigned, in addition to real-time control of a Pentaphonic parameter, you'll also be able to record and play back controller data from a DAW.

The MIDI Tab

This is command central for all MIDI controller assignments. Here you'll be able to see information about all currently assigned controllers and adjust control ranges.



To view or hide the MIDI Tab, click the *MIDI* button in the top toolbar.



MIDI Learn button- This is almost exactly the same as enabling MIDI learn mode by right-clicking a control. Click the *MIDI Learn* button to enter learn mode (all controls turn purple). Unlike right-clicking on specific knobs, where Pentaphonic automatically exits controller assignment mode, clicking the *MIDI Learn* knob "stays on" to enable assignment of multiple hardware controls. This is handy for quickly assigning a bunch of knobs, sliders, or the buttons of a grid-style controller.

To assign multiple controls, click *MIDI Learn*, click an on-screen control, move the desired hardware knob or slider, continue clicking and assigning on-screen controllers until all desired controls are assigned, then click *Stop Learning* to exit learn mode.

Remember that a single hardware knob/slider/button isn't limited to controlling just one parameter - a single hardware controller can simultaneously operate as many controls as you'd like. Combined with the MIDI Tab's controller range and inversion controls explained below, this can be a very powerful and customizable way to control parameters.

MIDI Tab Columns

Name- Displays the name of the parameter being controlled.

Type- There are five possible types of controller automation in Pentaphonic:

- **Note-** Notes played on a MIDI keyboard controller, expressed as C-1 to G9
- **CC (MIDI Continuous Controller)-** The standard 128 MIDI controller numbers as defined in the MIDI spec. More specifically, these are the controllers transmitted by hardware knob and slider controls. MIDI CC's can be used to control parameters in real-time or recorded and played back within DAW software.
- **MMC (MIDI Machine Control)-** The MIDI control protocol for tape machine-style transport controls. Back in the dark ages, this was used to control wonky old Tascam and Fostex reel-to-reel monsters, but it's useful if your MIDI controller has tape-style transport control buttons.
- **Pressure-** Most modern keyboard controllers transmit controller data when keys are pressed and released as they're held down. The vast majority of keyboard controllers with aftertouch transmit "mono" aftertouch only; in other words, aftertouch data is the sum of all keys to one single data stream. Note that Pentaphonic responds to poly aftertouch.
- **Key-** This allows keys of the computer QWERTY keyboard to act as button controls for Pentaphonic's onscreen controls.

Value- Displays the specific automation controller. In the case of a *Note* this would show a MIDI note number (C-1 to G9, for a MIDI CC, this would be the MIDI CC controller number, etc. Clicking on the value opens a pop-up menu where all values are displayed and can be selected.

Min- Sets a limit on the lowest value any automation control can set a mapped controller to. This actually recalibrates the range of the automation controller to the remaining parameter range.

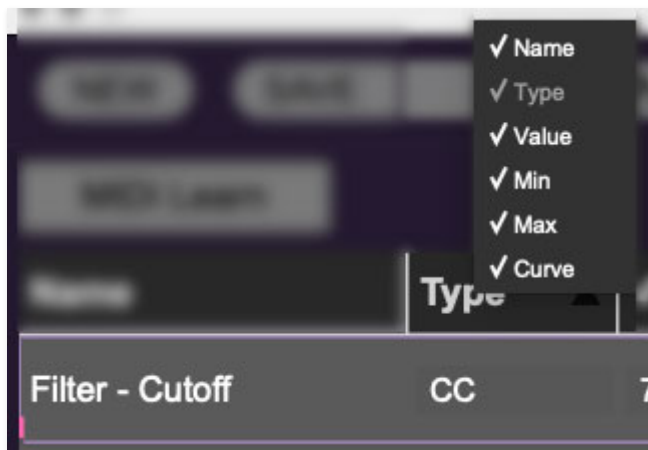
Max- Sets a limit on the highest value any automation control can set a mapped controller to. This actually recalibrates the range of the automation controller to the remaining parameter range.

Curve- These allow the customization of how incoming MIDI CC controls affect the movement of Pentaphonic's onscreen controls, ranging from exponential to linear to logarithmic curves.

Super Cool Min-Max Tricks- Not only can parameter ranges be limited via the *Min* and *Max* knobs, mapped control destinations can be completely inverted by setting the *Min* knob all the way up and the *Max* knob all the way down (or anywhere in between).

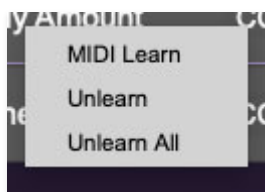
Limiting and inverting parameter ranges with the *Min/Max* controls is particularly useful when multiplexing a single hardware control to operate multiple parameters. Because *Min/Max*, range inversion and *Curve* settings can be separately set for each onscreen control, the customization options are super flexible.

MIDI Tab Column Configuration Right-Click Menu



Right-clicking anywhere in the top row (*Name*, *Type*, *Value*, etc.) displays the column configuration menu. Checking/unchecking these allows hiding and display of each column. This has no effect on assignments.

