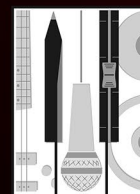


CALDO

for Reaktor

MANUAL



MeinHomestudio.de

CALDO

Instruction manual

MeinHomestudio.de

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Instruction manual written by Paul Marx

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CALDO - Overview

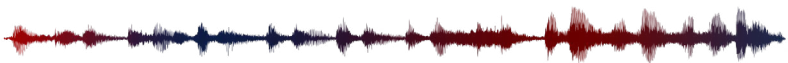


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|-----------|------------------------|------------|----------------------|
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| 2. | Intensity Slider | 9. | Filter Module |
| 3. | Emphasis Module | 10. | Transient-Cut Module |
| 4. | Transient-Boost Module | 11. | Wave Monitor |
| 5. | Hypobass Module | 12. | Spektrum Monitor |
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1. What is CALDO?

CALDO simulates the intensity of audio signals. By combining eight effect modules CALDO can generate an unlimited amount of intensities from a single sample. This helps to facilitate different processes in sound design and mixing and can be used with any type of audio signal.

Through variations in sound intensity, CALDO changes the dynamic of the sound, including percussive and harmonic sounds. CALDO has 64 presets for sound design and mixing purposes that can quickly be applied for any use. The intensity can then be controlled by a single controller! Fast and easy.

1.1 Intensity

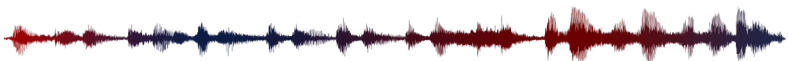
Sound intensity is not only related to the level of an audio signal. For example, if instruments are played loudly or softly, many different parameters change. When a snare drum is played, for example these parameters can change:

If the snare drum is played softly:

- The audio level would be lower,
- There would be less low and high frequencies,
- It would sound faster, and
- It would be altogether shorter.

If the snare drum is played loudly:

- The audio level would be higher,
- There would be more low and high frequencies,
- It would sound fuller and longer,
- The transients would sound proportionally louder,
- It would sound denser, and
- There would be more background noise created by sympathetic vibration in the local environment.



Through a setting of eight effect modules, CALDO simulates these changes in sound from a single sample of an average strike intensity. This makes the instruments in the mix, the sound design, and in the sampling much more dynamic.

1.2 Modules

CALDO simulates the sound intensities through these effect modules:

- Emphasis, which when increased, gives dynamic emphasis to higher frequencies,
- Filter, which when decreased, limits high and low frequencies,
- Transient Boost, which when increased, increases the attack and release length,
- Transient Cut, which when decreased, reduces the attack and release length,
- Hypobass, which when increased, artificially creates undertones gives and warmth to the tone,
- Distortion, which when increased, allows more overtones to sound,
- Noise, which simulates background noise and gives the instrument more depth,
- Compressor, which when increased, adds depth to the audio signal.

Six modules control the high velocities while two modules are assigned to the lower levels of the intensity fader. You can freely configure each module, to the intensity that you choose. Each module offers five controllers, with which you can adapt to any number of uses. With these, there is no limit to the possibilities with CALDO.



1.3 Where can I use CALDO?

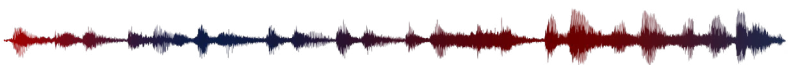
CALDO can be used in sampling, sound design and mixing. CALDO offers an extensive set of tools that you can use to change the intensity of Audio signals through just the use of a single controller that adjusts the tone.

By recording samples and using CALDO in the sound design process, you can use these tools to build a whole library of samples with different velocities. Samples get a lot more depth and dynamic effect, which can then be exported from a DAW.

Especially in the mix, CALDO can integrate more variations in intensity and dynamics. The Intensity Fader and all of the effect module controllers can be automated. With these tools, the user can dynamically shape instruments and vocals and can build more excitement. For example, instrument solos get a solid gain with CALDO in effect.

