

# ChowKick User Manual

**ChowKick** is a kick drum synthesizer based on creative physical modelling of old drum machine circuits. The synth contains useful parameters for adjusting the tone and fundamental frequency of the synthesized kick drum. The plugin is currently available as a VST/VST3/AU/LV2/AUv3 for Windows, Linux, Mac, and iOS.

## Installation

To install ChowKick, download the [latest release](#), and run the installer. If you would like to try the latest builds (potentially unstable), visit the [Nightly Builds page](#). Note that it is also possible to [compile from the source code](#).



Figure 1: ChowKick User Interface

## Controls

ChowKick contains three main signal processing sections: a **Pulse Shaper** which generates a synthetic pulse whenever the kick drum is triggered (see fig. 2), a **Noise Generator** which adds noise to the shaped pulse, and a **Resonant Filter** that creates the kick drum sound when driven by the pulse.

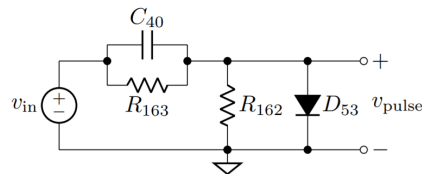


Figure 2: TR-808 Pulse Shaper Circuit

### Pulse Shaper

**Width** controls the width of the generated pulse used to trigger the kick drum, from 25 microseconds to 2.5 milliseconds.

**Amplitude** controls the maximum amplitude of the generated pulse used to trigger the kick drum.

**Decay** controls how quickly the pulse decays from its maximum amplitude. Internally, this parameter controls the value of resistor  $R_{162}$  in the pulse shaper circuit.

**Sustain** controls the sustain level of the pulse. Internally, this parameter controls resistor  $R_{163}$  in the pulse shaper circuit.

**Voices** controls how many polyphonic voices are used by the kick synthesizer. This feature can be useful for kick sounds with a long decay time, so that triggering a new kick does not cut off the ringing out of the previous kick. Note that using more voices will not affect the plugin's CPU usage.

## Noise Generator

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**Noise Amount** controls the amount of noise added to the shaped pulse.

**Noise Decay** controls the decay characteristic of the generated noise. At 100%, the noise will decay at the same rate as the rest of the pulse. At lower values, the noise will decay more quickly than the rest of the pulse.

**Noise Cutoff** controls the cutoff frequency of the noise.

**Noise Type** controls the type of noise being generated, including options for **uniform** white noise, **normal** (or Gaussian) white noise, and **pink** noise.

## Resonant Filter

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The resonant filter section is an implementation of a nonlinear resonant filter with global feedback.

**Frequency** controls the center frequency of the resonant filter, ranging from 30 Hz to 500 Hz.

**Link** disables the frequency control, and instead uses the plugin's MIDI note input to determine the kick drum's resonant frequency.

**Q** controls the Quality factor of the filter.

**Damping** controls the amount of global feedback around the filter. At low damping values, the kick drum will have a much longer decay time.

**Tight** adjusts the nonlinear characteristic of the filter so that the filter resonance decreases as the signal amplitude increases. This parameter can have a similar effect as using a compressor to "tighten" the kick drum sound.

**Bounce** adjusts the nonlinear characteristic of the filter so that the filter frequency increases as signal amplitude increases. This parameter can be useful in creating a pitch modulation type of effect for the kick drum sound.

**Tone** adjusts the output tone of the kick drum, choosing to accentuate or dampen the high frequencies of the drum sound.

**Portamento** adjusts the length of time that the filter will take to transition from one frequency to the next.

**Res. Mode** controls the way in which the "tight" and "bounce" affect the overall sound.

## Tuning

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ChowKick supports full-keyboard microtuning, using the Scala SCL and KBM microtuning format. The tuning menu allows you to select .scl and .kbm files to load into the plugin, as well as an option to reset the plugin to the standard 12-tone equal temperament tuning (12-TET).

For desktop users, you may load tuning files from anywhere on your computer. A factory library is included with the plugin, and you may also configure the plugin to use your own user tuning folder. For iOS users, only the factory tuning library is available.

## Presets

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Presets provide a quick way to achieve a specific sound with the plugin. ChowKick comes with a set of built-in factory presets. To contribute your presets to be added to the factory presets list for future releases, please email me.

### User Presets

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To save the current plugin state as a user preset, open the presets menu, and select “Save”. The first time a preset is saved, you will be asked to choose a preset folder. All future presets will be saved to this folder, and when the plugin opens, it will search this folder, as well as any subfolders, to load new user presets. Presets located in subfolders will be placed in their own groups in the preset menu.

## Open Source

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ChowKick is open-source software that is free (as in “free beer”), and free (as in “free speech”), under the 3-clause BSD license.

As an open-source project, ChowKick is open to outside contributors. If you would like to contribute to the development of ChowKick, please visit the [issues page](#) for a list of outstanding tasks. If you would like to implement a new feature, please create an issue ticket first, so the feature can be discussed by the community.

## Feedback

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If you notice any bugs, or have any questions, feel free to [email me directly](#), or [create an issue ticket](#) on GitHub. GitHub issues are preferred, since they are publicly visible.

Enjoy!

Jatin Chowdhury

<https://github.com/Chowdhury-DSP/ChowKick>