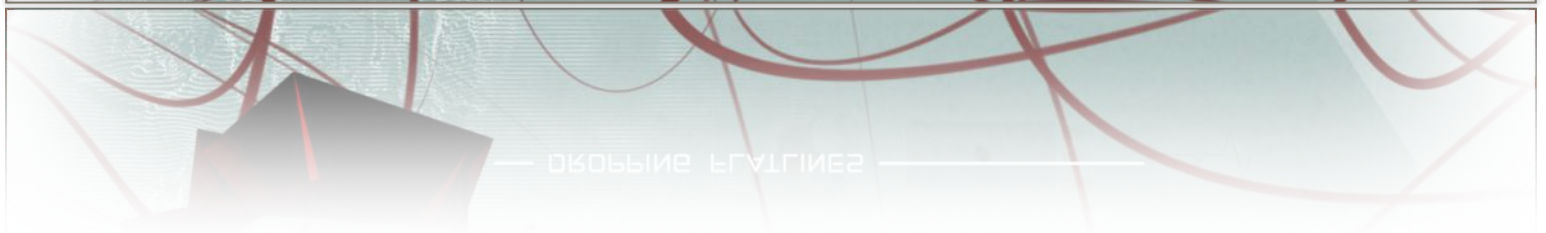




# SONIC FACTOR



## Reference Manual

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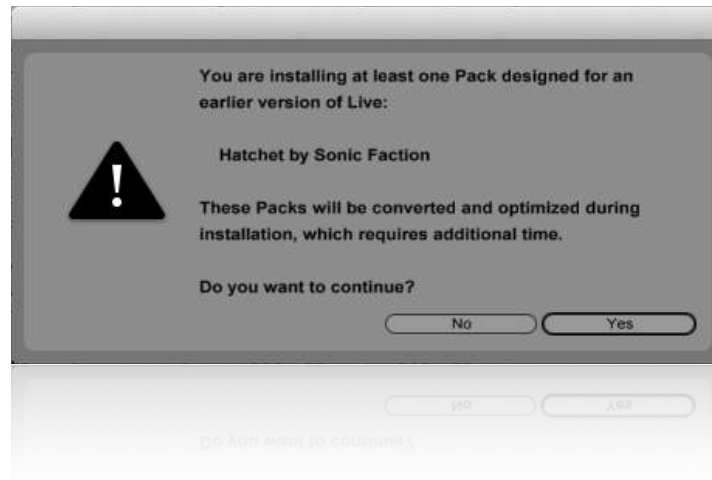
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# Installation

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YOU MUST HAVE ABLETON LIVE 9.1 AND MAX FOR LIVE 6.1 TO USE Pulsator.

- 1) Locate the SonicFaction\_Pulsator\_v3.0.alp in your browser.
- 2) Click to Install.
- 3) When prompted with the message, “You are installing at least one Pack designed for an earlier version of Live... Do you want to continue,” click Yes.



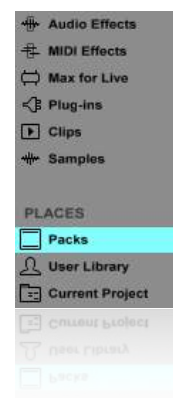
Live will automatically install Pulsator into your Live Library, once you have followed these steps.

# Navigation

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Once you have installed Pulsator, you can find it using Live’s built in browser by following the steps below:

- 1) Simply navigate to “Packs” located in the “Places” section and find the pack, “SF - Pulsator.”
- 2) Look inside the pack by hitting the disclosure triangle on the left side. From there click and drag the Pulsator.adg file from the browser onto an empty midi track.