CALDO as a send effect also gives many instruments a stronger intensity. For example, the Emphasis, Hypobass, Noise, Distortion and Compressor Modules, mixed with a Drumbus, can bestow a strong and raw sound.

There are no limits to your creativity when using CALDO!



2. Setup

2.1. System Requirements

- Mac OS X 10.11, 10.12 or 10.13 (current update), i5 or
- Windows 7, Windows 8 or Windows 10 (current Service Pack, 32/64-bit) Intel Core i5 or equivalent CPU,
- 4 GB RAM,
- Native Instruments Reaktor Player e.g. Reaktor Version 6.3.0 or higher,
- The activation requires an internet connection.

Reaktor Player is a free program from Native Instruments, that can be found on their website, <https://www.native-instruments.com>

Supported interfaces:

- Mac OS X (64-bit only): Stand alone, VST, AU, AAX
- Windows (32/64-bit): Stand alone, VST, AAX.

2.2. Installation

Save „Caldo.zip“ on your computer and extract this file into a folder of your choice. For example you can use the free software 7zip to extract the data.

To install CALDO, open the “Native Access” software on your computer. Here you can log in with your Native Instruments username and password. Click on “Add a serial”, and enter the serial number that came with your purchase. Click “Add serial” one more time to confirm. CALDO now shows up in the tab „not installed“. Click on „Add Library“, then click on „Browse“ and select the folder that you have extracted beforehand. Then click on „Install“. CALDO is now completely installed and activated.



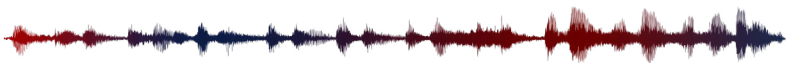
2.3. Opening CALDO and loading presets

Open Reaktor or Reaktor Player as stand-alone program or load it as a plugin in your DAW software as an insert or send effect.

In Reaktor, open the „Player“ tab on the left side. In it will be the folder „MeinHomestudio.de“, where the ensemble „CALDO.ens“ is located in the „Caldo“-Folder. Double-click here to load CALDO into Reaktor.

Use CALDO on an audio signal of your choice in the Reaktor audio player or in your DAW. At the top of Reaktor's screen you will find a list of CALDO presets that can be used for many different practical applications.

CALDO has full NKS compatibility. This means you can also use CALDO in the Native Instruments Complete control software as well as in machine use.



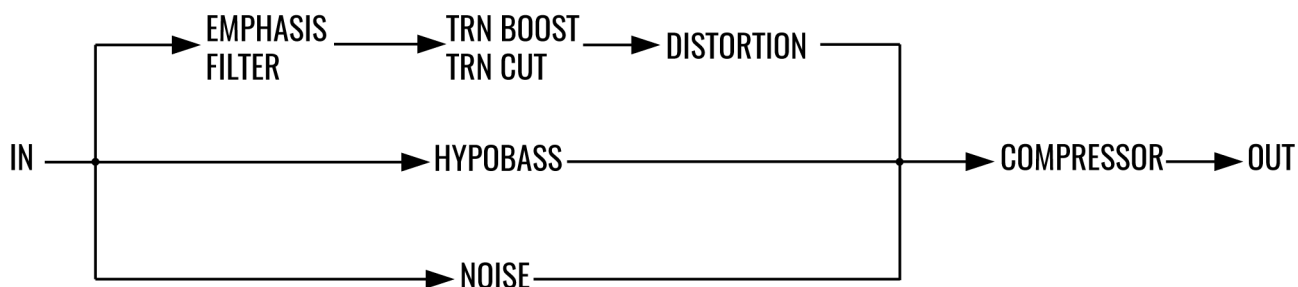
3. What can CALDO do?

In the following chapter, all of the controlling parameters of CALDO will be individually explained.

