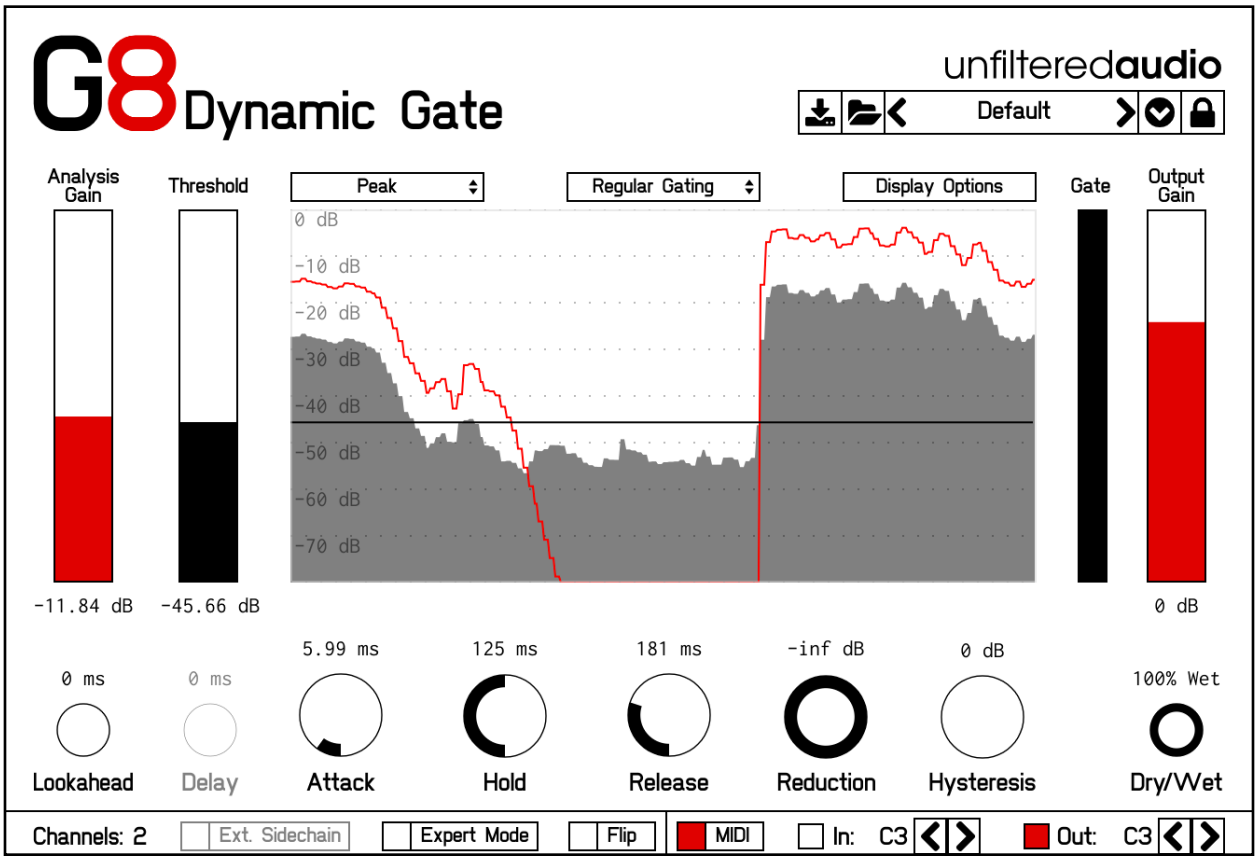
G8 Gate 1.2 Manual

by unfilteredaudio



Introduction

G8 is a high-quality noise gate with many tricks up its sleeve. It is both a professional dynamics workstation and an experimental amplitude effect. Use it for noise reduction, AM/granular synthesis, bouncing ball rhythm programming, tremolo, trajectory panning, transient shaping, and much, much more.

Gating is an effect commonly used to reduce audio noise by only allowing signals over a certain amplitude threshold to pass. Generally, this is used to eliminate unwanted noise from tracks, but with G8, it can also be used for exaggerated stuttering rhythms and all sorts of other creative dynamic effects.

