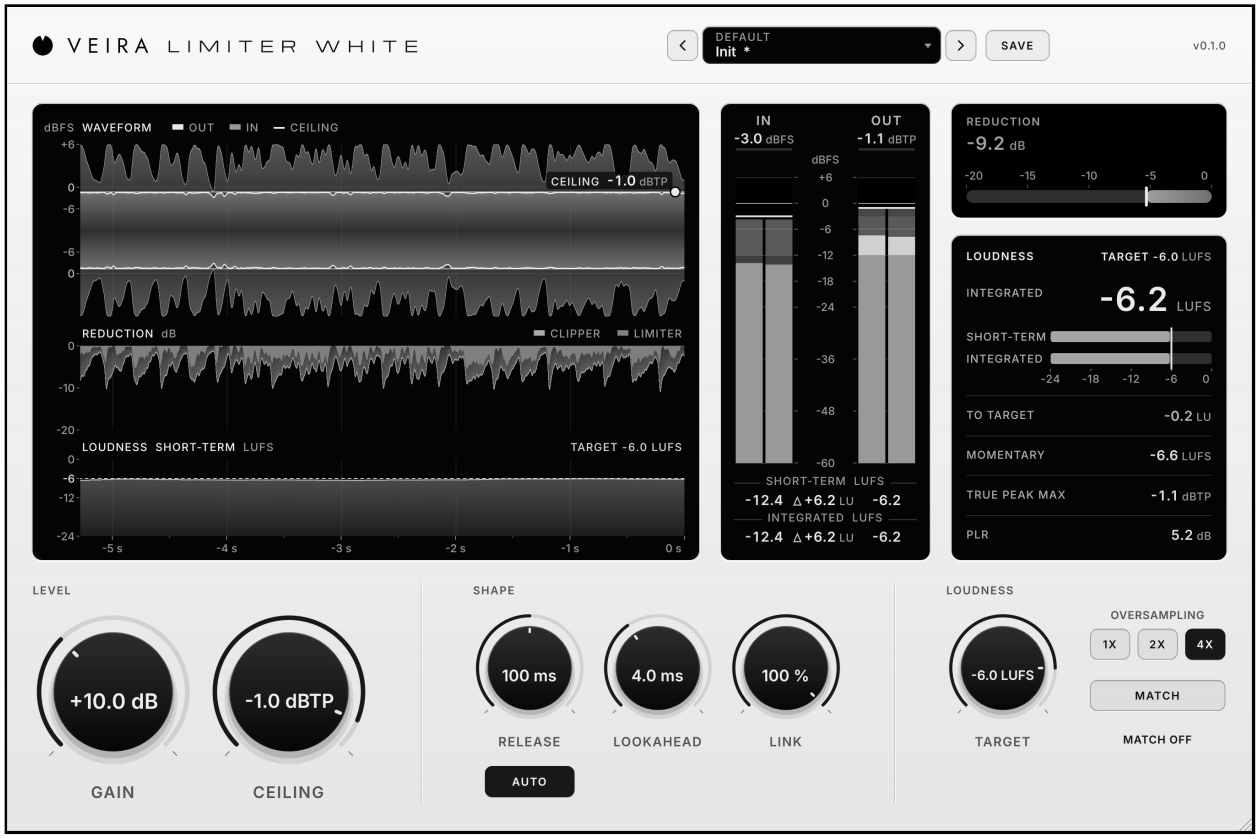
VEIRA

MASTERING LIMITER

VEIRA Limiter White

User Manual

The clean one of the four VEIRA colour limiters: a true-peak mastering limiter built for transparency. A slow stage, a transient clipper and a fast stage share the work, so bass waves are never clipped, held notes are never shaved and the mix doesn't pump.



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Welcome

Thank you for choosing **VEIRA Limiter White**. It is a mastering limiter: you turn GAIN up, and White keeps every peak under the CEILING you set, in true peak, including the peaks that hide between the samples. It is the clean one of the four VEIRA colour limiters (White, Red, Gold and Blue): the one that adds as little of its own sound as it can, and the reference the other three are heard against.

Inside, three stages share the work. A slow, clean stage looks ahead and decides how far each kind of sound may go over the ceiling: bass notes not at all, held chords and voices not at all, short drum transients a little. A transient clipper rounds those short peaks off, and a fast stage takes the rest down to the ceiling. The result reaches −6 LUFS on a dense mix with the ceiling held at −1 dBTP and no overs, while bass stays unclipped and the mix doesn't pump.

What makes it different

- **Bass is never clipped.** The low band (under 200 Hz: bass notes, the kick's body) is always held by the limiter, never the clipper. Bass sines driven 16 dB over the ceiling come out with 0.000 % distortion.
- **Held notes stay whole.** A tone, a held chord or a vowel is never clipped; only noise-like, dense moments and short transients are allowed to pass to the clipper.
- **No pumping.** AUTO makes the release two-stage: short peaks recover quickly, while a slow stage settles on the sustained reduction, so dense passages stay steady.
- **A true-peak ceiling you can trust.** The CEILING is always in dBTP: a −1.0 dBTP ceiling reads −1.06 dBTP on a standard meter, with no overs.
- **Loudness against your target.** Set a TARGET from −16 to −4 LUFS; the LOUDNESS panel shows integrated loudness in large numerals and TO TARGET in LU.
- **Fair comparisons.** MATCH plays the result at the input's loudness, so you hear what White does to the sound, not just that it's louder.

How this manual is organised. *Getting started* covers installing and activating. *The panel at a glance* names every part of the window. *How a limiter works* is a short primer, and *Loudness, true peak and the −6 LUFS target* explains the units and what reaching −6 LUFS involves. *Controls* and *Displays* explain every knob, button and graph with drawings. *Which colour to choose* compares the four colour limiters. *Presets*, *Recipes*, *Specifications* and *Troubleshooting* close the manual.

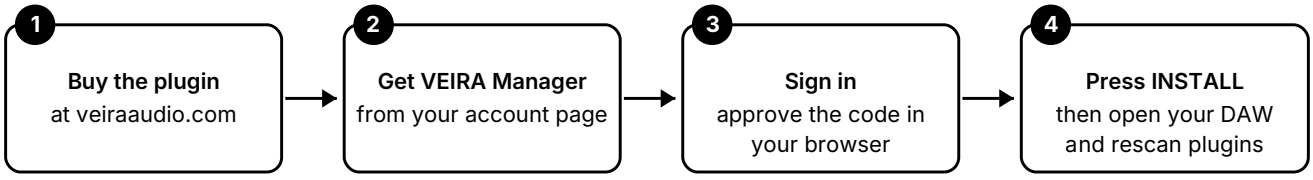
Getting started

What you need

macOS	macOS 11 Big Sur or later. Native on Apple silicon and Intel Macs (universal).
Windows	Windows 10 or 11, 64-bit.
Plugin formats	VST3 (macOS and Windows), Audio Units (macOS), and a standalone app. Pro Tools (AAX) versions arrive once they are signed for Pro Tools.
Hosts	Any DAW that loads VST3 or Audio Units: Logic Pro, Cubase, Nuendo, Ableton Live, Studio One, Reaper, FL Studio, Bitwig and others.
Account	A VEIRA account at veiraaudio.com, and the free **VEIRA Manager** app.
Internet	Needed to install and to refresh the licence. The plugin itself never goes online.

Install with VEIRA Manager

VEIRA plugins are not downloaded from the website one by one. You install them with **VEIRA Manager**, the free VEIRA app that installs, updates and activates everything you own. Its own manual covers it in full; the short version is:



One account works on up to three computers. Updates are free for life.

FIGURE 1 From purchase to first sound in four steps.

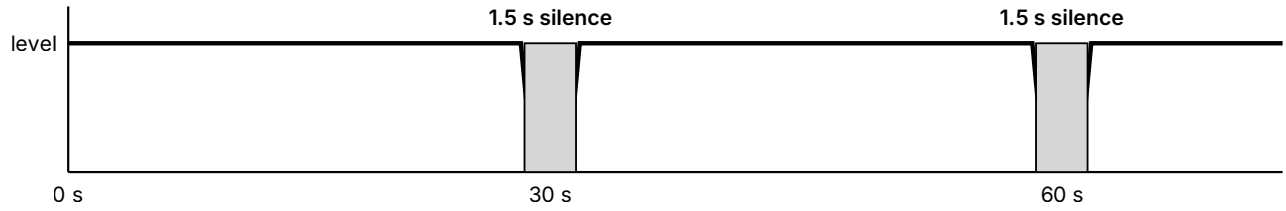
1. **Buy** VEIRA Limiter White at **veiraaudio.com**. It's a one-time purchase: you own it for good, with free updates.
2. **Download VEIRA Manager** from your account page (or veiraaudio.com/manager) and install it.
3. **Sign in.** VEIRA Manager shows a short code and opens your browser; confirm the code there. Your password is never typed into the app.
4. Find VEIRA Limiter White in the list and press INSTALL. When it says SHOW, it's installed. Open your DAW and let it rescan its plugins.

After installing, VEIRA Limiter White appears in your DAW under the manufacturer **VEIRA** (in Logic Pro: Audio Units ▸ VEIRA ▸ VEIRA Limiter White).

Activation and the licence

VEIRA Manager keeps a licence on your computer that the plugins check. It is refreshed every time VEIRA Manager opens and stays valid for 30 days offline, so you can work without internet as long as you open VEIRA Manager now and then.

Without a valid licence, VEIRA Limiter White still loads and works, but **its sound fades out for 1.5 seconds every 30 seconds**, and a strip along the bottom of its window says why (for example, *NOT ACTIVATED ON THIS COMPUTER. SIGN IN WITH VEIRA MANAGER.*). Clicking the strip opens your account page.



Without a licence: short silences every 30 s, faded in and out so nothing clicks.

FIGURE 2 What an unlicensed copy does. With a valid licence the audio is never touched.

- **Activating while your DAW is open** takes effect within about two minutes. You don't need to reload the plugin.
- **"Not activated on this computer"**: open VEIRA Manager and sign in.
- **"Expired"**: open VEIRA Manager while online; it renews the licence at once.
- **"Not included"**: the signed-in account doesn't own VEIRA Limiter White. Check that you're signed in with the account you bought it with.

Formats and where the files go

VEIRA Manager puts every format in the standard place, so you never need to copy files by hand:

Format	macOS	Windows
VST3	`~/Library/Audio/Plug-Ins/VST3` (just for me, the default) or `/Library/Audio/Plug-Ins/VST3` (all users)	`C:\Program Files\Common Files\VST3` (all users, the default) or `%LOCALAPPDATA%\Programs\Common\VST3`
Audio Units	`~/Library/Audio/Plug-Ins/Components` or `/Library/Audio/Plug-Ins/Components`	(Audio Units are macOS only)
Standalone	`~/Applications/VEIRA` or `/Applications/VEIRA`	`C:\Program Files\VEIRA` or `%LOCALAPPDATA%\Programs\VEIRA`

You choose *just for me* or *all users* in VEIRA Manager's install settings.

The standalone app runs VEIRA Limiter White on its own, with your audio interface's input and output, which is handy for trying presets without a DAW.

