

Audio Plugin for VST and Audio Unit Hosts

USER MANUAL

Version 1.00



Dieses Handbuch in Deutsch



Este manual en español



www.stillwellaudio.com

Bombardier
BUSS COMPRESSOR

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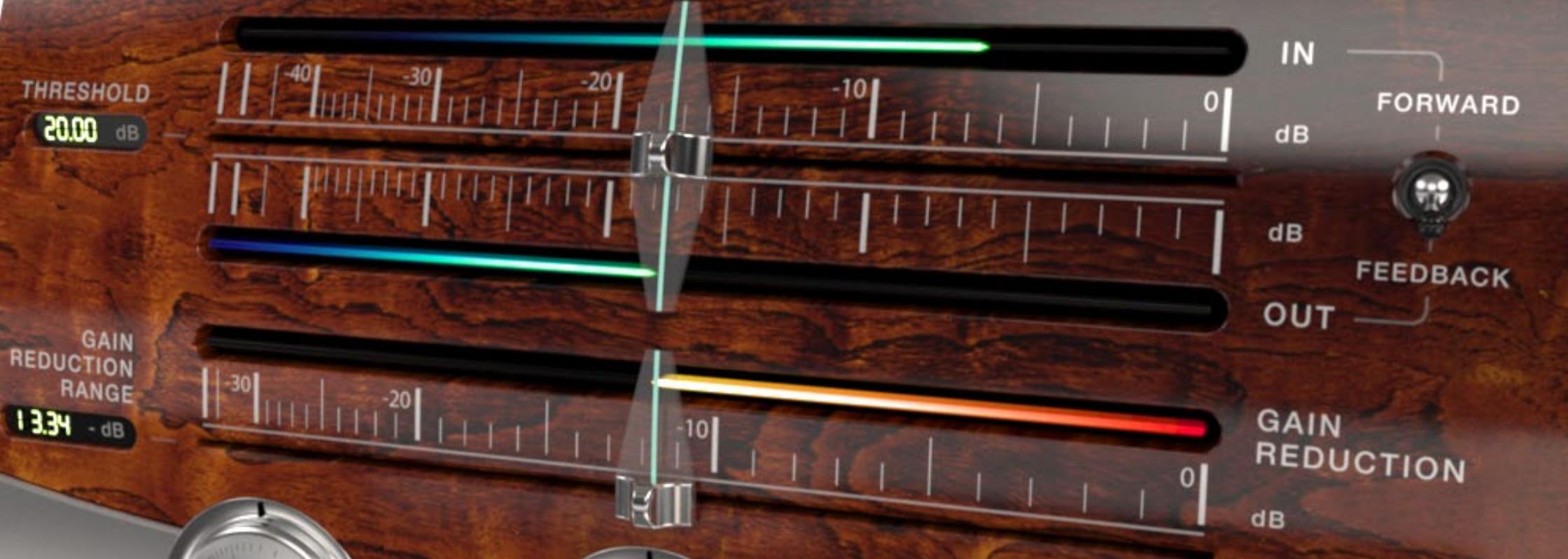


Bombardier is a premium quality buss compressor, tailored for smooth and musical processing of complex audio such as drum groups, vocal stems and your full stereo mix, lending an controllable sense of weight, fluidity and cohesion.

Bombardier gives a nod to the non-linear and frequency-variant subtleties of a wide range of Grade-A hardware buss compressors, and should you wish these can be pushed almost into the realms of a character compressor.

Due to its RMS compression engine (and unlike The Rocket, which uses peak compression), Bombardier is ideally suited to final mixdown and mastering usage, Bombardier is also ideal for those who like to set up buss dynamics first and then mix 'into' the buss compressor.

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METERS

Bombardier’s high resolution metering gives you fast and accurate information on input, output and gain reduction, along with the ability to visually set the level variables against them. Moreover, because the meters act fast (corresponding roughly to a slow SPL meter, but with a much faster peak rise...maintaining a total 300 ms envelope time), while the level variables act on a heavily tailored control signal (as adjusted by the Mode, RMS, Attack and Release controls, and dependent on the nature of the source audio), the effect of the signal tailoring on the level of threshold required can be judged.

