



Getting Started

The Cherry Audio Memorymode is based upon a legendary 80s synthesizer that was simply one of the very best-sounding analog programmable polysynths of the era... perhaps one of the best ever made! Unfortunately, like other flagship American synths of the era, it fell short in a few important ways, and was ultimately doomed to fail in the marketplace. Facing stiff competition from other programmable polyphonic instruments including the Sequential Circuits Prophet-5 and Oberheim's OB-X series, it was somewhat hastily designed and "pushed out the door" at a time when the manufacturer was in serious peril. On the positive side, it featured a classic Mini-inspired three-oscillator voice architecture, as well as the famous velvety discrete transistor ladder filter, resulting in one of the beefiest-sounding analog synths ever created. Unfortunately, the company was in such a hurry to release a profitable product, it wasn't adequately tested and refined, resulting in frequent tuning and overall reliability issues.

These days, most of the original instrument's serious issues can be addressed and resolved by a competent repair tech, and at the time of writing, restored examples trade for \$15k or more! Fortunately, Cherry Audio's Memorymode replicates the incredible sound and feel of the original instrument at a minute fraction of the cost and throws in additional features, such as increased polyphony (up to 16 voices, as opposed to the original's 6 voices), extended modulation capabilities, an easy-to-use streamlined user interface, and a complement of high-quality effects including a phaser, ensemble, echo, and reverb.

Technical Assistance

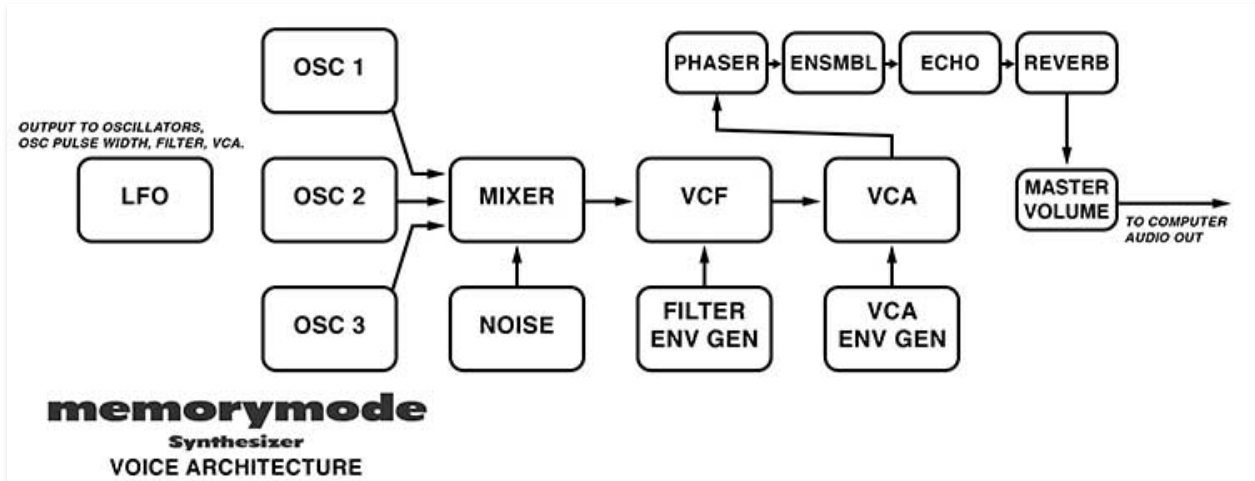
Cherry Audio's unique online store and automatic updating should make operation a smooth experience, but if you run into any issues or have questions, you can discuss issues online at the Cherry Audio forums at:

<https://forums.cherryaudio.com/viewforum.php?f=53>

... or you can communicate directly with one of our groggy 'n' grumpy, er... outgoing and friendly tech support staff at:

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

Memorymode Voice Architecture



Memorymode's overall layout should be familiar to anyone experienced with classic mono and poly synths. The signal path begins in the center of the instrument with three almost-identical voltage-controlled oscillators, each with selectable range and ramp, triangle, and pulse waveforms; the pulse includes a pulse-width control. Oscillator 1 includes a *Sync 2 to 1* button, and oscillators 2 and 3 add *Frequency* fine-tune controls. Oscillator 3 also includes a sub-audio *Low* range button and *Keyboard Control* button for disconnecting the normalised keyboard control voltage; both of these are intended for using Oscillator 3 as a modulation source. The three oscillators are routed to independent level controls in the mixer section. The mixer also includes a noise level control.

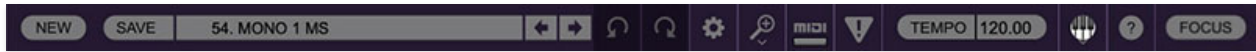
The summed mixer signal travels to the Voltage Controlled Filter (VCF), which affects the sound timbre. From the VCF, the signal travels to the Voltage Controlled Amplifier (VCA) for amplitude shaping via the VCA ADSR envelope generator. The VCF also has its own ADSR envelope generator for dynamic filter tone shaping.

The signal then travels through the onboard Phaser, Ensemble, Echo, and Reverb effects, and to the *Master Volume* knob and output.

Memorymode also includes two independent modulation sections - LFO Modulation and Voice Modulation. These are fully explained in the **Modulation** section, but the basic difference is that LFO modulation is monophonic; that is, a single standalone low-frequency oscillator is equally applied to *all* voices, whereas Voice Modulation individually modulates each

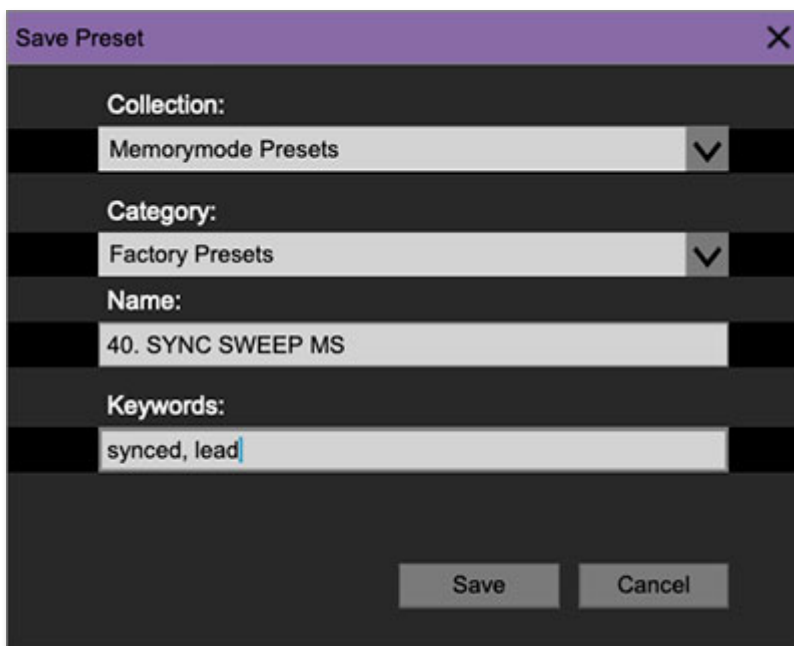
voice using oscillator 3 and/or the filter envelope generator of that voice.
Each method is appropriate for different uses (with some crossover).

Top Toolbar and Preset Browser



The purple strip at the top of the Memorymode contains all of the preset loading and saving navigation, "under-the-hood" settings, zoom and focus control, and more.

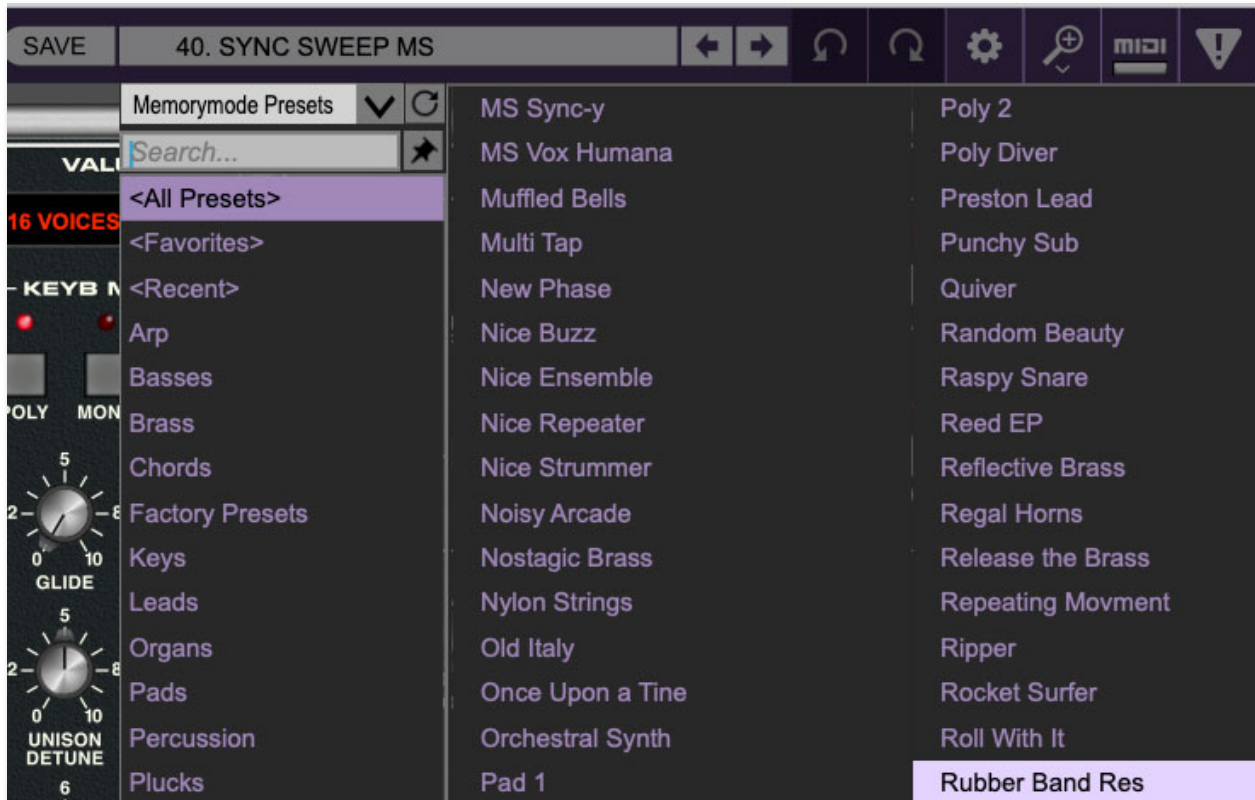
New- Opens a new blank patch preset. If an unsaved patch is currently open or you've modified an existing saved patch, a dialog asks if you'd like to save the patch in its current state. This greatly reduces the possibility of losing an edited unsaved patch.