Flip Mode and Reject Outputs allow you to use G8 as an “amplitude splitter,” or a way of routing different volumed sections of a single track into different creative effects. This technique can be used to add interesting and unique non-linear (a.k.a. amplitude-dependent) effects such as compound distortions, delays, reverbs, and EQ–each of which, when once set up, can be tweaked and modulated simply through changing a single threshold knob. Cycle and single-shot envelope gating modes allow you to easily create intricate amplitude triggered stutter effects. These are especially powerful when combined with G8’s fully supported MIDI input and output triggers.

Use it for noise removal, transient shaping, amplitude-dependent effects routing, glitchy rhythms, and much more. A large number of presets will get you started!

Features

- “Cycle” and “One-shot” gating modes, allowing you to use G8 as a stutter effect, AM synth, granular synth, or triggerable envelope. Combined with G8’s MIDI features, you can use these modes to create intricate rhythms, bouncing ball effects, or drum replacement.
- External sidechain support.
- Independent Analysis Gain and Output Gain controls.
- RMS and Peak style metering, allowing you to pick the right tool for the job.
- Lookahead control, with accurate latency reporting to the host.
- Wet/Dry knob for parallel gating, compression, or expansion.
- Variable reduction, allowing control over the depth of the gating.
- Hysteresis and Hold parameters to prevent “chatter” or unwanted dropouts.
- Customizable MIDI input and output, allowing you to trigger G8 from MIDI clips, or to synchronize instruments to G8.
- “Reject” Outputs. These follow the opposite gating envelope as the output, allowing you to use G8 as a two-band amplitude splitter!
- Flip mode, which reverses G8’s threshold analysis behavior.
- Expert Mode, featuring an advanced routing, amplitude, and filtering matrix for each channel, as well as individual input monitors for up to 4 channels. Use this to clean up the analysis input, or to create unpredictable gating polyrhythms.

Getting Started

Installing G8 Gate

Simply run the provided installer. On Windows, you will need to select your VST directory if the installer doesn't pick the right one by default.

Browsing Presets

G8 comes with a wide array of presets to get you started. The preset manager on the top-right of G8 is used to load, save, or browse presets. If you want to get a good feel for the power of G8, spend some time with these presets before browsing the manual.

Standard Unfiltered Audio Features

CONTROLS

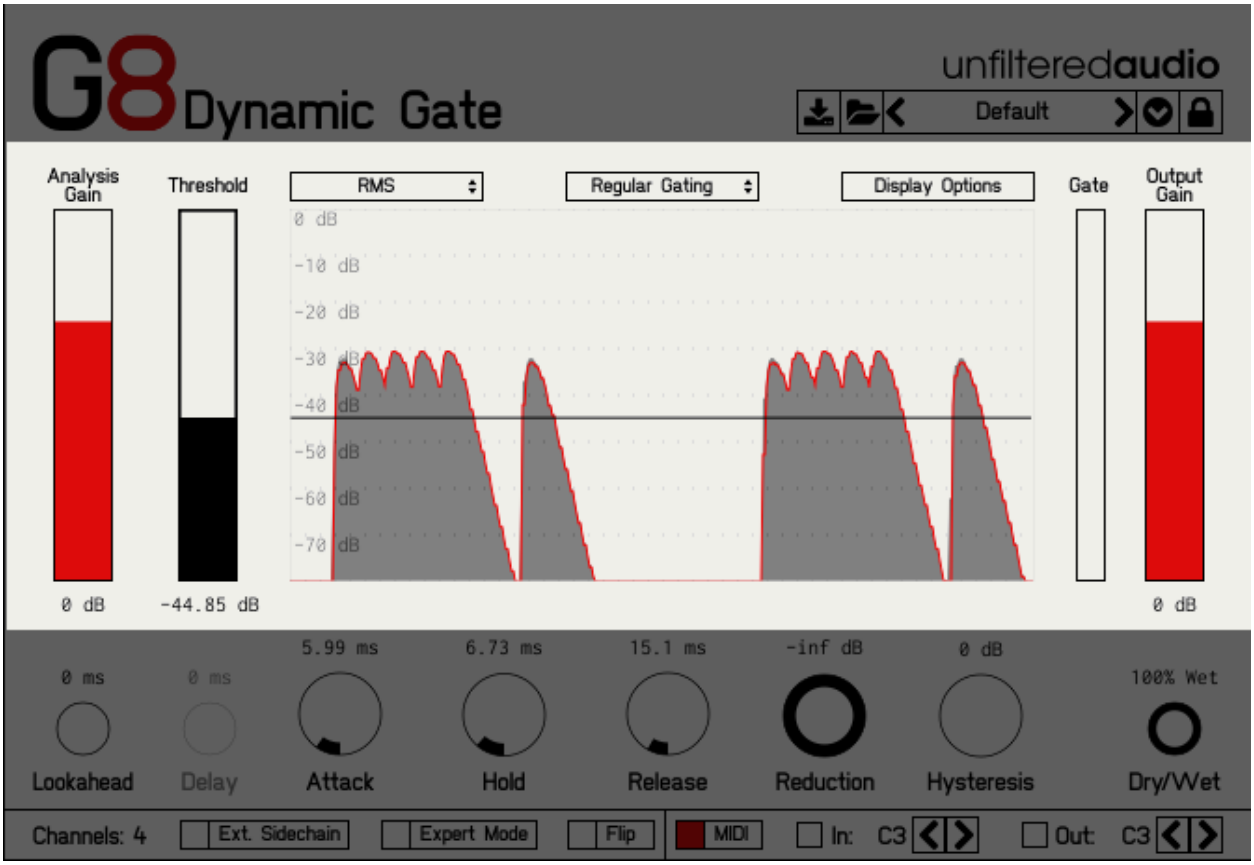
-All knobs and vertical sliders are controlled in a smooth up-and-down motion.
-All horizontal sliders are controlled in a smooth left-to-right motion.
-Hold Command (on OS X) or Control (on Windows or OS X) to fine-tune controls.
-Double-click or Alt-click on a control to return it to a default setting.

