Renaissance Compressor

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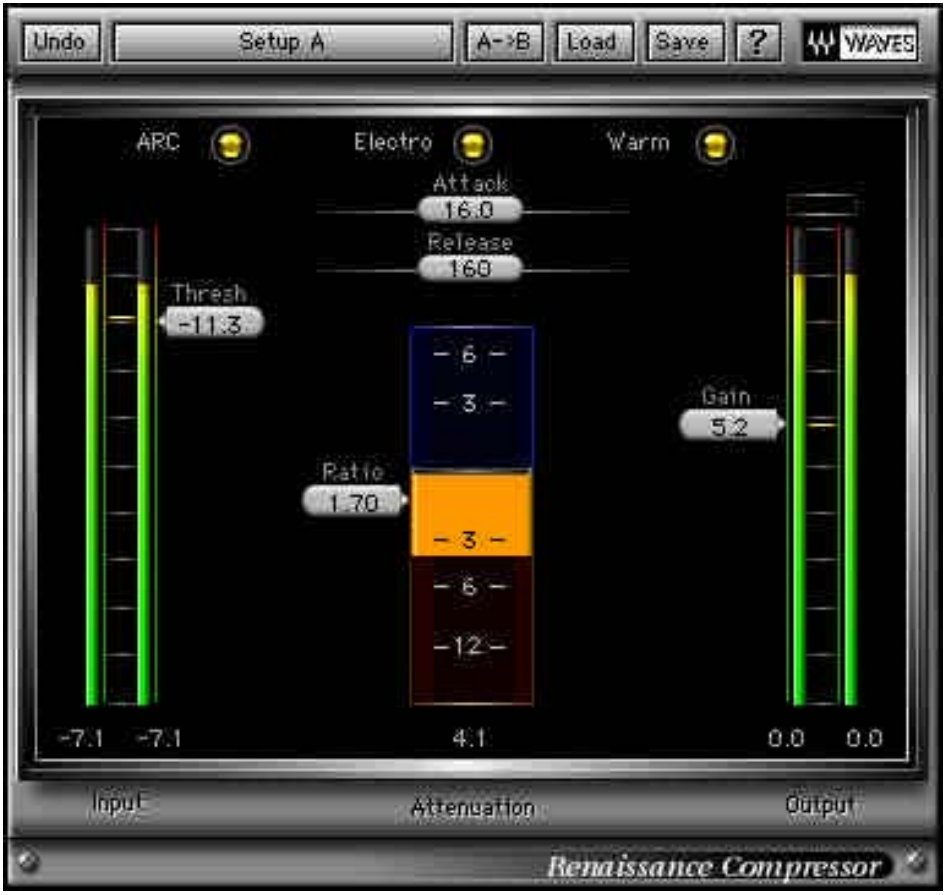


Renaissance Compressor is a classic warm compressor and expander, with a simple, optimized interface. It combines technologies from the C1-Compressor/Gate and the famed L1 Ultramaximizer with Waves groundbreaking ARC (Auto Release Control) technology. An ideal compressor for mastering or tracking, the ARC algorithm is also capable of delivering significantly greater RMS levels (lower peak/RMS ratio) for heavier compression levels. **Classic 5-control** setup is at the core of the interface, supplemented by a Release **Mode** button (ARC/Manual), plus the gentle **Character** control (Warm/Smooth), and the Behavior control (Opto/Electro).

New to the processor is dithering for the final output. TDM output is dithered to 24-bit (fixed point); native output is dithered to 32-bit (floating point). In both cases the signal is "handed back" to the application being used. In TDM, the internal resolution is 56-bit fixed point; in native, it is 64-bit floating point.

Chapter 2 • The Controls

How to adjust

We suggest you read the **WaveSystem Manual** to learn all the interface shortcuts and controls. You only have to learn them once because they are common to every Waves plug-in.

Using the Renaissance Compressor is very simple while providing exceptional flexibility. Select the **Mode**, **Character, and Behavior** you want, then adjust the standard 5 compressor controls: attack, release, threshold, ratio, and gain.

Release Mode

This button selects between Auto Release (ARC) and Manual.

ARC mode uses the Waves auto-release technology. You set the release time as an overall scaling factor and ARC varies it from there depending on the input signal. Its character is similar to very responsive vintage program compressors but also works extremely well for individual tracks.