Save- Use this to save patches. There are a couple of levels of hierarchy:

- **Collection**- This is the top level of organization, and contains entire "sets" of presets. The *Memorymode Presets* are the main included collection. We also include 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 'em sepa-rated" for organizational purposes.

- **Categories**- 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.
- **Patch**- A patch is an individual sound. To save a patch, simply type the name in the *Name* field and click *Save*.
- **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.



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.
- **<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.

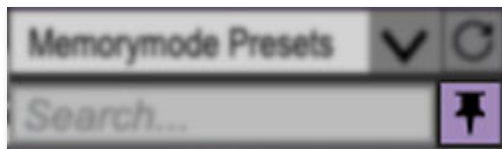
Memorymode's awesome presets were created by the following team of veteran synth programmers:

James Terris is a freelance sound designer and musician based in the San Francisco Bay Area. He has worked with Dave Smith Instruments/Sequential, Pioneer DJ, Apple, and Han Zimmer's Remote Control. In addition to being Cherry Audio's lead sound designer, he's responsible for curating instrument preset libraries (aka, "hey dude, when are those sounds gonna be done, we got a synth to release!"),

Dave Polich is a sound designer, music producer, and songwriter. He's crafted sounds for major artists including Michael Jackson, Fleetwood Mac, and The Cure, and has created thousands of factory presets for synthesizer giants including Yamaha, Korg, Roland, and Dave Smith Instruments.

Huston Singletary is a veteran sound designer, producer, film composer, and podcaster. He's contributed sounds to an endless array of popular products by Toontrack, Izotope, Synthogy, Kilohearts, Roland, Alesis, Spectrasonics, and Ableton.

Julian "J3PO" Pollack is an accomplished pianist and keyboardist, producer, and audio engineer. In addition to his thriving career as a jazz composer and performer, J3PO has created sound banks and presets for Clavia, Softube, and Dave Smith Instruments.



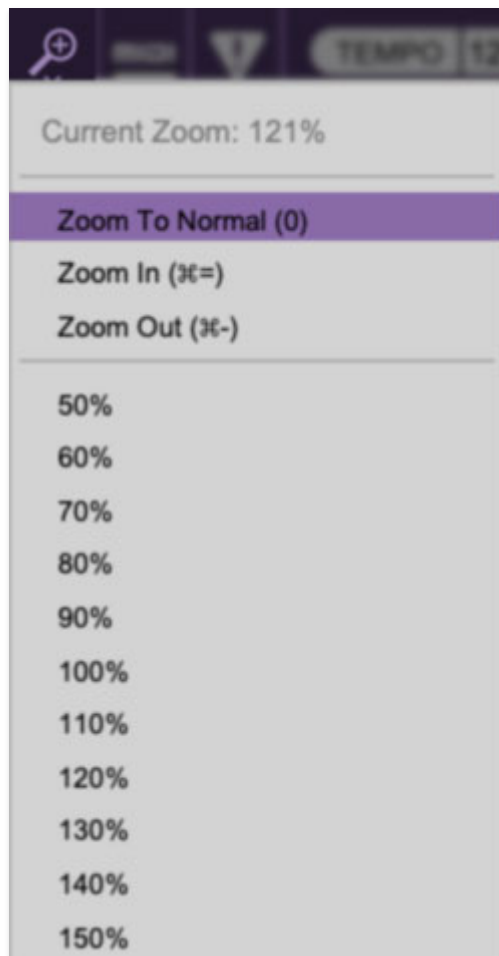
Pin- Clicking the pushpin icon locks the patch selection list open, allowing fast and easy browsing and auditioning of patches. Click the icon again to disable pin mode. When in pin mode, the up and down arrow keys can be used to select patches.

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 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.

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

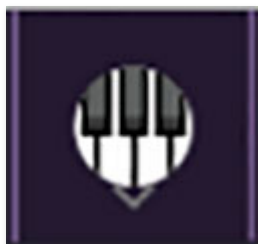
MIDI tab- Opens the MIDI controllers tab for configuring internal and hardware MIDI controls. See the **MIDI Controllers Setup and MIDI Tab** section for full information.

MPE Tab- Short for "MIDI Polyphonic Expression," Memorymode supports MPE, a specialized MIDI protocol enabling multidimensional controllers to control multiple parameters of individual notes. **The MPE Settings toolbar icon is only visible if *Settings>Interface>Enable MPE mode* is checked.** See the **Using MPE** 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 Memorymode's current internal tempo setting. Memorymode'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 Memorymode. VST, AU, and AAX plug-in versions receive tempo data from their host DAW app.



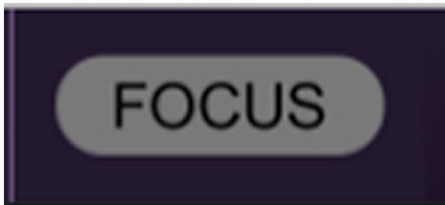
QWERTY Musical Typing Keyboard- Opens an onscreen keyboard allowing a standard QWERTY computer keyboard to be used for playing music notes. For more information, see the **QWERTY Musical Typing Keyboard (MTK)** section.



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

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

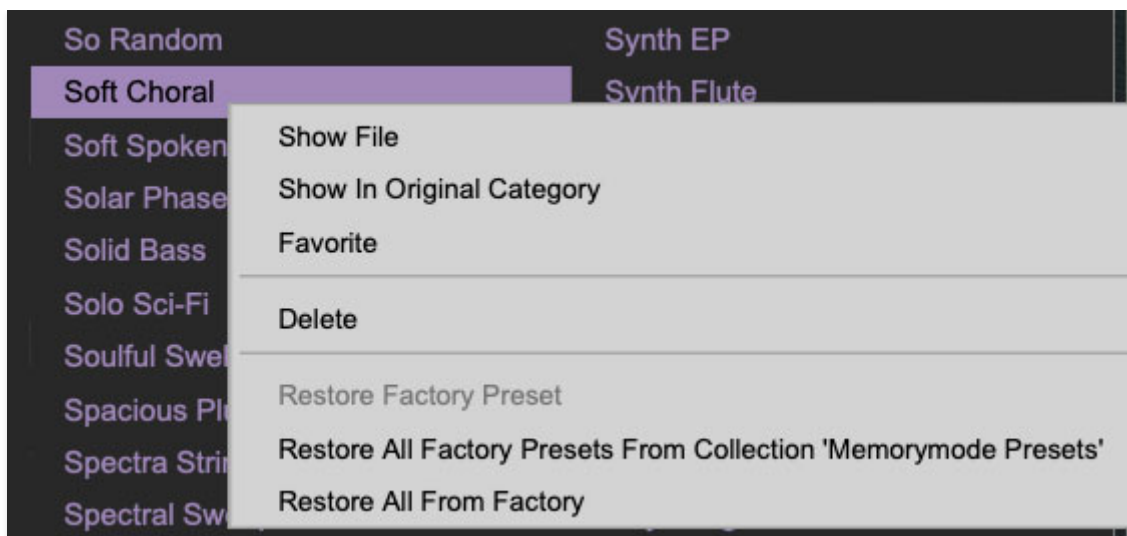
Focus Button



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 blows up Memorymode'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.

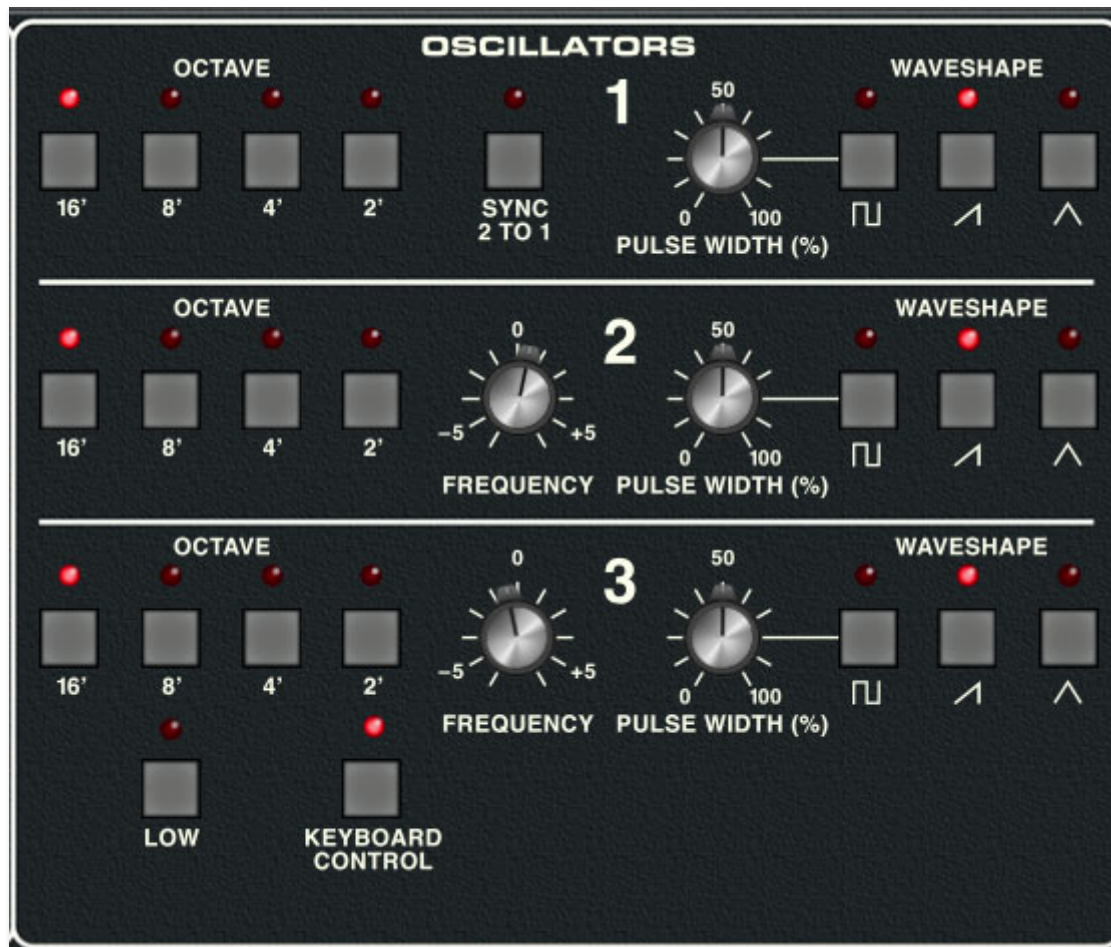
Restore All Factory Presets From 'Memorymode Presets'- If any patches from the "factory" Memorymode bank are edited and saved, selecting this command restores *all* of them to their unaltered factory setting.