What this means, in practice, is that as you adjust the Mode, RMS, Attack and Release controls a discontinuity will arise between the IN / OUT meters and how deep

‘into’ the signal you’ll need to pull the Threshold fader. Look for the onset of Gain Reduction as you pull it down, and you will see by how much the tailored RMS signal varies from the peak signal; with a long RMS window it can be a sizable difference. Understanding this behavior, and setting the controls accordingly, is key to mastering Bombardier’s power.

The Gain Reduction meter shows the reduction of gain in decibels resulting from the compression engine’s settings.

THRESHOLD

This fader controls the level above which compression takes place. On a typical peak compressor, you might lower this setting while watching the Gain Reduction

meter, looking for your desired amount of reduction. Being an RMS compressor, Bombardier will reward a different approach since the Threshold is highly interactive with the level, RMS setting, and the chosen Attack and Release values. As a rule of thumb, try a lower threshold than you might be accustomed to. The level against which the Threshold is measured varies in accordance with the position of the Forward / Feedback switch.

FEEDFORWARD/ FEEDBACK

This control sets the topology of the compressor’s virtual “circuit”. In Forward mode, the compressor acts much like any of a wide selection of modern

compressors. The compressor uses the input of the compressor as the detector input, applies any needed filters or processing, then uses the level obtained to determine the amount of gain reduction needed.

Feedback mode is very much like the operation mode of older tube and optoelectronic-based compressors. The compressor actually uses the output of the compressor as the detector input and then feeds that level information back to the compression circuit to determine gain reduction. This can allow initial transients to leak through, but can also yield a very different smooth compression that is highly desirable for some instruments.

Please note that since Feedback mode works from the output of the compressor, Sidechaining (see **page 9**) is not possible while the compressor is set to Feedback.

