GLITCHMACHINES®

USER GUIDE

SKEN

S K E I N

PRODUCTION & DEVELOPMENT:

- Ivo Ivanov
- Thomas Hennebert

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SETUP:

⚠ *This is a 64-bit **VST3/AU** plugin. You need a DAW compatible with **VST3/AU** to run it.*

1. Unpack the SKEIN.zip file
2. Via the SKEIN_INSTALLERS folder, run the installer for your system.
    a) **Windows Users**: because our plugins are in a single format on Windows (VST3) the installer does not offer destination options. The plugin files are automatically installed in the correct system subfolders and if you wish to relocate them, you may do so manually after the installation is complete.
    b) **Mac Users:** If you encounter a preset installation error, we are aware of this potential issue and we have put together comprehensive instructions on how to resolve it. Please download them here: MAC PRESET HELP
3. Launch your VST3/AU DAW and instantiate SKEIN on an Instrument Track.
4. Trigger/Play the plugin via your MIDI controller and check out the factory presets to get a sense for how the plugin sounds and works.

If you require tech support, you may reach us at: glitchmachines.sales@gmail.com

SKEIN SYNOPSIS:

Skein is an FM synthesizer focused on experimental sound design and electronic music production.

Skein features 4 operators with skew controls and noise, as well as a flexible modulation matrix with per-cell modulation, per-operator feedback and eight user-definable algorithm presets. Key parameters can be targeted by numerous modulation sources such as 4 LFOs with 15 wave shapes, 4 modulation sequencers with various utilities and up to 32 steps, and 4 multi-mode envelopes. Easily shape and polish patches via two multi-mode filters, as well as an effects processing chain that features 4 multi-effects with local randomizers and a reconfigurable chain order interface.

Much like our other creative audio plugins, we've taken an unconventional approach with Skein. Instead of replicating the classic digital FM synths of the past, we set out to create a new instrument that is primarily focused on sound design and sonic experimentation. With a multitude of powerful modulation sources and a variety of processors such as distortion, bit crusher, chorus, phaser, delay, reverb and buffer effects, Skein is capable of generating an incredibly diverse and expressive range of tones and timbres.

SKEIN INTERFACE:

PARAMETER VALUE DISPLAY:

To reveal the current value of parameters, click on the corresponding knob. Additionally, as you adjust the relevant parameter, its value will appear in an adjacent popup display.

SCALABLE INTERFACE:

You may scale user interface by dragging the bottom-right corner of the window until you reach the desired proportions. This setting is automatically saved and the plugin will launch with the set dimensions until they are altered.

⚠ *Should the interface ever exceed the boundaries of your screen, you can trash the preferences to reset its dimensions. To do this, navigate to the preferences via the Config Menu option and trash the corresponding file before relaunching the plugin.*

The Initialize option at the top of the Config Menu allows you to quickly reset your patch to the factory default **INIT** state.

⚠ *Hold the Control/Command (Win/Mac) key to gain finer control over a parameter*

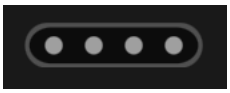
⚠ *Double click a parameter to reset it to its default value*

INTERFACE COLORS:

Light blue is designated as the indicator color across all knobs and sliders. Buttons with an ON/OFF state are illuminated in green to indicate when they are active. The colors listed below denote parts/sections of a particular plugin element. These are distributed across elements according to the structure of the associated section to aid as a means of visual distinction rather than having a particular technical meaning. For example, The 4X4 Matrix cell **groups** follow the same color order as the 4 lanes in the LFO scopes. Likewise, the same colors are assigned to the modulation sources in the Mod Panel where each **group** is assigned a different color in the same order as shown below:

YELLOW / GREEN / BLUE / PURPLE / ORANGE / PINK

To access the mod panel, click on the mod selector below the corresponding parameter:



The Mod Selector is located under various parameters across the interface, including all 16 matrix cells.

Mod Selector indicators are intended to give you a quick visual indication that one or more sources are active in the corresponding panel. The 4 dots (indicators) will be illuminated in the color corresponding to the active source.