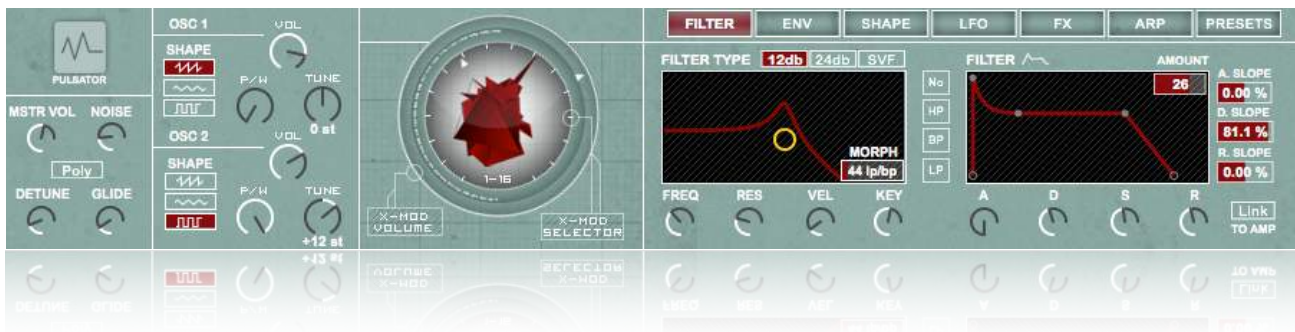


**Places > Pack > SF - Pulsator**

# Features

We've included the following features in Pulsator to make operation easy and intuitive.

- Global Section
- Filter Section
- Envelope Section
- Shape Section
- LFO Section
- FX Section
- Arpeggiator Section
- Preset Section



## Global Section

The global section has been designed to control oscillator volumes, tunes and waveforms.



**Master Vol:** Controls the Master Volume of the entire device.

**Noise:** Controls the volume of the Noise Oscillator.

**Poly/Mono:** Controls whether the device is monophonic or polyphonic.

**Detune:** Detunes the Saw Oscillator up 10 ct. and the Square Oscillator down 10 ct., while also increasing the spread of each oscillator.

**Glide:** Determines the time it takes to transition smoothly from one note to another - portamento.

**Oscillator Section:** Controls various oscillator parameters.

**Osc A Shape:** Controls Osc A's waveform; can choose between saw, triangle and square.

**Osc A Vol:** Controls the Volume of Osc A.

**Osc A Tune:** Controls the pitch of Osc A in semitones.

**Osc A Pulse Width:** Controls the pulse width of Osc A's pulse wave.

**Osc B Shape:** Controls Osc B's waveform; can choose between saw, triangle and square.

**Osc B Vol:** Controls the Volume of Osc B.

**Osc B Tune:** Controls the pitch of Osc B in semitones.

**Osc B Pulse Width:** Controls the pulse width of Osc B's square wave.

**X-mod Volume:** Controls the volume of the X-Mod Oscillator.

**X-mod Selector:** Controls the X-Mod wave type; there are 16 different waveforms.

## Filter Tab

In this tab you have the ability to edit various settings of the filter envelope and other filter parameters.



**Filter Type:** Controls the morphable filter type. Filter models are M12db M24db or SVF (State Variable Filter).

**Freq:** Controls the filter's cutoff frequency; the frequency where the filter begins to attenuate signals.

**Res:** Controls the filter's resonance; places emphasis on the frequencies around the filter's cutoff frequency.

**Vel:** Controls the sensitivity of the filter's cutoff to velocity; How much the filter's cutoff will be effected by the velocity.

**Key:** Controls the sensitivity of the filter's cutoff to midi notes; How much the filter's cutoff frequency will be effected by the pitch of inbound midi notes.

**Filter Graph:** The graph above the 4 dials just explained. Drag the circle to adjust the frequency and resonance simultaneously. The X axis controls the cutoff, while the Y axis controls the resonance.

**Filter Morph:** The box in the lower right hand side of the filter graph; this controls the morph of the filter, allowing you to continuously transition from Low Pass to Band Pass to High Pass to Notch to Low Pass.

- The buttons to the left of the Filter Graph will jump to the classic positions Low Pass, Band Pass, High Pass, and Notch

**Amount:** Filter envelope amount; Determines how much influence the filter envelope has on the filter's cutoff frequency.

**A (Attack):** The filter envelope attack time; The time it takes for the cutoff to travel from it's initial value (determined by the filter's cutoff) to it's peak value (determined by the filter amount).

**D (Decay):** The filter envelope decay time; The time it takes for the cutoff to travel from it's peak value (determined by the Filter amount) to the sustain level.

**S (Sustain):** The filter envelope sustain level; the level reached at the end of the filter envelope decay period.

**R (Release):** The filter envelope release time; the time need to travel to the end value (determined by the filter's cutoff) after a note has been released.