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 Memorymode bank mentioned above is the only factory bank, so this function and the *Restore All Factory Presets From 'Memorymode 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

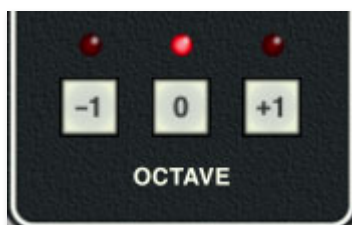
user.

Oscillators



Memorymode includes three almost identical voltage-controlled oscillators, so we'll go over the controls one time and make note of differences along the way. (Feel free to read it three times, if you're into that kind of thing)

Octave- Sets the coarse pitch range for each oscillator in standard organ footage settings of 16', 8', 4', and 2'. Only one octave footage can be active at any time; selecting a footage disables the others.



The overall range of the entire instrument can also be transposed down or up an additional octave using the *Octave* transpose buttons at the bottom left of

the control panel.

Sync 2 To 1 (*oscillator 1 only*)- This causes VCO 1 to force reset the start of VCO 2's waveform to the beginning of its cycle, resulting in the classic Cars "*Let's Go*" tearing harmonics sound (or No Doubt's "*Just A Girl*," for children of the 90s) when the oscillator 2's pitch is swept (this can be accomplished by setting the Modulation/Voice Modulation destination to *Osc 2*, and turning up the *Filter Contour* knob).

Frequency (*oscillator 2 and 3 only*)- Allows fine-tuning of pitch or building intervals into multi-oscillator patches. It's also useful for fattening up multi-oscillator patches by detuning a small amount. Its range is a smidge over a fifth, up or down.

Pulse Width- Sets the width or "duty-cycle" of pulse waves, from a perfect square to a very narrow pulse. It has no effect on other waveforms.

Waveshape- Selects the oscillator raw waveform. Each oscillator includes variable pulse, ramp, and triangle waves. These can be used simultaneously in any combination.

Low (*oscillator 3 only*)- Sets oscillator 3 to sub-audio range. This is useful when oscillator 3 is used as a mod source via the Voice Modulation section.

Keyboard Control (*oscillator 3 only*)- Shutting this off disconnects the keyboard's control voltage from oscillator 3. This allows oscillator 3's frequency to remain constant when using it as a mod source - if the keyboard switch is on, its frequency will rise as higher notes are played. It also allows drones (i.e. pitch stays the same regardless of notes played on the keyboard) if oscillator 3 is being used as an audio source.

Mixer



Mixes the signal levels of all three oscillators as well as Memorymode's noise source.

Level 1/2/3- Sets the volume level of each oscillator. Note that values over four will gently overdrive, just like the original instrument.

Noise- Sets the volume level of white noise.



Memorymode's filters are modeled after the classic 24 db/oct lowpass filter. It removes high frequencies as its cutoff frequency setting is decreased from max, resulting in a dulling of sound. Ladder filters are renowned for their meaty, fat sound.

Cutoff Freq- Sets the frequency where high-frequency attenuation begins, from 20 Hz up to 24,000 Hz. Though it seems odd to have a cutoff control that goes 4000 Hz above human hearing threshold, remember that all filters have a "slope" to their response, so that extra range guarantees you won't hear any filtering at maximum setting.

Emphasis- "Emphasis," is more commonly referred to as resonance. It emphasizes sound energy at and around the current cutoff frequency by adding feedback from the filter's output back to its input. At lower settings, this can be used to create mild resonances such as those heard in acoustic instruments. Memorymode's implementation is fully self-oscillating - at extreme settings, it can be used as a sine wave generator, but be careful as high resonance settings can result in loud, screaming, dog-terrifying (and speaker blowing) occurrences.

Contoured Amount- The *Contoured Amount* control applies filter envelope generator modulation to the cutoff frequency. This allows familiar auto filter sweeps. When raising the *Contour Amount* control, you'll generally want to lower the *Cutoff* control, as these work additively with one another.

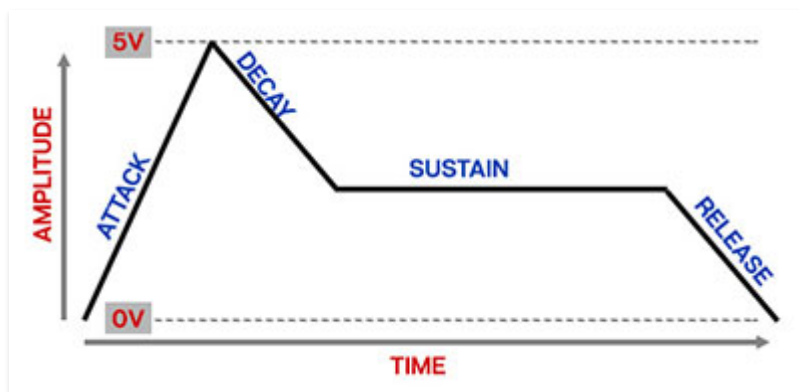
KB Track- This causes the cutoff frequency to increase as ascending notes are played on a keyboard. The idea behind this is, because actual note frequencies rise as higher pitches are played, the *KB Track* control applies a

rising CV to the cutoff frequency in order to maintain the brightness of notes as higher pitches are played.

Slope- The nature of how a filter works is that frequencies "fall off" above or below the cutoff frequency. Slope adjusts the steepness of this slope. Click to choose between 12dB per/octave filter, which has a shallower slope and brighter tone, or a steeper 24dB per/octave filter with a darker tone (as more pronounced character with the resonance knob turned up). Note the original instrument's filters were 24dB per/octave only.

Filter Envelope Generator

The filter section includes a dedicated envelope generator for control of cutoff frequency (via the *Contour Amount* knob). Here's an overview of how an ADSR envelope generator works:



When Memorymode sees a gate voltage from a note, the envelope generator outputs a dynamically changing voltage, according to the settings of its four stages. The attack stage defines how long it takes for the output voltage to rise from 0 to 5 volts. Once the attack stage reaches 5V, it moves to the decay phase, which defines how long it takes to fall from 5V to the setting of the sustain phase. Unlike the attack, decay, and release phases, which define times, sustain simply sets the held voltage level following the attack and decay phases - this equates to the envelope output level while holding down a key. Finally, the release slider defines the the length of time it takes for the voltage to fall back to 0V when the gate input voltage is removed, i.e. when the key is released.



Attack- Defines the length of time for voltage to rise from 0V to 5V when a key is played.

Decay- Defines the length of time for voltage to fall from the attack stage 5V peak to sustain stage setting.

Sustain- Sets the voltage level following attack and decay phases while a note is held.

Release- Defines the length of time for voltage to fall from sustain level to 0V when a key is released.

Velocity Amount- Defines how much the envelope affects the filter cutoff frequency via keyboard velocity. When set to zero, keyboard velocity has no effect on cutoff frequency; all the way up results in maximum control range.

The following controls apply to both the Voltage Controlled Filter envelope as well as the Voltage Controlled Amplifier envelopes. We'll repeat it for you in the VCA section, because we're trained experts who know how to copy AND paste.



Return To Zero- If a voice is retriggered during its attack phase, normally the new note will begin at the current attack voltage level. If the *Return To Zero* button is engaged, the attack voltage will reset to 0 volts.

Unconditional Contour- When disabled, the envelope generators will enter the release phase only when keys are released. When *Unconditional Contour* is enabled, notes will play through their attack phase and immediately jump to the release phase (whether notes are held or not). This effectively makes them attack/release or "AR" envelopes.

I'm pretty sure I saw the Unconditional Contours open for the O' Jays at the Franklin Music Hall in '73. Tiny Tim opened, and that didn't go over well at all.

Keyboard Follow- When engaged, attack, decay, and release times get shorter as higher notes are played on the keyboard. The (possibly dubious) idea is to imitate the way acoustic instruments behave (because this thing is gonna sound JUST LIKE a real piano).

Release- Turning this off disables the envelope release stage (in case the concept of turning the *Release* knob all the way down was confusing). We don't know why synths used to have this control, but a number of analog synths had it in the 70s and 80s, so go figure.

Voltage Controlled Amplifier and Envelope Generator

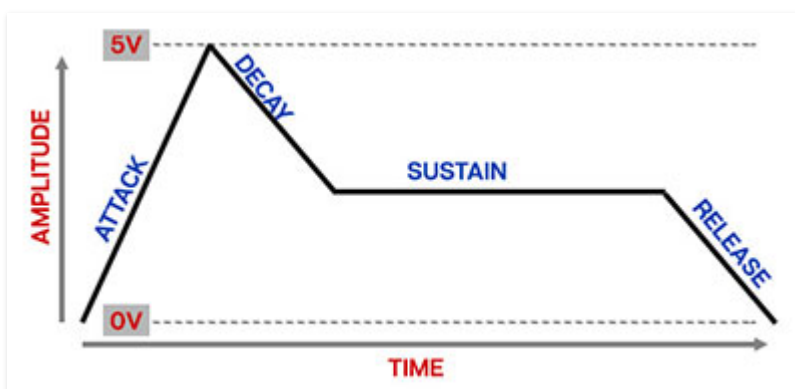


"Voltage controlled amplifier," is a chichi way of saying, "volume knob, controlled by voltage." A simple analogy would be to think of the voltage controlled amplifier (VCA) as a faucet that gets adjusted by an incoming control voltage from an envelope generator, low-frequency oscillator, or other modulation source.

Memorymode's VCA section doesn't have any dedicated controls per se, but it has a dedicated envelope generator for shaping amplitude curves.