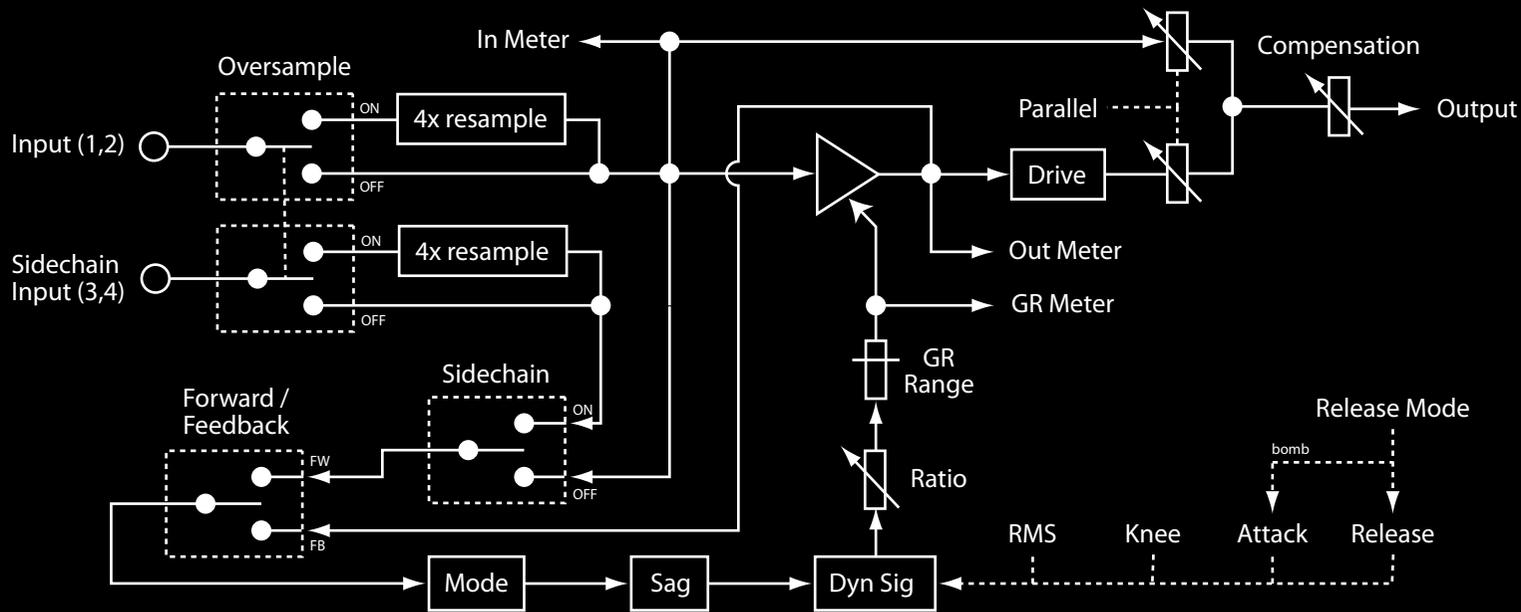
GAIN REDUCTION RANGE

This control sets the level at which the amount of gain reduction is limited. Move the control fully left to disable this feature.

When mastering audio with a healthy dynamic range,

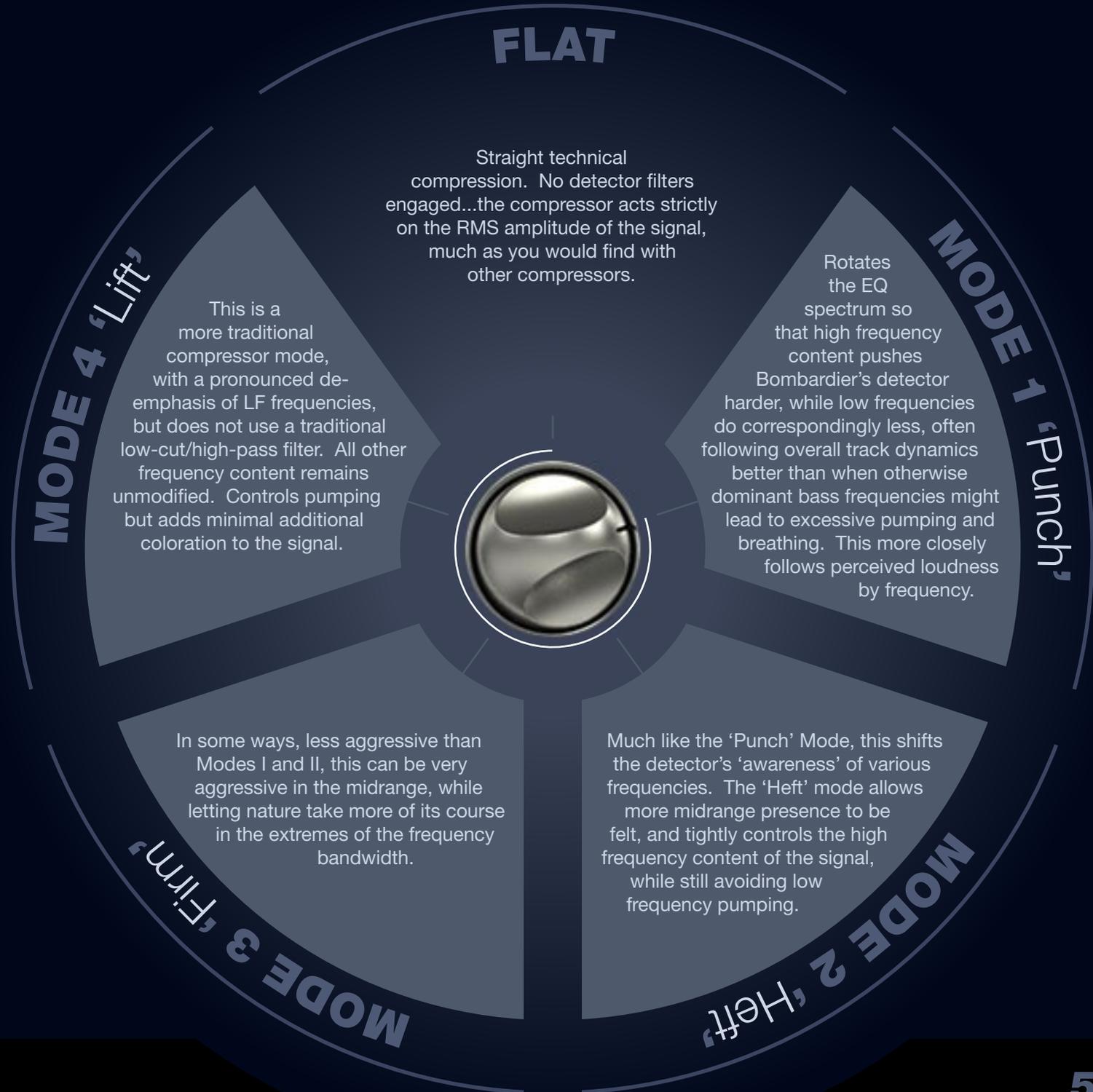
carefully setting the Gain Reduction range allows a meaningful amount of compression to be dialed in for quieter sections, lifting and fattening them without applying overly large amounts of gain reduction in louder passages.

