Chameleon C6s V0.9.1(beta) Software Guide

(Guide rev1)

Meet Chameleon, the new audio processing and loudness control product from Angry Audio.

Until now, program audio processing has been a very specialized product primarily used by broadcasters. These are typically expensive and complex products that require quite a lot of expert setup and tuning to sound their best. And when the format changes, the experts need to do it all over again.

Audio Chameleon takes an entirely new and innovative approach. We have created a unique architecture controlled by a form of artificial intelligence. By constantly analyzing the incoming audio, Chameleon adjusts its parameters to best fit the content. You get all the loudness and consistency and punch and clarity of the most advanced program audio processing instantly, on any format.

Best of all, with the architecture under A.I. control, so it’s really simple to use, and to get a great sound for your programming style.

This guide will show you how!

Audio Processing Tab

Controls tab
Selects between general audio processing controls and BS 1770 loudness (LUFS) management algorithms.
(Short cut combo: CTRL-1 for proc tab, CTRL -2 for LUFS)

Input Levels
- By default, on the processing view meters show INPUT levels.

Gate Threshold Visualization.
- Changes according to gate threshold and shows where the freeze gate threshold is relative to program levels. Also changes to blue whenever audio is below gate threshold.

Toggles meters between input and output levels

Engage or **Bypass** audio processing

Lows sets the overall amount of Low Frequency (Bass) energy applied to program audio. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

Highs sets the amount of High Frequency (Treble) energy applied to program audio. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

Chameleon Bass – When engaged (Blue), Bass energy is treated by Chameleon AI to provide punch and percussion detail in low frequency content.

Gate Mode – Gating behavior can be set to freeze when below threshold, or to a "Gate to Zero" style behavior. Metering scales will change accordingly.

Drive control sets audio processing (compression) depth. Chameleon's AI keeps the audio texture consistent across an extremely broad range. Feel free to use this control with impunity! *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

Sets the **Freeze Gate threshold**. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

Density % sets the amount of processing "thickness" applied to program audio. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

Detail % sets how deep the Chameleon AI will "dig" to provide spectral consistency from source to source. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

AUDIO CHAMELEON

Audio Processing Tab

Gate Override
While there is a user defined freeze gate threshold, the multiband AI routinely "overrides' this global setting according to what it sees in the program content to ensure maximum "stability" of the program spectrum across a wide range of gain control scenarios.

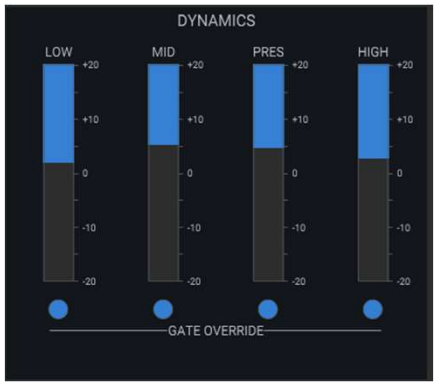
Final Limiter activity. – shows the amount of lookahead True Peak peak limiter activity.

LU G/R meter shows the amount of "loudness correction" currently applied to program audio by Chameleon's A.I. to meet user defined loudness target (See LUFS Management Controls Page)

LUFS Readouts show rolling Integrated loudness and Short Term loudness. When evaluating loudness performance, always refer to integrated loudness. (More on this on the "LUFS" management controls page.)

AUDIO CHAMELEON

The Chameleon Processing Engine



A program audio processor uses a combination of signal modifying tools to shape the sound and control loudness. And though these products can work quite well, they are typically very expensive and complex devices requiring expert setup and tuning.

Chameleon takes an entirely new and innovative approach to program audio processing. Controlled by a form of artificial intelligence, Chameleon analyzes the incoming audio and continually adjusts its parameters to fit the content.

Typically, Audio processing products employ static parameters (such as attack and release, etc.) and imposes them onto the source audio.

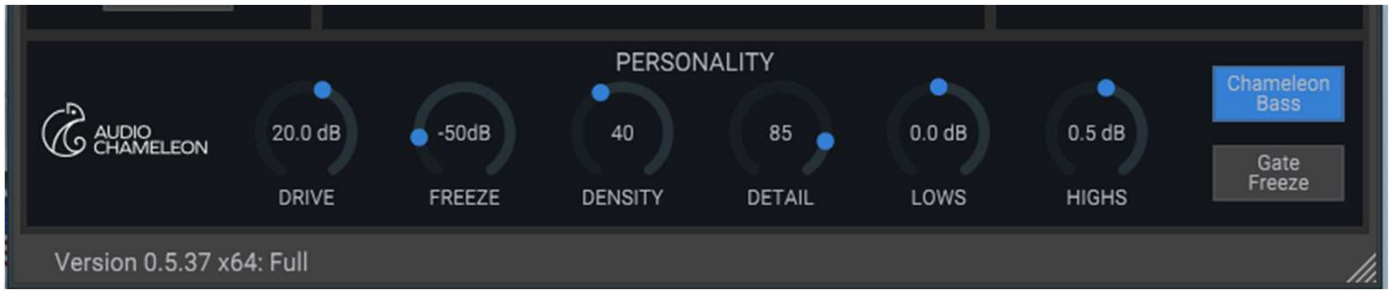
With that approach, most songs can be made to sound OK, but then you have that series of “other tunes” that sound terrible as a result. Hard to fix that issue without messing up the sound of songs that are the bulk of the music format!