**A. Slope:** The filter envelope attack slope; controls the shape of the filter envelope attack time.

**D. Slope:** The filter envelope decay slope; controls the shape of the filter envelope decay time.

**R. Slope:** The filter envelope release slope; controls the shape of the filter envelope release time.

**Filter Envelope Graph:** The graph located above the ADSR dials; allows you to edit the ADSR by grabbing and dragging the points.

**Link:** Link to Amp; links the amp envelope settings to your filter envelope settings.

## Envelope Tab

In this tab you have the ability to edit various settings of the amp envelope and pitch envelope.



### Amp Section

**A (Attack):** The amp envelope attack time; The time it takes for the amplitude to travel from it's initial value (-inf db) to it's peak value (0 db).

**D (Decay):** The amp envelope decay time; The time it takes for the amplitude to travel from it's peak value (0 db) to the sustain level.

**S (Sustain):** The amp envelope sustain level; the level reached at the end of the amp envelope decay period.

**R (Release):** The amp envelope release time; the time it takes the amplitude to travel to the end value (-inf db) after a note has been released.

**A. Slope:** The amp envelope attack slope; controls the shape of the amp envelope attack time.

**D. Slope:** The amp envelope decay slope; controls the shape of the amp envelope decay time.

**R. Slope:** The amp envelope release slope; controls the shape of the amp envelope release time.

**Amp Envelope Graph:** The graph located above the amp ADSR dials; allows you to edit the amp ADSR by grabbing and dragging the points.

**Link:** Link to Filter; links the filter envelope settings to your amp envelope settings.

### Pitch Section

**Amount:** Determines the limits of the pitch envelope in semitones.

**A (Attack):** The pitch envelope attack time; The time it takes for the pitch to travel from it's initial value (0%) to it's peak value (determined by the pitch amount).

**D (Decay):** The pitch envelope decay time; The time it takes for the pitch to travel from it's peak value (determined by the pitch amount) to the sustain level.

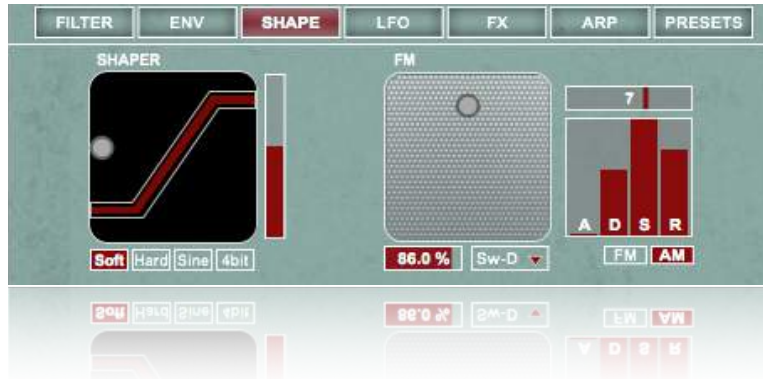
**S (Sustain):** The pitch envelope sustain level; the level reached at the end of the pitch envelope decay period.

**R (Release):** The pitch envelope release time; the time need to travel to the end value (0%) after a note has been released.

**Pitch Envelope Graph:** The Graph to the left of the pitch amount slider; controls the pitch amount (y axis) and the pitch decay (x axis).

## Shape Tab

This tab is dedicated to wave shaping, frequency modulation, and amplitude modulation.



### Shaper Section

**Shaper Graph:** Here you have the ability to change the waveshaping curves (x axis) and the intensity of the shaper (y axis).

**Shaper Intensity:** The slider next to the Shaper Graph; controls the intensity of the shaper.

**Shaper Type:** The tab system below the Shaper Graph; controls the waveshaping curves.

### FM Section

**FM Graph:** Here you have the ability to change the modulator wave (x axis) and the intensity of your sample modulation (y axis).

**Modulation Level:** The box on the left side under the FM Graph; controls the intensity of your sample modulation.

**Modulation Type:** The box on the right side under the FM Graph; controls the modulator waveform.

**Modulation Tune:** The slider box located to the right of the FM Graph, and above the FM ADSR; controls the coarse tuning of the modulator wave.

**Modulation Envelope:** Sliders to the right of the FM Graph, and below the Modulation tune; controls the attack, decay, sustain, and release of the Modulation Intensity.

**A (Attack):** The modulation envelope attack time; The time it takes for the modulation intensity to travel from it's initial value (0%) to it's peak value (determined by the Modulation level).