Similarly, but on shorter time scale, balancing a low threshold with fast time settings and judicious use of this control will allow you 'draw out' low level detail between drum hits while preserving the louder transients. This technique is very effective at preparing a mix for a second round of compression with a second Bombardier, set for smoother full-mix compression.



MODE

A set of pre-emphasis filters that modify the signal coming into the compressor's detector. Not only is the simple amplitude of a signal often a poor indicator of perceived track dynamics, but taking advantage of Bombardier's frequency dependent behavior can also have a profound effect on the resulting tone.





KNEE & RMS

A compressor uses audio level to drive its processing, and these controls allow Bombardier to vary how that level is determined, and how firmly that processing is applied. Varying these controls reveals the broad range of Bombardier's sound, particularly when the attack and release controls are in their unique 'bomb' mode (see [page 7](#)).

KNEE

Continuously variable-knee compression. Gradually increases ratio from 1:1 to the stated compression ratio as the signal level passes the threshold. Large knee values can yield very smooth compression for vocals and other very dynamic instruments.

RMS

Unlike a 'Peak Compressor', such as The Rocket, Bombardier looks at the overall level during a sliding period of time (called a 'window'), so that dramatic audio events (such as drum hits) can be prevented from dominating the gain reduction. The RMS knob sets the length of that period of time, and its adjustment allows you to determine the smoothness of the response.

If the RMS is too long

The compression will vary in response to only heavily sustained changes in dynamics. Such a broad-brush approach can be useful for balancing sections, but only if that's what you want...

If the RMS is too short

Things can get pretty nasty, if the attack and release

times are also short. Bombardier will attempt to follow the waveform itself, and the result will be distortion (usually of bass frequencies), and not the good kind! We have provided you with the capabilities to do this because as you approach this state, some useful processing conditions can be found – but do tread carefully.

If the RMS is shorter than the attack time

Bombardier is going to act as much like a peak compressor as it's going to. That may be what you're after, but you're not giving Bombardier a chance to do what it does best, so the results may be...unspectacular. Use with care. You can get good results at very short RMS times, but it's not common usage for a buss compressor.

ATTACK

Defines the amount of time the compressor takes to rise to the correct level of gain reduction after the input signal rises above the threshold level.

bon.rb BOMB : you have selected 'bomb' mode on the release control, which is a unique setting for the time constants. See the Release section to read all about it...

RATIO

As in all compressors, Ratio defines how much gain reduction should be applied when the signal level rises above the threshold value. A 2:1 compression ratio means that for every two decibels that the input signal rises above the threshold, a one decibel increase in output level occurs. 4:1 implies that for every four decibel increase in input, a one decibel increase in output occurs.

You may also look at it this way: at 4:1 ratio, for every four decibels of level over the threshold, the compressor increases the gain reduction by three decibels.

