

Duplex Comp User Manual

Inspiration

Duplex Comp combines two serially cascading compressors, followed by a limiter, into one efficient package. This plugin streamlines a popular mixing method—employing multiple compressors in series, each with different settings—by consolidating the entire process into one convenient interface.

In the GUI, you'll see the compressors are cleverly referred to as "Units," while the limiter is humorously named "Rent Control"—a playful nod to the plugin's name, Duplex. (I know, I'm hilarious)

Let's get into the functionality of Duplex Comp.

Signal Flow

The signal flow for Duplex Comp is as follows: Unit 1 (Compressor 1) -> Unit 2 (Compressor 2) -> Rent Control (Limiter)

Units (compressors)

- **Input** - The level of the signal going into the compressor. Increase if the input signal is low. The presets were made with the input level being around -6 dB to -3 dB, so that's where it operates best.
- **Make-Up** - Simply the output volume of the signal coming out of the compressor.
- **Attack** - The "Attack" setting on a compressor determines how quickly the compressor starts to work after the audio signal exceeds the threshold level. Think of it like a reaction time. A faster attack means the compressor reacts almost instantly to loud sounds, reducing their volume quickly. This is useful for taming sharp, loud sounds like a snare drum hit. On the other hand, a slower attack allows some of the initial sound through before the compression kicks in, which can help maintain the natural feel of instruments like the guitar or vocals.
- **Release** - The "Release" setting on a compressor controls how quickly the compression effect stops after the audio signal falls below the threshold. It's like the compressor's way of letting go. A fast release means the compressor stops reducing the volume quickly, which can be great for a more natural sound in fast-paced music. A slow release, however, keeps the compression on longer, smoothing out the volume and creating a more consistent, sustained sound. This can be especially useful for evening out the levels in vocal performances or bass lines.
- **Knee** - The "Knee" setting on a compressor refers to how gradually or abruptly the compressor engages once the audio signal crosses the threshold level. Imagine the knee as a curve at the point where compression starts. Larger knob values increase the softness of the knee while smaller knob value make the knee harder.
- **HPF** - The "HPF" affects how the compressor's threshold setting is applied. When engaged, the HPF prevents low frequencies below a certain cutoff point from triggering the compressor. This means the compressor reacts primarily to frequencies above this cutoff, leading to a more controlled and musically relevant compression, especially useful in scenarios where low-frequency rumble or boominess is not desired to influence the compression characteristics. Importantly, this filter applies only to the compressor's detection circuit and not to the audio output. Thus, while it shapes the compressor's response, it does not remove low frequencies from the actual output signal. The full frequency range of the input signal, including the low end, remains intact in the output.
- **Threshold** - The "Threshold" setting on a compressor is like a height marker at an amusement park ride – it determines at what point the compressor starts to work. In technical terms, it's the level (usually measured in decibels, dB) at which the compressor begins to reduce the volume of the audio signal.
- **Ratio** - The "Ratio" setting on a compressor determines the intensity of the compression that is applied to your audio signal once it surpasses the threshold. Think of the ratio as a level of control or restraint. It's expressed as a ratio (like 2:1, 4:1, etc.) and it tells you how much the audio signal will be reduced in volume after it crosses the threshold.
- **Mix** - The Mix control balances the original input signal with the compressed signal. A setting of 100% results in only the compressed signal being heard (all wet), while 0% means only the original, uncompressed signal is present (all dry).
- **Model VCA** - VCA compressors use a voltage-controlled amplifier for the compression mechanism. They are known for their precision, flexibility, and fast response times, making them suitable for a wide range of applications.
- **Model Opto** - Opto compressors, or optical compressors, use a light element and a light-sensitive resistor to control the gain reduction. The incoming audio signal drives a light source, which in turn dictates the compression amount based on how much light hits the photosensitive resistor. Opto compressors are characterized by their smooth and natural compression. They have a more gradual response to the input signal, often resulting in a more musical compression.

Rent Control (Limiter)

- **Release:** Adjusts how quickly the limiter stops reducing the volume after the signal falls below the threshold. A shorter release time quickly restores the signal to its original level, ideal for maintaining the natural dynamics of the audio. A longer release provides a smoother, more gradual return, which can help to avoid abrupt changes in volume and create a more consistent sound.
- **Threshold:** Sets the level at which the limiter begins to reduce the volume of the signal. Lowering the threshold increases the intensity of limiting. As you decrease the threshold, auto-gain automatically compensates for the volume reduction, maintaining a consistent output level. This feature helps to balance loudness without manual adjustments, ensuring a stable and controlled audio output.
- **Output:** Adjusts the overall output level of your mix. Use it to set the final volume, ensuring that your audio is neither too loud nor too quiet. It's the last stage in your signal chain, affecting the total sound output without altering the mix's internal balance. Ideal for fine-tuning the loudness before exporting or streaming your audio.

Presets

The plugin comes with a set of built-in factory presets, and these are integrated directly into the plugin itself. This means you can create and save your own presets, even using the same names as the factory presets, without causing any conflicts. Your custom presets, referred to as user presets, are saved separately.

When you save a user preset, it's stored in a specific folder on your computer. This folder is typically located in your "Documents" directory and is named after the plugin. In the plugin's preset menu, user presets are listed under the "User" section. The saved preset files themselves can be found in the aforementioned folder in your "Documents."

Additionally, the plugin provides a "Load" button, located in the preset bar at the top (the header) of the interface. You can use this button to load presets from any location on your computer. However, it's important to note that the plugin can only load presets that are compatible with its structure. Generally, any preset saved using this plugin should load without issues, as it will match the required structure. This means you can download and load presets made with this plugin from other users.

HQ

Engage High-Quality (HQ) mode to enable oversampling. Oversampling reduces aliasing - unwanted artifacts in your audio - by processing the signal at a higher sample rate. This results in a cleaner, more precise sound, particularly useful for mastering or when working with high-frequency content. Note that HQ mode will increase CPU usage.