The panel at a glance

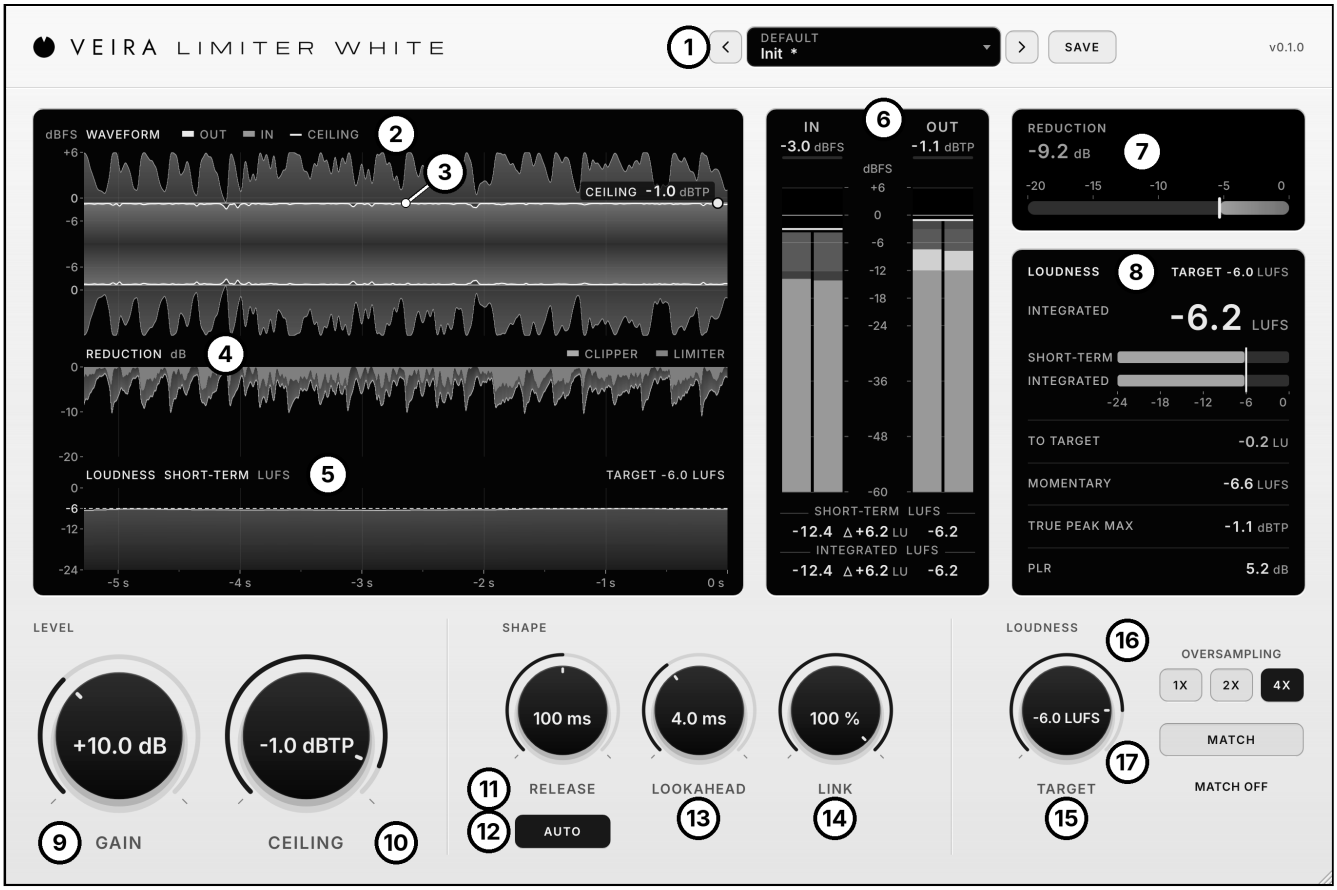


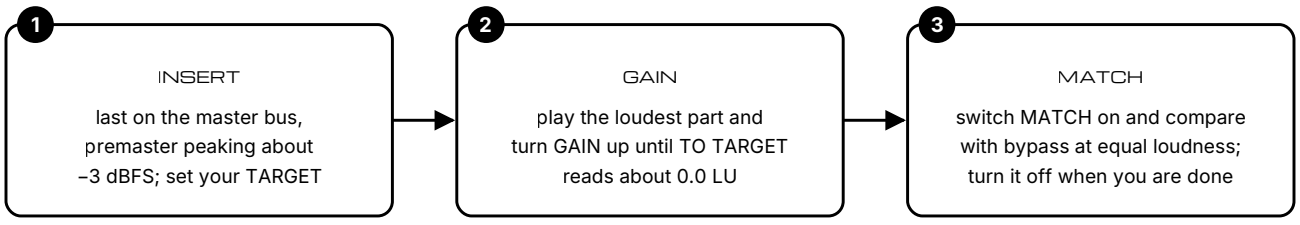
FIGURE 3 VEIRA Limiter White, the pearl-white unit, with +10 dB of GAIN on a dense premaster: the output (silver, in front) sits under the −1.0 dBTP ceiling, the input (grey, behind) shows what was taken off, and the LOUDNESS panel reads −6.2 LUFS integrated against a −6.0 LUFS TARGET.

	Part	What it does
1	Preset browser	Steps through and saves presets. See *Presets*.
2	WAVEFORM	The last five seconds or so: the output in front, the input that was taken off behind it.
3	Ceiling line	The CEILING, drawn on the waveform. Drag it to set the ceiling.
4	REDUCTION lane	How much the clipper and the limiter take off, over time.
5	LOUDNESS lane	The output's short-term loudness over time, against your TARGET.
6	Meter bridge	Input and output level and loudness.
7	REDUCTION meter	The total reduction now, as a bar that moves like an analog VU.
8	LOUDNESS panel	Integrated loudness against the TARGET, TO TARGET, momentary loudness, true-peak maximum and PLR.
9	GAIN	How hard the music is pushed into the limiter.

	Part	What it does
10	CEILING	The highest the output may go, in true peak.
11	RELEASE	How quickly the limiter lets go.
12	AUTO	A two-stage release that adapts to the music.
13	LOOKAHEAD	How early the gain starts to come down before a peak.
14	LINK	How much the two channels are limited together.
15	TARGET	The loudness you are aiming for. It changes nothing in the sound.
16	OVERSAMPLING	1X, 2X or 4X: the rate at which the fast stage works.
17	MATCH and its readout	Listen at the input's loudness.

The window has the large display at the top left, the meter bridge in the middle, and the REDUCTION meter over the LOUDNESS panel at the right. The controls sit in three groups along the bottom, under the captions LEVEL, SHAPE and LOUDNESS: how loud, how it gets there, and where you are against your target.

Quick start: a master at your target in three moves



Or start from a factory preset: each one names its TARGET; Mastering ▸ Maximum Clean aims at −6 LUFS.

FIGURE 4 The quickest way to a master at your TARGET. *Default* ▸ *Init* is a clean start: GAIN at +0.0 dB, a −1.0 dBTP ceiling and a −6.0 LUFS TARGET.

Using the controls

Every VEIRA plugin is played like a piece of hardware. The same few parts appear on every panel:

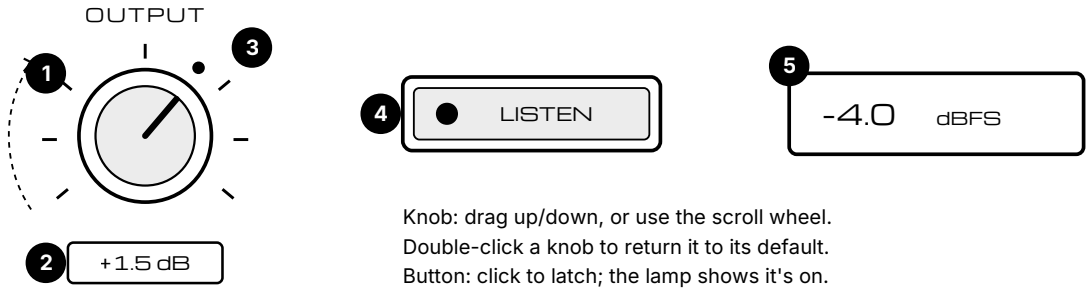


FIGURE 5 The parts you'll find on every VEIRA panel (the labels are examples).

- 1 **Knob.** Drag up to turn it clockwise, down to turn it back, or use your mouse wheel. **Double-click** returns it to its default. The engraved pointer and the small dot on the scale show where it's set.
- 2 **Value window.** The backlit window under each knob shows its exact value with its unit.
- 3 **Silkscreen label.** The control's name, as it appears in your DAW's automation list.
- 4 **Push button.** Click to switch on; the lamp lights and the cap sits lower in its bezel. Click again to switch off.
- 5 **Readout.** Live numbers update ten times a second so you can read them while the meters move. A value over 0 dBFS shows as a warning.

Tooltips: hover over any control or display for a short explanation. On displays, the tooltip depends on where you point.

Automation: every knob and button is a host parameter, so you can automate it in your DAW and control it from a MIDI controller or control surface that your DAW maps.

Units: VEIRA never shows a bare number. **dBFS** is level against digital full scale (0 dBFS is the loudest a digital signal can be); **dB** is a change in gain; **LUFS** is loudness as streaming services and broadcasters measure it; **LU** is a difference in loudness (1 LU = 1 dB).

On VEIRA Limiter White's panel the parts look a little different from the drawing above:

- **Knobs show their value in the middle** (+10.0 dB, -1.0 dBTP, -6.0 LUFS): the knobs are black, and a ring printed in charcoal on the paint around each one (in print, the dark arc) shows how far it is turned. The control's name is printed under the knob. Drag, use the wheel, or double-click for the default, as on every VEIRA knob.
- **Type a value:** right-click a knob (Control-click on a Mac). A field opens over it with the current value; type the new one and press Return. The number is enough: **12** for a GAIN of +12 dB, **-2** for a CEILING of −2.0 dBTP, **-8** for a TARGET of −8 LUFS. Press Escape or click elsewhere to leave it unchanged.
- **Buttons have no lamps:** AUTO, MATCH and the selected OVERSAMPLING button fill with charcoal when they are on, with pale lettering (in print, a dark button); when they are off they are shallow wells in the paint with dark lettering. Click AUTO or MATCH again to switch it off; the three OVERSAMPLING buttons work as a group, so one is always lit.
- **Resize the window:** drag its bottom-right corner (the small diagonal lines). It scales from 75 % to 200 % of its normal size (1360 × 900 points) and keeps its proportions. Your DAW saves the size with the session.

- **The face:** White is painted pearl white, with charcoal print and black knobs, in the same layout as the other three colours. The displays, the meter bridge and the preset window are dark screens set into the paint, so the meters keep their usual green, yellow and red. Every label on the paint stands at least 4.5:1 against it (the WCAG AA contrast for text).

Where to put VEIRA Limiter White

- **On the master bus, last.** It is the final stage of a master: put it after your EQ, compression and anything else. Anything after it can push the peaks back over the ceiling.
- **Leave the master fader at 0 dB.** In most DAWs the master fader comes after the inserts, so raising it would lift the output above the ceiling. A premaster peaking around −3 to −6 dBFS gives White a clean start, and GAIN does the rest.
- **On a bus or a stem** (a drum bus, a mix bus while you mix, stems for a live show), use a lower ceiling and the presets in the *Mix Bus and Stems* folders.

How a limiter works

If you already know limiters, skip to *What happens inside VEIRA Limiter White*. If not, these pages make every control obvious.

A digital file has a hard top: **0 dBFS**. Nothing can be louder than that, and anything that tries is cut flat (“clipped”), which sounds harsh. Music, though, is mostly quiet with short, sharp peaks: a snare hit or a consonant can stand 10–15 dB above the body of the sound. Those few peaks decide how loud you can make the whole song before it hits the top.

A **limiter** turns the peaks down, quickly and only as much as needed, so you can raise everything else. You push the music in with GAIN; whatever would rise above the CEILING is held down to it. The quiet parts come up by the full amount of GAIN; the peaks don’t move. The song gets louder and denser.

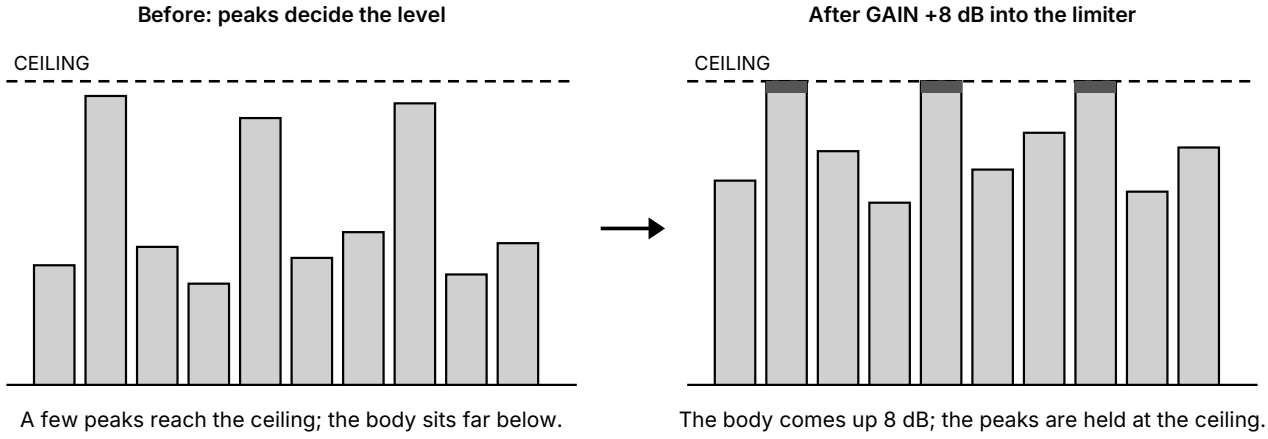


FIGURE 6 A limiter lets you raise the whole song while the peaks stay at the ceiling. The dark caps mark the peaks that were held down.