PRESETS

-All presets are saved with a .uap file extension. These presets are compatible across all platforms and plug-in formats.
-Use the "Lock" menu to prevent specific parameters from changing while browsing presets.

Controls

Gains and Display



Analysis Gain: Controls the amount of gain applied to the analyzed audio signal. The analyzed signal is considered separately from the outgoing signal in G8. Because of this, this control does not affect the amplitude of the signal that you can hear.

Threshold: Controls the level of the gate's threshold. When this threshold is exceeded by the amplitude of the incoming audio, the gate will open and allow the audio to pass through. When the incoming audio is below the threshold value on the other hand, the gate will close.

Gate Meter: A non-interactive component that displays the current value of the gate envelope. If you would like to see a more detailed history of the envelope's value, you can click the "Display Options" button and enable the "Show Gate" parameter, which will then add the envelope to the waveform display.

Output Gain: Controls the amount of gain applied to the outgoing signal from G8. This gain does not affect the analysis levels of the incoming audio.

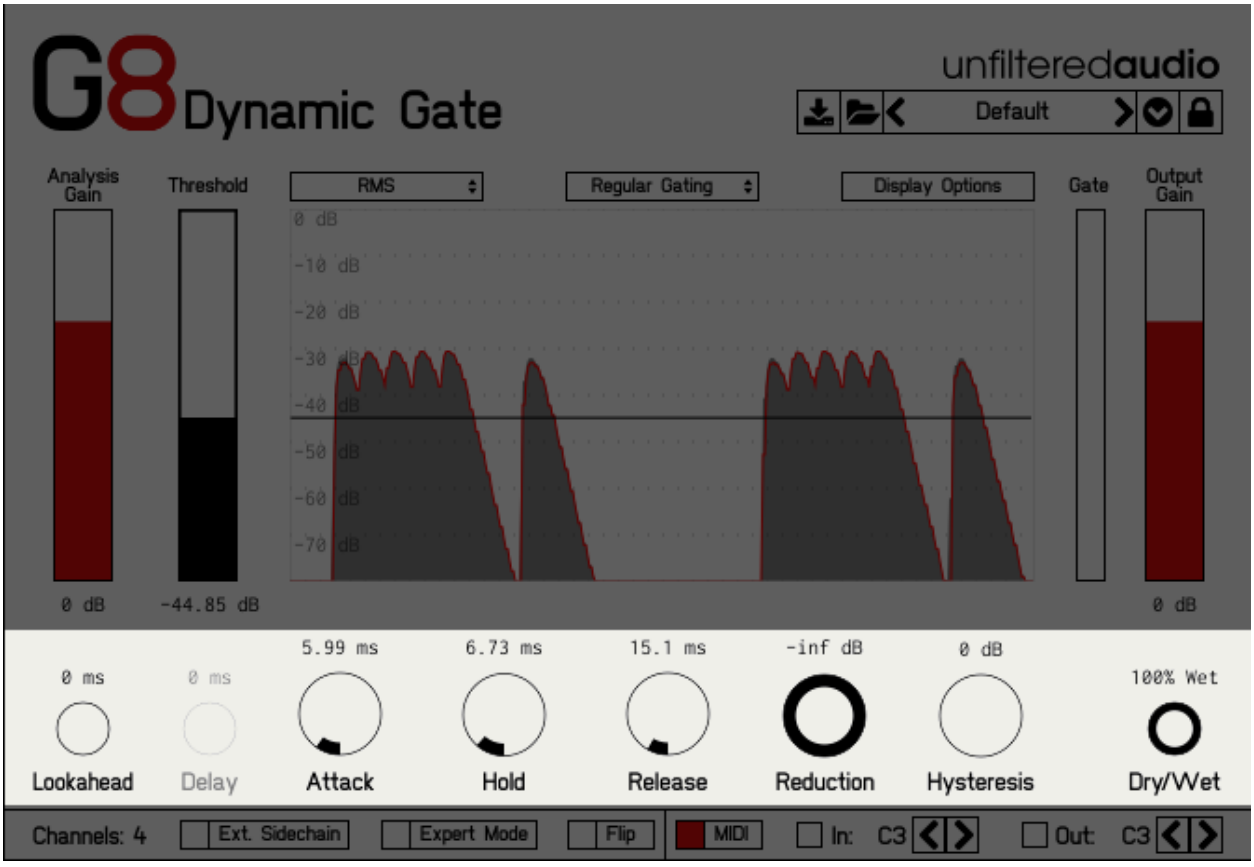
RMS/Peak: Selects the analysis type. Use “Peak” for more rapid analysis of signals with many transients (i.e. percussive signals).

Behavior Mode: Selects the behavior of the gate envelope. Choose between “Regular Gating”, “One Shot”, and “Cycle”. Please see the section on “Alternate Gate Behaviors” for more info.

Display Options: Provides a menu to enable or disable the entire waveform display, or individual components of the waveform display. The three options can each be enabled/disabled individually:

- *Show Input (Gray)*: Shows the input signal used to compare to the threshold value during analysis.
- *Show Output (Red)*: Shows the output signal after the gating has been applied.
- *Show Gate (Black)*: Shows the normalized gating envelope as it is applied to the incoming signal.

Gate Controls



Attack: Controls the amount of time it takes for the gate to open to maximum amplitude after the incoming audio goes above the threshold. Extremely short values (< ~10 ms) can result in clicks, due to the rapid change in amplitude.

Hold: Controls the amount of time that the gate is required to stay at maximum amplitude for. If the incoming audio drops below the hysteresis point before the hold stage is finished, the hold stage will complete before the release stage begins.

Release: Controls the amount of time that it takes for the gate to go from maximum amplitude to minimum amplitude. This stage occurs after the incoming audio drops below hysteresis, and after the hold stage is completed.

Reduction: Controls the amount of gain removed from the audio signal when the gate is closed. This effectively sets a minimum amplitude for the gate envelope.