Manual mode is fully manual, with no ARC (Auto Release Control).

Compression Behavior

Electro (the original mode of the v1.0 software) has a release time behavior that is increasingly faster as the gain reduction approached zero, but only when gain reduction is less than 3dB. When GR is above 3dB, the release time becomes slower, behaving more like a leveler in high gain reduction situations. Therefore, when used with moderate compression, the **Electro** mode produces a great increase in RMS (average level), and is ideal for "loud" applications, such as voiceover and certain genre of music.

Opto is actually the inverse of Electro. Opto-coupled behavior always "put on the brakes" as the gain reduction approaced 0dB, i.e., the release time gets slower as the "needle comes back to zero". As in Electro, this is true only when the GR is less than 3dB; when greater than 3dB, the release time is faster. This is the vintage emulation that sounds so great for drums and more!

Character

This button chooses between **Smooth** and **Warm** low-frequency characteristics, which certainly can also affect wideband character, depending on the source material.

Warm adds low frequency harmonics as deeper compression is applied (greater gain reduction).

Smooth avoids adding such harmonics, keeping the sound as close as possible to the original.

Threshold

The value is in dB below 0dBFS (Full Scale digital).
Threshold is the input level above which the soft knee compression or expansion starts acting to a significant degree. The threshold slider is beside the Input Meters for easy adjustment.

Note: the Renaissance Compressor uses a soft knee, so compression and expansion start with signals which are 3 dB lower than threshold.

Ratio

Adjusts the compression or expansion ratio for signal above Threshold. The Renaissance Compressor ratio covers a wide range of compression ratios (1.01:1 to 50.0:1), as well as expansion ratios (0.99:1 to 0.50:1). The **Ratio** fader is beside the Gain meter.

Attack

The value is in milliseconds, from 0.5 to 5000 (5 seconds). It controls the response time of the onset of compression or expansion.

Release

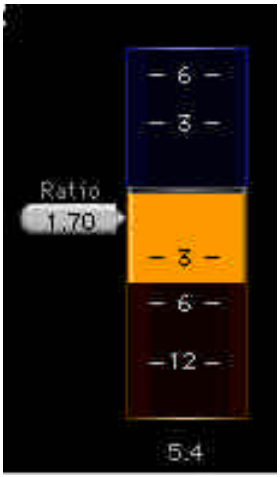
The value is in milliseconds and controls the release characteristic (linear when ARC is off). When ARC mode is engaged, the Release controls acts as an overall scaling factor around which the ARC technology works.

Gain

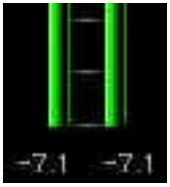
The value is in 0.1dB steps. Adjusts the output gain of the compressor, from +30.0 to -30.0 dB.

Gain meter

This shows the instantaneous gain reduction or increase. When compressing, gain will be negative and show as yellow. When expanding the gain will be positive and will show as blue.



Input/Output Meters



(Bottom of meters shown). Input and Output meters are logarithmic displays from 0 to -60dBFS, with **peak hold values** at the bottom of each meter. Click on the Peak Hold values (or in the meters themselves) to reset them.

Limiter Section

Just above the Input/Ouput meters is the indicator for the built-in limiter. The Renaissance Compressor has an L1-style limiter at the output stage, and works well in compression or expansion modes. Threshold and Output Ceiling is set to 0dBFS and it is activated only when the level would exceed 0dBFS. On activation, the limiter action is in addition to the compression, and the total actualy gain reduction is shown in the gain reduction meter.

The limiter display light shows the activity of the limiter. When the compressor's output exceeds 0dBFS, the limiting light turns yellow, indicating activation.

More limiting makes the display become a brighter yellow. When the limiting is very heavy (approximately 6dB or more), the display becomes red.

Once limiting has stopped, the light will gradually fade out.

Chapter 3 • Waves ARC System

ARC™ (Auto Release Control)

ARC is a system designed to dynamically choose the optimal release value for a wide-ranging input. ARC reacts much the way a human ear expects, and can produce increased RMS level with greater clarity.

What the auto-release control does

In many uses of compressors, the exact choice of time constants is set as a careful choice of reaction to RMS and peak transients. To allow more constant compression with less artifacts, the release time must change to control different parts of the signal. In ARC, similar to the human ear, RMS and peak transients are analyzed and reacted to differently. In general, the release is faster for peak transients and slower for the overall RMS level.