VCA Envelope Generator

In case you didn't catch this in the filter section, here's an overview of how an ADSR envelope generator works:



When Memorymode sees a gate voltage from a note, the envelope generator outputs a dynamically changing voltage, according to the settings of its four stages. The attack stage defines how long it takes for the output voltage to rise from 0 to 5 volts. Once the attack stage reaches 5V, it moves to the decay phase, which defines how long it takes to fall from 5V to the setting of the Sustain phase. Unlike the attack, decay, and release phases, which define times, sustain simply sets the held voltage level following the attack and decay phases - this equates to the envelope output level while holding down a key. Finally, the release slider defines the the length of time it takes for the voltage to fall back to 0V when the gate input voltage is removed, i.e. when the key is released.



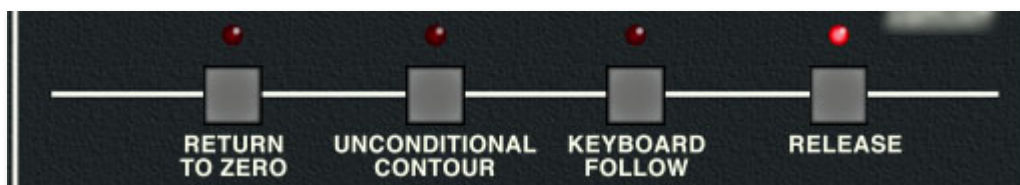
Attack- Defines the length of time for voltage to rise from 0V to 5V when a key is played.

Decay- Defines the length of time for voltage to fall from the attack stage 5V peak to sustain stage setting.

Sustain- Sets the voltage level following attack and decay phases while a note is held.

Release- Defines the length of time for voltage to fall from sustain level to 0V when a key is released.

Velocity Amount- Defines how much the envelope affects amplitude via keyboard velocity. When set to zero, keyboard velocity has no effect on amplitude; all the way up results in maximum control range.



Return To Zero- If a voice is retriggered during its attack phase, normally the new note will begin at the current attack voltage level. If the *Return To*

Zero button is engaged, the attack voltage will reset to 0 volts.

Return To Zero was also a failed side project from Boston guitarist Barry Goudreau (along with the questionably named Orion The Hunter). That guy just couldn't catch a break.

Unconditional Contour- When disabled, the envelope generators will enter the release phase only when keys are released. When *Unconditional Contour* is enabled, notes will play through their attack phase and immediately jump to the release phase (whether notes are held or not). This effectively makes them attack/release or "AR" envelopes.

Keyboard Follow- When engaged, attack, decay, and release times get shorter as higher notes are played on the keyboard. The (possibly dubious) idea is to imitate the way acoustic instruments behave (because this thing is gonna sound JUST LIKE a real piano).

Release- Turning this off disables the envelope release stage (in case the concept of turning the *Release* knob all the way down is confusing for you). We don't know why synths used to have these, but a number of 70s and 80s analog synths did, so go figure.

Note that *Return To Zero* (which sounds like a new wave band), *Unconditional Contour* (which sounds like a hair product), *Keyboard Follow*, and the *Release* button all affect both the filter and VCA envelopes.

Outputs



Volume and output VU meter- We won't insult your smar-telligence by explaining what the volume knob does, but we will say it's a good idea to optimize the output level using the LED meters. Unlike the pleasant harmonic overdrive you'll get by cranking the Mixer oscillator levels, distorting the master output will result in ugly digital clipping, so best to stay out of the red.

Limiter- The *Limiter* switch applies a transparent limiting effect to help prevent overloading.

Modern- Applies an EQ curve for a more contemporary bassy and bright tonality heard in modern pop music. If your Spotify playlist contains hyphenated, ephemeral techno genres such as "Loud-Foot" or "Dub-Squirrel," this button is for you. If you don't have Spotify in the first place, and you're rockin' ELP's "Tarkus" on 180-gram vinyl through a pair of JBL L-100's, skip the *Modern* button.

Tune



Master Tune- Sets the overall tuning for the entire instrument up or down by just over five semitones.

Drift- Applies a random amount of tuning drift independently to all oscillators for a more realistic analog character. Actually, if you really want to really sound like the original instrument, crank this guy all the way up for a pitchy, out-of-tune mess experience, just like the real thing!

Keyboard Mode and Value Display

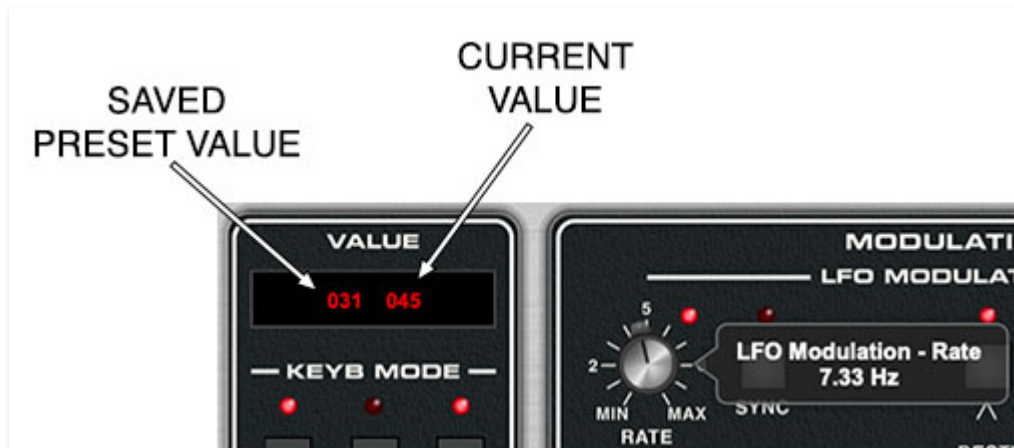


Memorymode can play up to 16 simultaneous polyphonic voices. The *Keyb Mode* section regulates how voices are assigned, as well as glide, detune, bend depth, and more.

Value Display

The original instrument included a calculator-style keyboard and LED alphanumeric display. This was used for various menus and commands, as well as controlling the onboard poly sequencer. Although some of us Cherry folks argued vociferously in favor of incorporating the cool-looking calculator keypad, we couldn't figure out a useful way to incorporate it into the user interface. The original instrument required the user to remember many numbers associated with functions ("*press KB mode button, press #3 for KB Mode #3, whatever that heck that is, check the manual to figure out what the #@*! KB Mode #3 is, etc...*"), but thanks to modern computers, we

majorly simplified setting these parameters, so you won't need to memorize arbitrary menu command numbers.



The *Value* window displays information about the currently manipulated parameter. When a knob is turned, two numbers are shown. The number on the left is the parameter valued stored in the current sound preset; the number on the right is the current knob position. This makes it easy to return the parameter to the stored value (though you can always return the parameter to the preset value by right-clicking and selecting *Return To Default Value*).

On/Off-type buttons display their current state when clicked.

Buttons with multiple option pop-up menus, such as *Poly*, *Mono*, *Num Of Voices*, *Arpeggio Mode* and *Range*, etc., will display the current selection when the mouse is rolled over. This lets you view the current setting without clicking the button to view the pop-up menu.

Keyb Mode

Memorymode has four poly and six mono modes that exactly replicate the voice assign behavior of the original instrument. The original instrument was six-note polyphonic, that is, it could play a maximum of six notes simultaneously. Polymode ups the ante considerably with up to 16 voices of polyphony.

When we refer to a "voice," this essentially means a single note of Memorymode's synth voice architecture: three oscillators, one filter, and voltage-controlled amp along with corresponding filter and VCA envelope generators.

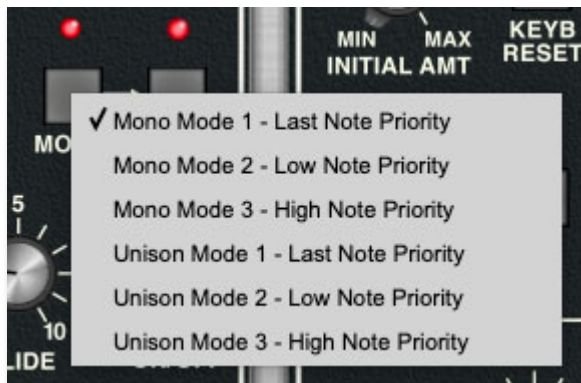
Poly Modes



Clicking the *Poly* button opens a pop-up menu where the modes below can be selected. The primary differences between the poly modes will be heard in how the voices respond when glide is used.

- **Poly Mode 1 - Cyclic:** This the standard polyphonic mode. Notes played are assigned to Memorymode's internal voices one after the other. For example, if *Num Of Voices* is set to *4 Voices*, notes played are assigned to voice 1-2-3-4-1-2-3-4, etc.
- **Poly Mode 2 - Cyclic with Memory:** Similar to *Poly Mode 1*, but if a note or notes are repeated, they retain their voice assignment. For example, if a three-note chord was played, and its notes were assigned to voices 1-2-3, repeatedly playing the same chord would trigger voices 1-2-3; voice assignment wouldn't change to the next voices until different notes were played. If glide was being used, this means the pitches of the chord would "stay in place" (not glide) when repeatedly struck.
- **Poly Mode 3 - Reset To Voice 1:** When all notes are released, voice assignment is "reset" so that new notes are assigned to voice 1. When playing single-note lines, this mode mimics the glide behavior of a monophonic synth.
- **Poly Mode 4 - Reset To Voice 1 with Memory:** This mode is a combination of *Poly Mode 2* and *Poly Mode 3*: repeatedly striking the same notes retains voice assignments (i.e. repeated notes won't glide), but releasing all notes assigns the next note to voice 1.

Mono Modes



Clicking the *Mono* button opens a pop-up menu where the following modes can be selected. When in *Mono Mode 1, 2, or 3*, the *Num Of Voices* and *Chord Mode* buttons are disabled and will darken.

- **Mono Mode 1 - Last Note Priority:** One note plays at a time, assigned to single voice. If more than one key is pressed, the most recently struck note will always take priority. This is the default mode, and most likely the preferred mono voice assignment mode.
- **Mono Mode 2 - Low Note Priority:** One note plays at a time, assigned to single voice. If more than key is pressed, the lowest note will sound. This how most vintage monophonic synths operate.
- **Mono Mode 3 - High Note Priority:** One note plays at a time, assigned to single voice. If more than key is pressed, the highest note will sound.
- **Unison Mode 1 - Last Note Priority:** One note plays at a time. Multiple stacked voices will be heard as specified by the current selection of the *Num Of Voices* button. If more than one key is pressed, the most recently struck note will always take priority.
- **Unison Mode 2 - Low Note Priority:** One note plays at a time. Multiple stacked voices will be heard as specified by the current selection of the *Num Of Voices* button. If more than key is pressed, the lowest note will sound.
- **Unison Mode 3 - High Note Priority:** One note plays at a time. Multiple stacked voices will be heard as specified by the current selection of the *Num Of Voices* button. If more than key is pressed, the highest note will sound.