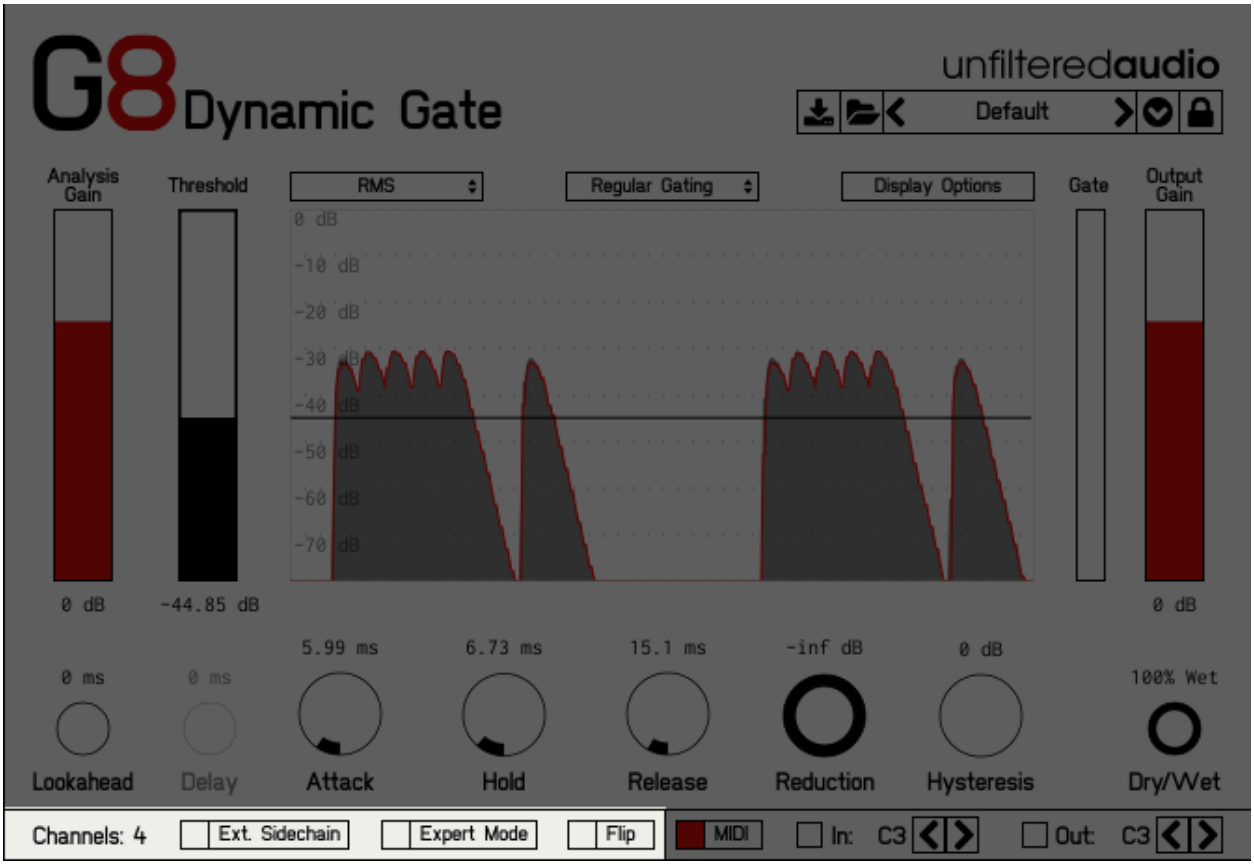
Hysteresis: Controls the hysteresis point, often referred to as the “bottom threshold”. The audio signal must drop below this bottom threshold before the gate can close.

Dry/Wet: Controls the balance between the “dry” (unaffected) incoming signal, and the “wet” (affected) outgoing signal. Please keep in mind that the “dry” signal is delayed by the Lookahead value, meaning that it is not a truly bypassed signal. This was done so that the wet and dry signals maintain the same phase.

Lookahead: Delays the signal by a chosen amount to allow the gate’s analysis stage to better predict incoming transients.

Delay: This control is only active when “Cycle” mode is selected (Please see the section on “Alternate Gate Behaviors”). Controls the length of silence inserted between envelope cycles.

Advanced Controls (Bottom Left)