3.1. Fundamental Structure

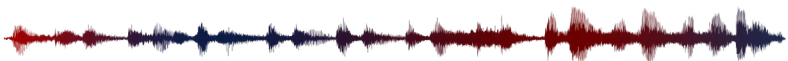
CALDO changes the signal depending on the position of the large intensity slider in the center and depending on which effect modules are activated. If the intensity control is in neutral position, at 64, no effect module affects the audio signal. If the intensity controller is located below the neutral position, Filter and Transient Cut, as well as the respective level decrease, affect the signal. If the intensity control is above the neutral position, Emphasis, Transient Boost, Hypobass, Distortion, Noise, Compression, as well as the respective level increase, affect the signal.

This chart illustrates the signal routing of the CALDO effect modules:



STEREO CALDO can be operated in mono or stereo mode. If the Stereo button is lit, CALDO is in stereo mode, otherwise CALDO is in mono mode.

Each of the eight effect modules are similar in structure. Each module is equipped with a green button on the upper left side, which switches the respective module on and off. The module lights up when it is switched on.



RANGE On the left side of each module there is a range slider. This controls the intensity of each effect. The upper part of the module is limited to only moving above the neutral position. This also applies to the lower part of the module, but instead being limited to moving below the neutral position.

SOLO There is an „S“ switch on the upper controls of the Hypobass and Noise modules, which puts the module into “Solo” mode. With this activated, only the activated module is being used.

3.2. Intensity Slider and Stepsize

In the Output module is the “Stepsize” controller. This controls the scaling of the Intensity slider. When starting CALDO for the first time, the Intensity Slider isn’t set to any level (“free”).

With Stepsize, the number of intensity levels can be exponentially increased. The controller can be set to the free, 2, 4, 8, 12, 32, and 64 positions. 2 shares the position of the controller in 65 levels, 4 in 33 levels, 8 in 17 levels, 16 in 9 levels, 32 in 5 levels, and 64 in 3 levels. The neutral position in 64 is always the middle position.

Splitting the intensity control into levels is particularly useful for designing sample libraries, in which the same sample can be shaped into different intensity levels. Stepsize facilitates the export within the DAW in different increments.

3.3. Output

Because of the strong dynamics in the plugin, CALDO can cause high or exaggerated dynamic levels. The output module in the lower right corner compensates for this.



- DYNAMICS** Adjusts the level at the 0-position of the Intensity controller in relationship to the level at 127-position on the Intensity Slider. This allows the dynamics to be regulated.
- VOLUME** Controls the total output level of CALDO.
- SAFE PEAK** Switches the soft clipping limiter of the output of the effect on/off to prevent hard clipping.

3.4. Emphasis

When instruments are played loudly, certain frequency ranges are often more clearly sounded than when played quietly. This module is a dynamic filter. It dynamically activates a bell-shaped frequency band when the signal reaches its peak level.

- MIX** Controls the ratio in the mix of the high frequency band.
- FREQUENCY** Sets the central frequency of the bell-shaped frequency band.
- ATTACK** Controls the attack and dynamic boost of the frequency band.
- RELEASE** Controls the release and lowering of the frequency band.
- ENVELOPE** Controls the quality of the frequency band.



3.5. Filter

When playing softly, less low and high frequencies of an instrument are usually audible. The Filter module allows the frequency spectrum of the signal to be limited.

HIGHCUT Sets the frequency to where the highcut filter is placed.

LOWCUT Sets the frequency to where the lowcut filter is placed.

LC-SLOPE Controls the slope of the lowcut filter (Lowcut Slope).

HC-SLOPE Controls the slope of the highcut filter (Highcut Slope).

RESONANCE Controls the resonance level of the highcut filter.

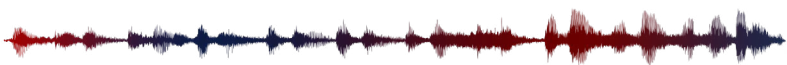
3.6. Transient Boost and Cut

The dynamic behavior of the transients of a sample often changes with the intensity of the strike. With the two modules, Transient Boost and Transient Cut, the user can control the transients and decay of samples. Using these, every new strike in the sample triggers an envelope curve. The envelope followers have been optimized for percussive signals. Be careful using the Transient modules on other audio signals. Peaks in the waveform may be interpreted as new transients. In this case, try to deactivate both Transient modules.