For example, if LFO1, LFO2, SEQ3, and Key Track are active, the indicators would be illuminated as shown below:

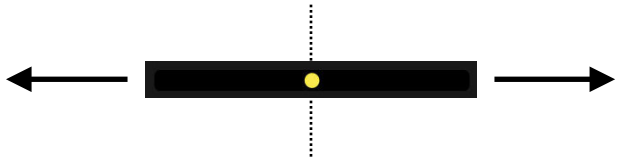
⚠ *Since there are more than 4 modulation sources, the indicators only act as a basic visual reference rather than a complete breakdown of the active sources therein.*

In addition to the indicators, there is also a **blue overlay animation** that travels across the length of the Mod Selector, which indicates the sum of negative & positive modulation of all the active parameters within. Again, this is only intended to provide a quick visual clue about the modulation activity within the corresponding panel without having to open it.

MODULATION PANEL:

The Mod Panel is revealed by clicking on the corresponding mod selector below the parameter you wish to modulate. It incorporates all of the modulation sources across the plugin. This includes the 4 LFO's, 4 Amplitude Envelopes and 4 Step Sequencers, 4 Randomizers as well as Key Tracking and Velocity.

To modulate a parameter, adjust the slider associated with the corresponding modulation source. For example, if you wish to modulate the Filter 1 Cutoff parameter via LFO1, then simply navigate to the destination parameter (Cutoff) and click on the Mod Selector to reveal the Mod Panel. From the panel, adjust the slider labeled "LFO1" to the desired range. Once this is done, you can navigate to the LFO1 module itself, to make the desired adjustments such as changing the wave shape or rate, etc. This process completes the modulation assignment and you can then continue fine tuning this modulation setup by adjusting the slider at the destination to determine the "modulation depth" that is applied to it.



Positive & Negative Modulation: at default (at center), the sliders output no modulation signals. Once you move a slider to the right of center, it increases the positive modulation applied from the source to the target parameter. Likewise, as you move a slider to the left of center, it applies negative modulation from the source to the target parameter.

⚠ *Sending negative modulation to a parameter that is already set at minimum value will clip internally since the source can not modulate the target beyond zero.*

Keytracking: key tracking uses incoming MIDI data to determine the modulation range of a parameter whereby the higher the MIDI "pitch" (i.e. as you play keys higher than middle C), the modulation value *increases*, while the lower the MIDI "pitch" (i.e. as you play keys lower than middle C), the modulation value *decreases*. This can be a useful way of *performing* modulation via your MIDI controller.

Velocity: MIDI key velocity (i.e. how hard a key is struck on your controller) can also be used to modulate a target parameter. Unlike Key Tracking, where the entire MIDI key range is designated as the minimum and maximum modulation range, here the function is confined to each individual velocity message that corresponds to how hard an individual key is struck. In numerical terms, the velocity value falls somewhere between 0-127 (according to the MIDI spec) and this value is then sent to the targeted parameter.

Randomize Button: this button sets a random selection of sliders to random values.

Clear Button: this button resets all sliders in the corresponding panel back to zero.

FREQUENCY MODULATION:

Frequency Modulation (FM) synthesis is a popular synthesis technique where two or more waveforms modulate each other at audio frequencies.

At the most basic level, there is a **Carrier** - i.e. an oscillator producing a waveform - whose pitch is modulated by another oscillator/operator - i.e. a **Modulator** - and the resulting waveform equates to a mathematical sum of both waves.

In FM synthesis terms, oscillators are referred to as **Operators** because they can take on the role of both a carrier and/or modulator.