MIDI Tab Parameters Right-Click



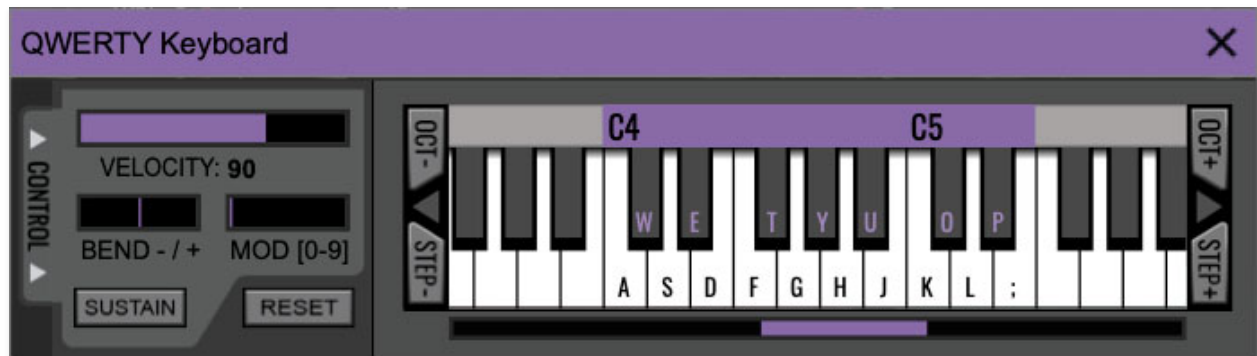
Right-clicking on an assigned parameter opens the menu above.

MIDI Learn- This is used to change the controller assigned to a particular parameter.

Unlearn- Deletes the selected automation parameter.

Unlearn All- Deletes all controller assignments for the patch. Pentaphonic will display a warning dialog prior to deletion in order to thwart potential unlearn-related disasters.

QWERTY Musical Typing Keyboard (MTK)



If you don't have a MIDI keyboard attached to your computer, the standard QWERTY computer keyboard can be used to play notes - we're pretty sure you've got one of those! We'll refer to this as the "MTK." Following is a list of MTK keyboard modifiers and functions:



Opening and Closing the MTK - click the the circular keyboard icon in the top toolbar. To close the MTK, click the keyboard icon in the top toolbar, or click the *X* in the top right corner.

Play Notes- To trigger notes, simply press the corresponding computer keyboard key or mouse click the onscreen keys.

Adjust Currently Visible MTK Range- Slide the purple scroll bar horizontally to adjust the currently visible keyboard range.

Adjust Overall Visible Keyboard Range- Clicking and dragging the right edge of the MTK window allows the overall size of the window to be adjusted. This lets you view more or less of the onscreen keyboard. Note that the MTK window's borders cannot exceed the overall outside dimensions of the UI.

Shift Range Up/Down Octave- Click the *Oct-* and *Oct+* buttons at the top left and right of the onscreen MTK. The current range is displayed above the keyboard.

Shift Range Up/Down Semitone- Click the *Step-* and *Step+* buttons at the bottom left and right of the onscreen MTK. The current range is displayed above the keyboard.

Hide/View Controllers- Clicking *Control* at the far left hides and displays velocity, bender, mod, and sustain control parameters. Hiding the control view makes more space available for the keyboard.

Set Note Velocity- Move the purple *Velocity* bar to adjust the output velocity of notes.

Pitch Bend- To pitch a note or notes, press the + or - computer keyboard keys while playing a note. Bend depth is determined by the *Pitch Bend Mount control* at the left of Pentaphonic's UI. Notes can also be pitchbent by clicking the mouse in the *Bend* area.

Mod Wheel- To add mod wheel modulation, press the number keys from 0-9 (above the character keys) while playing a note. The modulation amount will vary from none (0) to full modulation (9). Note that modulation will "stick" at the selected number; to disable modulation, click the 0 key. Mod can also be engaged by clicking the mouse in the mod bar area.

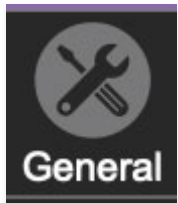
Sustain- The *Sustain* button mimics the functionality of a standard sustain pedal. Click the [TAB] key to engage sustain, or [SHIFT]+[TAB] to lock it. The *Sustain* button can also be engaged by mouse clicking it.

Reset- Initializes all MTK parameters including keyboard range and control parameters.

Settings

Clicking the settings gear opens a window with multiple tabs for configuring various "under-the-hood" settings. These are mostly set-and-forget kind of parameters - all the stuff you'll use most is on the front panel, where it should be!

General



- **Add Undo For Control Changes With The Mouse**- Enabling this allows undo of knob, switch, and button adjustments. You'll want this on if you want the ability to undo all aspects of patch editing and programming.
- **Load Last Preset On Startup (Standalone Only)**- Automatically loads the last preset used when Pentaphonic standalone version is started.
- **Create A Log File For Usage**- This creates a text doc of all of Pentaphonic's internal activities and routines during use. It is mainly intended for our tech staff should you experience any issues. Clicking *Show Log Folder* opens the folder containing Pentaphonic log file docs.
- **Preset Folder**- Displays the current location of Pentaphonic's sound presets. This can be changed by clicking and typing in the field.
 - **Browse...** - Displays the current location of preset folder in the file manager.
 - **Set Default**- Sets the current displayed *Preset Folder* path as the default location
- **Clear Cache Files**- Deletes all log files, temporary sounds, and the image cache.