ATTACK Controls the level increase/decrease of the attack.

RELEASE Controls the level increase/decrease of the release.

ATK-LENGTH Controls the length of the attack (Attack Length).



RLS-LENGTH Controls the length of the release (Release Length).

SENSITIVITY Controls the sensitivity of the transient trigger.

3.7. Hypobass

Loudly played instruments often sound fuller and have a louder bass ratio in relationship to the rest of the frequency spectrum. The artificial addition of undertones can also lend more volume and size. The Hypobass module uses a sophisticated mix of undertone simulation, bass boost, saturation, and compression to add foundation to the signal.

MIX Controls the bass added to the original signal.

WARMTH Controls the amount of non-linear bass portion that adds warmth to the signal.

DYNAMICS Controls the amount of compression in this effect.

FREQUENCY Controls the upper frequency limit of the bass portion.

SATURATION Controls the strength of the saturation in the bass portion and the presence of overtones.

S (Solo) Turns on Solo mode for using the Hypobass module alone.



3.8. Distortion

In loudly played sounds, the overtone spectrum is often denser than in softly played sounds. Distortion can add more overtones to a signal. Doing this makes the signal sound louder and more present. The Distortion module integrates a combination of distortion, intonation of the frequency band and side-chain-compression.

- MIX** Controls the amount of distortion in the mix of the original signal.
- DRIVE** Sets the amount of the overtones in the distortion effect.
- STONE** Controls the frequency of the sounding bands and thereby, also the character of the tone.
- STRENGTH** Controls the tone strength of the distortion.
- DYNAMICS** Controls the strength of the Sidechain compression in the distortion.

3.9. Noise

Another way of deepening the frequency spectrum of a loud sound is to add non-harmonic portions to the signal. Different kinds of noise can make sounds fuller and more present. To do this, an envelope follower was integrated into the noise module, which adjusts the level of noise in the signal. To better fit with the original signal, the noise's high frequencies can be levelled out with a soft lowpass filter.

- MIX** Controls the amount of noise in the mix of the original signal.
- SOURCE** Chooses the source of the noise out of a selection of 44 different types of noises.
- ATTACK** Controls the noise's length of attack.



- RELEASE** Controls the noise's length of release.
- STAGING** Controls the steepness of the lowpass filter, to reduce the noise in the high portions of the signal.
- S (Solo)** Turns on Solo mode for using the Noise module alone.

3.10. Compressor

Compressors make signals also sound denser and louder. This module will compress the combined signal from all of the modules. All of the portions that have been added to the sample, for example Hypobass or Noise, are merged into a single, complete signal.

- INPUT** Controls the input gain of the compressor.
- OUTPUT** Controls the output gain of the compressor.
- ATTACK** Controls the compressor's attack time.
- RELEASE** Controls the compressor's release time.
- RATIO** Controls the compressor's ratio between 1:1 and 16:1.



4. How do I work with CALDO?

CALDO is versatile, creative sound effect with various possibilities for application. To help with getting started, here are some examples of various real world use cases of CALDO. These are intended to illustrate just a few of CALDO's many possible applications.

4.1. Sound Design

In this example there is a snare drum sample, which is typically included in the drum kit of a sampler. CALDO is used here to extend the intensity levels and make the velocity more interesting.

1. The sample is imported from the Mono-audio track of a DAW and then looped. CALDO is then opened via Insert Effect in Native Instruments' Reaktor.

2. CALDO is started with the INIT-Presets loaded. The Mono-mode is then activated.

3. The Intensity control is set to the minimum (0) in order to adjust the lower intensity levels. Then in this position, switch on the Filter Module. The High and Lowcut have been positioned, so that the snare sounds soft and thin. Attack, Release and Resonance are set at 10 o'clock. Next, the Transient Cut is adjusted. In this module the Release Length is set to 9 o'clock and Release at 12 o'clock.