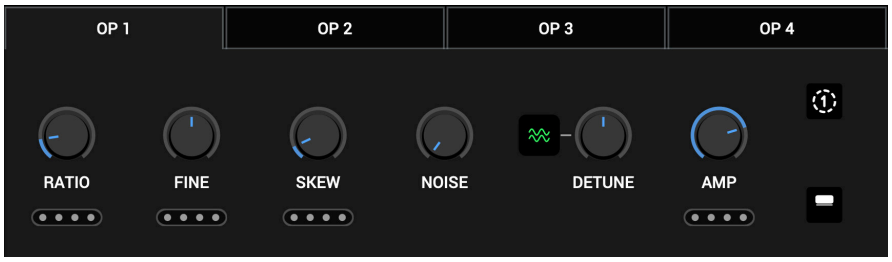
In basic technical terms, we can start with a sine wave - which itself is a single frequency lacking any harmonics - and by modulating its frequency, we are able to introduce a variety of harmonics (multiples of the fundamental frequency) to ultimately increase the complexity of the resulting timbre.

In more practical terms, FM is a creative synthesis technique that is used to increase the complexity of waveforms, thereby producing a wide array of harmonic and/or inharmonic sounds. Particularly under modulation, FM sounds can be extremely expressive, evolving and complex and lend themselves well to various audio filtering techniques - and sound design in general - thanks to their wide range of harmonics.

The combination and routing of a number of operators is typically referred to as an 'algorithm' which will be explained in further detail in the **FM Matrix** section of this guide.

⚠ *If you wish to learn more about the technical concepts behind FM Synthesis, there are many excellent, free, in-depth educational materials available online.*

OPERATOR MODULES:



Skein features 4 Sine Wave Operators (oscillators). Each Operator's parameters are accessible via the corresponding header tabs.

Operators offer a number of tone generating and shaping functions, most of which are available as modulation targets via the Mod Selectors explained earlier in this guide.

RATIO: controls the harmonic ratio of the pitch. It offers the following options:

1/8	1/4	1/2	3/4	1	1.25	1.5	1.75	2	2.25
2.5	2.75	3	4	5	6	7	8	10	12

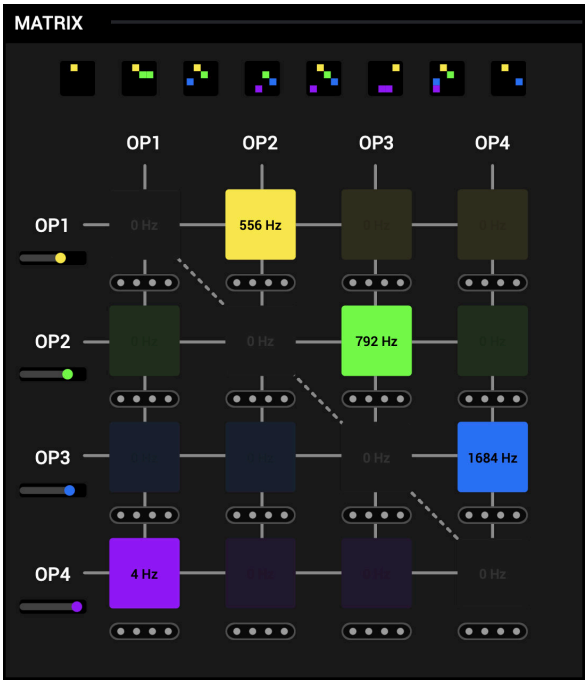
FINE: controls the fine tuning of the operator's pitch by +/- 100 cents
SKEW: controls the shape of the waveform (in technical terms it bends the phase of the oscillator, in practice the resulting waveform gets harsher and closer to a sawtooth)
NOISE: a white noise generator that blends with the operator's output at 0-100%
DUAL OSC MODE: similar to a "unison" effect where the operator's signal is doubled
DETUNE: offsets the pitch of the second oscillator (when dual osc mode is active) to achieve a more "wide" and/or slightly detuned timbral character. This parameter also influences the timbre of the operator as it's being modulated so it's worth experimenting with beyond just using it for a widening effect.

AMP: controls the output amplitude of the Operator module between -70.00-0.00 dB

Envelope Assign: click to assign the operator's amplitude to Envelopes 1-4

Filter Assign: click to assign to Filter 1 (icon at top) or Filter 2 (icon at bottom)

FM MATRIX MODULE:



The Matrix is where the Operator signals converge in a 4X4 grid, determining their Carrier/Modulator interactions. Each row features four modulatable cells which correlate with the OP1-4 frequencies. This allows Operators to be combined and modulated in a broad variety of ways, resulting in a vast range of timbres & tones.

