

WAVES

CLA-76

User Guide



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Chapter 1 – Introduction

1.1 Welcome

Thank you for choosing Waves! In order to get the most out of your new Waves plugin, please take a moment to read this user guide.

To install software and manage your licenses, you need to have a free Waves account. Sign up at www.waves.com. With a Waves account you can keep track of your products, renew your Waves Update Plan, participate in bonus programs, and keep up to date with other important information.

We suggest that you become familiar with the Waves Support pages: www.waves.com/support. There are technical articles about installation, troubleshooting, specifications, and more. Plus, you'll find company contact information and Waves Support news.

1.2 Product Overview

About the CLA-76

The CLA-76 is modeled after one of the best renowned solid state compressor/limiters in music history, which uniquely used Field Effect Transistors (FETs) as gain control devices. Some 8,000 units were originally manufactured, and went through at least 13 revisions during their run. Waves modeled two of these highly-regarded revisions:

- Revision B, also known as the Silverface Bluestripe. The unit we modeled is CLA's personal favorite.
- Revision D-LN (Low Noise), also known as the Blackface. It is perhaps the most famous version of this classic compressor.

The main differences between the two units are slightly different gain stages and time constants, as well as THD and noise levels. For the CLA-76 plug-ins, we modeled the original pre-amp noise.

About Chris Lord-Alge

Grammy®-winner Chris Lord-Alge is the mixing engineer of choice for pop and rock royalty.

Green Day | U2 | Dave Matthews Band | Daughtry | Pink | Leona Lewis | Avril Lavigne |
My Chemical Romance | All American Rejects | Nickelback | Rob Thomas | Snow Patrol |
Ray LaMontagne | Miley Cyrus | Jonas Bros. | Tim McGraw | Faith Hill | Tina Turner | Rod Stewart |
Celine Dion | Santana | Steve Winwood | James Brown

For almost thirty years, Chris has energized the sound of popular music. His hard-hitting mixes have transformed the radio soundscape, and introduced a new sonic vocabulary along the way. CLA's massive hardware arsenal includes racks and racks of the most coveted compression units in music history.

Widely known among audio pros and listeners alike for his punchy sound and extreme compression techniques, Chris gave us exclusive access to model his most prized processors, and worked closely with Waves through every phase of development. Together with many of his personal presets, these precision models deliver the distinctive sound of CLA's favorite classic compressors.

1.3 About the Modeling

Many different elements contribute to the unique sonic behavior of analog gear. Waves painstakingly modeled and incorporated the characteristics of the hardware into the CLA-76, in order to fully capture and replicate the sound and performance of the original equipment. The hardware was modeled at reference levels of $-18 \text{ dBFS} = +4 \text{ dBu}$, meaning that a signal of -18 dBFS from the DAW to the hardware unit will display a meter reading of 0 VU ($+4 \text{ dBu}$).

These are some of the most important elements of analog behavior:

Total Harmonic Distortion

Perhaps the most important analog behavior is Total Harmonic Distortion or THD, which is defined as the ratio of the sum of the powers of all harmonic components to the power of the fundamental frequency. THD is usually caused by amplification, and changes signal shape and content by adding odd and even harmonics of the fundamental frequencies, which can change the overall tonal balance. THD can also change peak output gain, usually by no more than $\pm 0.2\text{-}0.3 \text{ dB}$.

Superfast Attack Time

The original hardware that inspired the CLA-76 is known for its superfast attack time of 50 microseconds, capable of dealing with the fastest transient material. Many compressors, when processing program material with sharp transients, cause clicks at fast attack and release settings. The CLA-76, however, is capable of responding to even the sharpest transients, cleanly and musically.

All Mode

Another feature that made the original hardware so popular was its explosive All-Ratio-Buttons-In mode. The CLA-76's All mode recreates the original's aggressive compression, which was caused by the changing bias of the FET component. This mode is especially effective on drums processed with parallel compression.

Hum

Waves modeled both 50Hz power current and 60Hz power current. If you listen closely, you will hear that there is a difference in hum level between 50Hz and 60Hz. Since hum is unique to each region and dependent upon local electrical conditions, you may find that the modeled hum is different than the hum already present in your studio, and may not be suitable for your particular use.