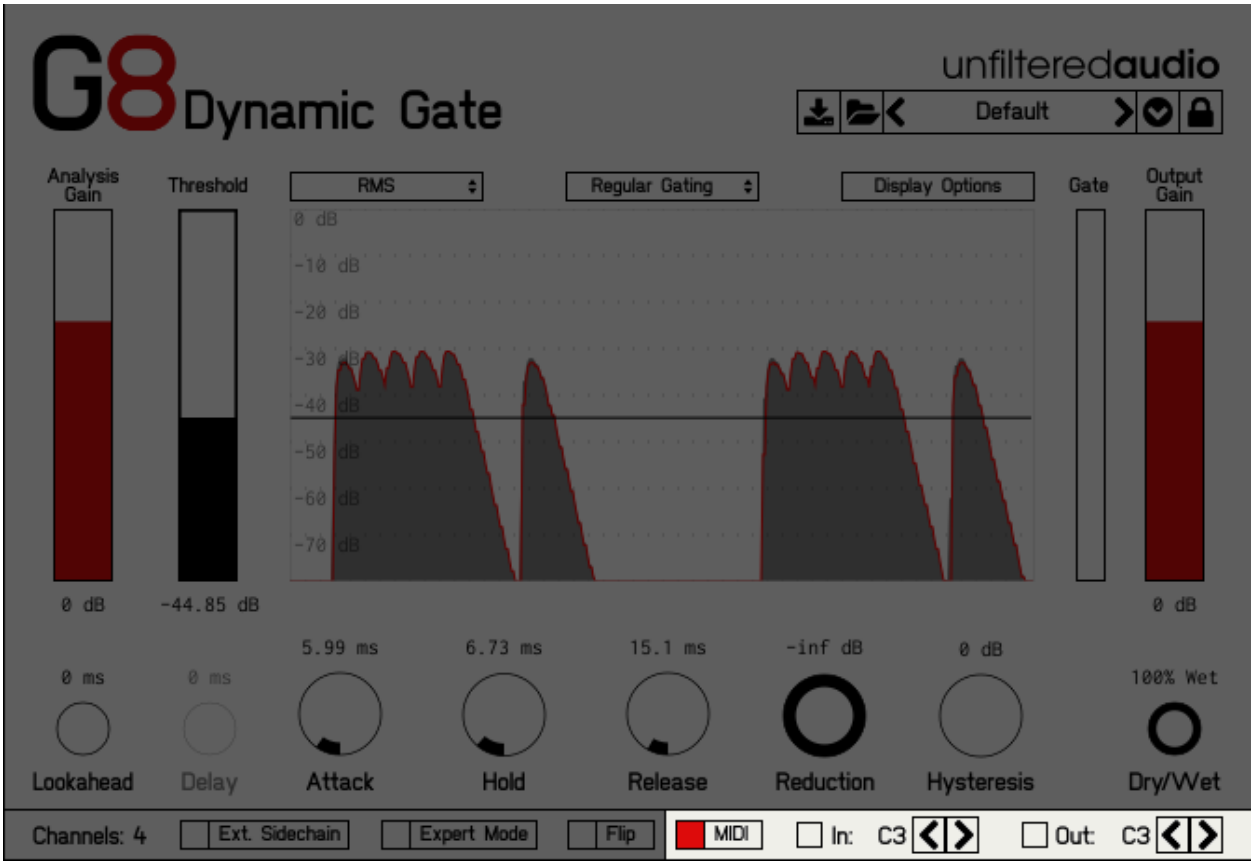
Channels Display: Displays how many channels your host currently supports. This number is equal to the number of input channels. You can use this for troubleshooting your setup.

Expert Mode: Toggles whether or not Expert Mode is active. For more information, please see the section on “Expert Mode”.

Flip Mode: Toggles whether the primary outputs and reject outputs are swapped. For more information and techniques, check out “Reject Outputs” and “Flip Mode.”

External Sidechain: Activates an external signal to be analyzed by the gate (instead of the main input). For more information, see the “External Sidechain” chapter.

MIDI Controls (Bottom Right)



MIDI: Toggles whether G8's MIDI inputs and outputs are active. When this toggle is de-activated G8 will not send or receive MIDI notes.

In: The MIDI input section has a display lamp that will light up any time G8 detects a matching incoming MIDI note. The left and right arrows are used to change which note G8 will look for to activate this trigger.

Out: The MIDI output section has a display lamp that will light up any time G8 is sending MIDI output. The left and right arrows are used to change which note G8 will use to send triggers.

External Sidechain

When the “External Sidechain” switch is active, G8 will use its auxiliary input(s) as an input to the analysis stage instead of the main input(s).

Consult your DAW’s manual to learn how to send audio to G8’s sidechain. When using G8 as a VST2 plug-in, the sidechain inputs will simply show up as additional inputs in compatible hosts.

Recipes and Ideas

- Use a sustained main input with a rhythmic sidechain to apply that rhythm to the input. Change the gate’s envelope settings to control how quickly the main input follows the sidechain. Change the threshold to determine how sensitive the gate is to the individual rhythmic hits.
- Turn on “Flip Mode” to have the main input be the rhythmic inverse of the sidechain.

Additional Features and Modes

Alternate Gate Behaviors

Cycle Mode and One-Shot Mode, are variations on G8's default gating behavior, each of which change the way in which the gating envelope will be applied while the gate is "open" (i.e. the input signal is above the threshold level).