At the left of each row is an Amplitude slider which corresponds to the output amplitude of the associated Operator module:

Each horizontal row in the Matrix represents one of the 4 Operators, where OP1 is **Yellow**, OP2 is **Green**, OP3 is **Blue** and OP4 is **Purple**. The vertical rows then represent each of the other three Operators that can modulate the corresponding row's primary Operator. Finally, each of the **Gray** cells represent the primary Operator itself, which can be used to create feedback loops that can be utilized to create more complex modulations and/or inharmonic tones. Click & Drag up/down (or modulate) any of the cells to increase/decrease the frequency (Hz) of the associated Operator:

OP1 Feedback	OP2 Modulates OP1	OP3 Modulates OP1	OP4 Modulates OP1
OP1 Modulates OP2	OP2 Feedback	OP3 Modulates OP2	OP4 Modulates OP2
OP1 Modulates OP3	OP2 Modulates OP3	OP3 Feedback	OP4 Modulates OP3
OP1 Modulates OP4	OP2 Modulates OP4	OP3 Modulates OP4	OP4 Feedback

ALGORITHM PRESETS:

In FM Synthesis, an Algorithm refers to a particular routing and modulation setup between the operators. It refers to a combination of "carriers" and "modulators" (explained earlier in this guide), which result in a unique timbre. Skein features 8 factory algorithms that are accessible via the preset buttons shown above.

⚠ *The output is very much dependent on the ratio/fine tune of each operator so the algorithms will not always sound interesting on their own without some modulation.*

To select one of the 8 factory algorithms, click on the corresponding cell (shown above). You can overwrite the factory algorithms by Shift+clicking in one of the cells. The image will update to reflect the currently active matrix cells and this preset will be stored along with the plugin's preferences.

⚠ *If you wish to reset the algorithms to factory settings, simply trash the plugin's preferences (accessible via the Config Menu shortcut) and the plugin will automatically generate the default algorithms next time the plugin is loaded.*

ENVELOPE MODULES:

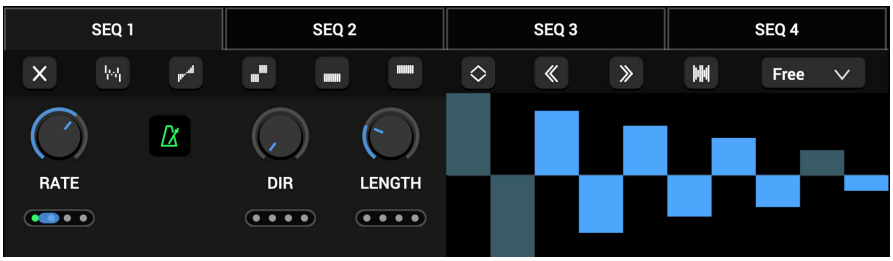
Skein is equipped with 4 Amplitude Envelope modules that feature Onset control as well as Decay, Release, and Loop Mode as well as an Expo Mode for percussive sounds.

ONSET: offsets the start of the envelope between 0-1000 ms
ATTACK: sets the attack of the envelope between 10-500 ms
VARIABLE: sets the selected mode (Decay, Release, Loop) between 10-500 ms

Click the icon to cycle through 3 modes (the third knob's label changes accordingly):

- **DECAY MODE**: doesn't take the gate into account; once the decay stage is over the sound stops even if the key is still held
- **PERCUSSIVE MODE**: when this button is active, the decay curve becomes snappier (critical for sounds that benefit from a more percussive response). This setting only applies to Decay Mode. It is deactivated in Release Mode
- **RELEASE MODE**: sustains for the duration of the gate and then enters release stage on note-off
- **LOOP MODE**: a decay mode that loops for the duration of the gate

SEQUENCER MODULES:



Skein is equipped with 4 extremely flexible modulation sequencers that include up to 32 steps, a vertical resolution menu, 10 utility buttons and various other useful functions.