Limiting is not free. Every dB of reduction flattens a peak, and peaks are where the punch of a drum or the bite of a consonant lives. A little reduction (1–3 dB) is usually inaudible; a lot (8 dB and more) makes a master dense, loud and eventually flat. The displays show you exactly how much is being taken off, so you can decide.

Clipper and limiter

There are two ways to stop a peak.

- A **clipper** rounds the top of the wave off, instantly, sample by sample. It keeps the transient’s timing and never turns the neighbouring sound down, but rounding a wave adds harmonics: a little edge, or warmth when it is gentle and low in the spectrum.
- A **limiter** turns the volume down for a moment around each peak, like a very fast hand on a fader. The wave keeps its shape, so it’s cleaner, but turning down takes time: a limiter that moves too fast distorts, one that is too slow pumps.

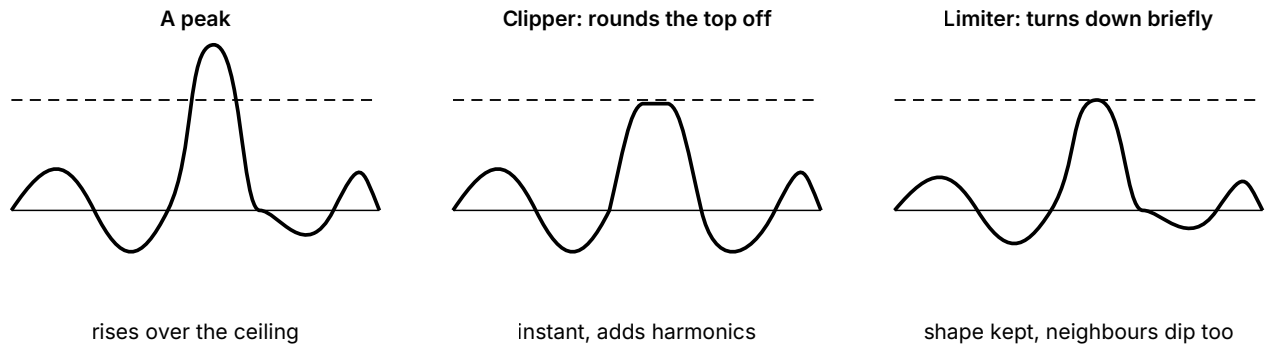


FIGURE 7 The same peak handled two ways. The dashed line is the ceiling. The clipper flattens only the top; the limiter turns the whole moment down, so the notes either side of the peak get a little quieter too.

Every loud master mixes the two in some way, and **that mix is what sets the four VEIRA colour limiters apart**. VEIRA Limiter White uses a clipper only where it can't be heard: a slow, clean limiter stage decides how far each kind of sound may go over the ceiling, a transient clipper rounds only the shortest drum peaks, and a fast limiter stage takes what is left to the ceiling. Bass waves and held notes are never clipped.

A **lookahead** limiter sees each peak a few milliseconds before it arrives, so it can turn down smoothly *in time* instead of reacting late. That delays the audio by a fixed amount, which VEIRA Limiter White reports to your DAW so everything stays in time.

What happens inside VEIRA Limiter White

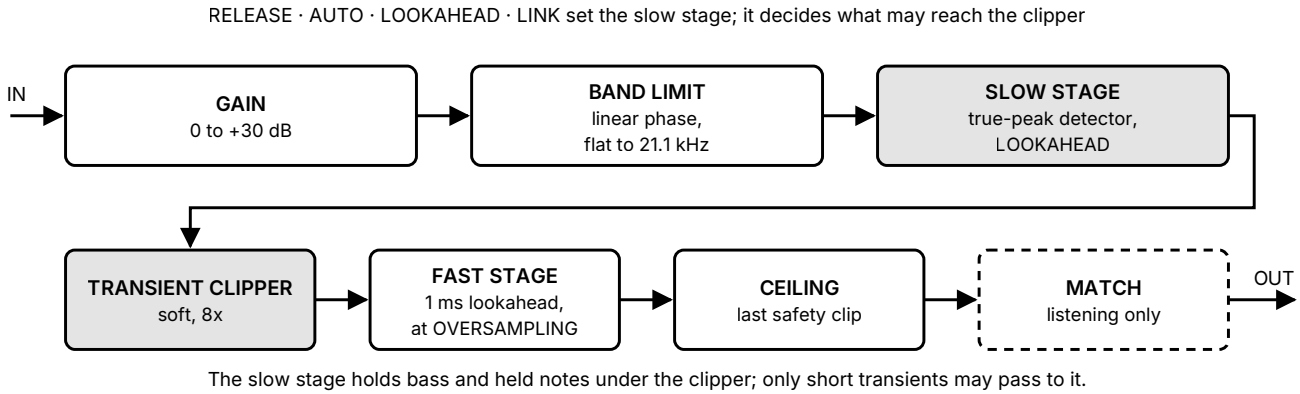


FIGURE 8 Signal flow. [GAIN] drives the music into the slow stage, which looks ahead for every peak (between the samples too) and turns the music down so that only short transients reach the clipper. The fast stage takes what is left, including the clipper's own overshoot, down to the ceiling. A last clip at the ceiling catches rounding residue. [MATCH] only turns down what you hear while playing.

- **The band limit.** A linear-phase low-pass, flat to 21.1 kHz at 48 kHz, keeps the detector measuring exactly what is played.
- **The slow stage** reads the true peak (eight times oversampled), holds each reduction for 12 ms (a whole half-cycle of a 42 Hz bass note, so bass can't ripple the gain), and shapes its attack across [LOOKAHEAD]. It decides what may pass over the ceiling to the clipper:
  - the **low band** (under 200 Hz: bass notes, the kick's body) is held under the clipper's knee, so a bass wave is never clipped;

  - **sustained** levels (held for more than about 30 ms) may pass only as far as the material is noise-like: a tone, a held chord or a vowel is never clipped, while a dense, noise-like passage may be shaved by a few dB, where the products are noise under noise;
  - **transients** may pass up to 0.65 × GAIN dB over the ceiling (between 0.5 and 8 dB).

- **The transient clipper** is soft (a 1 dB knee, starting 0.3 dB over the ceiling) and runs at eight times the sample rate, so its harmonics don't fold back as aliasing.
- **The fast stage** is a true-peak limiter with 1 ms of lookahead and a 25 ms release. It takes the rest to the ceiling, aiming 0.08 dB under it. Its gain is applied at the OVERSAMPLING rate.
- **Latency.** 782 samples at 48 kHz (16.3 ms), always the same whatever LOOKAHEAD and OVERSAMPLING are set to, and reported to your DAW. The host's bypass is delayed by the same amount.

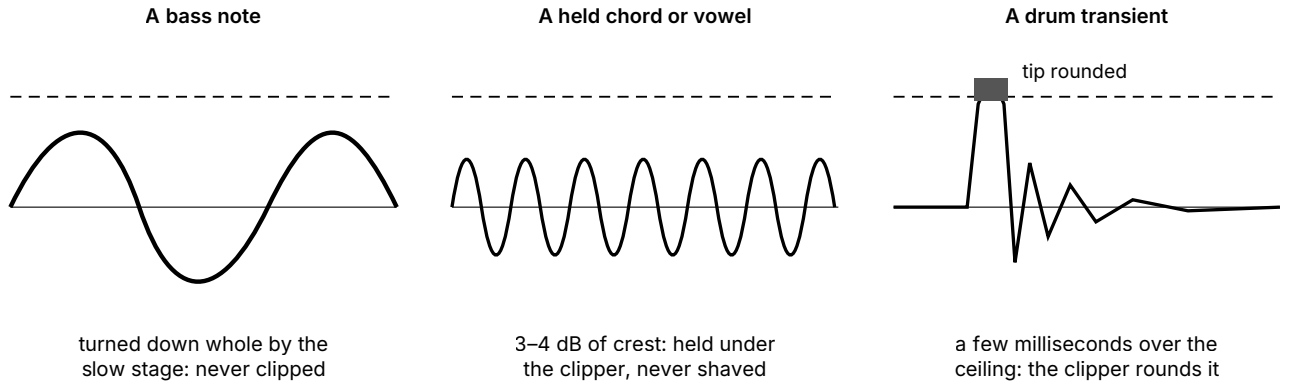


FIGURE 9 What White lets the clipper touch. The dashed line is where the clipper starts. Bass notes and held, tonal sounds are always turned down by the limiter instead; only the first milliseconds of a transient (the dark tip) are rounded by the clipper.

Loudness, true peak and the −6 LUFS target

Mastering is about loudness, and loudness has its own units. This chapter explains them in plain language, then what reaching −6 LUFS really involves. Everything here is also what VEIRA Limiter White's meters show you.

Level is not loudness

A **peak meter** (dBFS) shows the highest sample: how close you are to the top. It tells you almost nothing about how loud a song *sounds*. A sparse acoustic song and a dense rock master can both peak at −1 dBFS, yet the rock master sounds far louder, because its average energy is much higher.

Loudness is measured the way ears hear it. The standard (ITU-R BS.1770, used by EBU R 128 and every streaming service) first filters the signal with **K-weighting**, a curve that gently cuts the deep bass and lifts the upper mids and highs a little. Then it averages the energy. The result is in **LUFS** (Loudness Units relative to Full Scale); in the US you'll also see **LKFS**, the same thing.

- **LUFS** is an absolute loudness: −14 LUFS, −6 LUFS. Closer to 0 is louder.
- **LU** is a *difference* in loudness. 1 LU = 1 dB. A master at −6 LUFS is 8 LU louder than one at −14 LUFS.

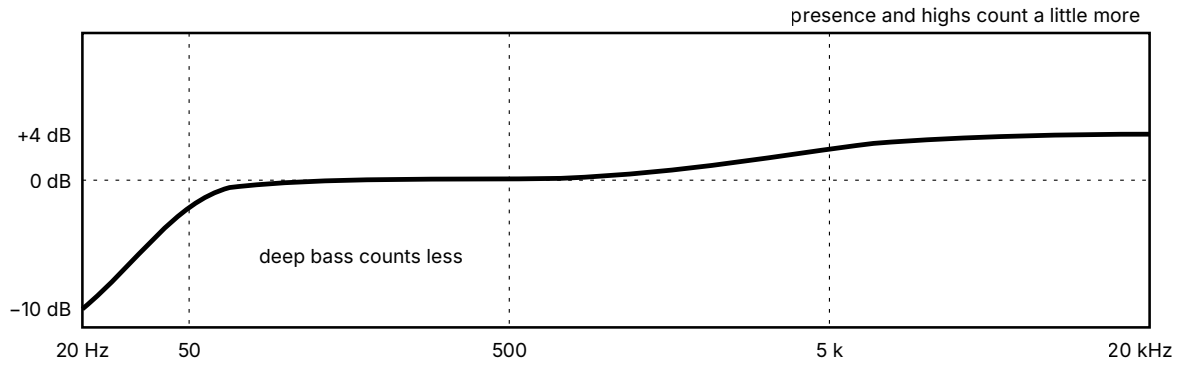


FIGURE 10 K-weighting, roughly. Before loudness is averaged, very low frequencies are turned down and the highs are lifted about 4 dB, so the number follows what ears hear.