For instance, with a relatively constant compression of 4dB, peaks beyond this need faster release times. The ARC system does exactly this, varying the release time to fit the ear's expectations while increasing RMS, and without creating distracting artifacts. In this way, the Renaissance Compressor can serve as a leveler plus a fast compressor simultaneously. This feature also serves gentle mastering applications quite well, but generally with slower release times.

Chapter 4 • Factory presets

Global tips

Factory presets set the following Renaissance Compressor parameters to optimal settings for certain tasks or editing situations:

- ARC/Manual
- Opto/Electro
- Warm/Smooth
- Attack
- Release
- Ratio

In all Renaissance Compressor factory presets, the output Gain remains the same. Should you wish to apply limiting, simply raise the Gain accordingly.

In the present Macintosh version, loading a factory preset does not alter the Threshold (unlike the PC version), making comparisons of setups on an existing source easier.

Remember that Opto-mode provides fast release times when the gain reduction is above 3dB, and progressively slower release times as gain reduction falls below 3dB. This is very much like opto-coupled hardware compressors.

Electro-mode has the opposite characteristic. Electro-mode provides very fast release times when the gain reduction is less than 3dB and an overall slower behavior when gain reduction is above 3dB.

Employing ARC technology (Auto-Release Control) further modifies the sound characteristics of each mode.

Presets details

Mastering Opto

Classic mastering setup, including low ratio, medium attack, and slow release. Allows transients to pass, gently compressing only the average level. Very smooth and transparent.

Master Opto soft

A bit more aggressive than the previous preset, including a faster release time. Maintains a very open and transient behavior. This one pumps a bit, has a bit of a “puffy” sound like some restored LA-2As but doesn’t kill drums.

Master Opto fat

This has nothing to do with puffy eyes. Higher ratio (2:1) with medium attack and release gives more audible compression than either of the first two setups, but is still suitable for gentle master-bus applications. Good for leveling mixes - gets louder smoothly. Use the Gain control for limiting, dig in deep with the Threshold. With gain reduction around -6dB or more, the low end seems to fill out.

Master Electro soft
The Electro mode makes this setup more aggressive than any of the Opto mastering settings due to fast attack and release. Electro makes the release time of 200ms actually much shorter for all small gain reductions, and is more suitable for an 'in-your-face' sound. Used "properly" it can be inaudible. Works best with just a touch of limiting.

Master Electro firm
Includes even faster attack and release times than the previous "soft" version. This setup is the most aggressive of the mastering presets, approaching a broadcast-type effect. Good for lopping the tops off peaks. Can pull drums down in a mix. Best for single instruments and voice.

Loud and Proud
Now we get seriously aggressive with instant attack (1/2 sample) and near hard-knee behavior. This really squashes transients and allows the average (RMS) signal to be greatly increased, without the ARC setting. For an even more pronounced effect, increase the gain until medium to high limiting occurs. Designed for deep (10 - 12 dB) limiting with lots of Gain. Go nuts. This one is like a clean 1176. It rocks.

A2 Brute
Another very hard setting based upon the heavy settings of a classic leveling amplifier. The Opto mode can create some pumping effects at high gain reduction. This is a fast limiter with a medium release. Good for 3-6 dB of limiting – good on LA sports announcers. The "reference" limiter.

Smooth Opto
Similar to the "A2 Brute", but not nearly as drastic. Resembles a classic Opto setting without gain-overshoot, has reasonable transient control and smooth release behavior. The smooth setting makes the low frequency response very clean. Set up to mimic modern opto-compressors time characteristics. Watch out, as this one may chop a few dB off drums and other sharp transient sources.

Kneeless Opto
Taking advantage of the soft-knee character of the Renaissance Compressor (from the Michael Gerzon-designed C1 transfer curve), this preset uses a very low ratio compressor with relatively fast attack and release times, allowing the input to be gently scaled in dynamics across a broad range. Extremely smooth for mastering or broad-range reduction of dynamic response. Does not alter peak/rms levels very much. You'll need to pull the Threshold rather far down, maybe -30 to -50. Very gentle sounding when used to reduce the overall dynamics of a good mix. It helps push the quieter passages and slightly restrains the loud stuff.

