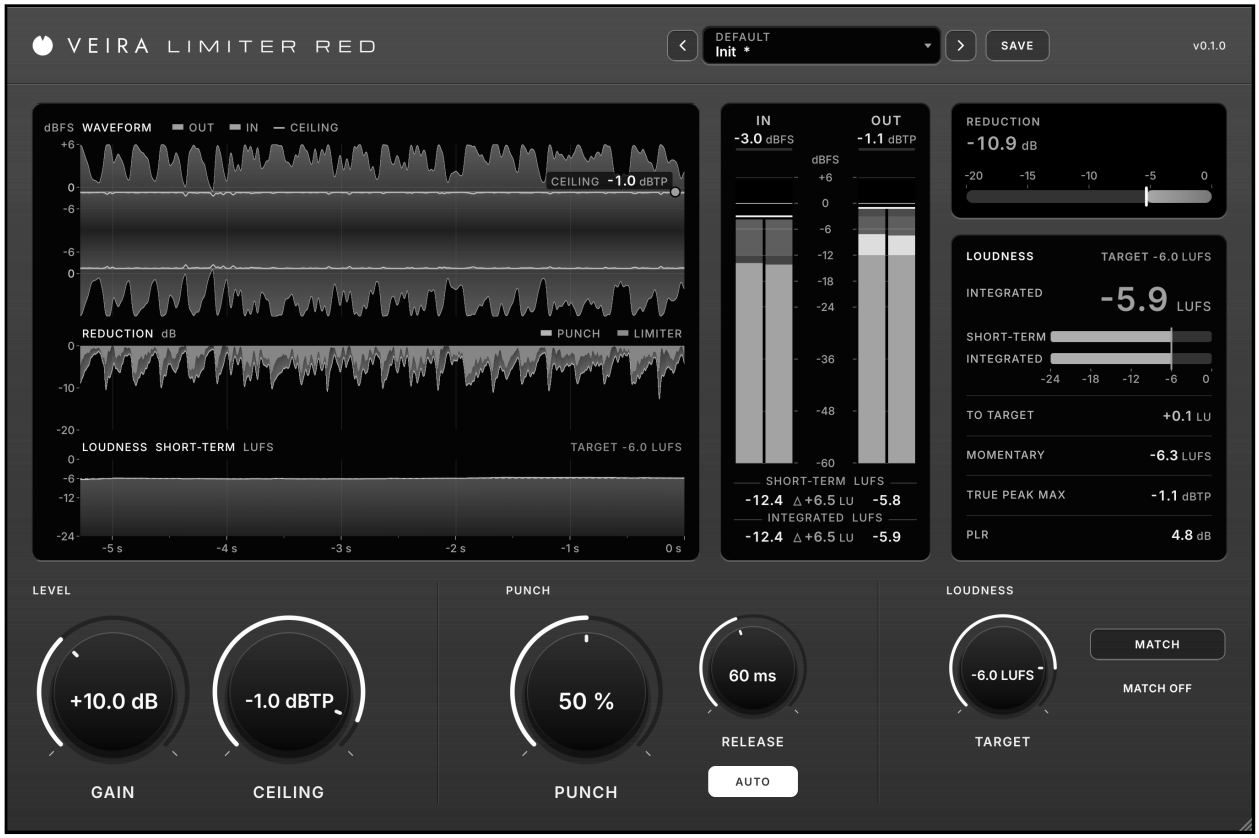
VEIRA

MASTERING LIMITER

VEIRA Limiter Red

User Manual

The punchy one of the four VEIRA colour limiters: a true-peak mastering limiter that keeps drum hits hitting at loudness. A punch clipper takes the first milliseconds of each hit, so the groove doesn't duck, while bass waves and held notes are never clipped.