RELEASE

Defines the amount of time the compressor takes to reduce gain reduction back to zero after the input signal drops below the threshold.

RELEASE MODES

Double-clicking most controls in a Stillwell Audio plugin carries a default action: it resets the control back to its default value. Double-clicking the Release control in Bombardier, however, cycles through the various Release and special processing modes:



Manual/Variable Release Time : A constant release time can be dialed in with the control, which is continuously variable from 1 to 2000 milliseconds. Ideal for fine control over material with closely predictable dynamics, such as single tracks, electronica and rock mixes.

SLOW A slow auto release setting, whereby the time set by the dial is ignored and instead Bombardier automatically and continuously adjusts the release time to suit the dynamics of the audio and the settings of the RMS control.

A very flexible setting, particularly for complex track group and mix buss applications. Decays at approximately 50 dB/second, based on the local peak amount of gain reduction.

FAST As above but faster. For use if you feel the Slow setting isn't recovering quickly enough, or is shading low-level detail. Decays at approximately 150 dB/second as above.

bon.b Disables both the Release and the Attack controls, and instructs Bombardier to switch into a unique processing algorithm : Bomb mode. We think you're going to like it. In Bomb mode, both Attack and Release are effectively instantaneous, yet the response is extremely smooth. The powerful RMS window control gains even more importance in this mode, so do experiment with it. Bomb mode yields smooth gain reduction and a rich cohesion ideal for mastering, master buss compression, acoustic instruments and ...well, we found it added something we liked to almost everything we tried it on. Enjoy!



DRIVE

Increasing this control adds rising amounts of harmonic overtones to add a “vintage” vibe to the signal while also acting somewhat as a second-stage level-dependent compressor. Use very sparingly for a flattering warmth, or a little more heavily for a more ‘character’ tone.

Be aware that we’ve given you the power to overdo it, so it is up to you to act responsibly. Or not.

SAG

Adds a level-dependent increase in sensitivity to the compressor’s detector circuit. High levels of this control can interact with the Mode filters to cause the

compressor’s output to “sag” when hit with strong audio content like cymbals or kick drum.

The effect is somewhat similar to the dynamics of transformer saturation, while remaining crystal clean. The degree of noticeable Sag will vary according to Bombardier’s mode and program material, so do experiment.

COMPENSATION

Add or remove a fixed amount of additional gain to compensate for the compressor’s activity, or to help gain-stage for a plugin following the Bombardier in the effects chain.

PARALLEL

A mix control to add increasing amounts of the uncompressed signal in parallel with the compressed signal. Starts from 0% (no dry signal) to 100% (no compressed signal) Find a mixed setting where the (perhaps very heavily) compressed signal seems to add stability to the dry signal without overpowering the dynamics – that’s the so-called “New York Compression” technique.

SIDCHAIN

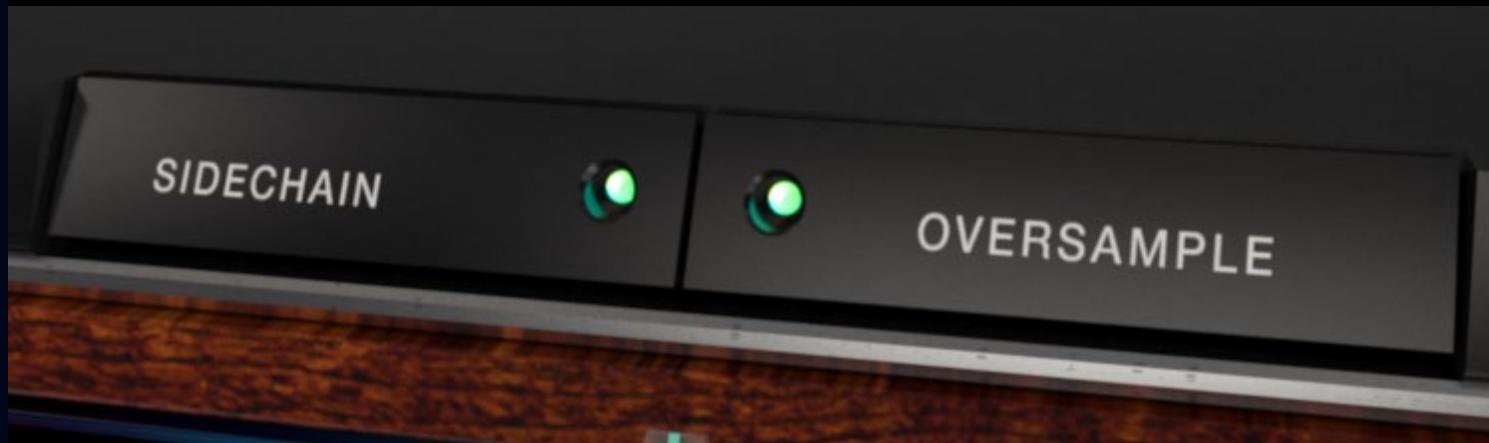
When the host permits extra inputs on a plugin, this switch (green 'LED' lit) allows the detector circuit of the compressor to be fed with something other than the audio input of the plugin. Common usage would be to "duck" a bass guitar's signal by driving a compressor on the bass track with sidechain input from a kick drum. Other usages are of course possible.