Three time windows

Loudness depends on how long you listen, so the meters give three readings:

- **Momentary:** the last 0.4 seconds. Jumps with every phrase.
- **Short-term:** the last 3 seconds. The most useful reading while you work: it follows the sections of a song.
- **Integrated:** the whole song since the measurement started. This is the single number streaming services and broadcasters use. It is *gated*: silence and very quiet passages are left out, so a long fade or a quiet intro doesn't drag the number down.

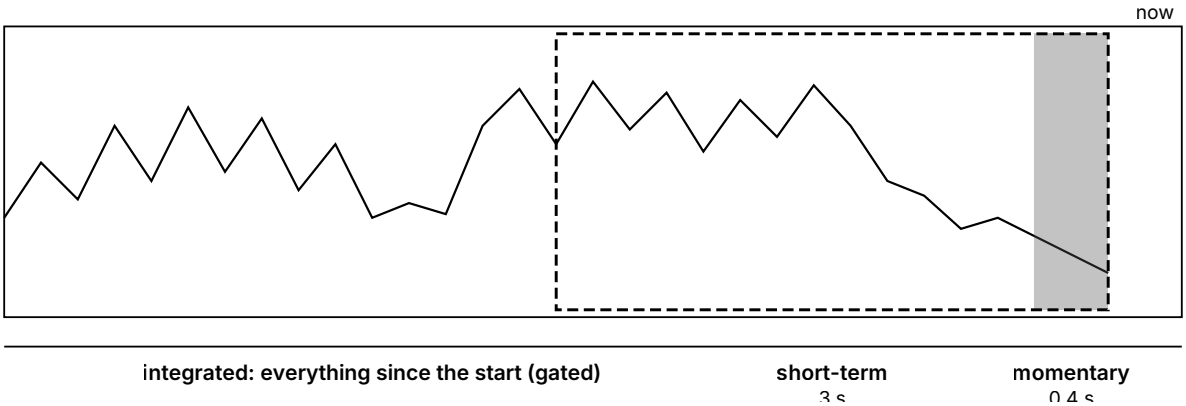


FIGURE 11 The three windows, ending at the present moment (right). The momentary reading is the shaded strip, short-term the dashed box, and integrated the whole span.

True peak (dBTP)

A digital file stores *samples*, but what you hear is the smooth wave that a converter draws through them. Between two samples, that wave can rise **higher than either sample**: an *inter-sample peak*. A file whose highest sample is 0.0 dBFS can produce a wave that peaks at +1 or +2 dB when it is converted or, especially, when it is encoded to MP3 or AAC for streaming. Then it distorts, in the listener's player, where you can't fix it.

True peak estimates that real wave by oversampling, and reads in **dBTP**. Delivery specifications ask for a true-peak limit (usually −1 dBTP, sometimes −2), and **VEIRA Limiter White's** CEILING **is always a true-peak ceiling**: there is no sample-peak mode to forget to switch.

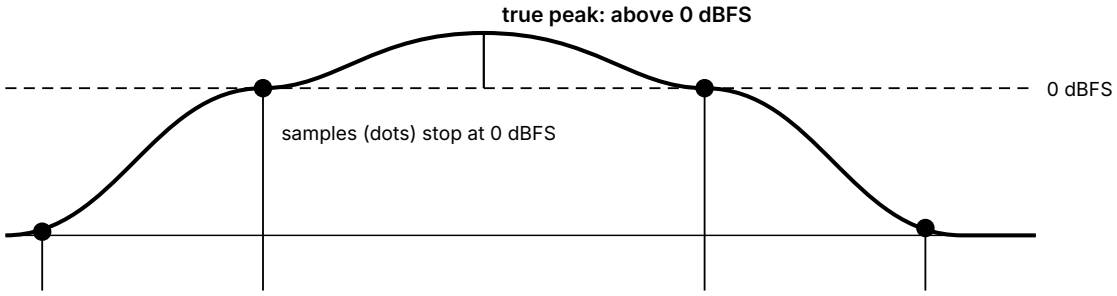


FIGURE 12 An inter-sample peak. The dots are the samples a file stores; the line is the wave a converter or a codec rebuilds from them.

PLR: how much punch is left

PLR (peak-to-loudness ratio) is the true-peak maximum minus the integrated loudness, in dB. It shows how much room the peaks have above the body of the song:

PLR	What it usually means
14 dB and more	Open and dynamic: acoustic, jazz, classical, a gentle master.
10–13 dB	Balanced: room for transients, loud enough for most pop.

PLR	What it usually means
8–9 dB	Dense and modern: firm limiting.
under 8 dB	Heavily limited: loud, with less punch.

What streaming services do with loudness

Most music services **normalise**: they measure each song's integrated loudness and turn it down (and some turn quieter songs up) so that every song plays at about the same level. Most play music at about −14 LUFS; Apple Music at about −16. A master made louder than the service's reference doesn't play louder there; it is simply turned down, and only the loss of dynamics remains.

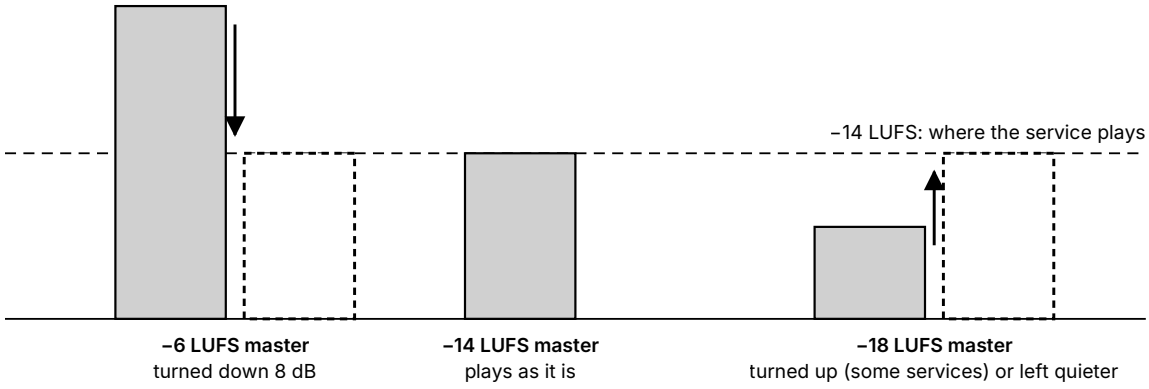


FIGURE 13 Normalisation. Grey is the master as delivered, dashed is how it plays. All three end up at the same loudness; the loud one has only lost its dynamics.

So why make a −6 LUFS master at all? Because many genres want that sound: dense, forward, saturated drums and a wall of bass, the way club, EDM, hip-hop and modern rock records are mastered. DJs play files that are not normalised, and many listeners turn normalisation off. Whether you aim for −14 or −6 is a musical choice; TARGET lets you set either and see how far you are.

The −6 LUFS target

VEIRA Limiter White is built to take a dense, finished mix to **−6 LUFS integrated with the true peak held at −1 dBTP and no overs**, and to get there without distortion you can hear on typical material. Here is what that means in numbers.

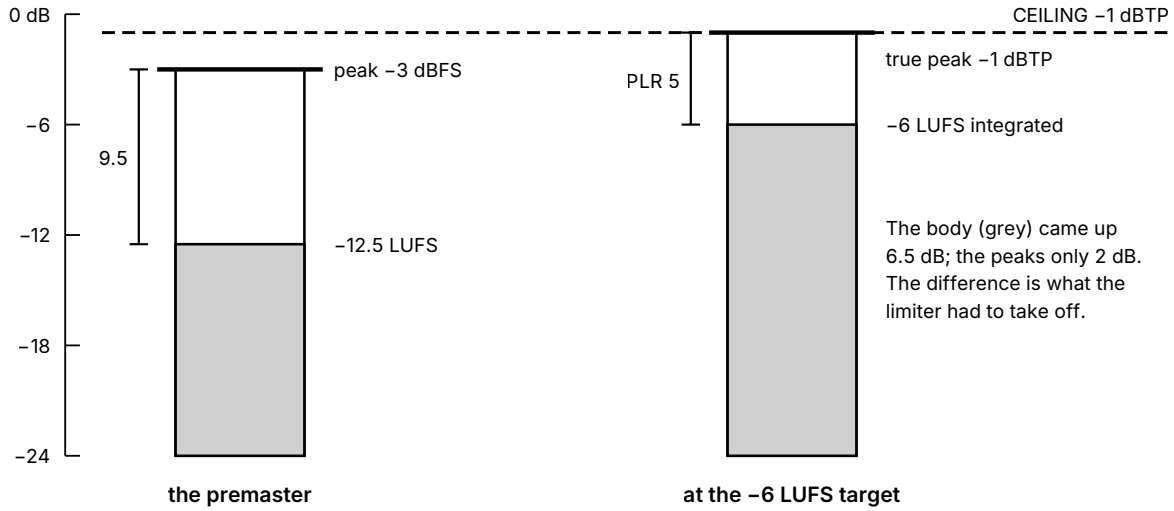


FIGURE 14 A dense premaster (left) peaking at −3 dBFS reads about −12.5 LUFS: a PLR of 9.5 dB. At −6 LUFS with a −1 dBTP ceiling (right) the PLR can be at most 5 dB. The body has to come up 6.5 dB while the peaks may rise only 2.

A master at −6 LUFS and −1 dBTP has a PLR of at most **5 dB**, whatever limiter makes it. So at −6 LUFS **any limiter shapes the peaks**: the drums will never be as tall as in the premaster. What the colours differ in is *how* the peaks are shaped, and what each does to the sound you are not trying to change.

What VEIRA Limiter White reached in the lab (synthetic premasters peaking at −3 dBFS, the default settings, true peak read on a standard BS.1770 meter and on a 16x reconstruction):

	Dense full mix	**Sub-heavy "elements" mix**
Loudness reached	−6.06 LUFS at GAIN +18.3 dB	−6.8 LUFS at GAIN +30 dB (the most it gives)
True peak (BS.1770 / 16x)	−1.06 / −1.03 dBTP	−1.07 / −1.04 dBTP
Overs above the ceiling	0	0
Bass sines 30–100 Hz, THD	0.000 %	
Intermodulation (SMPTE, 60 Hz + 7 kHz)	0.0086 %	

Where White stops short. The second mix is kick, bass, synth pads and bright hats with no vocal or midrange to speak of: nearly all its energy is sub-bass. White never clips a bass wave, so on material like that it stops at about −6.8 LUFS, even at full GAIN, rather than distort the low end. Very sub-heavy mixes can stop just short of −6 LUFS in White; if that sound is what you need, Red (a punch clipper) and Gold (tape or tube warmth) go further on the same mix.

> **Tip:** The number is not the goal. Turn GAIN up until TO TARGET reads 0.0, then switch MATCH on and compare with your DAW's bypass. If the master sounds better a dB or two quieter, it is better a dB or two quieter.

Controls

LEVEL: GAIN and CEILING



FIGURE 15 The LEVEL group: 1 GAIN and 2 CEILING, each showing its value in its middle.

Control	Range	Default	What it does
GAIN	0 to +30 dB	+0.0 dB	How hard the music is pushed into the limiter.
CEILING	−12 to 0 dBTP	−1.0 dBTP	The highest the output may go, in true peak.

GAIN is the loudness control. Every dB of GAIN raises everything below the ceiling by a dB; whatever would cross the ceiling is held by the limiter instead. There is no automatic loudness: you set GAIN by ear and by the LOUDNESS panel. On a dense premaster (about −12.5 LUFS at −3 dBFS peak), about +12 to +18 dB reaches −6 LUFS. As a guide, watch the REDUCTION meter:

- **1–3 dB** of reduction on the loudest moments: transparent; the sound barely changes.
- **4–8 dB:** a firm, dense master.
- **10 dB and more:** a loud, modern master. White spreads that much reduction over its three stages, so it stays clean, but the drums are flatter than in the premaster: compare with MATCH.

Past a point, more GAIN stops making the master louder: on a dense mix, White's loudness levels off near −6 LUFS, because it will not clip bass or held notes to go further. Then extra GAIN only adds reduction (see the second picture in *Displays*). That is your sign to stop.