Interface

Allows customization of Pentaphonic's user interface settings.

- **Reset To Default Window Size-** Resets the Pentaphonic workspace to default size. Use this to reset the window size if the window somehow becomes too large for your display and can't be resized.
- **Tooltip Delay-** Tooltips are those informative bits of text that pop up when hovering over a control (go ahead and try it, we'll wait...). The *Tooltip Delay* setting defines how long you must hover before the tooltip pops up.
- **Knob Movement-** Defines how mouse movements relate to turning onscreen knobs. It defaults to *Vertical Drag*, but can be changed to *Horizontal Drag*, or *Rotary Drag* if you're a Suzuki RE5 motorcycle fan.
- **On Control Double-Click-** Defines what happens when the mouse is double-clicked on a control. If *Edit Value* is selected, an exact number can be entered by typing the number and hitting [ENTER] or [RETURN]. If *Sets Default Value* is selected, double-clicking a control resets it to its default value.
- **Mouse Wheel Adjusts Control Value-** Enabling this lets you adjust knob, slider, and switch values by moving the mouse wheel. This works great with a standard mouse wheel, but you'll want to disable it if you're using an Apple Magic Mouse (which will move the control AND scroll the window).
- **Show Tooltips When Adjusting Controls With Mouse-** Displays parameter tooltips/values when the mouse is hovered over a control or as a control is moved with mouse button down.
- **Show Tooltips When Automating Controls-** Enabling this causes control tooltip flags to show when automation data is being received.
- **MIDI Program Changes Should Change Current Preset-** Allows MIDI program change messages to change Pentaphonic patches.
- **Ask To Save Modified Presets-** This opens a dialog window asking if you'd like to save changes if a patch has been edited and a new patch is selected. If you're the type that likes to click through presets and tweak a control here and there, it can be annoying to have a window pop-up asking if you'd like to save every time you switch presets - if you're that person, keep this off.

- **Remember MIDI Mappings For New Plug-in Instances**- When enabled, Pentaphonic remembers all MIDI Tab controller settings.



Account

Settings for your personal login information and account.

- **Email**- Displays the email address of the current login.
- **Update Login Info**- Clicking this opens the same email and password login screen you'll see when initially launching Pentaphonic and allows changes to be made.

View Account Settings- This opens your personal account page on the Cherry Audio Store website containing information about your Cherry Audio products purchased and more.

Software Update

- We often fix bugs and make improvements; below are options defining how Pentaphonic handles updates. Click **Check For Update** to see if an updated version of Pentaphonic is available.

Status:

- **Automatically Install Updates**- Updates are automatically downloaded and installed.
- **Ask Before Installing Updates**- By default, Pentaphonic automatically downloads new versions of modules when available. Checking this box defeats automatic updates and will ask if you'd like to install updates when they become available.

We'll never make changes that can potentially "break" existing patches but we recommend enabling *Ask Before Installing Updates* if you're using Pentaphonic for live performances or other "mission critical" situations.

- **Never Install Updates**- Pentaphonic never automatically installs updates.
- **Show Updates On Toolbar**- Checking this will display an icon in the toolbar next to the logo letting you know there's an update available.

Show Notifications From Cherry Audio- We occasionally will fire off in-app advertisements; disabling this checkbox will hide them. We hate repetitive, annoying ads as much as you, so we won't use this feature too often. When we do, it'll be for something super cool (like a killer sale), so we recommend leaving it on.



Audio/MIDI

Settings for audio and MIDI hardware input and output. **This tab is only visible in the standalone version of** Pentaphonic.

- **Output**- Use this drop-down menu to choose a physical audio output source. This defaults to *Built-In Line Output*, i.e. your computer's onboard system audio, but you'll get lower latency, additional I/O, and more reliable audio performance with an external professional audio interface.
- **Sample Rate**- This sets Pentaphonic's global sample rate. Lower sample rates offer better performance, but if you have a fast computer, high sample rates may offer slightly improved fidelity.
- **Audio Buffer Size**- As with any digital audio app, this defines performance vs. note latency, and will largely depend upon computer CPU speed. A professional external audio interface will almost always exhibit better performance than "built-in" system audio. Lower settings will result in less latency (in the form of faster response to notes played), but will increase the chances of audio gapping or crackling noise.
- **Active MIDI Inputs**- Displays all available MIDI input sources, i.e. keyboards, pad controls, MIDI knob/fader control surfaces, etc. Check boxes to enable one or more devices. If you're using a fader controller with touch-sensitive sliders (like a Mackie Control, for example) and

Pentaphonic plays notes when you touch the faders, uncheck it here to make that stop.