Mult Trig (Multiple Trigger) - When *Mult Trig* is enabled in any of the mono assign modes, Memorymode's envelopes retrigger from the beginning every time a new key is pressed. When *Mult Trig* is disabled, the envelopes will only retrigger if no other notes are currently held; this is known as "single trigger"

mode. Single trigger mode is useful for emulating the sounds of some acoustic instruments - for example, the sound of plucking a note on a guitar, then sliding on the string to different notes without plucking again. *Mult Trig* mode generally feels more responsive to play and is useful for more aggressive passages.

The *Mult Trig* button has no effect on the poly assign modes. When any of the poly modes are enabled, the button darkens and the LED turns off.

Glide speed and button- Also known as "portamento," glide delays the voltage change between pitches for a sliding effect. Clicking the button enables glide, and glide speed gets slower as the knob setting is increased.

Unison Detune- Randomly "spreads" the tuning of the oscillators when the *Mono Unison* modes are selected, for super-fat sounds.

Number Of Voices- Sets the maximum number of notes that can sound simultaneously, from 2 to 16.

Bend Depth- Sets the bend range from zero up to a maximum of one octave up or down.

Chord Mode- Allows chords to be memorized and played with single keys. To memorize a chord, make sure *Poly* mode is selected, and click the button. The LED flashes to indicate that it's in learn mode. To learn a chord, play up to 16 notes (limited by the current *Number Of Voices* setting); when the last note is released, the chord is memorized and the LED solidly glows. To disable *Chord* mode, click the button again.

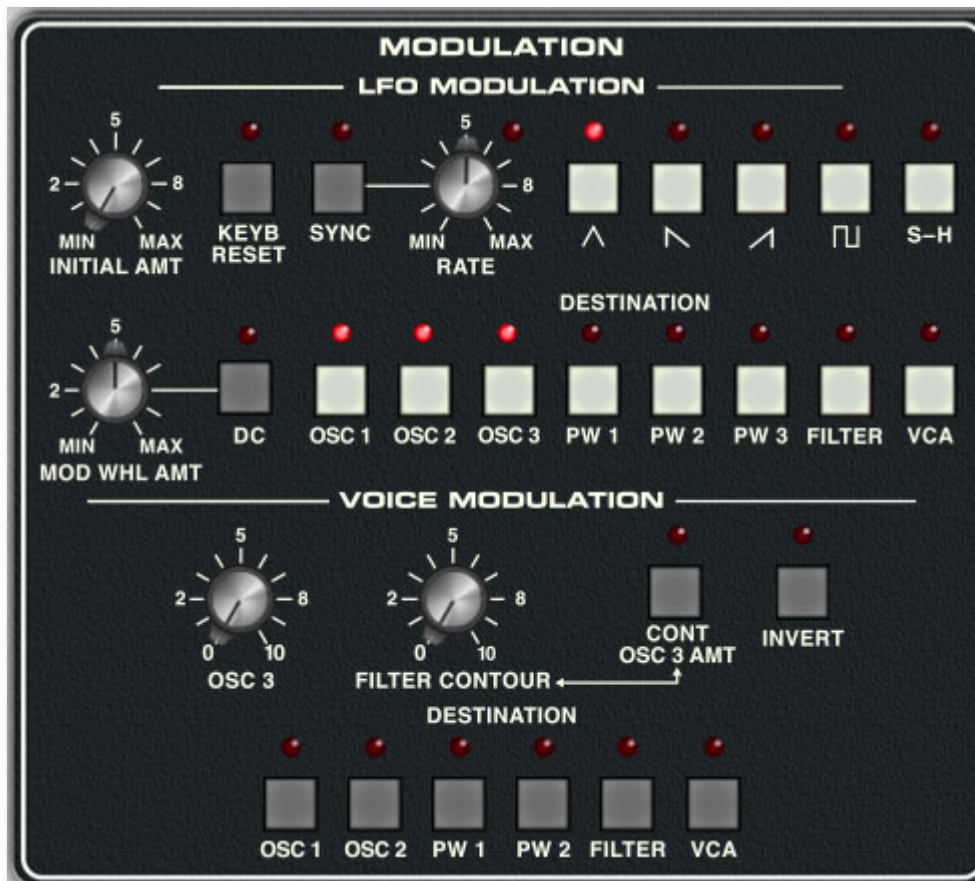
About Chord Mode and Max Voices- The *Max Voices* setting automatically changes to the number of voices in the programmed chord. If the the *Max Voices* setting is reduced, notes are disabled. Chord notes will return as the *Max Voices* setting is increased.

Note that *Chord* mode isn't just for "chords" per se; it can be used for octaves, fifths, or any desired combination of notes and intervals.

Octave buttons- Transposes the entire instrument up or down by an octave.

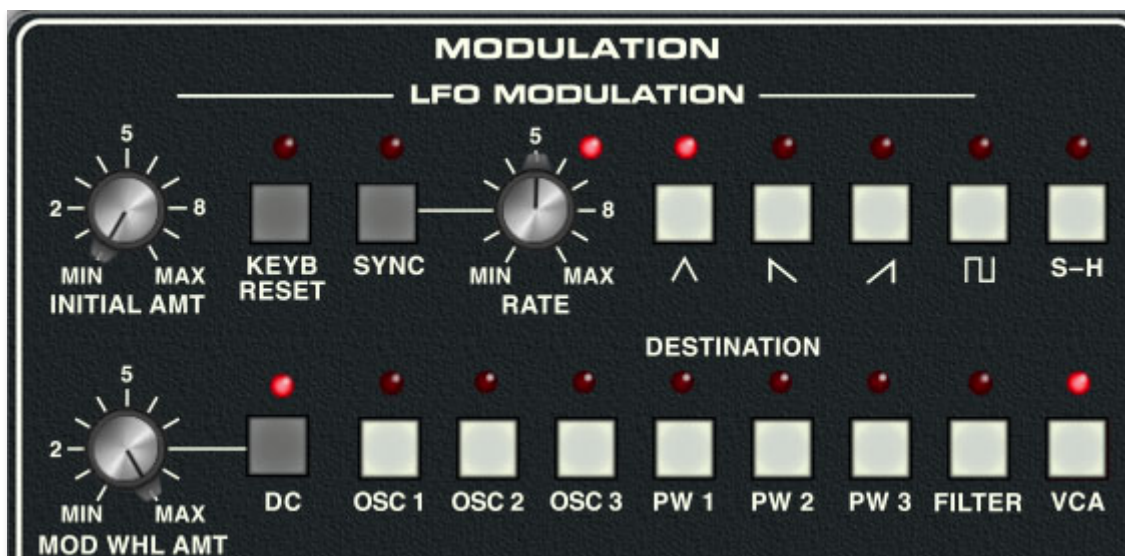
Big Warning About MIDI MPE Mode: Memorymode supports MIDI MPE mode, a fancy protocol that allows articulation of multiple parameters on a per-note basis (you'll know if you own an MPE-compatible controller). **If the Keyb Mode *Poly*, *Mono*, and *Num Of Voices* controls don't seem to work, ensure that MIDI MPE mode isn't enabled** (*Settings* gear in the top purple menu bar, *Interface* tab, uncheck *Enable MPE Mode*.)

Modulation



Memorymode includes two independent modulation sections - LFO Modulation and Voice Modulation. The primary difference is that LFO Modulation is monophonic; that is, a single standalone low-frequency oscillator equally applied to *all* voices, whereas Voice Modulation individually modulates *each* voice using oscillator 3 and/or the filter envelope generator of that voice. Each method has its own set of capabilities, with some overlap.

LFO Modulation



A single low-frequency oscillator (LFO) is assigned to one or more destinations. Almost all of the controls governing LFO parameters are in the top row, and LFO mod destination is set with buttons in the row beneath.

Initial Amount- Sets the depth of LFO modulation. Incoming mod wheel controller will increase the depth.

Keyb Reset- When enabled, the LFO resets to the beginning of its cycle when a key is played. This functions monophonically - **LFO reset only occurs if no other keys are currently held**. It's useful in conjunction with the sync buttons (as well as the saw, square, and sample and hold waves).

Sync- When the *Sync* switch is enabled, LFO speed will lock to host tempo when using Memorymode within DAW software, or to the current tempo in the top menu bar when using the standalone version.

Rate- The *Rate* knob sets the speed of the LFO, from 0.10 to 100 Hz (with *Sync* switch off) or from 8 beats up to 1/64th note triplets (*Sync* switch on). Since it goes well into the audio range (> 20Hz), all manner of clangorous, raunchy sounds can be created. The LED beside the *Rate* knob flashes at the current modulation rate.

Wave select buttons- Selects triangle, sawtooth, ramp, square, or S-H (sample and hold, i.e. stepped random) waves. Only one waveform can be selected - choosing one disables any other.

The saw, ramp, and S-H (sample and hold) waves are bipolar (i.e. they oscillate above and below 0 V), which is desirable for oscillator vibrato applications. The square wave is unipolar (it oscillates from 0 to 5V). This is best for alternating trills or octaves, because the bottom note stays constant. (Trust us, setting up alternating octaves with a bipolar LFO is no fun.)

Mod Wheel Amt- This acts as a mod wheel maximum depth control or can add mod on its own. A basic mod level can be set with the *Initial Amt* knob, and the mod wheel can add additional modulation. If you'd like to use the mod wheel only to control the amount of modulation, set *Initial Amount* to zero.

DC- This essentially shuts LFO modulation and replaces it with a constant voltage, set by the mod wheel and *Mod Wheel Amount* knob (*DC* is short for "direct current; an LFO typically outputs *AC*, or "alternating current," which constantly fluctuates. Conversely, the drunken halfwits at my cover band shows constantly request *AC/DC*, which is a band that makes trite, simplistic music for drunken halfwits.)