Cycle Mode:

In Cycle Mode the gating envelope will continuously cycle through each of its stages- Attack, Hold, Release, and Delay (optional). Each of the gating parameters control the length of its corresponding portion of this envelope, and the cycle will be repeated until the input signal falls below the threshold level triggering a final release. The speed of each cycle is the sum of the lengths of all four segments (Attack, Hold, Release, and Delay). Delay controls the length of silence inserted between envelope cycles.

Cycle Mode is useful for creating effects such as amplitude-sensitive tremolo (i.e. when the guitar gets loud, add tremolo), especially in combination with variable reduction amounts. If the envelope lengths are set very low (< 50ms), you can create AM synthesis where the length of the entire cycle functions as the carrier frequency. Similarly, if the delay time is increased while the rest of the envelope values remain very low, you can create granular synthesis where each cycle is heard as an individual sound grain.

One-Shot Mode:

One-Shot Mode is a variation on Cycle Mode, where the gating envelope only fires a single time whenever the input signal goes over the threshold level. The envelope runs through the Attack, Hold, and Release stages immediately, no matter how long the incoming audio is above the threshold for. The envelope will not fire again until the audio has dropped below the threshold and risen above it again. One-Shot mode works best on non-layered sounds, such as an individual drum channel. You can use One-Shot mode, for instance, to drastically alter the character of a snare hit, or to turn a more sustained synth part into percussion tones.

ADDITIONAL NOTES

When in Cycle or One-Shot Mode, G8 will generate a MIDI out note whenever the envelope is triggered. Using this feature in One-Shot Mode is a great way to replace drum hits with another source. In cycle mode, you can use it to create MIDI rolls, automatic bouncing balls, and other otherwise difficult to program flourishes.

Reject Outputs

One of G8's most innovative features is its ability to create "Reject Outputs" when used in four-channel mode. The Reject Outputs are a set of auxiliary outputs that output the sound that is

currently being blocked by the gate. If this is hard to conceptualize, mixing together the gated signal and the Reject Outputs will give you back your original signal.

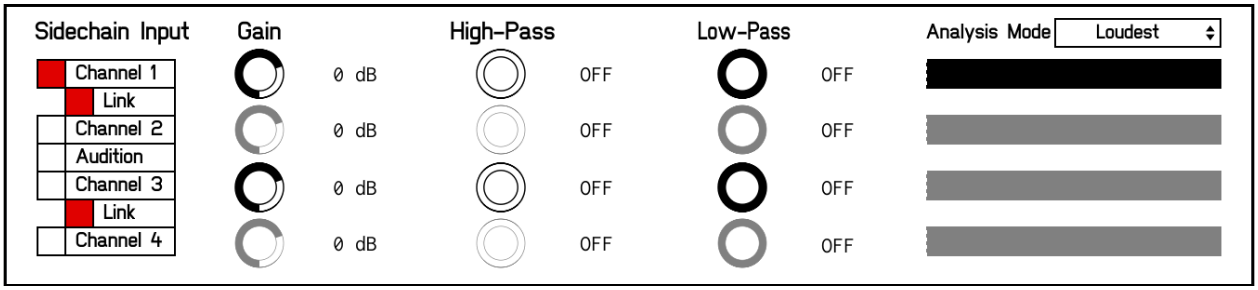
This opens up all sorts of creative mixing possibilities using a technique that we call “amplitude splitting”. This allows you to create non-linear (amplitude dependent) effect chains using any other plug-in you wish. For a simple example, you could create an amplitude dependent auto-panner. Simply mix the main outs down to one channel, and the Reject Outputs down to another. If you are creating a four-channel mix, this is an easy and flexible surround auto-panner!

Flip Mode

When “Flip Mode” is active, the main outputs and the Reject Outputs are swapped. This is useful for a number of reasons. First, if your host does not support G8’s four-channel mode, then this will still give you access to G8’s Reject Outputs. Second, this mode is visible to automation! This allows you to increase the complexity of your Reject Output effect chains by switching between the two modes. Third, it allows you to simply use the Reject Outputs if you have no use for the main outputs.

Why would you want access to only the Reject Outputs? Well, one of our favorite uses of the Flip Mode is to use G8 as a bizarre compressor! To achieve this, activate Flip Mode, and then change the amount of reduction that G8 is using. There are many other wild effects waiting to be discovered in this mode, especially in combination with G8’s alternate behaviors.