UTILITIES:

	CLEAR		RANDOM		RAMP		SQUARE		MINIMUM
	MAXIMUM		FLIP		SHIFT L		SHIFT R		SHUFFLE

Hovering your mouse over these buttons reveals a tooltip popup showing their function.

These utilities are intended to speed up the creation of sequences by allowing you to quickly populate and/or manipulate the sliders to various useful values.

To situate a slider at the desired value, click&drag it up or down with your mouse. You can also “draw” an entire sequence by click&dragging your mouse vertically/ horizontally across the slider interface.

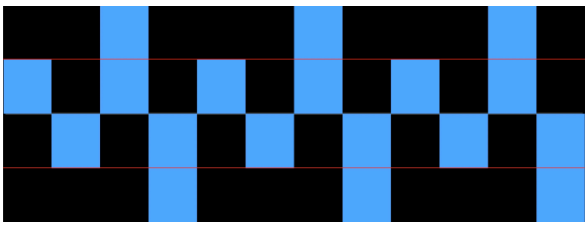
The horizontal center represents zero value, while 100% down from center represents minimum value and 100% up from center represents maximum value.

VERTICAL RESOLUTION MENU: this menu sets the resolution of “vertical steps” for the sliders (up/down from center). You can think of this as a grid that the sliders snap to vertically, making it easier to set them to precise values.

By default, the sequencers are set to “FREE” which means that sliders can be set freely in vertical space without snapping to a grid. The following options are available:

FREE	1	2	3	4	6	8	10	12	20

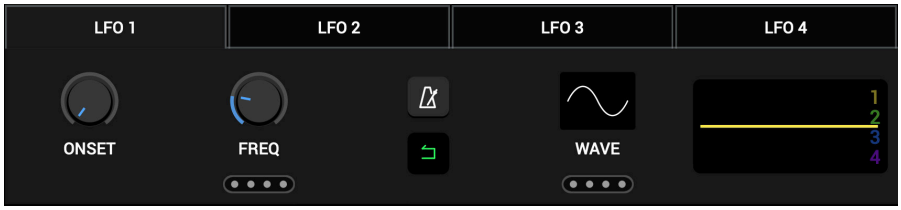
A value of 2 is shown below for example:



RATE: sets the rate (speed) of the sequencer between 0.001Hz - 20kHz
DIRECTION: sets the direction to forward, backward, pendulum or random
LENGTH: sets the number of sequencer steps between 2 and 32

SYNC: synchronizes the rate parameter to various beat divisions relevant to the host clock between 8 BARS - 128th note

LFO MODULES:



Skein includes 4 Low Frequency Oscillators with optional tempo Sync, Onset and Re-trigger controls, with 15 wave shapes and built-in oscilloscopes.

ONSET: offsets the time before the LFO starts between 0-1000 ms

FREQUENCY: sets the speed of the LFO between 0.001Hz - 20kHz

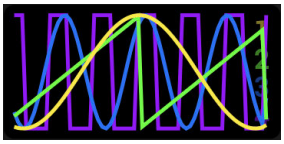
SYNC: when active (green) this button synchronizes the rate parameter to beat divisions relevant to the host clock between 8 BARS - 128th note

RETRIG: when active (green), the LFO cycle restarts on each note trigger

WAVE: LFOs feature 15 waveforms. Click or Shift+click to cycle ← →

	SINE		RAMP		TRIANGLE		SQUARE		RANDOM
	SMOOTH RANDOM		STAIR 4		STAIR 8		SINE DECAY		SINE ATTACK
	SINE FOLD		TRI FOLD		PULSE		EXPO		HEARTBEAT

The LFO modules provide an oscilloscope that allows you to visualize the LFO waveforms. This is an extremely useful tool that aids in the modulation of a patch by allowing you to visualize the interaction between the LFO signals.



There are four traces labeled 1-4, corresponding to the 4 LFO signals. The traces are idle at center and activate on each new note trigger. LFO Waves default to Sine, so they appear to be hidden by the yellow trace from LFO1 but will reveal themselves once another LFO's Wave or Rate parameter are altered. You can **alter the refresh rate** (i.e. the frequency) of the oscilloscope by dragging your mouse up/down in the display. This allows you to "zoom" in/out to see a wider or more narrow perspective of the traces.