Vocal
Classical, moderate preset for singing voice. Adjust the ratio to suit. A low setting of 1.5:1 would be ideal for gentle control, up to 5:1 for "invisible" gain riding of very dynamic singers. The Electro mode allows for low-level sounds to be increased rather transparently.

Voiceover
Same as the Vocal setting, but with a higher ratio good for most announcers. Use higher ratios for more aggressive spots, like up to 10:1. Adjust the Threshold for 5 to 10dB compression for production-standard voiceover.

Crunch
Another one with personality. Hard slamming setup for instrument tracks or for very audible compression effects. High ratio, very fast attack and release, and Electro mode make this a severe setting. Best in the 3-6dB of GR range. Will wipe out drums in a mix. Nice for some guitar tracks if you lengthen the attack time somewhat.

Elec Guitar
More moderate setup for electric guitar, using a long enough attack to allow good transients before the compressor grabs the signal. Fast release time lets the compressor "reset" for the next note or chord. Play with the attack time to control the punch of the guitar. Keep in mind the raunchier a guitar is, the less dynamics it may have. Great for rhythm guitars and DI's (direct inputs).

Bass Guitar
Same as the previous setting, but including time constants set for the lower frequencies of the bass. Manual mode prevents the ARC technology shortening the release times, which can produce distortion if the compressor tracks the bass wave.

Drums
Nice for submix grouping of kick/snare, or for squeezing the overheads as a sidechain mix channel. Can also work well for full kit compression (maybe without the kick… your discretion). Play with attack and release to allow the amount of transient and pump you want. Ratios can be pushed higher for extreme effects.

Bouncy
Longish attack time and higher ratio lets transients actually increase the peak/rms ratio for some sources. The short release and Electro-mode can make the overall effect somewhat bouncy, hence the name. Put a "hot" rhythm submix or mix through this one… it gets hotter. Adds some punch and fast pumping. You might want to fine tune the Release to the tempo and between 75 and 150ms.

Hole Unpuncher
One of several setups to decompress mixes, the Hole Unpuncher requires careful adjustment to actually live up to its name. The approach is that an over-compressed pumping mix can be restored using an expander with a longish attack time. It will allow the transient to pass, but should be exactly set so that the attack is the same length as where the 'hole' is in the input signal (the bottom of the pumping). The release time must match the original release time of the pump, in order to smooth out the input's rising volume by reducing gain at the same rate.

Upward Expander
Very sharp recreation or restoration of transients and dynamic range can be achieved with this setting! The instant attack (1/2 sample) and longish Opto release time guarantees a solid increase in dynamics and sustain. More aggressive than the Uncompressor setting. Nice for adding a little life to keys and cranked up guitar stacks. Can add some snap and pop without crackling but be careful - it tends to jump out and bite you.

Pumper
One of three different setups to have a pumping compressor! Some people would wonder why in the world such behavior is desirable, but considering the fact that so many compressors have been painstakingly designed to avoid pumping, it's nice to be able to get the effect when required. We get requests for these. The trick is to drag the Threshold down and kick up the Gain. Should be used on percussive material.

Pumper II
Funkier. Again, you have to compress deep to get it pumping. Fine tune the Release according to the tempo of the song. It is supposed to be audible, or "wrong" if you go strictly by the book. Cool on the drum submix.

Sump pump
This is getting revolting. Use the Threshold to get the wildest GR meter swings. You can drive into the final limiter by pushing the Gain way up. Meant to be abused.

Uncompressor
A gentle expander that doesn't affect transients nearly so much as the Upward Expander, but still restores dynamic range very well. It does this by mostly affecting the average (RMS) portion of the signal. The Manual release time and Opto compression mode settings provide gentle, steady-state behavior of the release.

Decompression bends
Not-so-gentle decompression that literally tracks almost every move of the input dynamics and expands them. Quite good at high threshold settings (not very deep), providing amazing transient recreation/restoration and punch. This setup is radical; too much for gentle treatment. Try it on the raunchiest guitars and mixes, but push the Gain up so that it drives the Limiter hard. Also, the Threshold might seem backward because it is expanding. If the word you are looking for is "balls", then it is critical how you balance the Threshold and Gain settings. Can be interesting on drum samples.