The Audio Chameleon processing engine uses intelligence to analyze the audio, and applies the appropriate parameter settings (based on parameters the end user applies). In this approach, the program audio drives the settings, and not the other way around!

With Audio Chameleon, those Outliers drop to a much smaller number of tunes (if any!)

AUDIO CHAMELEON

The Personality Controls



These "Personality" controls are interactive and are your keys to dialing in the sound you want.
They influence the AI. Use them to tune the AI to your specific programming needs.

Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.

Here are some tuning hints:

Density
This control not only adjusts the overall "density" or "thickness" added to your Program audio. It can also be used for greater source-to-source density matching when set to values above 50%. Chameleon does this by automatically increasing density on Light / open produced material to the value on the control. Already dense material causes the Chameleon AI to turn this parameter down as to not "over-process" this (already dense) content material.

Detail
Values above 50% will cause the Chameleon's AI to force more spectral consistency Source-to-source. Material that is already "spectrally rich" causes the AI to back off on this control as to not "over do" spectral consistency. Think of this as the audio equivalence to the "Color Saturation" control used in video editing tools…except that In Audio Chameleon, it's under intelligent control so you can't "cartoon-ize" your audio. This spectral consistency system beautifully brings out subtle spectral details normally lost through normal audio processing measures – Hence the name.

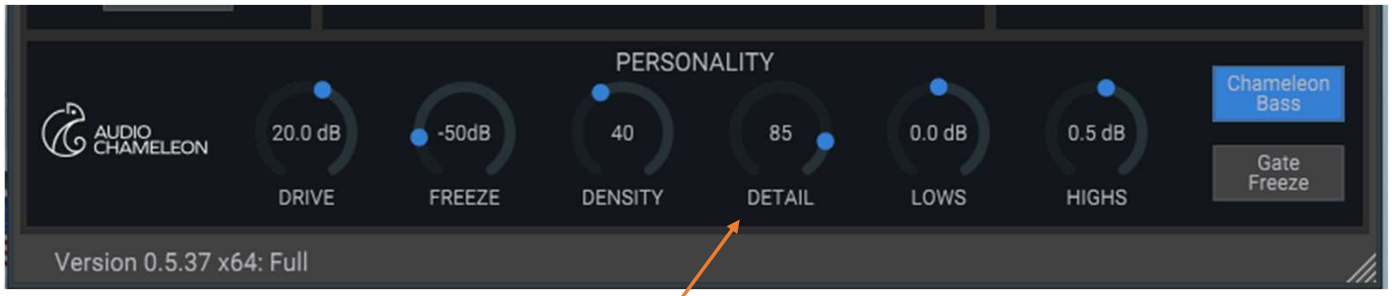
Lows
At values above zero dB, the AI will "weight" more bass in the overall spectral mix of Your program content. Sometimes higher "Detail" settings can cause an overall increase in bass texturing. If this is the case for you, settings below 0dB will help to bring things back "in line".

Highs
The effect is the same as with "Lows" but dealing with high frequency (treble) content instead.

Overall notes
The collection of personality controls interact with each other. This allows for a wide palette of sound by setting these controls at various positions. This lets you to do what might take tuning tens of dozens of controls in other program content audio processors!

AUDIO CHAMELEON

The Personality Controls



More tuning hints:

“Detail” Control adjustment hints

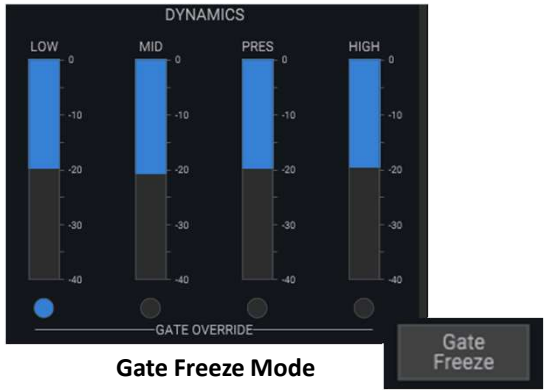
As the “Detail” control nears 75-80 %, some frequencies may become more dominant In some formats. It’s common for bass frequencies to start to stand out as more bass detail is brought out.

If this is the case, feel free to reduce the “lows” control by 1 dB or so to offset.