FILTER MODULE:

Skein includes a dual multi-mode filter with serial or parallel routing.

CUTOFF: sets the cutoff frequency of each filter between 20Hz-11kHz
RESONANCE: sets the resonance of each filter between 0-100%

MODE: click to cycle through the following modes for each filter:

	LOWPASS		HIGHPASS		BANDPASS		NOTCH

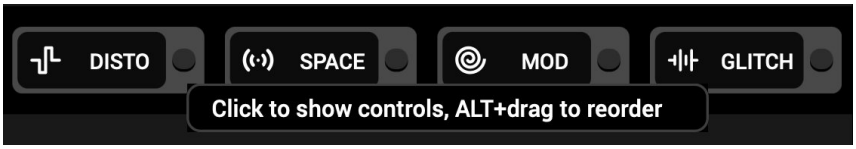
Parallel: both Filters process incoming signals independently

Serial: Filter 1 processes signals first, then its output is processed by Filter 2

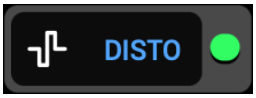
⚠ *As outlined in the Operator section, you can assign each operator's output to one of the two filters via the Filter Assign button*

⚠ *The filters process the signal coming from the Operators before the Effects chain*

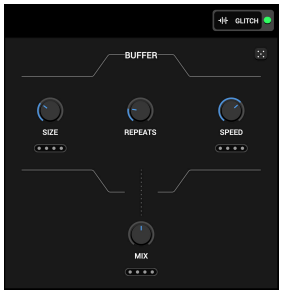
EFFECTS CHAIN:



The Effects Chain features 4 effects processors with a total of 7 effects that can be reconfigured in the desired order by ALT-dragging the cells into the desired position. Clicking on a FX Cell will highlight its name in blue and reveal the parameters of the corresponding effects processor. To activate a processor, click on the round button situated at the right edge of the cell. The corresponding LED is illuminated in green to signify that the processor is active:



EFFECTS PROCESSORS:



DISTO MODULE : **DISTORTION** and **BIT CRUSHER**

DRIVE: sets the drive of the distortion between 0 - 100dB
BIAS: Adds a positive or negative DC offset to the signal, altering how the original signal will react to the distortion
ALGO: morphs between the overdrive and foldover distortion algorithms

BITS: a bit reduction effect that reduces the signal's resolution between 16 - 1 bits
REDUX: divides the sample by a value between 32 - 1

MIX: sets the mix between the dry and wet (unprocessed vs. processed signal

AMP: sets the output amplitude of the module

RANDOMIZER BUTTONS: common to all 4 modules, this button sets parameters in the corresponding module to random values

SPACE MODULE : **DELAY** and **REVERB:**

TIME: sets the delay time between 1-1000ms

SYNC: synchronize the time parameter to the host clock: 8 BARS - 128th note

FEED: sets the feedback of the delay between 0 - 100%
DAMP: sets dampening of "brightness" in the delayed signal between 40Hz - 11kHz
MIX: sets the balance between the unprocessed and processed signal
Clicking the icon cycles through the following routing options:

	Delay PRE Reverb		Delay POST Reverb		Parallel

SIZE: sets the reverb size between 0 - 100%
DAMP: sets the dampening of “brightness” in the reverb signal between 0 - 100%
WIDTH: sets the reverb width between 0 - 100%
MIX: sets the mix between the processed and unprocessed signal between 0 - 100%

MOD MODULE : **CHORUS** and **PHASER**

DEPTH: sets the chorus depth between 0 - 100%
RATE: sets the chorus rate between 0.1Hz - 20 Hz
FEED: sets the chorus feedback between -100% - 100%
CENTER: sets the center of the chorus between 1ms - 40ms
MIX: controls the mix of the chorus effect between 0 - 100%

DEPTH: sets the phaser depth between 0 - 100%
RATE: sets the phaser rate between 0.1Hz - 20 Hz
FEED: sets the phaser feedback between -100% - 100%
CENTER: sets the center of the chorus between 20Hz - 20kHz
MIX: controls the mix of the phaser effect between 0 - 100%