CEILING is the highest the output may ever go, always in **dBTP**. The default −1.0 dBTP is what most streaming services ask for. Use −2.0 dBTP for loud, bright masters that will be encoded at low bit rates, and higher ceilings (−0.3 dBTP or so) only for formats that are never re-encoded. You can also set the ceiling on the waveform: **drag the ceiling line**, or **double-click it** to return to −1.0 dBTP.

SHAPE: RELEASE, AUTO, LOOKAHEAD and LINK

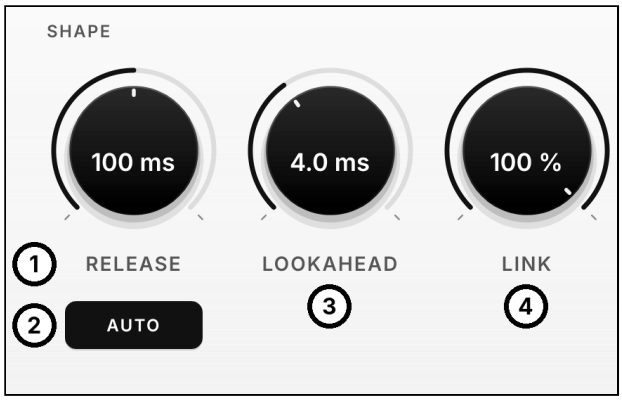


FIGURE 16 The SHAPE group: 1 RELEASE, 2 AUTO, 3 LOOKAHEAD and 4 LINK.

Control	Range	Default	What it does
RELEASE	1 to 1000 ms	100 ms	The time to recover 90 % of a reduction.
AUTO	on / off	on	A two-stage release: short peaks recover fast, sustained reduction lets go slowly.
LOOKAHEAD	0.5 to 10 ms	4.0 ms	How early the gain starts to come down before a peak.
LINK	0 to 100 %	100 %	Stereo link: how much the two channels are turned down together.

RELEASE and AUTO

RELEASE is how quickly the limiter recovers after a peak: the time to recover 90 % of the reduction. White releases in dB, smoothly (its recovery starts gently rather than with a jump), and the slow stage's 12 ms hold means a bass note can never ripple the gain, however short the release.

- **Short (20–60 ms):** denser and louder; the gain comes back between beats.
- **Medium (80–200 ms):** the usual range for mastering.
- **Long (300–1000 ms):** smooth and calm, for dynamic music with little reduction.

With **AUTO** on (the default), the release is two-stage: short peaks recover in a third of RELEASE, while a slow stage settles on the sustained reduction and lets it go in three times RELEASE. Dense passages (a loud chorus) are held steadily while isolated peaks recover quickly, so the mix doesn't pump. Turn AUTO off for a single, predictable release.

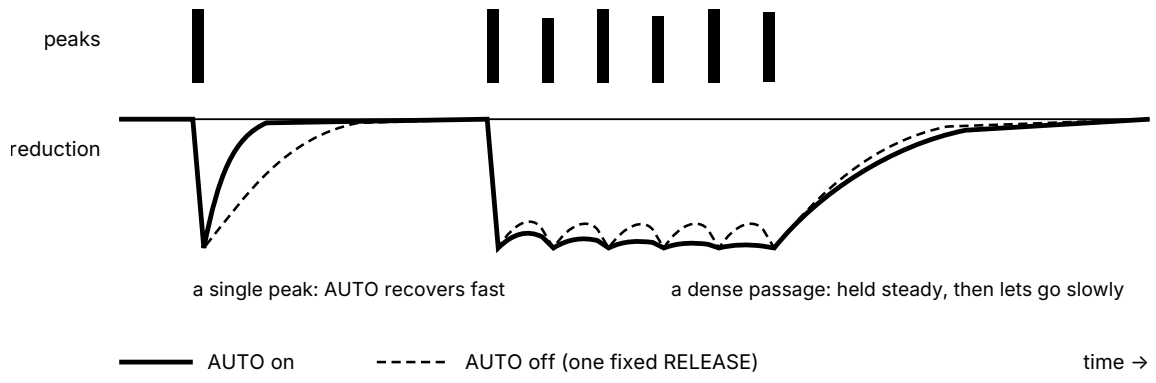


FIGURE 17 Gain reduction over time (down = more reduction). With AUTO off the gain swings up and down between closely spaced hits; with it on, an isolated peak recovers quickly and a run of hits is held steadily.

LOOKAHEAD

LOOKAHEAD sets how early the gain starts to come down before a peak. The slow stage sees each peak coming and lowers the gain along a smooth, triangular slope, so it reaches exactly the reduction the peak needs as the peak arrives.

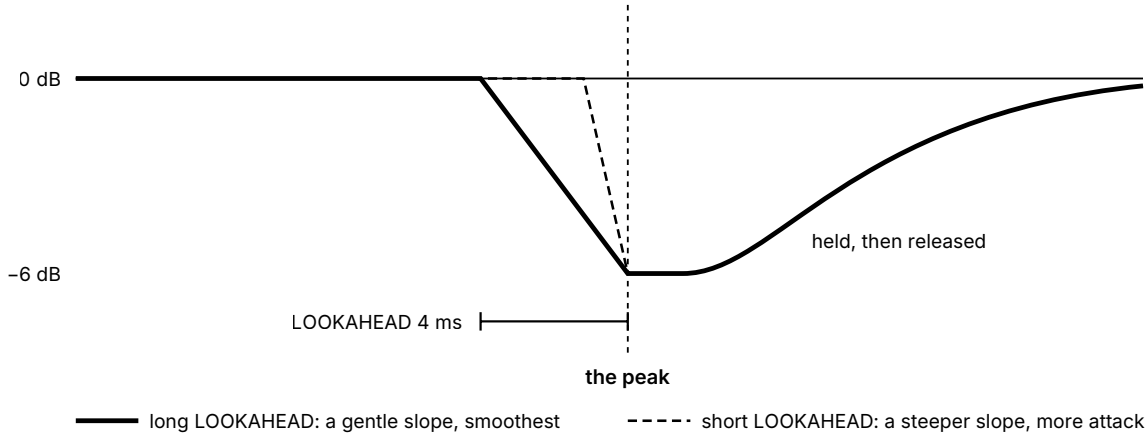


FIGURE 18 The gain (top line = no reduction) around one peak. With a long LOOKAHEAD the gain starts down early and gently; with a short one it starts later and moves faster, which keeps more of the attack in front of the peak.

- **Longer (5–10 ms):** smoother and cleaner on transients; the gain moves too slowly to be heard as distortion. Good for acoustic music, vocals and anything with a lot of reduction.
- **Shorter (1–3 ms):** keeps more of each drum's attack, because the gain starts down later. Good for punchy, transient-rich mixes; lengthen it if snares or cymbals start to sound edgy.

LOOKAHEAD never changes the latency: White always reports the same delay, and you can change LOOKAHEAD while the music plays (the two settings crossfade over 20 ms).

LINK

LINK sets how much the left and right channels share their limiting.

- **100 % (default):** both sides are turned down together, by whichever needs more. The stereo image never moves. Use this for almost every master.
- **Lower:** each side can be limited more on its own. A loud hi-hat on the left no longer turns the right side down, which keeps a little more width and loudness, but the image can lean towards the quieter side during big peaks. *EDM ▸ Future Bass Wide* uses 80 % for wide supersaws.

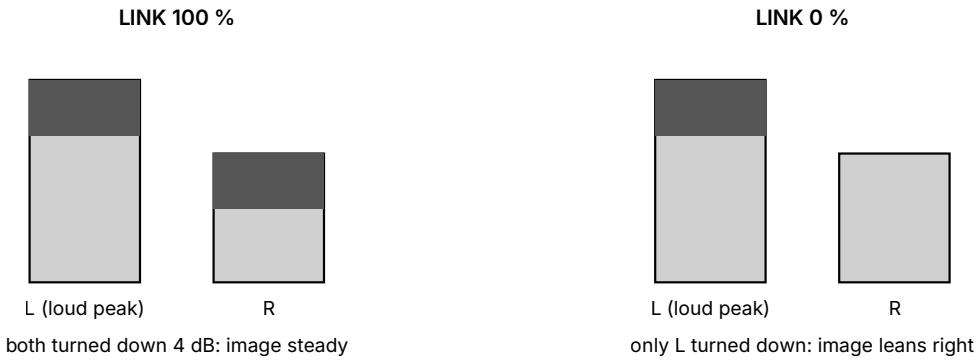


FIGURE 19 A peak on the left channel. The dark tops are the reduction applied to each side.

LOUDNESS: TARGET, OVERSAMPLING and MATCH

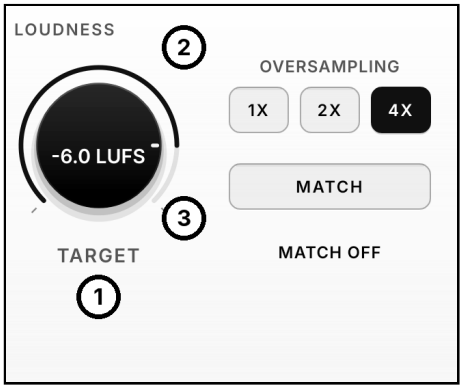


FIGURE 20 The LOUDNESS group: 1 TARGET, 2 the OVERSAMPLING buttons with 4X selected, 3 MATCH and its readout (MATCH OFF).

Control	Range	Default	What it does
TARGET	−16 to −4 LUFS (steps of 0.5)	−6.0 LUFS	The integrated loudness you are aiming for. It changes nothing in the sound.
OVERSAMPLING	1X, 2X, 4X	4X	The rate at which the fast stage's gain is applied.
MATCH	on / off	off	Plays the output at the input's loudness, for comparing.

TARGET

TARGET is where you want the master to land, in LUFS integrated. It does nothing to the sound: it moves the dashed line in the LOUDNESS lane and the line across the bars in the LOUDNESS panel, and sets the reference for TO TARGET. Set it first (−14 for loudness-normalised streaming, −8 to −6 for a loud club or EDM master), then turn GAIN up until TO TARGET reads 0.0.

OVERSAMPLING

A limiter's gain is a fast-moving signal of its own, and fast gain changes make faint sidebands, some above the top of the audio band. At 1X those can fold back into the audible range as aliasing; at 2X and 4X the fast stage applies its gain at two or four times the sample rate and filters them out first. 4X is the default and the cleanest, for music with fast, bright transients; 1X uses less of your computer. On a typical mix the difference measures very small, because White's fast stage moves slowly next to the sample rate. The latency is the same at every setting.

MATCH: listen at equal loudness

Louder always sounds better, which makes it impossible to judge a limiter by ear: turning up GAIN will always seem to improve things. With MATCH on, VEIRA Limiter White measures the loudness of the input and of the output (K-weighted, over about 3 seconds) and turns what you hear down by the difference, so you hear what the limiting does to the *sound* at equal loudness. The readout under the button shows how much it is turning down (for example MATCH -6.5 dB), or MATCH OFF.

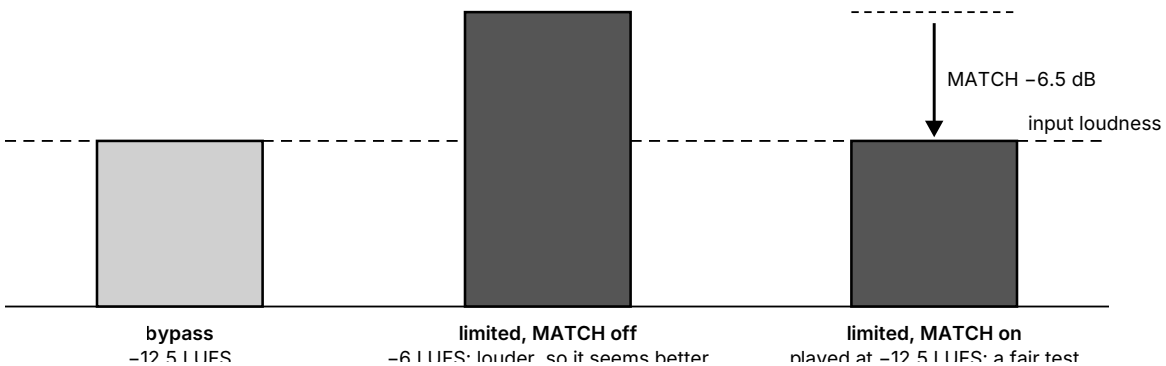


FIGURE 21 What MATCH does. Without it the limited master plays 6.5 dB louder than the bypassed premaster and wins every comparison. With it on, both play at the input's loudness, and only the change in sound is left to judge.