Please note that the sidechain will not function if the Forward/Feedback switch is set to 'Feedback' (see **page 3**). Alas, the laws of physics...

OVERSAMPLE

When switched on (green 'LED' lit), the compressor runs at an internal sample rate four times higher than the sample rate of the signal being passed to it. This, along with anti-aliasing filters that are also switched on at the same time, reduce any aliasing artifacts produced by gain changes happening over time.

Oversample results in a significant increase in CPU load, but also results in the cleanest possible sound. Recommended for mastering and master buss use, optional for all other uses.



USING BOMBARDIER

Bombardier is extremely flexible and can be used in many contexts. Here are a handful of tips from our esteemed testing team to point you in the right direction...

Controlling dynamics without imparting a compression “fingerprint” to the sound:

Set compressor to feedback mode, and use bomb mode with an RMS window of more than 50 ms, medium ratio, perhaps 4:1. Adjust threshold for desired gain reduction, adjust compensation if desired to make up gain.

The inverse of above – getting a compressed sound without overly compressing the signal:

Use low to moderate ratios (less than 4:1...even less

than 2:1), small amount of Sag (< 10%), Mode I or III, RMS greater than 50 ms, attack and release depending on material; longer settings will have less “compressed” sound, but will require lower threshold values.

Making a mix “gel” and stick together. Use on busses/stems/submixes:

Feedback mode, bomb mode, large RMS settings (> 100 ms), very low ratio of less than 1.5:1, adjust threshold for 1-2 dB of gain reduction.

Use the Gain Reduction Limit control if needed in very dynamic material to prevent loud sections from driving more than the desired amount of reduction.

Control of signal peaks:

Attack, Release, Knee, RMS: all full counterclockwise. Ratio 20:1. Threshold set to capture only the desired peaks. Set Gain Reduction Limit to allow ONLY that amount of reduction. Feedforward mode.

Set Mode switch depending on what part of the spectrum the peaks are in, or Mode I if peaks are evenly distributed. Add Sag to tame transients further.

Leveling amplifier:

Feedback mode, bomb mode, 300 ms RMS window. Threshold, Ratio, and Gain Reduction depending on how tightly you wish level to be controlled (Threshold, Ratio), and over how wide a dynamic range it should be controlled (Threshold, Range).

Adding subtle flavor to a mix:

Very low ratio, relatively long attack and release times (or use slow auto-release), large RMS window, adjust threshold for bare minimum gain reduction, bring up drive as needed (don't overdo it), possibly a tiny bit of Sag to get somewhat “tape-ish” vibe.

PLEASE REGISTER

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If you have any support needs, or questions on usage or anything else regarding this plugin, please visit the forums at www.stillwellaudio.com

We would like to appologise for the complete absence of jokes and silliness in this manual, they just didn't seem appropriate for Bombardier.

Bombardier