

Sifon

A bus compressor with transformer weight, LOW and HIGH colour, a stereo field section and a limiter that can be zero latency or a true-peak brickwall.

A Lab plug-in. The Lab is where new GFX plug-ins are built in the open: they may change sound or controls between versions.



Overview

Sifon is a stereo processor for the mix bus and the master, in the spirit of a transformer-coupled master-bus compressor. The signal goes through the input TRIM, the COMPRESSOR, the BLEND with the uncompressed signal, the output transformer (IRON) with optional COLOUR, the STEREO FIELD section and, last of all, the LIMITER.

The compressor can listen to its input (FEED-FORWARD: tight and precise) or to its own output (FEEDBACK: softer and more programme-dependent, the classic bus-glue sound). It works on left and right, or on Mid and Side, with the two sides linked or free. BLEND gives parallel compression without a second track.

IRON is always in: the lows below about 150 Hz thicken and glue as the level rises, while quiet material passes untouched. COLOUR adds a second saturation on one band or both: HIGH for sheen and air on the top, LOW for warmth and weight in the lows. The saturation runs oversampled (OS key: 1x, 2x or 4x) so it stays clean.

The output is straight through: nothing clips unless you switch the LIMITER in. Every key crossfades and every knob glides, so nothing clicks, including preset changes.

Reach for it for

- Gluing a mix bus with 1 - 3 dB of slow, feedback-style compression
- Mastering: gentle compression, a touch of weight, a safe ceiling
- Drum bus smash, blended back in under the dry drums
- Tightening the low end of a mix (SIDE HPF and M/S compression)
- Widening, or bringing a mix's ambience forward with DEPTH

Controls

The header

PRESETS	Click it for the preset list.
◀ / ▶	Steps to the previous or next preset, wrapping round.
Preset display	Shows the preset's name. Click it for the list too.
BYPASS	Lit: you hear the untouched input, kept in time with the rest of the project. It crossfades in and out, so it never clicks: use it rather than REAPER's on / off switch to compare.
OS	Click to step through 1x, 2x and 4x (default 2x): the rate the IRON and COLOUR saturation runs at. 2x is clean for nearly everything; 4x is for heavy TEXTURE on bright material; 1x saves CPU and latency. Changing it dips the sound for 5 ms.
S / M / L / ?	The panel size, and the credits with a link to this manual.

Every knob shows its value while you hover over it or turn it. Double-click a knob to return it to its default; hold Shift while dragging for fine moves.

COMPRESSOR

IN	Switches the compressor in or out (crossfaded).
THRESHOLD	-40 to 0 dBFS (default -18, marked 0, which is 0 VU). The level where compression starts.

ATTACK	0.1 - 75 ms (default 10). Slow settings let the front of each hit through.
RELEASE	50 ms - 2.5 s (default 300 ms). Not used while AUTO is lit.
MAKE-UP	0 - 20 dB (default 0). Gain on the compressed signal.
BLEND	0 - 100 % (default 100). How much of the compressed signal you hear against the uncompressed one: below 100 % it is parallel compression.
RATIO	Click the box for the list: 1.5, 2, 3, 4, 6 or 8 : 1 (default 2 : 1).
SC HPF	Click the box for the list: OFF, 60, 100, 150 or 250 Hz. Keeps the kick and bass from driving the compressor, so the mix stops pumping.
FEEDBACK	Dark: feed-forward (tight, a 6 dB knee). Lit: feedback (softer, a wider knee, eases off on fast attacks).
RMS	Dark (default): the detector follows every peak. Lit: it follows the average (RMS) level instead, so it rides the body of the mix and lets short transients through - smoother, closer to how loud the mix sounds. A steady tone compresses at the same THRESHOLD either way. Works with FEEDBACK too; switching glides.
AUTO	Programme release: a fast release for short peaks and a slow one that only builds up under longer compression.
LINK	Lit (default): one gain for both sides, so the image stays put. Dark: each side has its own.
M/S	Lit: the compressor works on Mid and Side instead of left and right. Changing it dips the sound for 5 ms.