Expert Mode



Expert Mode is an optional mode that provides more in-depth control for advanced analysis situations. In this mode, you have access to the gain of each individual channel, along with the ability to filter the analysis signal. You also have the ability to change between different modes of analysis. Note that all adjustments performed in this mode only affect the analysis signal, and not the main input.

Channel Toggles: Activates whether each channel contributes to the analysis signal.
Link: Enabling this forces two channels to have the same settings. Changing a parameter on one channel will affect the other. This is useful if you want to apply the same settings to a stereo input.
Gain: Changes the level of the channel before it reaches the analysis stage.
High-Pass: Applies a high-pass filter to the channel and removes low frequency content. You can use this to isolate higher frequency content, like a snare drum hit.
Low-Pass: Applies a low-pass filter to the channel and removes high frequency content. You can use this to isolate lower frequency content, like a bass drum hit.
Audition Mode: Sends the analysis signal to G8's main outputs. This allows you to listen to your changes.
Analysis Mode: Changes how the gate signal is extracted from the various input channels.
- Loudest: The highest amplitude channel is used for analysis.
- Average: The average amplitude of all active channels is used for analysis.

To get you started, here are some ideas for how to use Expert Mode:

- Use the filters to remove noise from your analysis signal. You can remove clicks and pops from your analysis signal to make sure that they don't open the gate at the wrong moments.
- Control an uneven stereo signal by applying separate gain to each channel or setting Analysis Mode to "Average".
- Create a mix of your main input and external sidechain input. Balance these correctly to create unusual gating polyrhythms.
- For even more unusual gating behavior, change the analysis mode to "Average" and use two very different input sources.
- Use Audition Mode to use G8 as a filter, mixer, or amplifier.

Recipes and Ideas

Autopanner

- Take the main outputs from G8. If possible, mix the stereo outputs down to mono (Your DAW probably has a utility for doing this.)
- Pan that track towards one channel.
- Take the reject outputs, mix them down, and pan them towards the opposite channel.
- For Transient-based Autopanning, use the “Regular Gating” mode and set the Threshold to a useful value. Your Attack, Release, and Hold times will control how quickly the pan occurs after the threshold is crossed.
- For Regular Autopanning, use the “Cycle” mode and set the Threshold to its minimum value. Again, the Attack, Release, and Hold times will control the panning envelope.
- For either above mode, the Attack and Release times give you separate control over how quickly the audio pans to one channel and how quickly it pans back. It is a rather dynamic effect!

Tremolo

- Set G8’s behavior to “Cycle” (instead of “One-Shot” or “Regular Gating”).
- Set the Threshold to its minimum value. You should hear a dramatic tremolo effect.
- For a softer tremolo effect, adjust the “Reduction” value.
- Attack, Release, and Hold settings will affect the tremolo’s speed.

Granulation/AM Synthesis

- Set up the Tremolo patch described above.
- Set the Attack, Release, and Hold settings to extremely low values. When you can no longer hear the individual cycles, you have achieved AM Synthesis.
- To space the grains out more, increase the “Delay” setting.

Bouncing Ball MIDI Generation

- G8 does not need to receive audio for this effect to work.
- Set the threshold to its minimum setting.
- Change G8’s behavior mode to “Cycle”. The gate meter should be jumping up and down.
- Connect G8’s MIDI output to an instrument that you would like to trigger (For more detailed instructions, please see the section on “Using G8 In Your Host”).
- You should now hear the instrument triggering at a regular rate. For a more rapid bounce, decrease the Attack, Hold, and Release times.
- Once you have a bounce setting that you like, increase/decrease the Delay parameter.

Percussion Synthesizer

- Set G8’s behavior to “One-Shot”.

- Run a synthesizer into G8. A great starting patch is a simple mix of a sine tone and white noise.
- Set G8's Attack time to about 10 ms. Set the Hold to 0 ms and the Release to around 100.
- Set G8's Threshold to an appropriate setting.
- Each time you play a note on the synth, G8 will apply its envelope. Since G8 is capable of creating extremely short envelope segments, it makes a great alternative to some synths' less flexible built-in envelope generators.
- For more fun, set G8's behavior to "Cycle" for repeated percussion.

Credits and Thanks

G8 Gate is written by Joshua Dickinson and Michael Hetrick.

We would like to thank Andres Cabrera for all of his expertise on dynamics programming, and Curtis Roads for his pioneering work on microsound.

http://www.unfilteredaudio.com