- MATCH is for listening only. **Offline bounces always leave it out.**
- In a **real-time bounce** (or when recording the output to another track) it would be printed: turn it off first.
- Because it averages over 3 seconds, give it a moment after you change GAIN before you judge.
- The meters, the loudness panel and the TARGET readings always measure the real output, as it will be bounced, not the matched one.

Displays

WAVEFORM, REDUCTION and LOUDNESS lanes

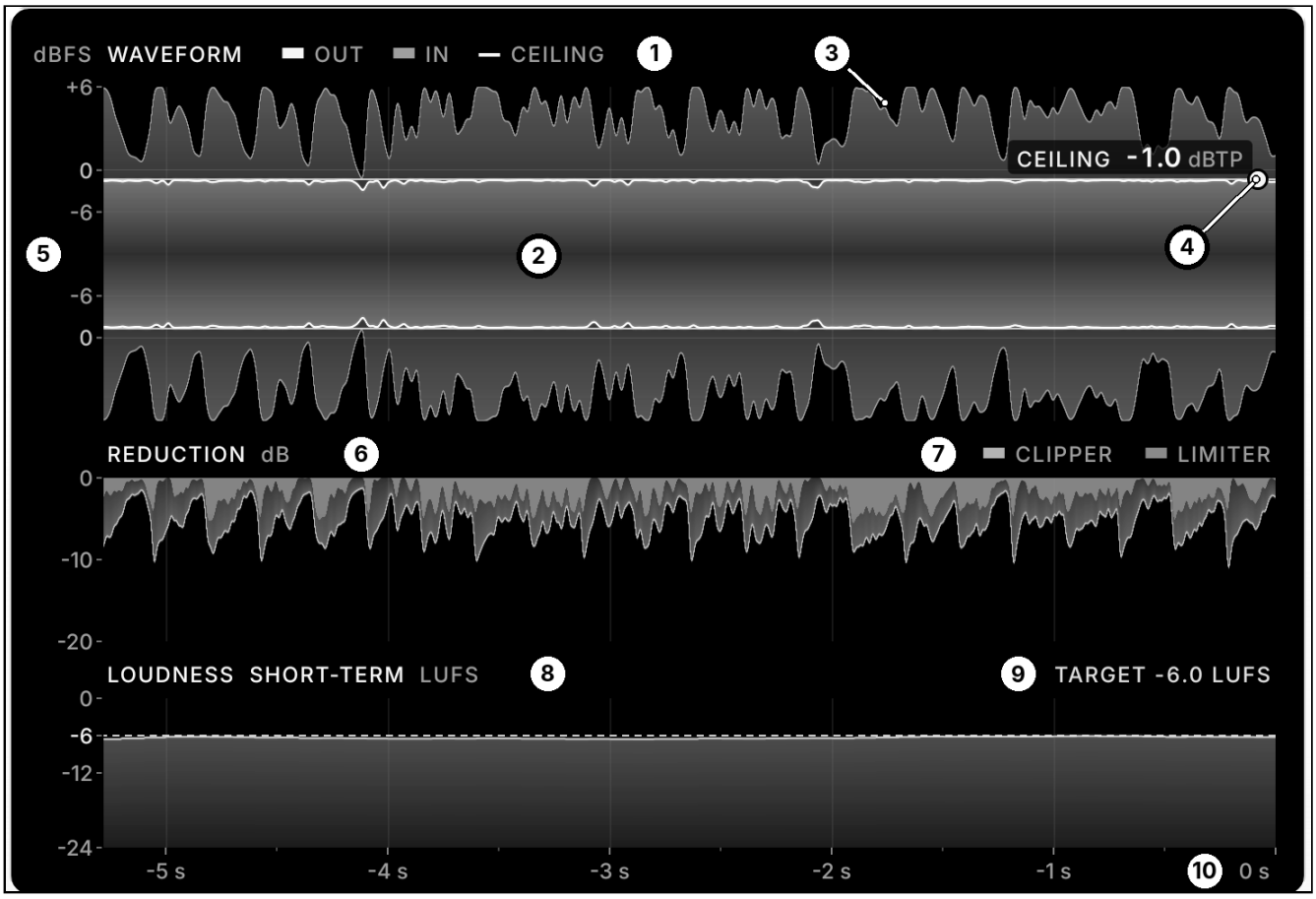


FIGURE 22 1 Legend, 2 output, 3 input, taken off, 4 ceiling line and grip, 5 level scale, 6 REDUCTION lane, 7 clipper and limiter key, 8 LOUDNESS lane, 9 the TARGET line and its label, 10 time scale.

The large display shows the last five and a half seconds or so, newest at the right edge (0 s), with a mark every half-second.

Waveform. 2 The **output** is drawn in silver, in front, mirrored around the centre line, as a DAW draws a waveform. 3 Wherever the input (after GAIN) rose above the output, it shows **behind** it in grey: that grey *is* what White took off. In print the output is the lighter band in the middle and the input the darker band beyond it.

- 5 The scale is **linear**, like a DAW's waveform, with 6 dB of room above full scale: 0 dBFS sits at half height and the edges are +6, so the input can be drawn above the ceiling.
- 4 The **ceiling** is the line on both sides of the centre, labelled with its value (CEILING -1.0 dBTP). The output never crosses it. **Drag** the line (or its round grip at the right) to set CEILING; **double-click** it to return to −1.0 dBTP.

What to look for: a thin grey shadow only on the drum hits means gentle, transparent limiting. A thick shadow everywhere, with an output flat as a ruler, means you are taking off a lot: compare with MATCH.

6 **REDUCTION** shows how much White took off over time, from 0 at the top down to -20 dB. 7 The two kinds are stacked: the transient **clipper** (orange) and the **limiter** (red) under it. In print both hang from the top line, the clipper's share the lighter one; the key at the top right (CLIPPER, LIMITER) names them. On a loud master the clipper's band is thin and spiky, on the drum hits; the limiter does most of the work.

8 **LOUDNESS** (SHORT-TERM, LUFS) draws the output's short-term loudness (3 s) as a filled curve, on a scale from 0 to -24 LUFS. 9 The dashed line is your TARGET, labelled at the right (TARGET -6.0 LUFS). When the curve sits on the line through the loud sections, you are there.

Hover anywhere on the three plots for a read-out of that moment: TIME, IN and OUT peaks (dBFS), CLIPPER and LIMITER reduction (dB) and SHORT-TERM loudness (LUFS).

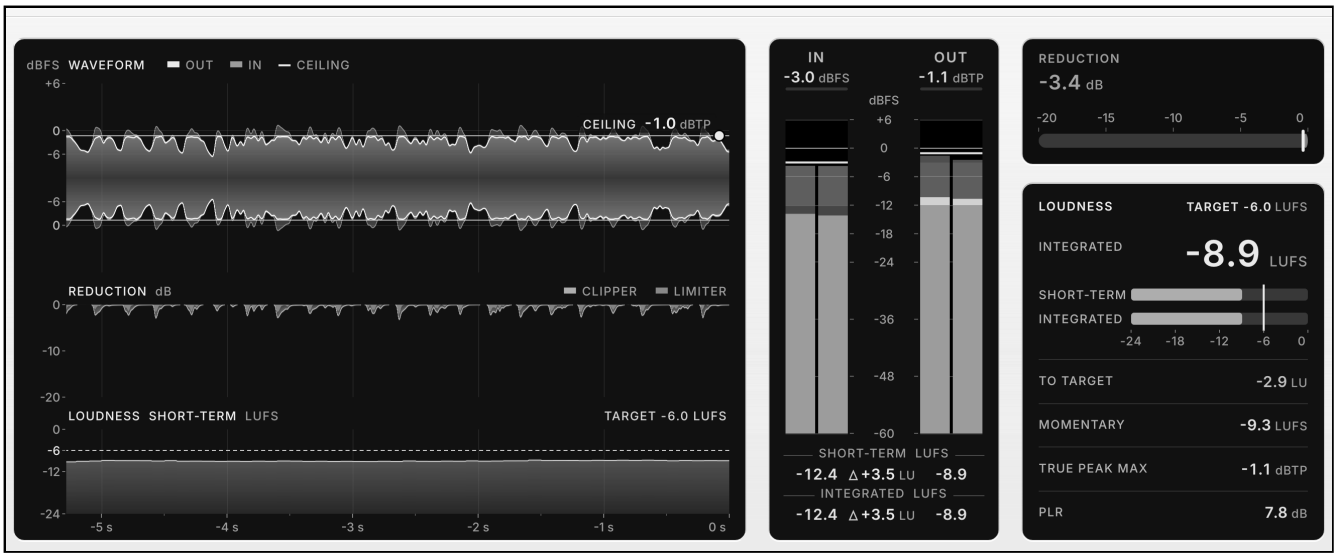


FIGURE 23 +4 dB of GAIN on the same premaster: a gentle master. The reduction is shallow, the input shows only on the hits, and the LOUDNESS panel reads about −8.9 LUFS, short of the −6 LUFS TARGET.

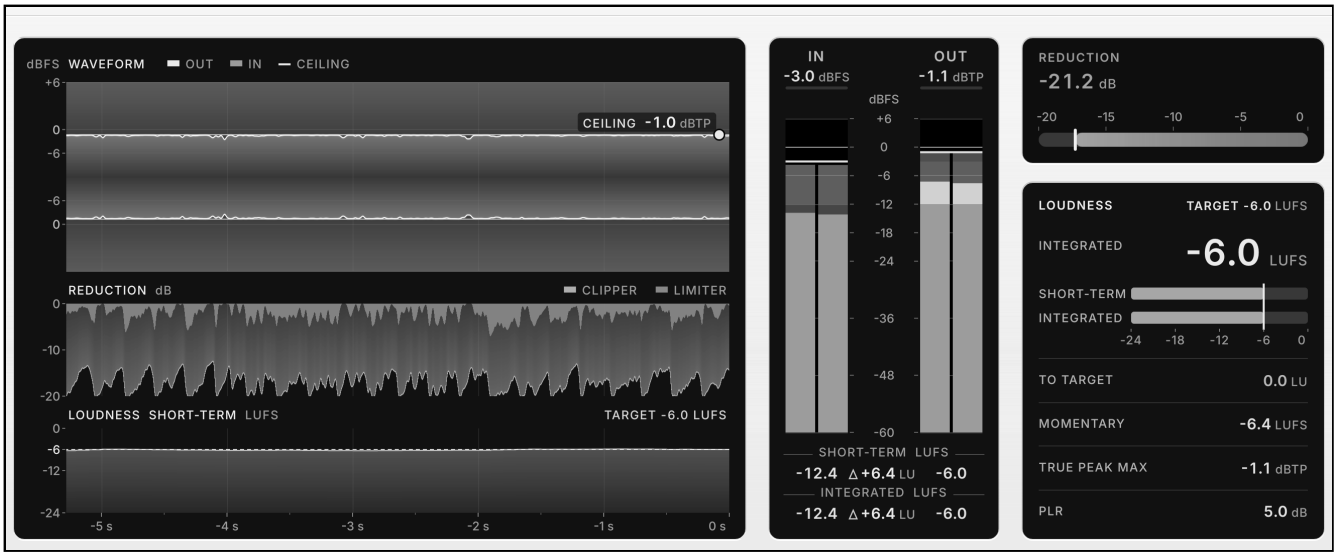


FIGURE 24 +22 dB of GAIN: the REDUCTION meter reads about −21 dB and the lane reaches −20, yet integrated loudness still reads −6.0 LUFS and PLR 5.0 dB. On this dense mix White has levelled off: more GAIN only adds reduction. Back off until the reduction stops growing faster than the loudness.