COLOUR

LOW	A tape-style saturation running in parallel on the band below about 300 Hz, driven harder by its TEXTURE dial: thickness and weight. Up to 50 % TEXTURE it lifts the lows gently (up to
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	<p>+1.25 dB). Past 50 % a shelf below 120 Hz rises (to about +3 dB at 100 %) and a subsonic filter at 30 Hz fades in to keep the rumble out.</p>
HIGH	<p>A tape-style saturation running in parallel on the top end, mostly 2nd harmonic, driven harder by its TEXTURE dial: sheen, air and upper-mid edge. It lifts the treble gently (a shelf from about 1 kHz, halfway at 4.7 kHz, up to +3.1 dB at 100 %), and the saturated band widens from 3 kHz at TEXTURE 0 down to about 1 kHz at 100 %. Past 50 % a shelf above 15 kHz opens the air (up to +3 dB).</p>
TEXTURE (one under each band)	<p>0 - 100 % (default 30). How hard that band is driven: more harmonics and more lift as you turn it up. At 30 % it is subtle; near 100 % it is clearly coloured. LOW's dial also drives IRON. The saturation only adds harmonics, so a band never loses level; the tone changes are the shelves described above. If you push HIGH hard, use OS 2x or 4x.</p>
DIP 220	<p>Works with LOW on (dimmed while LOW is off). Takes 220 Hz out of LOW's added harmonics (a narrow -9 dB dip), and puts a dynamic dip at 220 Hz on the mix itself: it only cuts while the low mids stand out from the rest of the mix (up to 6 dB), so a clean mix is left alone and a muddy one is cleared. Off: no dip at all.</p>
DIP 3K	<p>Works with HIGH on. The same at 3 kHz: a broad -6 dB dip on HIGH's added harmonics and a dynamic dip on the mix that only acts on harshness.</p>
WIDTH (under LOW and HIGH)	<p>0 - 200 % (default 100). Where that band's added harmonics sit in the stereo picture: M (0) puts them in the centre only, C (100) leaves them as made, S (200) puts them out at the sides only. Only the added harmonics move, never the original sound, so there are no phase problems. For example LOW at 0 for a solid centre and HIGH at 200 for wide sheen.</p>
SOLO	<p>Lit: you hear only the band being worked on, with its saturation: the lows for LOW, the top for HIGH (both when both are lit), or IRON's low end when COLOUR is off. For setting TEXTURE by ear; switch it off before you print.</p>

IRON

Always in: the output transformer, which adds harmonics to the lows below about 150 Hz as the level rises, without taking their level down.

LOW and HIGH switch on and off independently: either, both or neither.

STEREO FIELD**WIDTH**

0 - 200 % (default 100). M (0) is mono, C (100) is as is, S (200) doubles the sides.

DEPTH

-100 to +100 % (default 0, marked 0). Lifts or lowers the top of the Side signal by up to 4 dB above 1.5 kHz: the room and ambience come forward or sit back.

SIDE HPF

Click the box for the list: OFF, 80, 120 or 200 Hz. Takes the lows out of the Side, so the bass sits in the middle.

LIMITER**IN**

Switches the limiter in or out (default out).

CEILING

-12 to 0 dB (default -1). The highest level the output reaches.

SLOW

Dark: a fast release (60 ms). Lit: slow (350 ms), smoother on dense material.

BRICK

Dark: zero latency, a soft limiter with no look-ahead; very fast transients can pass the ceiling by a little. Lit: a true-peak brickwall with 1.5 ms look-ahead: neither the samples nor the peaks between them pass the ceiling. The latency is reported to REAPER and shown under the keys.

The meters**TRIM**

-24 to +12 dB (default 0). The input level.

GUARD

Lit: brings a hot input down towards -18 dBFS (it never boosts).

VU L / R

The input after TRIM. 0 VU = -18 dBFS.

GAIN REDUCTION	COMP (red) and LIMIT (amber), 0 - 20 dB.
OUT L / R	The output level of each side, -42 to +3 dBFS, with a floating peak hold. The figure beside them is the highest peak; click a meter to clear it.

Presets

Presets leave TRIM, GUARD and OS as they are, and set both TEXTURE dials to the same value.

Init	The defaults: 2 : 1 at -18 dB, feed-forward, 10 ms attack and 300 ms release, COLOUR off, limiter out.
Mix Bus Glue	1.5 : 1 feedback compression with AUTO release, 30 ms attack and the SC HPF at 100 Hz.
Gentle Master	1.5 : 1, slow release, a little make-up, the brickwall limiter at -1 dB.
Drum Bus Smash	4 : 1 with a 3 ms attack, blended 50 % under the dry drums, with HIGH and DIP 3K.
M/S Tighten	Mid and Side compressed separately, the SIDE HPF at 120 Hz and a little extra width.
Warm Low Master	AUTO release with LOW at 45 %, DIP 220 and the brickwall limiter.
High Sheen Mix	Gentle feed-forward glue with HIGH at 50 %, DIP 3K and some DEPTH.
Wide and Open	Light compression, WIDTH 130 %, DEPTH +40 % and the SIDE HPF at 120 Hz.
Vocal Bus Smooth	3 : 1 feedback compression with an 8 ms attack and a touch of HIGH, with DIP 3K.
Loud and Safe	4 : 1 with AUTO release, LOW with DIP 220 and the brickwall limiter at -0.3 dB.

Parallel Crush

8 : 1 at -40 dB with 1 ms attack and 12 dB make-up, blended in at 35 %.

Tips

- For bus glue, aim for 1 - 3 dB on the red GR bar; try FEEDBACK and AUTO with a slow attack.
- If the mix pumps with the kick, raise the SC HPF.
- For parallel compression, set a heavy ratio and fast attack, then bring BLEND down until the dynamics come back.
- Put the limiter on BRICK for a final master; keep it zero latency while tracking or mixing live.
- Use the SIDE HPF to keep the low end mono before widening.
- Sifon is a stereo unit: it processes channels 1 and 2 only. On a multichannel bus (a stem summing system carrying stems on 3, 4 or more channels) put it after the stems have been summed to stereo, not on the bus that carries them. Any other channels pass through untouched, kept in time with the latency.

File: gfx-lab-sifon.jsfx