

Pumping and Breathing

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When a compressor is making large changes to the input signal (10 to 12 dB or more), the noise floor will also rise and fall with the signal level. When this noise signal rises and falls drastically between signals, such as a heavily compressed, noisy drum track, you might hear the noise level “breathing” between drum hits. One solution to this breathing problem is to turn up the release time. This way, the noise floor won’t have time to rise between drum hits.

However, if the Release time is too long, lower level signals after the peak will be lost as the compressor slowly stops reducing gain. This is called “pumping” as the lower level signals (noise included) slowly fade back up to their normal signal level. The secret to avoiding these problems is to achieve a balanced release time on the input signal.

Attack

The [ATTACK] knob controls the amount of time before compression starts. The range of this control is 0.1 to 200 milliseconds. The Attack and Release controls may only function when the compressor is in Peak mode. Long attacks are useful for percussive sounds, where shorter attacks are good for melodic parts like vocals and strings. The Attack control is also useful for keeping the transients on percussive drum or bass sounds. Experiment with different short attack times on snare drums to get more or less of the “stick” attack.

Release

The [RELEASE] knob controls the amount of time the compressor takes to stop compressing after the signal crosses under the threshold. The range of this control is 50ms to 3 seconds. The Attack and Release controls may only function when the compressor is in Peak mode. Short release times are good for percussive, punchy sounds, where longer release times can make compression less obvious on vocals. Adjusting the release time may be necessary when using extreme compression and “pumping” or “breathing” is audible, or if lower level signals after peaks are getting lost.

[Keywords: pumping, breathing, compression, compressor, attack, release, noise]

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