REDUCTION meter and LOUDNESS panel

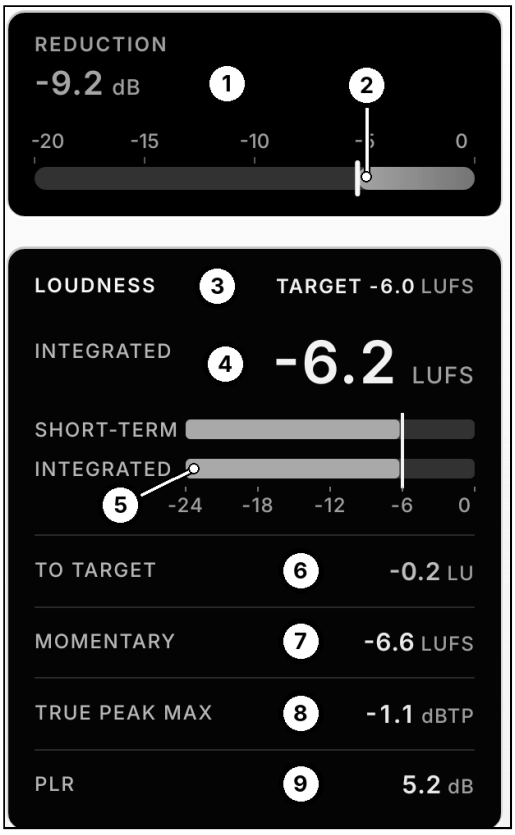


FIGURE 25 The [REDUCTION] meter: 1 its reading and 2 the bar under its scale; the [LOUDNESS] panel: 3 the [TARGET], 4 [INTEGRATED] loudness, 5 the [SHORT-TERM] and [INTEGRATED] bars against the target line, 6 [TO TARGET], 7 [MOMENTARY], 8 [TRUE PEAK MAX] and 9 [PLR].

1 **REDUCTION meter.** The total reduction now, clipper and limiter together. 2 The bar (red on screen; in print, the lighter block) grows from the right-hand end, [0], towards the left, on a scale marked every 5 dB to [-20]. It moves like the needle of an analog VU meter (99 % of a change in 300 ms, with a slight overshoot), so it shows how hard White is working on average. The number shows the deepest reduction of the last quarter-second, so it usually reads a little more than the bar.

The **LOUDNESS panel** measures the output, after everything White does:

	Reading	What it tells you
3	[TARGET]	Your [TARGET], in LUFS.
4	[INTEGRATED] (large)	The loudness of everything since the measurement started, gated, in LUFS.
5	Bars	[SHORT-TERM] and [INTEGRATED] as bars on a −24 to 0 LUFS scale, with your [TARGET] as the line across them.

	Reading	What it tells you
6	TO TARGET	INTEGRATED minus TARGET, in LU. Green within 1 LU of the target; grey when you are quieter, red when you are louder.
7	MOMENTARY	Loudness over the last 0.4 s.
8	TRUE PEAK MAX	The highest true peak since the measurement started, in dBTP. It turns red above 0.
9	PLR	TRUE PEAK MAX minus INTEGRATED, in dB: how much punch is left.

Readings show -- until there is enough signal to measure. **Click the panel** to start a new measurement, for example at the start of the song; this also restarts the integrated loudness on the meter bridge and clears TRUE PEAK MAX.

> **Tip:** Play the whole song, or at least its loudest section and a verse, before trusting INTEGRATED and PLR. Start a new measurement each time you change GAIN a lot.

Meter bridge (IN | OUT)

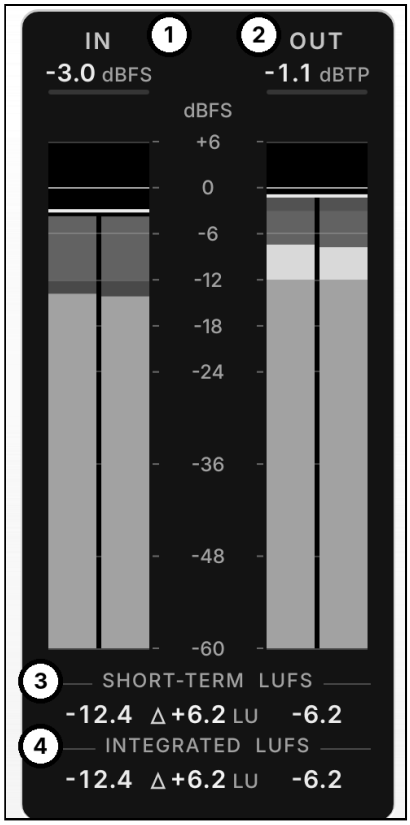


FIGURE 26 The meter bridge: 1 input and 2 output (the output in dBTP), 3 short-term and 4 integrated loudness, with the OUT − IN difference between them.

VEIRA Limiter White uses the standard VEIRA meter bridge, with an input and an output column and no gain-reduction column (the REDUCTION meter and lane show that). The OUT peak readout shows the output's **true peak**, in dBTP; the IN readout is the input's sample peak in dBFS. Δ shows how much louder White made the music, in LU: on a master that is close to your GAIN minus what was taken off. Everything else works as described below.

Reading the IN and OUT meters

The meter bridge measures what goes into VEIRA Limiter White and what comes out, in level and in loudness. The drawing shows the input and output columns; any extra column on your plugin's bridge is described above.

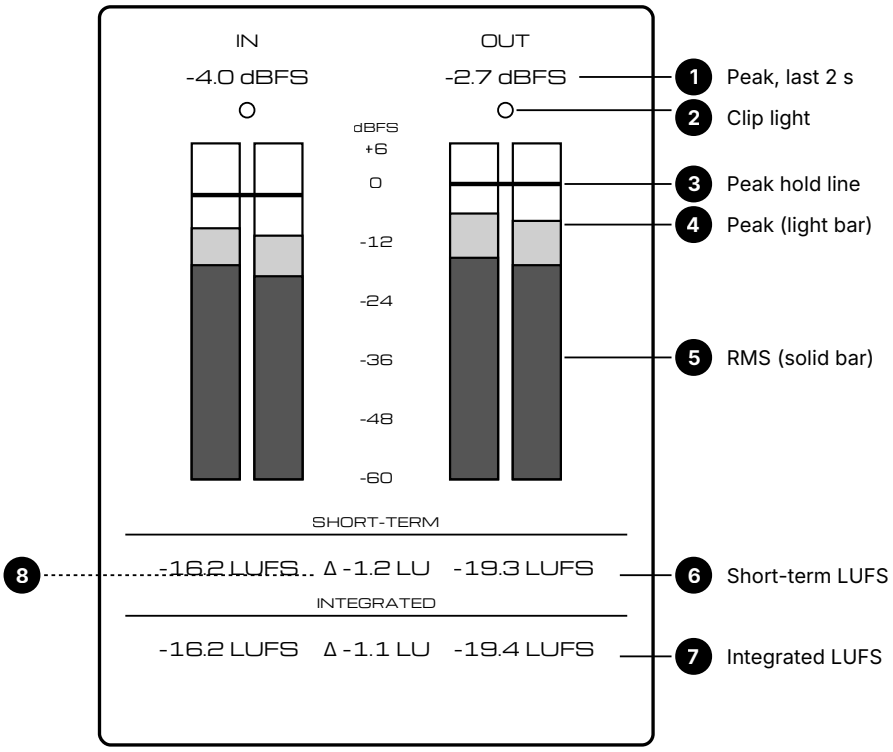


FIGURE 27 The meter bridge, left and right channel bars for input and output, with loudness below.

- 1 **Peak readout:** the highest sample peak of the last two seconds, in dBFS. It turns to a warning above 0 dBFS.
- 2 **Clip light:** lights on any sample at or over full scale. It stays lit until you click the meter.
- 3 **Hold line:** marks the recent peak on the bar.
- 4 **Peak bar** (the lighter part): the instantaneous sample peak of each channel.
- 5 **RMS bar** (the solid part): the average level over 300 ms, closer to how loud it sounds.
- 6 **SHORT-TERM:** loudness over the last 3 seconds, in LUFS, for the input (left) and the output (right).
- 7 **INTEGRATED:** loudness of everything since the measurement started, gated as the ITU-R BS.1770-4 and EBU R 128 standards require.

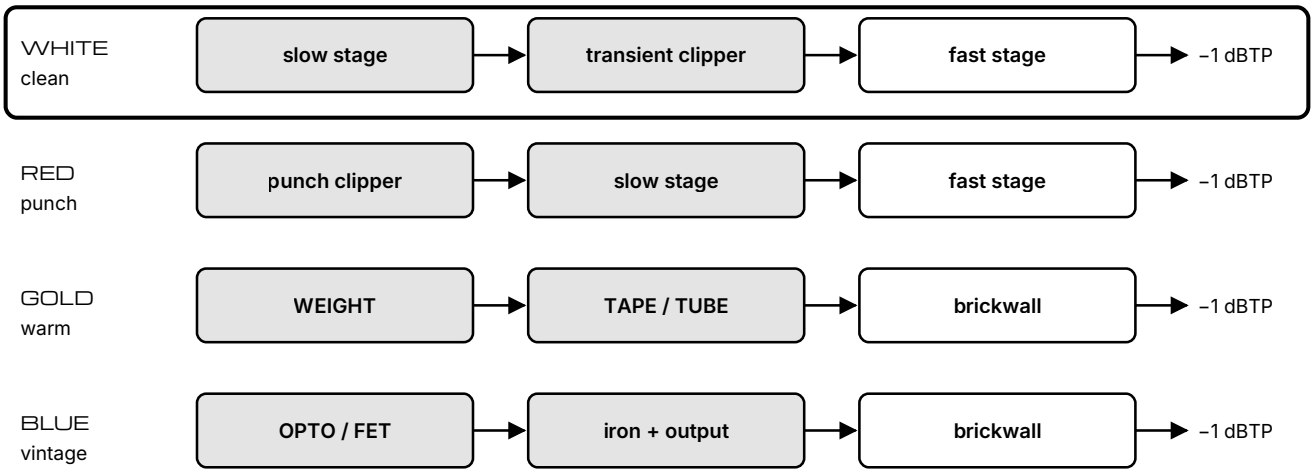
- ❽ **Δ (delta):** OUT minus IN, in LU. It tells you how much louder (+) or quieter (−) VEIRA Limiter White made the signal, so you can match levels fairly when you compare with bypass. It reads [--] while either side is too quiet to measure (below −70 LUFS).

The scale: on screen the bars are coloured like a studio console: green below −12 dBFS, yellow from −12 to −3, orange from −3 to 0 and red above 0 dBFS.

Clicks: click a level meter to reset its hold and clip light. Click the loudness readouts to restart the integrated measurement, for example at the start of a song.

Which colour to choose

VEIRA Limiter White is one of four VEIRA colour limiters. All four hold a true-peak ceiling with no overs, show the same loudness panel and TARGET, have MATCH, and are built to reach −6 LUFS on a dense mix. What differs is the stage in front of the ceiling, and so the sound of the peaks they shape.



Grey: the stage that gives each colour its character. White: what holds the true-peak ceiling.

FIGURE 28 The four colours, side by side. The framed row is the one in your hands.

	Character	Choose it when
White	Clean, transparent. A slow and a fast stage share the work with a transient clipper; bass waves and held notes are never clipped.	The mix is right and should only get louder. Acoustic, orchestral, pop, anything you don't want coloured.
Red	Punch. A punch clipper takes the first milliseconds of each hit, so the limiter doesn't duck the groove.	Drums lead: EDM, hip-hop, rock, dance pop. PUNCH sets how hard the hits are clipped.
Gold	Warm. Oversampled TAPE or TUBE saturation rounds the peaks; WEIGHT adds low end.	The mix feels thin or bright and wants glue and body; loud masters that should sound rich rather than hard.
Blue	Vintage. An OPTO or FET levelling stage and transformer COLOUR, like 1970s hardware.	You want levelling you can hear: a mix that should breathe and glue, rock, soul, boom bap.