1.4 Components

WaveShell technology enables us to split Waves processors into smaller plug-ins, which we call **components**. Having a choice of components for a particular processor gives you the flexibility to choose the configuration best suited to your material.

The CLA-76 has two component processors:

CLA-76 Stereo – Two channel compressor, with one detector for both channel paths

CLA-76 Mono – One channel compressor

Chapter 2 – Quick Start Guide



- Use the Ratio control to set the compression ratio.
- Use the Attack and Release controls to adjust the time constants for the type of material you want to compress. *Important: Attack and Release settings range from slowest (1) to fastest (7).*
- Use the Input control to set the amount of compression desired. Check the meter to see the amount of Gain Reduction.
- Use the Output control to makeup for lost gain.



Chapter 3 – Interface and Controls

3.1 CLA-76 Interface



3.2 CLA-76 Controls

Input controls input level attenuation.



Range: -Inf to 0 (in 0.1dB steps)

Default: -30

Output controls output level attenuation.



Range: -Inf to 0 (in 0.1 dB steps)

Default: -18

Please note: The scale is not linear and has been adjusted to conform to the exact scaling of the modeled unit. Thus, there may be more compression than expected at certain steps, as with analog gear.

Attack controls the compression attack time.



Range: 1 (slowest - 1 millisecond) to 7 (fastest - less than 50 microseconds) in 0.0x steps

Default: 3

Release controls the compression release time.



Range: 1 (slowest - 1 second) to 7 (fastest - 50 milliseconds) in 0.0x steps

Default: 4

Ratio controls the amount of gain reduction for signal above the threshold.



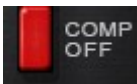
Like many compressors, the higher the ratio, the higher the threshold. For example, at a ratio of 20:1, the threshold point is -12 dBFS, meaning that every peak which passes -12dBFS will be compressed at a 20:1 ratio. When ratio is set to 4:1, the threshold drops to -18dBFS, meaning that every peak which passes -18dBFS will be compressed at a ratio of 4:1. This, therefore, results in “more” compression, despite the lower ratio.

Range: 4:1, 8:1, 12:1, 20:1, All

Default: 4:1

Please note: The “All” setting recreates the original hardware’s explosive “All-Ratio-Buttons-In” mode. This mode results in very aggressive compression with a decent amount of distortion. It’s worth checking out!

Comp Off mode bypasses the compression function, emulating the signal hitting the FET gain reduction element and causing the “pleasing” distortion caused by the hardware’s pre-amp.



Range: Comp On, Comp Off

Default: Comp On

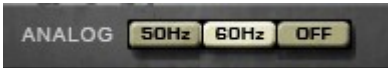
Revision selects the type of modeled compressor.



Range: Bluey, Blacky

Default: Blacky

Analog controls analog characteristics caused by noise floor and hum, based on the power supplies of the original units.



Range: Off, 50Hz, 60Hz

Default: 60Hz

Meter toggles between Input, Gain Reduction, and Output metering.



Range:

In, GR, Out

Default:

GR

Mix controls the balance between the compressed and the uncompressed signal.



Range: 0% to 100% (0.1% increments)

Default: 100%

Trim sets the output level of the plugin.



Range: -18 to +18 dB (in 0.1 dB steps)

Initial Value: 0

Reset Value: 0

3.3 WaveSystem Toolbar

Use the bar at the top of the plugin to save and load presets, compare settings, undo and redo steps, and resize the plugin. To learn more, click the icon at the upper-right corner of the window and open the WaveSystem Guide.

Appendix – CLA-76 Controls

Control	Range	Default
Input	0 to -inf (0. 1 steps)	-30
Output	0 to -inf (0. 1 steps)	-18
Attack	1–7 (0.0x steps)	3
Release	1–7 (0.0x steps)	4
Ratio	20:1, 12:1, 8:1, 4:1, All	4:1
Revision	Blacky, Bluey	Blacky
Analog	Off, 50Hz, 60Hz	Default: 60Hz, Reset: Off
Meter	GR, IN, OUT	GR
Mix	0 to 100%	100%
Trim	-18 dB to +18 dB	0