4. Lastly, the Intensity Slider is set on the maximum (127) to get the loudest intensity level. The snare drum is boosted from the effects of the Emphasis, Transient Boost, Distortion, Noise, and Compression Modules. Emphasis dynamically raises the higher frequencies by approx. 2-4 kHz. To do this, Amount is set to 9 o'clock and Frequency set to 3 o'clock. Transient Boost is activated with Attack at 10 o'clock and Attack Length at 2 o'clock to boost the transiency.

Distortion is set to make the snare drum sound more full. Mix, Drive, Strength and Dynamics are all set at about 10 o'clock and Tone at 11 o'clock to reach this result. Noise has been set to add depth to the frequency spectrum by adding noise overtones through Source. Attack and Release are set to 8 o'clock, Staging at 5 o'clock, and Mix at 10 o'clock. At the very end it is all compressed into the loud snare sound. In the Com-



pressor Module, Input is configured so that the gain reduction graph in the monitoring window still shows the peaks. Ratio is set to 12 o'clock, Attack to 2 o'clock and Release at 9 o'clock.

5. Moving the Intensity Slider transitions between the different intensity levels. Any discrepancies in the dynamics of the signal can be corrected using the Dynamics and Volume controllers in the Output module. Stepsize then decides if the Intensity slider is set to free or one of the step values.

6. Depending on the DAW, the snare samples can now be exported in different ways. It can be very useful to automate the Intensity Slider to a stepped curve, so that all intensity levels can be rendered within a single export.

4.2. Mixing via Insert-Effect

As an insert effect, CALDO can control the intensity of many instruments and other audio signals. In this example a Lo-fi hip-hop song needs more electric piano presence in the mix.

1. In Reaktor, Insert Effect is loaded onto the track of the electric piano. CALDO is then opened and loaded with the INIT preset.

2. CALDO is set into stereo mode. The Intensity Slider has been set to the maximum (127) to give the electric piano more intensity. The presence of the electric piano will be increased with Emphasis, Distortion, Noise, and Compressor.

3. Emphasis makes the middle frequencies more dynamic. To do this, the Attack and Envelope are set to 12 o'clock, Release at 3 o'clock, Mix at 8 o'clock and Drive at 9 o'clock. To keep things interesting, Noise adds noise via the Tape Sound source. Attack and Release are set to 11 o'clock, and Mix at 10 o'clock. Lastly the whole signal is then compressed to combine all of the new components. Input has been set at about 10 o'clock, Attack and Release at 2 o'clock, and Ratio at 2 o'clock.



Tip: The intensity slider can be connected to the modwheel of your keyboard to control the intensity of the audio signal.

4.3. Mixing via Send-Effect

In this example, A Drumbus needs more presence, push, and a dirty, raw sound. Here CALDO can be used as a Send Effect and mixed in.

1. A send effect channel is created, and CALDO is then loaded through Reaktor. The preset “Crushed Drumbus” is then loaded.
2. CALDO is set into stereo mode. The Intensity slider has been set to the maximum (127) and the Transient Boost, Hypobass, Distortion, Noise and Compressor effect modules are activated. Transient Boost boosts the transient level and gives the Drumbus a bit more punch. Hypobass strengthens the Bass portion of the kickdrum. Distortion warps the signal and enriches it with overtones. Noise adds then some light noises, so that the drums sound a bit dirtier. The Compression Module gives the sound some push and authority.
3. Depending on the input level, the input control of the compression module has to be adjusted. The signal should sound thick and strongly compressed, so that in the mix, the Drumbus is a bit more voluminous.
4. The CALDO Send Effect channel can now be mixed with the Drumbus as desired.

Have fun sound designing, mixing and experimenting with CALDO!



5. CREDITS

CALDO

MeinHomestudio.de

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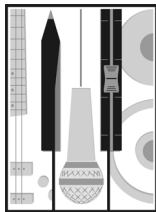
PRODUCT CONCEPT, PRODUCT DESIGN, NOISE SOUND DESIGN - Jan Brähler & Paul Marx

EFFECT & DSP DEVELOPMENT, GUI IMPLEMENTATION - Jan Brähler

GUI DESIGN, PRESET DESIGN & DOCUMENTATION - Paul Marx

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