It may seem trivial, but the DC button is a very useful feature, because it allows the mod wheel to directly control any of the LFO Modulation destinations. For example, the mod wheel could be used to manually control oscillator pulse width or oscillator sync sweeps. Additionally, the *Mod Wheel Amount* knob setting acts as a "limiter," which lets you precisely fine-tune the mod wheel range.

Using the DC function with VCA mod: Typically you'd combine the DC switch with the VCA mod destination in order "play" patch volume using your controller's mod wheel. Because the DC mod voltage is positive only, this creates a problem if the VCA envelope sustain setting is already at maximum -to paraphrase the great intellectual, Nigel Tufnel, of Spinal Tap fame, "you've got everything all the way up... where can you go? Nowhere." In other words, using mod wheel DC modulation won't have any effect, because the VCA is already as loud as it can be. Since we can't make Memorymode "go to 11," we did the next best thing - when DC mode is enabled and the VCA mod destination is selected, the maximum VCA sustain voltage is scaled down as the *Mod Wheel Amount* knob is increased. The maximum volume will get quieter as the *Mod Wheel Amount* setting is turned up, and increasing the mod wheel position adds the VCA mod voltage back, effectively allowing the mod wheel to increase overall volume. It may sound complicated, but give it a try, it's super simple and works great.

Destination- These are all the sections that can be modulated by the LFO, including oscillator 1, 2, and 3 frequency, oscillator 1, 2, and 3, pulse-width (PW), filter cutoff frequency, and VCA amplitude. Single or multiple destinations can be enabled.

Voice Modulation



Unlike the single-LFO-affecting-all-voices LFO mod described above, Voice Modulation individually modulates *each* voice using oscillator 3 and/or the filter envelope generator of that voice. This lets you do a number of things that can't be done with LFO Modulation. If you've ever used a Sequential Prophet-5 or a virtual version of it, Voice Modulation is similar to the Prophet's "Poly-Mod" function.

Osc 3- Sets the amount of modulation from oscillator 3. When using oscillator 3 as a mod source, you'll usually want to turn its audio level all the way down in the mixer section. For typical LFO-type vibrato, filter wah-wah, or amp tremolo effects, enable oscillator 3's *Low* switch for sub-audio operation. It's also advisable to disable the *Keyboard Control* button, otherwise the mod rate will speed up as higher notes are played on the keyboard (unless you're into that kind of thing).

When the *Low* switch is off and one of the standard octave footage settings is selected, Memorymode is capable of audio-range modulation, which can create really wild effects. Combined with the *Filter Contour* knob explained below, this makes for awesome laser effects, and that's what we're really here for, am I right people?!? (Back when Roland Jupiter-6's were worth WAY less, I held onto mine for years just because it made the world's greatest audio-range modulation lasers.)

Filter Contour- Sets the amount of modulation from the filter section envelope generator. The envelope generator can potentially be applied to filter cutoff *and* Voice Modulation destinations, but setting the *Contour Amount* in the filter section to zero will let you use the filter envelope for Voice Modulation only.

Contoured Osc 3 Amount- Clicking this on disables the Osc 3 knob and allows the filter envelope to dynamically control the amount of Osc 3

modulation. It's particularly useful for modulation effects that slowly fade in (or out).

Invert- This inverts modulation from both the filter envelope and oscillator 3.

Destination- These are all the destinations that can be modulated via Voice Modulation, including oscillator 1 and 2 frequency, oscillator 1 and 2 pulse-width (PW), filter cutoff frequency, or VCA.

Arpeggio



An arpeggiator is essentially a step sequencer that plays each note of a chord individually in an ascending or descending pattern across one or more octaves.

On/Off- Enables and disables the Arpeggio section.

Hold- When engaged, arpeggios continue to run without continuously holding down keys. This allows a series of chords to be played without the arpeggio stopping as keys are released. Be aware that it will not stop until you disengage the button again. Mapping to a sustain pedal or a button on a MIDI controller can be useful for toggling *Hold* on and off.

Sync- Engaging the *Sync* button locks arpeggio timing to master tempo. When engaged, the *Rate* knob snaps to note values ranging from 1/64th note triplet to 8 beats. *Sync* mode locks to the tempo in the top toolbar when using the standalone Memorymode version or the current project tempo when the plug-in version is used in a DAW.

Rate- Sets the arpeggio rate from 0.25 to 30 Hz (with *Sync* button disabled). Note that the Arpeggio section has its own clock that runs independently of the LFO Modulation section.



Mode- Defines the order in which the notes of the chord are played. The modes are as follows:

- **Mode 1 - Up**- Plays the notes in order from lowest to highest.
- **Mode 2 - Down**- Plays the notes in order from highest to lowest.
- **Mode 3 - Up-Down**- Plays notes from lowest to highest then back to lowest again.
- **Mode 4 - First To Last**- Plays notes in the order they are struck.
- **Mode 5 - Random**- Plays held notes in random order. For the Duran Duran fan in all of us!
- **Mode 6 - Auto Trigger**- Not actually an arpeggio in the strict sense, Auto Trigger repeatedly triggers any held notes. On the original instrument, notes would keep piling up until you ran out of voices, which wasn't so great (trust us); in Memorymode, repeating notes stop playing when keys are released.



Range- Selects the number of octaves the pattern plays before repeating, from one to four octaves.

Effects



Memorymode includes four super-rad, studio quality effects.

Phaser



Memorymode's phaser is a fat and warbly recreation of the classic phaser stomp boxes of the 70s. Unlike most vintage phasers, it's stereo, that is, its modulation cycles are 180° out of phase for a rich, wide image.

On/Off- Enables and disables the Phaser effect.

Rate- Sets the phaser's internal LFO speed from 0.01 to 7.5 Hz.

Depth- Sets the overall amount of effect.

Ensemble



On/Off- Enables and disables the Ensemble effect.

Rate- Sets the Ensemble's internal LFO speed from 0.01 to 8 Hz.

Depth- Sets the effect depth, i.e. the amount of LFO delay time mod.

Echo



On/Off- Enables and disables the Echo effect.

Time- Sets the delay time from 1-2000 ms.

Sync- Engaging the *Sync* button locks the delays time to master tempo. When engaged, the *Time* slider snaps to note values ranging from 1/64th note triplet to 8 beats. *Sync* mode locks to the tempo in the top toolbar when using the standalone version of Memorymode, or the current project tempo when the plug-in version is used in a DAW.

Feedback- Routes the output to the input for additional repeats. Be careful at high settings as this can result in runaway feedback madness. (Map this knob to a hardware MIDI knob or slider for semi-controller runaway feedback madness.)

Damp- Attenuates high frequencies as the amount is increased. Not only does this create more natural sounding decays, it also reduces the "stacking" effect that occurs with high feedback levels.

Spread- This subtracts delay time from the left channel and adds time to the right channel, creating a wide stereo effect, as well as preventing echoes from "piling up" in the center of the image. Note that the subtracted and added delay effectively offsets the overall delay time setting with each repeat, so long delays combined with high feedback settings can become noticeably off time (like your drummer as the beer cans pile up, am I right people?!?). This can be circumvented by reducing the *Spread* control (won't help with that drummer situation though).

Mix- Balances the level of dry and wet signal.

Reverb



On/Off- Enables and disables the reverb effect.

Type - Allows selection of room, plate, hall algorithms.

Decay- Sets the overall length of reverb; actual times vary dependent on the reverb type.

Damp- Attenuates high frequencies for more natural sounding reverb.

Mix- Balances the level of dry and wet signal.

MIDI Controllers Setup and The MIDI Tab

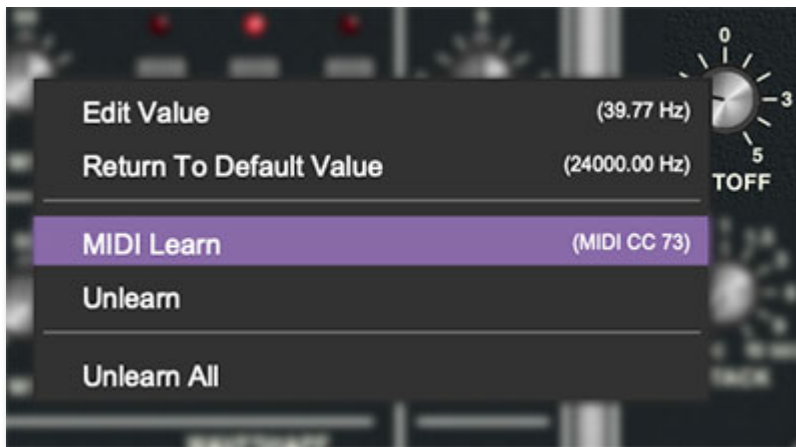


Assigning internal and external hardware controls adds a whole new dimension of control and musicality to patches, and it's really easy to do. The MIDI Tab is where all controller assignments can be viewed and tweaked. First we'll show how to assign an external hardware controller to a Memorymode control, then we'll go over all parameters in the MIDI Tab.

Basic External Hardware Control Assignment

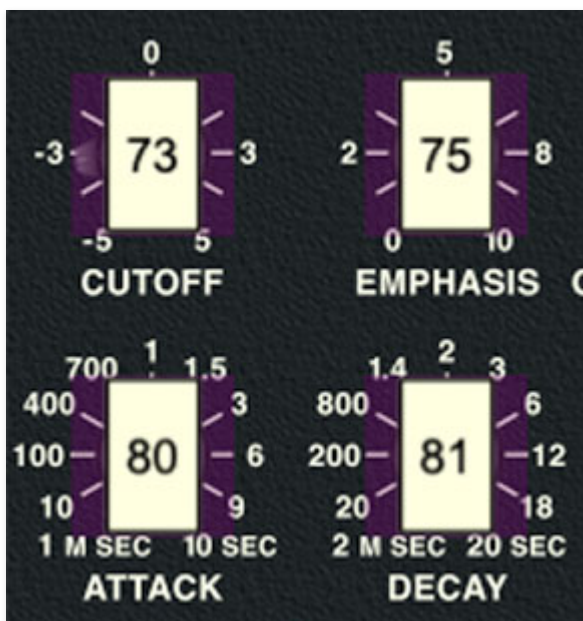
This is the quick, "I just want to assign a hardware control right now!," section. We recommend reading this entire section to best take advantage of Memorymode's MIDI control assignments.