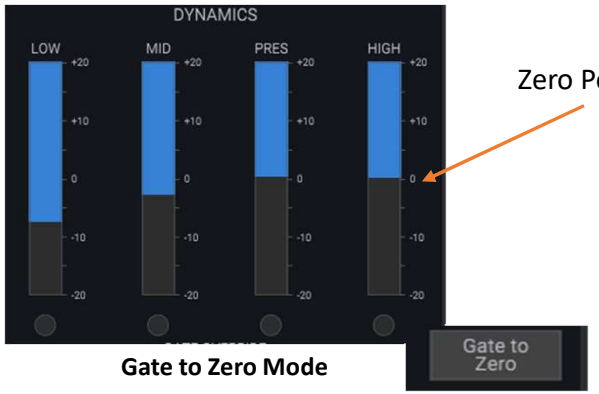
Same goes for high frequencies (treble). If the highs (treble) become too dominant on your format, reduce the “Highs” control.

AUDIO CHAMELEON

The Gating Controls



Gate Freeze Mode



Gate to Zero Mode

Here are some hints for using the Gating system in its two modes of operation:

Gate Freeze
This control causes Chameleon to act in a classic multiband compressor
Mode…but with intelligence! As audio falls below the user defined Freeze Threshold, the
Multiband processing freezes its recovery function and will wait until audio increases above this threshold.

This prevents noise rush-up or other "unpleasantries" during silent portions of programming.

Gate to Zero
This is an alternate "gating" behavior in that when audio falls below the user defined "freeze" threshold,
The Chameleon's multiband processing resets to "Zero". One way to calibrate the Chameleon in this mode is to set
The drive levels in such a way where "normal" program levels (say, between -18 and -12 dBFS), the dynamics meters
Hover more-or-less at the "0" point on the scale. This represents "unity gain" where no additional processing is applied
Content deviates from this zero point. If there is a change away from "normal" then corrective measures are applied.

This is helpful if you have content that must stay somewhere (tonally) neutral (i.e minimal OBVIOUS coloration of content over time).

AUDIO CHAMELEON

1770 Loudness (LUFS) Management & output levels Tab

Controls tab
Selects between general audio processing controls and BS 1770 loudness (LUFS) management algorithms

Output Levels meter

Toggles meters between input and output levels View.

LUFS Target
Allows users to define the LUFS target for intended applications. For Streaming, YouTube, and Podcast, the target is defined as -16 LUFS, so this is the default setting you'll see after software installation. This can be increased to as high as -9 LUFS, if ITU BS.1770 loudness control is not needed. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

LUFS Drive
If the user wishes to have the LUFS leveler work harder , or less, this control allows for the adjustment of this trade-off. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

Final Limiter activity. – shows the amount of lookahead True Peak peak limiter activity.

LU G/R meter shows the amount of "loudness correction" currently applied to program audio by Chameleon's A.I. to meet user defined loudness target (See LUFS Management Controls Page)

True Peak dBFS
1770 LUFS control can be set to conform to the specs of the target services. Many will specify – For example, -16 LUFS, -2 dB True Peak. *Mouse or Up-Down arrows allow for Adjustment after the control of interest has focus.*

NOTE: This true peak setting (and LUFS, for that matter) is only true IF Master output and / or gain staging is at 0dB, or audio chain following will pass 0dBFS when Audio Chameleon is set to 0dB FS!!!

Master Out
Sets the output master level. Unless there is some special reason to change (like, there is +3 dBFS of gain applied elsewhere in the system to Chameleon output levels) please leave at 0dB!

AUDIO CHAMELEON

1770 Loudness (LUFS) Management & output levels Tab

Reset
Clears the loudness histograms. When checking Integrated Loudness, it is useful to clear this every 60 seconds or so to get an accurate feel for your integrated loudness target. Otherwise, it will free integrate for several hours before automatically clearing itself. Integrated loudness is the important parameter to pay attention to.

1770 Mode
Toggles between AES / ITU mode (Recommended!) and Dual Mono mode.

Dual Mono is provided for content producers who have a special need for this mode. **NOTE:** *Using Dual Mono will result in audio that will not fully comply with BS1770 standards!*

Loudness Confidence metering

The Chameleon C5s has built-in confidence monitoring for loudness.

Momentary and Short-Term loudness shows the current loudness trend. As you go from left to right, more integration filtering is applied to show the trend towards the final integrated loudness results.

Momentary loudness shows loudness within a 400 ms. Window average , Short Term is across a 3 second window average, and Integrated shows loudness since the last reset was applied.

Loudness Integration window
Toggles between 60 Sec. Integration (High fidelity loudness control) and 30 Seconds Integration (tighter loudness control). We like 60 seconds for music, 30 seconds for speech, though either can be used to tailor to your desired sonic signature.

AUDIO CHAMELEON

True Peak Setting Notes

Important notes on setting True Peak

According to the ITU, Many True Peak meters use 4X oversampling. As a result, the accuracy is typically around 0.6 dB. The ITU recommends not using a value any higher than -1dBTP to account for the discrepancy. This is the default value for Chameleon C6s.

The Master Out level must be at 0dB for the True Peak setting to be accurate.

Some lossy codecs may add up to 3dB of "overshoot" as part of their normal operation, so Chameleon's True Peak setting can be lowered to -3dB. LUFS control algorithm will compensate loudness target when TruePeak is raised or lowered. LUFS target is ***NOT compensated*** when the **master output** is changed.

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