**D (Decay):** The modulation envelope decay time; The time it takes for the modulation intensity to travel from it's peak value (determined by the Modulation Level) to the sustain level.

**S (Sustain):** The modulation envelope sustain level; the level reached at the end of the modulation envelope decay period.

**R (Release):** The pitch envelope release time; the time need to travel to the end value (0%) after a note has been released.

**FM/AM:** The tab system under the Modulation Envelope; controls whether you are using frequency modulation or amplitude modulation.



## LFO Tab

In this tab are 2 low frequency oscillators, one hardwired and the other assignable to nearly every parameter within Pulsator.



### LFO 1 Section

**Rate:** Controls the LFO 1 rate, in Hertz (cycles per second), or in a syncopated rate.

**LFO Rate Mode:** The button located under the rate dial; Here you can choose the LFO to run in Hz or be synced to the beat.

**Type:** Here you can choose between various LFO wave shapes.

**Attack:** Controls the time needed for the LFO to go from minimum intensity (0) to maximum intensity (determined by the Depth of modulation).

**Retrigger:** Resets the LFO to it's starting point on every new midi note.

**Amp:** Determines the depth of modulation for the global volume level.

**Filter:** Determines the depth of modulation for the filter's cutoff frequency.

**Pan:** Determines the depth of modulation for global pan position.

**Pitch:** Determines the depth of modulation for the pitch.

### LFO 2 Section

**Rate:** Controls the LFO 2 rate, in Hertz (cycles per second), or in a syncopated rate.

**LFO Rate Mode:** The button located under the rate dial; Here you can choose the LFO to run in Hz or be synced to the beat.

Note: for the sync rate to take effect, you must have ableton playing.

**Depth:** Determines the depth of modulation for whatever you have assigned.

**Assign:** This drop down menu allows you to assign LFO 2 to many different Pulsator parameters.

**Type:** Here you can choose between various LFO wave shapes.

**Hold:** The button located to the right of the LFO 2 Type; will stop the modulation of LFO 2 and hold the depth wherever it was when you pushed the button.

**Phase:** Shifts the position of your oscillation in relation to it's origin.

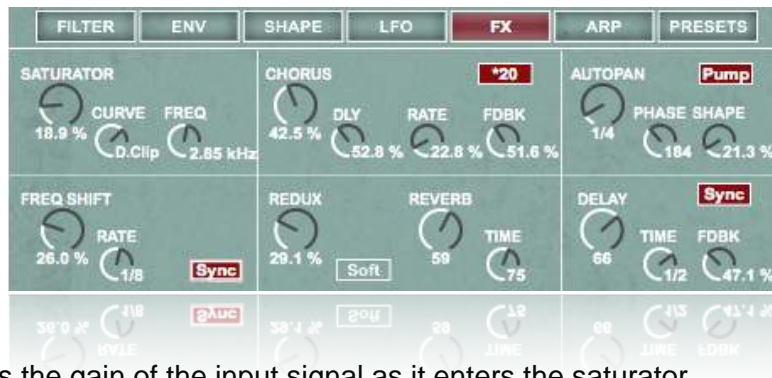
**Jitter:** Adds a random variation offset (jitter) to the current value.

**Offset:** Allows you to determine the modulations center position.

**Smooth:** Smooths value changes over time.

## FX Tab

This tab is purely dedicated to the effects designed for Pulsator.



**Saturator:** Adjusts the gain of the input signal as it enters the saturator.

**Curve:** Sets the curve for shaping the input signal.

**Freq:** Sets the center frequency for saturator's color filter.

**Chorus:** Controls the dry/wet mix of the chorus effect.

**DLY:** Controls the modulation amount.

**Rate:** Sets the rate of modulation.

**Feedback (FDBK):** Determines how much output signal feeds back into it's input.

**Rate Multiplier:** The toggle located above the chorus feedback; multiplies the rate by 20 for faster modulations.

**Auto Pan:** Auto Pan manipulates the amplitude and panning in a synchronized method for creating tremolo, and panning effects. The dial Controls the on/off of the autopan and adjust the rate.

**Auto Pan Mode:** The toggle to the right of the Auto Pan dial; this allows you to switch between chop (ramp down) and pump (ramp up).

**Phase:** Adjusts the amount of offset between the left and right channel, at 180, the channels will be completely out of phase.