In this example, we'll assign a hardware slider control to the Voltage Controlled 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 Memorymode 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 Memorymode 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						
Name	Type	Value	Min	Max	Curve	
Filter - Cutoff	CC	73 (S...				
Filter - Emphasis	CC	75 (S...				
Filter - Contour Amount	CC	79 (S...				
Filter - Keyboard Track	CC	72 (S...				
Filter - Attack Time	CC	80 (G...				
Filter - Decay Time	CC	81 (G...				

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 Memorymode 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 Memorymode:

- **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 Memorymode only responds to mono aftertouch.
- **Key-** This allows keys of the computer QWERTY keyboard to act as button controls for Memorymode'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 Memorymode'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).

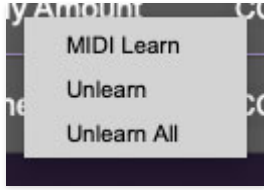
Limiting and inverting parameter ranges with the *Min/Max* controls is particularly useful when multiplexing a single hardware control to operate multiple parameters. Because *Min/Max*, range inversion and *Curve* settings can be separately set for each onscreen control, the customization options are 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.

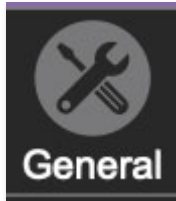
Unlearn- Deletes the selected automation parameter.

Unlearn All- Deletes all controller assignments for the patch. Memorymode will display a warning dialog prior to deletion in order to thwart potential unlearn-related disasters.

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



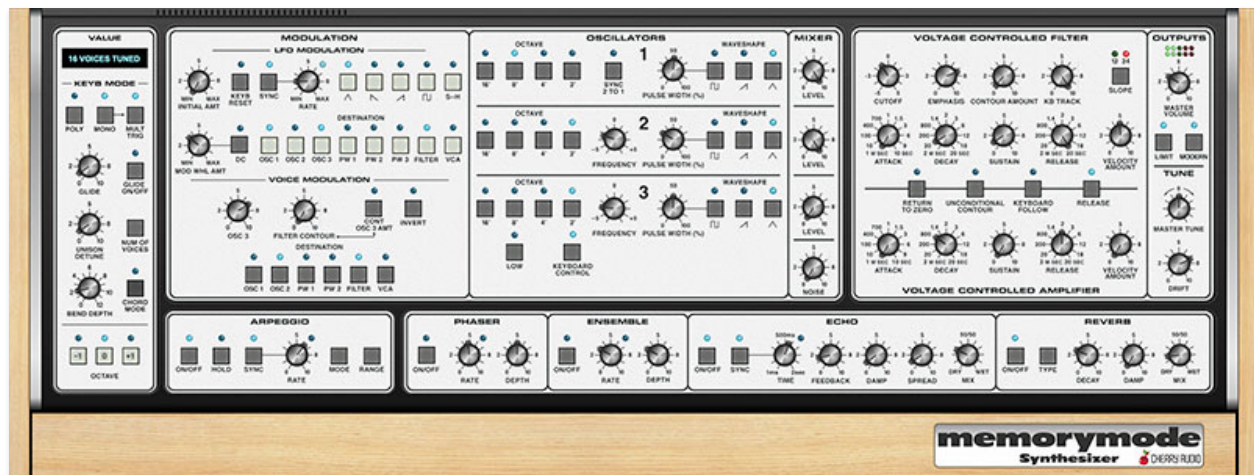
- **Add Undo For Control Changes With The Mouse**- Enabling this allows undo of knob, switch, and button adjustments. You'll want this on if you want the ability to undo all aspects of patch editing and programming.
- **Load Last Preset On Startup (Standalone Only)**- Automatically loads the last preset used when Memorymode standalone version is started.
- **Create A Log File For Usage**- This creates a text doc of all of Memorymode's internal 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 Memorymode log file docs.
- **Preset Folder**- Displays the current location of Memorymode'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

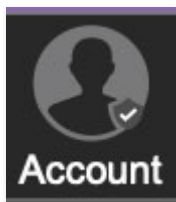
Allows customization of Memorymode's user interface settings.

- **Reset To Default Window Size-** Resets the Memorymode 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.



- **Theme-** Sets Memorymode's color scheme - classic black with red LEDs or a modern Scandinavian white panel and light wood with blue LED's. We promise this doesn't affect the sound!
- **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 which how mouse movements related 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 Memorymode 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, Memorymode remembers all MIDI Tab controller settings.
- **Enable MPE mode-** Short for "MIDI Polyphonic Expression," Memorymode supports MPE, a specialized MIDI protocol enabling multidimensional controllers to control multiple parameters of individual notes. The MPE Settings toolbar icon is displayed if *Enable MPE mode* is checked. See the [Using MPE](#) section for full information.



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 Memorymode and allows changes to be made.
- **View Account Settings-** This opens your personal account page on the Cherry Audio Store website containing information about modules purchased and more.

Software Update

- We often fix bugs and make improvements; below are options defining how Memorymode handles updates.
- **Check For Update-** Click this to see if an updated version of Memorymode is available.

Status:

- **Automatically Install Updates-** Updates are automatically downloaded and installed.
- **Ask Before Installing Updates-** By default, Memorymode 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 Memorymode for live performances or other "mission critical" situations.

- **Never Install Updates-** Memorymode 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 Memorymode.**

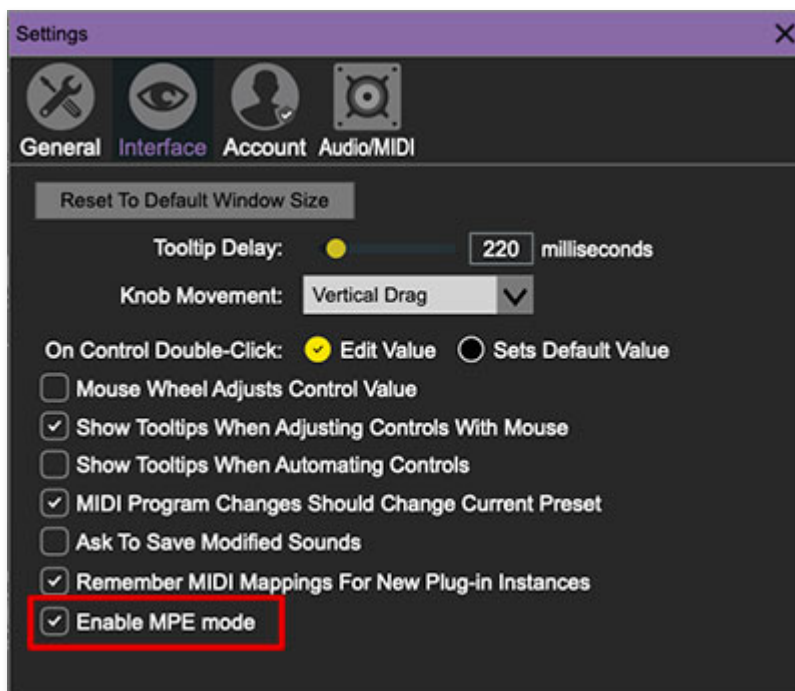
- **Output-** Use this drop-down menu to choose a physical audio output source. This defaults to *Built-In Line Output*, i.e. your computer's onboard system audio, but you'll get better fidelity with an external professional audio interface.
- **Sample Rate-** This sets Memorymode's global sample rate. 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 Memorymode plays weirdo notes when you touch the faders, uncheck it [here](#) to make that stop.

Using MPE



Memorymode supports MPE, short for "MIDI Polyphonic Expression." It's a specialized MIDI protocol enabling multidimensional controllers for controlling multiple parameters of individual notes. MPE specifies the MIDI messages used for three dimensions of control, regardless of how a particular controller physically expresses them. MIDI channel 1 is used as a master channel for global pitch bend, aftertouch, etc.; MPE utilizes MIDI channels 2-15 for the remaining controller data.

To enable MPE mode, MPE needs to be enabled in the Settings menu. Click the *Settings* gear icon in the top purple toolbar, then the *Interface* tab, then check the *Enable MPE mode* box. Exit out of the *Settings* window and click the *MPE* icon in the top tool bar.



Memorymode will display this fanciful graphic in the *Keyb Mode* section when MPE is enabled:



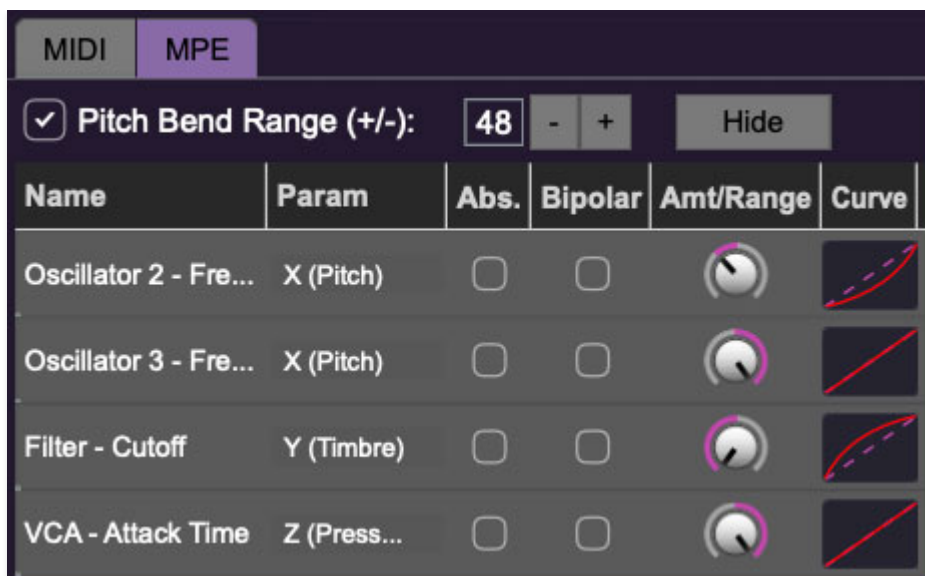
Do not enable MPE mode if you're not using an appropriate MPE controller. Memorymode will not play correctly with a standard USB MIDI controller while in MPE mode.

(^^ This ^^ is the section we'll snarkily refer you to when above thing happens and you freak out on the interwebs about our "buggy" and "defective" plug-in. FWIW, I've personally made this mistake numerous times, which is why we added the little graphic.)