GLITCH MODULE : **BUFFER EFFECT**

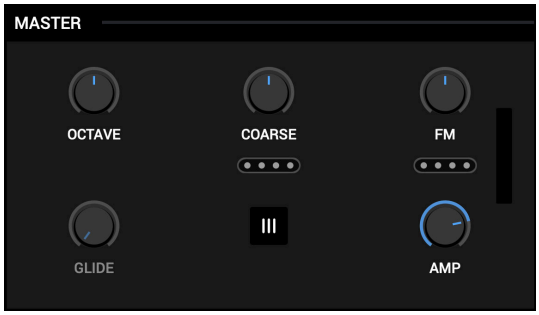
The Glitch Module is derived from our popular buffer effects plugin, Fracture

SIZE: sets the buffer sample size between 1ms - 1000ms
REPEATS: number of times audio is looped before buffering new input: 1 - 64
SPEED: sets the speed of the buffer between -1 - 2

The original playback speed is 1.0 (you can revert to this value by double clicking on the knob). A value of 2 means that the audio will play twice as fast (one octave higher) and a value of 0.5 means that the audio will play twice as slow (one octave lower). Setting this parameter to a value of 0 will stop the playback of the buffered audio. Negative values mirror the positive values, but the audio will play backwards.

MIX: controls the mix of the glitch effect between 0 - 100%

MASTER MODULE:



The Master Module incorporates various global functions such as:

OCTAVE: sets the octave for all operators globally between -2 and 2
COARSE: coarse tuning for all operators globally between -12 and 12 semitones
FM: sets the global FM amount between 0-200%

This FM parameter applies a multiplier to all the FM amounts in the matrix. The default is center 100% which is equivalent to multiplied by 1, everything below this will reduce the FM values, everything above will increase them by the corresponding factor.

⚠ **GLIDE**: sets the time it takes to smoothly transition between notes 0-1000ms

Glide is only active in Mono Mode - in Poly Mode, the knob is deactivated

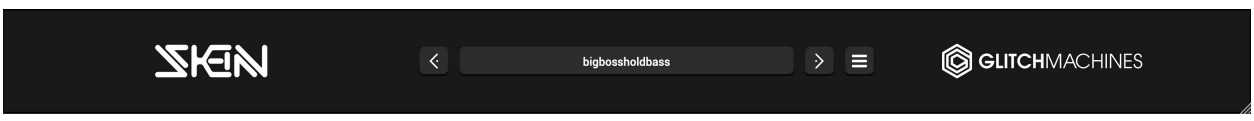
MONO: monophonic mode only allows playback of 1 voice at a time

POLY: polyphonic mode allows playback of 12 voices at a time

AMP: sets the main output amplitude of the plugin between -70 - 6dB

FOOTER:

The Footer section gives you access to the **Presets** and **Configuration Menu**:



PRESETS:

You can navigate through the 160 factory patches either by accessing the drop-down menu, or by using the navigational arrows to increment/decrement though the list.

Clicking on the **Save Preset** option at the top of the presets menu will open a dialog box where you can save the current preset on your hard drive, using the extension ".skep".

Presets are organized in the following subfolder categories (banks):

BASS	LEAD	PAD	SFX

⚠ *Skein supports preset folders (one level deep), allowing you to add your own if you wish to organize or isolate your personal presets from the factory content, for example. To do this, simply navigate to the presets via the Open Preset Folder Config Menu shortcut and create a new folder alongside the existing factory folders, naming it as desired.*

☰ CONFIGURATION MENU:

The configuration menu gives you access to the following plugin options:

INITIALIZE: sets all controls back to factory defaults

OPEN PRESET FOLDER: shortcut to the location of the presets on your hard drive

SHOW PREFERENCE FILE: shortcut to the plugin preferences file on your hard drive

The current plugin version is printed at the bottom of this menu

⚠ Thanks for purchasing SKEIN !

Please check out the rest of our products at our website: https://glitchmachines.com