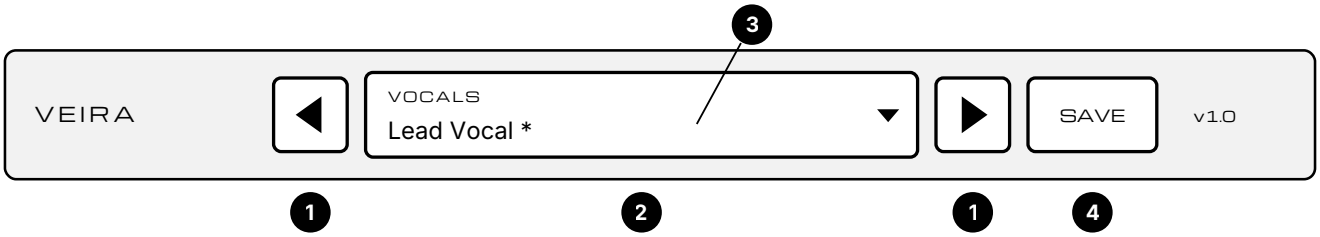
White is the clean one. If you are not sure which colour a mix wants, start here: it changes the least, so anything you hear is the loudness itself. If the drums lose their hit at −6 LUFS, try Red; if the master sounds thin or hard, try Gold; if it should breathe and glue, Blue.

Presets

VEIRA Limiter White comes with **43 factory presets** in 10 folders. Each one is a starting point made for a real job. Load one close to what you need, then adjust the first control its note mentions.

The preset browser

The preset browser sits in the header, at the top of the window.



The header: logo and plugin name, then the preset browser, then the version.

FIGURE 29 The preset browser.

- 1 ◀ ▶ step to the previous or next preset, through every folder in order.
- 2 **The display** shows the folder (small, above) and the preset's name. Click it to open the preset menu. Hover over it to read the preset's note: what it's for and what to adjust first.
- 3 **An asterisk (*)** after the name means you've changed something since the preset loaded.
- 4 SAVE stores your current settings as a user preset.

The preset menu

Clicking the display opens a menu with:

- one submenu per **factory folder**, in the order shown below;
- **User Presets**, with your own presets in their folders;
- **Save...**, **Delete** (only for user presets: factory presets can't be deleted), **Rescan** (re-reads the user folder, if you copied presets in by hand) and **Show User Preset Folder** (opens it in Finder or Explorer).

Saving your own presets

1. Set VEIRA Limiter White the way you like it.
2. Press SAVE. A dialog opens inside the plugin window.
3. Type a name, choose a folder or type a new folder name, and confirm.

Each user preset is one small .veirapreset file:

	Folder
macOS	~/Library/Audio/Presets/VEIRA/VEIRA Limiter White/<Folder>/
Windows	%APPDATA%\VEIRA\VEIRA Limiter White\Presets\<Folder>\

Copy these files to move your presets to another computer, or to back them up. Presets keep loading in future versions: any control added later simply starts at its default.

Presets in your DAW

The factory presets also appear in your DAW's own preset or program menu, named *Folder: Name* (for example *Vocals: Lead Vocal*). Whatever preset is selected is saved with your session and comes back when you reopen it, including the asterisk if you'd changed it.

The **Default ▸ Init** preset equals a fresh instance of the plugin: every control at its default.

The factory folders

Folder	Presets
Default	Init
Mastering	Transparent Master, Gentle Glue, Loud And Clean, Maximum Clean, Dynamic Master, Fast Transient Master
Streaming	Streaming -14, Apple Music -16, Lossy Safe -2 dBTP, Podcast -16, Club Ready -7
Pop	Pop Radio, Pop Ballad, Modern Pop Loud, Vocal Forward, Bright Pop Clean
EDM	Festival Main, Deep House, Techno Drive, Future Bass Wide, Drum And Bass
Hip-Hop	Boom Bap, Trap 808, Lo-Fi Beat, Modern Rap Loud
Rock	Rock Master, Metal Wall, Indie Rock, Punk Loud
Acoustic	Folk Natural, Jazz Dynamic, Singer Songwriter, Classical Peak Guard
Mix Bus	Bus Peak Catch, Mix Bus Glue, Rough Mix Loud, Headroom Keeper
Stems	Drum Stem Control, Bass Stem Even, 808 Stem Control, Vocal Stem Peaks, Music Stem Safe

Levels matter. The presets assume premasters peaking at −3 dBFS (a dense mix reads about −12.5 LUFS there), the mix bus at −4 dBFS, drum stems at −4, bass and vocal stems at −8 and other music stems at −6 dBFS. Each preset names a TARGET; on your music, GAIN is the first thing to adjust: turn it until TO TARGET reads 0.0. Every preset was measured through the plugin on matching material: no preset produces an over. MATCH is off in every preset.

Recipes

Step-by-step starting points. In each, use MATCH to compare at equal loudness before you settle on GAIN, and turn it off again before a real-time bounce.

A loud master at –6 LUFS

1. Put White last on your master bus. Load **Mastering ▸ Maximum Clean** (GAIN +16.6 dB, TARGET −6.0 LUFS).
2. Click the LOUDNESS panel to start a new measurement and play the loudest section.
3. Adjust GAIN until TO TARGET reads about 0.0. Watch the REDUCTION meter: if it keeps growing while INTEGRATED no longer moves, you have reached what White gives on this mix; back off a dB.
4. Switch MATCH on and your DAW's bypass on and off. If the drums sound flat, try a shorter LOOKAHEAD (2–3 ms) to keep more attack.
5. Turn MATCH off. TRUE PEAK MAX reads about −1.1 dBTP.

A master for streaming at –14 LUFS

1. Load **Streaming ▸ Streaming -14** (TARGET −14.0 LUFS, RELEASE 200 ms, LOOKAHEAD 5 ms).
2. Play the whole song and set GAIN until TO TARGET reads 0.0. Many mixes need only a few dB.
3. Check PLR: 13 dB or more means the song keeps all its dynamics.

A transparent master that only catches peaks

1. Load **Mastering ▸ Transparent Master** (+3.6 dB) or **Dynamic Master** (+0.5 dB) for jazz, film and anything that should swing.
2. Raise GAIN slowly with MATCH on. Stop when the REDUCTION meter reaches 2–3 dB on the loudest moments.

A loud master for low-bitrate formats

1. Load **Streaming ▸ Lossy Safe -2 dBTP**: a −2.0 dBTP ceiling, because lossy encoders add peaks.
2. Set GAIN for your TARGET.

Wide synths without a moving image

1. Load **EDM ▸ Future Bass Wide** (LINK 80 %).
2. If the stereo image leans on big hits, raise LINK towards 100 %.

Peak control on the mix bus while you mix

1. Load **Mix Bus ▸ Bus Peak Catch** (a −3.0 dBTP ceiling) or **Headroom Keeper** (−6.0 dBTP).
2. Mix into it as usual; it catches stray peaks and leaves headroom for mastering. Bypass it before you bounce the premaster you send to mastering.

Specifications

Type	True-peak mastering limiter: a slow stage, a transient clipper and a fast stage
Channels	Mono and stereo
Latency	782 samples at 48 kHz (16.3 ms; 740 at 44.1 kHz, 1310 at 96 kHz), constant at every setting, reported to the host; the DAW's bypass is delayed by the same amount
Ceiling accuracy	A −1.0 dBTP ceiling reads −1.06 dBTP on a BS.1770 meter (−1.03 on a 16x reconstruction); no overs
Clipper	Soft (1 dB knee), 8x oversampled; never touches the low band (under 200 Hz) or held, tonal sounds
Measured at −6 LUFS (dense mix)	Bass sines 30–100 Hz: 0.000 % THD; SMPTE intermodulation 0.0086 %
GAIN	0 to +30 dB (default +0.0 dB)
CEILING	−12 to 0 dBTP (default −1.0 dBTP)
RELEASE	1 to 1000 ms (default 100 ms)
AUTO	On / off (default on)
LOOKAHEAD	0.5 to 10 ms (default 4.0 ms); does not change the latency
LINK	0 to 100 % (default 100 %)
TARGET	−16 to −4 LUFS in steps of 0.5 (default −6.0 LUFS); changes nothing in the sound
OVERSAMPLING	1X, 2X, 4X (default 4X)
MATCH	On / off (default off); never applied in offline bounces
Metering	Waveform (about 5.5 s) with clipper and limiter reduction and short-term loudness against the TARGET; reduction bar with VU ballistics; integrated, short-term and momentary loudness, TO TARGET, true-peak maximum and PLR per ITU-R BS.1770-4 / EBU R 128; IN and OUT meters (peak, RMS, LUFS; OUT in dBTP)
Presets	43 factory presets in 10 folders, plus your own
Window	1360 × 900 points; resizable from 75 % to 200 %, saved with the session
Formats	VST3, Audio Units, standalone; AAX once signed
Plugin ID	Manufacturer Veir, plugin Vlwh

Troubleshooting and questions

The sound drops out for a moment every 30 seconds. The plugin isn't activated on this computer. Open VEIRA Manager and sign in; the strip at the bottom of the plugin's window says exactly what's wrong. See *Getting started ▸ Activation and the licence*.

I don't see VEIRA Limiter White in my DAW. Make sure VEIRA Manager shows SHOW (installed) for it, then rescan plugins in your DAW. In Logic Pro, open the Plug-in Manager and choose *Reset & Rescan Selection* if needed. Look under the manufacturer **VEIRA**.

My bounce is quieter than what I heard. MATCH was on during a real-time bounce or while recording the output. Offline bounces always leave MATCH out; for real-time bounces, turn it off first.

TRUE PEAK MAX **reads above my ceiling.** Something after White is changing the level: another plugin, the master fader, a pan law, or a dither or format conversion in the bounce. Put White last and leave the master fader at 0 dB. On its own, White aims a hair under the ceiling (0.08 dB under it), so a −1.0 dBTP ceiling reads about −1.06 dBTP on a standard meter.

Another meter reads a different true peak. True-peak meters estimate the wave between samples, and simpler ones read a little differently. White's ceiling is checked against a standard BS.1770 meter and a finer 16x reconstruction. A meter that reads sample peak will read lower; one placed before White will of course differ.

I can't reach my TARGET. Raise GAIN while watching INTEGRATED. If the reduction keeps growing but the loudness has stopped moving, White has reached what it gives on this mix without clipping bass or held notes. That happens on very sub-heavy material (a mix that is mostly kick and sub-bass), where White can stop just short of −6 LUFS. Lower the TARGET a dB, or try VEIRA Limiter Red or Gold, whose punch clipper or warmth go further on the same mix.

Everything sounds flat or distorted. Too much reduction for this music. Lower GAIN until the REDUCTION meter stays under about 6–8 dB, then compare with MATCH. If transients sound softened, shorten LOOKAHEAD; if they sound edgy, lengthen it. If the mix pumps, turn AUTO on or lengthen RELEASE.

The streaming service will turn my master down. Is that bad? No: it only means your master is louder than the service's reference. It plays at the same level as everything else; only its dynamics are reduced. A −6 LUFS master is turned down about 8 dB on a service that plays at −14 LUFS. See *Loudness, true peak and the −6 LUFS target*.

TO TARGET **stays at** -- **.** The integrated loudness needs a little signal to measure. Play the music; click the loudness panel to start a new measurement at the start of the song.

Does White add latency? Yes: 782 samples at 48 kHz (16.3 ms; 740 at 44.1 kHz, 1310 at 96 kHz), always the same whatever the settings, and reported to your DAW, which compensates automatically. The host's bypass is delayed by the same amount, so bypassing keeps the track in time. For mixing and mastering this never matters; avoid monitoring a live input through it.

The window is too small (or too big) on my screen. Drag its bottom-right corner. It scales from 75 % to 200 % and keeps its proportions; the size is saved with your session.

How do I type an exact value? Right-click the knob (Control-click on a Mac), type the number and press Return.

Do my sessions keep my settings? Yes. Every control, the selected preset and the window size are saved with your session.

Contact: support@veiraaudio.com. Mention your computer (Mac or Windows and its version), your DAW and version, and what you see.



VEIRA Limiter White · User Manual · Version 0.1.0

Support: **support@veiraaudio.com** · Web: **veiraaudio.com**

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