MPE Control Tab

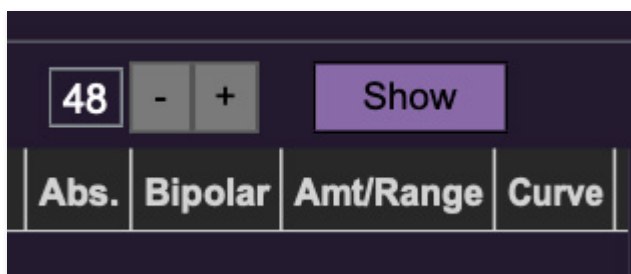


Once MPE is enabled, a button appears in the top purple menu strip. Click it to hide or show the MPE tab.

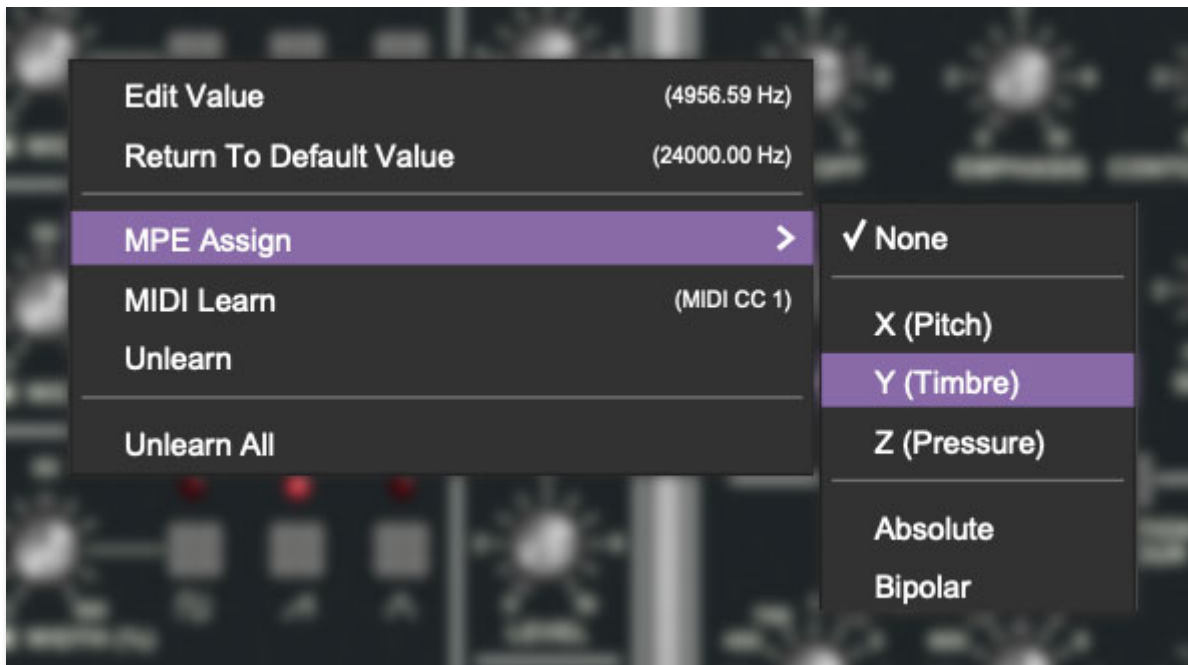


Pitch Bend check box and Range controls- At the top of the tab is a checkbox which enables pitch bend; to its right is the pitch bend range control. Its default setting is 48 semitones (four octaves). For best results you will need to match this number with your MPE controller's pitch bend setting (most MPE controllers default to 48 semitones).

IMPORTANT: If MPE mode is enabled, you must use a MPE controller set to "Lower Mode" to achieve full MIDI control. If you're using a non-MPE MIDI Controller, or the QWERTY Musical Typing keyboard, only one mono voice will trigger.



Show/Hide Button - Clicking the *Show* button in the MPE panel highlights all of the available MPE mappable control sliders for the Memorymode with blue overlays atop panel controls. Click the *Hide* button to hide them.



To map a control slider, right-click or [OPTION]+click (Windows) / [CONT]+click (Mac) the slider you wish to map. This reveals the controller mapping menu. Select *MPE Assign*.

Options are:

X (Pitch)

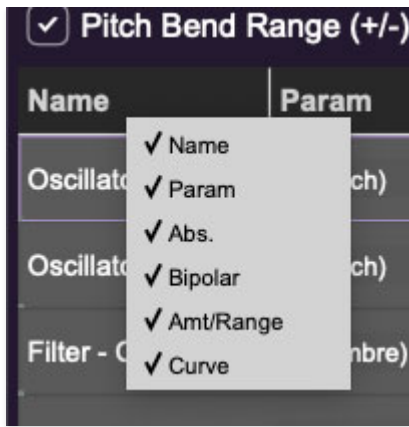
Y (Timbre)

Z (Pressure)

Note: Some MPE controllers such as the Roli Seaboard may have as many as five dimensions of expression. Memorymode utilizes the three standard dimensions: *Pitch*, *Channel Pressure*, and *Timbre*. Also, not all MPE controllers are equipped with a master/global pitch bender.

Once mapped, the *Name* and *Parameter* will be visible in the MPE tab. A yellow square indicator (X,Y,Z) also appears atop each of the mapped controls.

MPE Tab Columns



Right-clicking any of the column headers opens a popup menu allowing each header to be shown or hidden.

Name- Displays the name of the parameter being controlled.

Parameter- Displays and allows selection of the three controller types: *X (Pitch)*, *Y (Timbre)*, and *Z (Pressure)*.

Absolute- Sets the *Amt/Range* of the controller to absolute or relative control.

Bipolar- Enables bipolar controller, i.e. the ability to add and subtract the parameter amount, as opposed to positive only.

Amount/Range- Sets the intensity of control range. If set to *Absolute* mode, two knobs appear for min/max settings.

Curve- These allow the customization of how controller data affect the movement of Memorymode's onscreen controls, ranging from exponential to linear to logarithmic curves. Click and drag on the red line and pull up or down to adjust the curve.

MPE Tab Column Configuration Right-Click Menus

Right-clicking anywhere in the top row (*Name*, *Type*, *Value*, etc.) displays the column configuration menu.

Auto-size This Column- Automatically resizes so that all text in this column is visible.

Auto-size All Columns- Automatically resizes all columns simultaneously so that all text is visible.

Column View Filters- Clicking any of these will hide or show the respective columns.

MPE Tab Parameters Right-Click



Right-clicking on an assigned parameter opens the menu above.

Remove- Deletes the selected MPE controller parameter.

Remove All- Deletes all MPE controller assignments for the patch.

Memorymode displays a warning dialog prior to deletion in order to thwart potential disasters.

MPE Mappable Parameters

Below are all mappable Memorymode MPE parameters. Note that only polyphonic parameters (i.e. parameters that independently affect individual notes) can be mapped with MPE.

SECTION	PARAMETER
MODULATION / VOICE MODULATION	OSC 3
MODULATION / VOICE MODULATION	FILTER CONTOUR
OSCILLATORS	OSCILLATOR 1 PULSE WIDTH (%)
OSCILLATORS	OSC 2 FREQUENCY
OSCILLATORS	OSCILLATOR 2 PULSE WIDTH (%)
OSCILLATORS	OSC 3 FREQUENCY

OSCILLATORS	OSCILLATOR 3 PULSE WIDTH (%)
MIXER	OSC 1 LEVEL
MIXER	OSC 2 LEVEL
MIXER	OSC 3 LEVEL
MIXER	NOISE LEVEL
VOLTAGE CONTROLLED FILTER	CUTOFF
VOLTAGE CONTROLLED FILTER	EMPHASIS
VOLTAGE CONTROLLED FILTER	CONTOUR AMOUNT
VOLTAGE CONTROLLED FILTER	KEYBOARD TRACK
VOLTAGE CONTROLLED FILTER	ATTACK
VOLTAGE CONTROLLED FILTER	DECAY
VOLTAGE CONTROLLED FILTER	SUSTAIN
VOLTAGE CONTROLLED FILTER	RELEASE
VOLTAGE CONTROLLED FILTER	VELOCITY AMOUNT
VOLTAGE CONTROLLED AMPLIFIER	ATTACK
VOLTAGE CONTROLLED AMPLIFIER	DECAY
VOLTAGE CONTROLLED AMPLIFIER	SUSTAIN
VOLTAGE CONTROLLED AMPLIFIER	RELEASE
SECTION	PARAMETER

MPE Controller Devices

Following is a list of MPE controllers as of 2023. We're sure your Sweetwater rep is just dying to sell you one (and follow up that sale with 47 phone calls: "Hi, this is Brett! How are those dual 1/4" TRS cables workin' out for ya?")

Expressive E - Osmose

Roli - Seaboard

Sensel - Morph

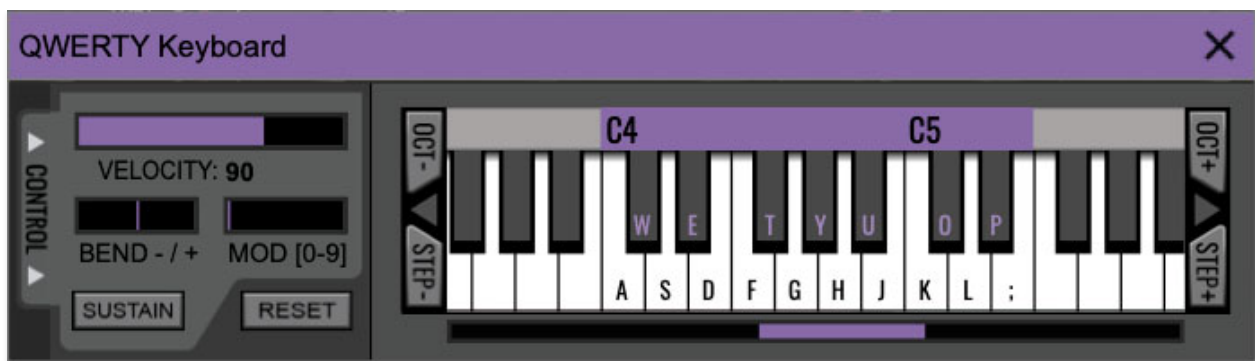
Joué Music - Joué Play

Keith McMillen Instruments - K-Board Pro 4

Haken Audio - Continuum Fingerboard

Roger Linn Designs - Linnstrument

Artiphon - Instrument 1



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" because acronyms sound cool and I hate typing! 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 Eight Voice window.

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. Notes will bend up to an octave. 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.