**Shape:** Hardens the shape of the Auto Pan. By increasing the shape to 100%, you can now get a wave that resemble a square.

**Redux:** Adds a bit crushing distortion by controlling the distance between samples that are passed through it. With a setting of 1, every sample will run through; with a setting of 10, only every 10th sample is passed through.

**Downsample Mode:** The toggle to the right of the Redux dial; Toggles between downsampling modes.

- Hard: downsamples down to 200 samples, without interpolation.

- Soft: downsamples down to 20 samples, with interpolation.

**Freq Shift:** Determines the depth of modulation for the frequency shift.

**Freq Shift Rate:** To the right of the Freq Shift; this sets the frequency of the freq shift modulation in either Hertz (cycles per second), or in a syncopated rate.

**Reverb:** Controls the effect's dry/wet mix.

**Time:** Adjusts the decay time of the reverb, The time required for the reverb's tail to drop to 1/1000th of it's initial amplitude.

**Delay:** Controls the dry/wet of the delay.

**Delay Time Mode:** Allows you to switch between a synced rate (beats) and a timed (ms) rate.

**Time:** Sets the time of the delay. Can switch between timed (ms) and synced (beats).

**Feedback (FDBK):** Sets the amount of times that the output is fed back to it's input.

## Arpeggiator Section

This tab allows you to control both of Pulsator's parallel arpeggiators.



**On/Off:** the buttons labeled A and B; these turn the arpeggiators on and off (A and B respectively).

**Rate:** Sets the speed in which notes are played in a syncopated (beats) manner.

**Gate:** Sets the note length in the pattern as a percentage of the rate's position.

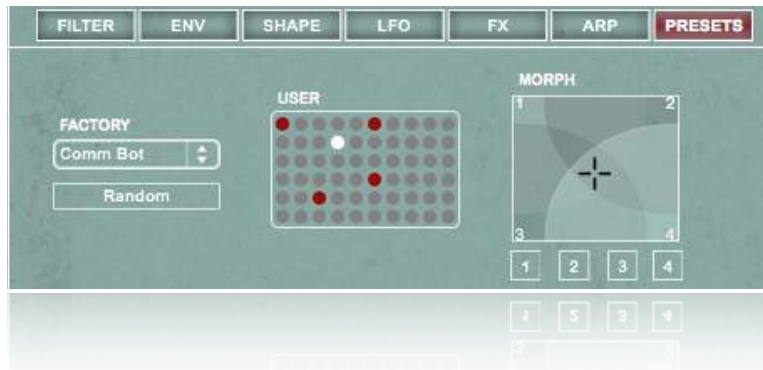
**Style:** Determines the sequence for the arpeggiators syncopated pattern.

**Distance:** Sets the distance in semitones between 2 steps.

**Groove:** Box under the word groove; this controls the groove of the arpeggiator's pattern.

## Preset Section

In this tab you have the ability to choose factory presets, create random sounds, save and recall your own presets and morph between presets.



**Factory Presets:** To load a factory preset simply click the drop down menu under the word “factory” and select a preset from the list.

**Random:** The random button allows you to come up with random presets by randomly choosing 4 presets from the factory and user preset systems and morphing between them. It’s easy to come up with something new and great by clicking this button.

**User Presets:** This section allows you to save your own presets for later use and for preset morphing.

**Saving User Presets:** Once you have a sound you like it’s easy to save a preset. Simply hold shift and click an empty slot to save your preset.

**Recalling User Presets:** To recall a user preset, simply click the preset slot you wish to load.

**Deleting User Presets:** To delete a user preset slot, just hold shift + option and select the slot you wish to delete.

Note: Your presets will only save within 1 session. If you want to save your user presets for other sessions you must re-save the device. To do this simply click the floppy disk symbol on the bottom left side of the Ableton rack.

**Morphing Presets:** To morph between presets you must assign your presets to the corners of the morph box. To do this follow the steps below:

- 1) Select a preset from the user or factory preset section.
- 2) Click one of the numbered buttons underneath the morph graph to load the preset to the corresponding node (1 to 1, 2 to 2 etc..).
- 3) Do this with again selecting a new preset and new number until you have clicked all 4 of the numbered buttons under the morph graph.
- 4) Click and drag on the morph graph to morph between presets.