Contents

Welcome 3
Getting started 4
What you need 4
Install with VEIRA Manager 4
Activation and the licence 5
Formats and where the files go 5
The panel at a glance 6
Quick start: a master at your target in three moves 7
Using the controls 7
Where to put VEIRA Limiter Red 9
How a limiter works 10
Clipper and limiter 10
What happens inside VEIRA Limiter Red 11
Loudness, true peak and the –6 LUFS target 13
Level is not loudness 13
Three time windows 13
True peak (dBTP) 14
PLR: how much punch is left 14
What streaming services do with loudness 15
The −6 LUFS target 15
Controls 18
LEVEL: GAIN and CEILING 18
PUNCH: PUNCH, RELEASE and AUTO 19
LOUDNESS: TARGET and MATCH 21
Displays 23
WAVEFORM, REDUCTION and LOUDNESS lanes 23
REDUCTION meter and LOUDNESS panel 25
Meter bridge (IN | OUT) 26
Which colour to choose 28
Presets 29
The preset browser 29
The preset menu 29
Saving your own presets 29
Presets in your DAW 30
The factory folders 30
Recipes 31
A loud master at −6 LUFS with the drums in front 31
Find your PUNCH 31
A club or festival master 31
A master for streaming at −14 LUFS 31
Louder drum stems that keep their attack 31
Pumping as an effect 31
Specifications 33
Troubleshooting and questions 34

Welcome

Thank you for choosing **VEIRA Limiter Red**. It is a mastering limiter: you turn GAIN up, and Red keeps every peak under the CEILING you set, in true peak. It is the punchy one of the four VEIRA colour limiters (White, Red, Gold and Blue).

Loud masters lose their punch because the limiter turns the whole mix down on every kick and snare: the bass, the chords and the voice all dip a little with each hit, and the groove ducks. Red clips the first milliseconds of each hit instead, with an oversampled soft clipper that only touches what jumps out of the music. The limiter behind it has less to do, so the body between the hits stays where it is. PUNCH sets how the work is shared between the clipper and the limiter.

What makes it different

- **Hits clipped, not ducked.** The punch clipper rounds the tip of each drum hit, so the limiter behind it moves less and the mix doesn't pump on the beat. At PUNCH 100 % the limiter swings about 2.6 dB per beat on a dense mix at −6 LUFS, against 4.5 dB at 50 %.
- **Held notes ride under it.** The clipper's threshold follows the music's sustained level, so a held bass note, a chord or a vowel stays under it at any PUNCH; only what jumps 6–12 dB out of the music is clipped.
- **Bass is never clipped by the limiter.** Behind the clipper sits the engine of VEIRA Limiter White, which holds the low band whole: at the default PUNCH, bass sines driven 7 dB over the ceiling come out with 0.000 % distortion.
- **A true-peak ceiling you can trust.** The CEILING is always in dBTP: a −1.0 dBTP ceiling reads −1.07 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 the punch does, 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:

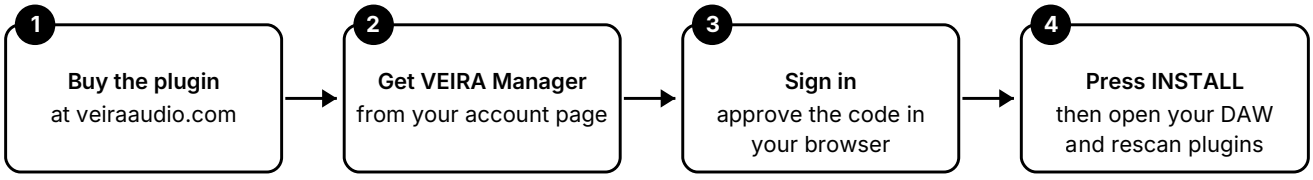


FIGURE 1 From purchase to first sound in four steps.

1. **Buy** VEIRA Limiter Red 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 Red 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 Red appears in your DAW under the manufacturer **VEIRA** (in Logic Pro: Audio Units ▸ VEIRA ▸ VEIRA Limiter Red).

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 Red 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.

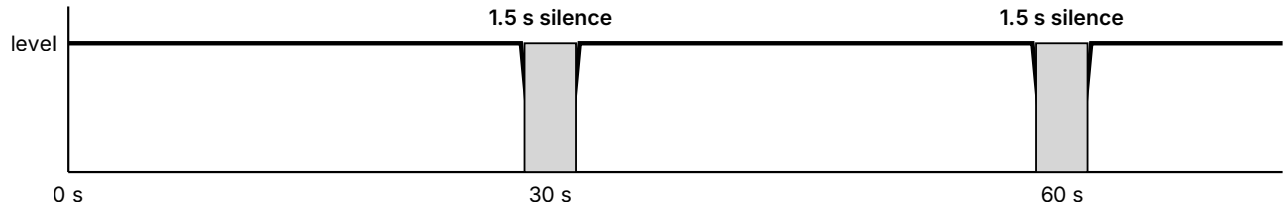


FIGURE 2 What an unlicensed copy does. With a valid licence the audio is never touched.

- **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 Red. 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 Red 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

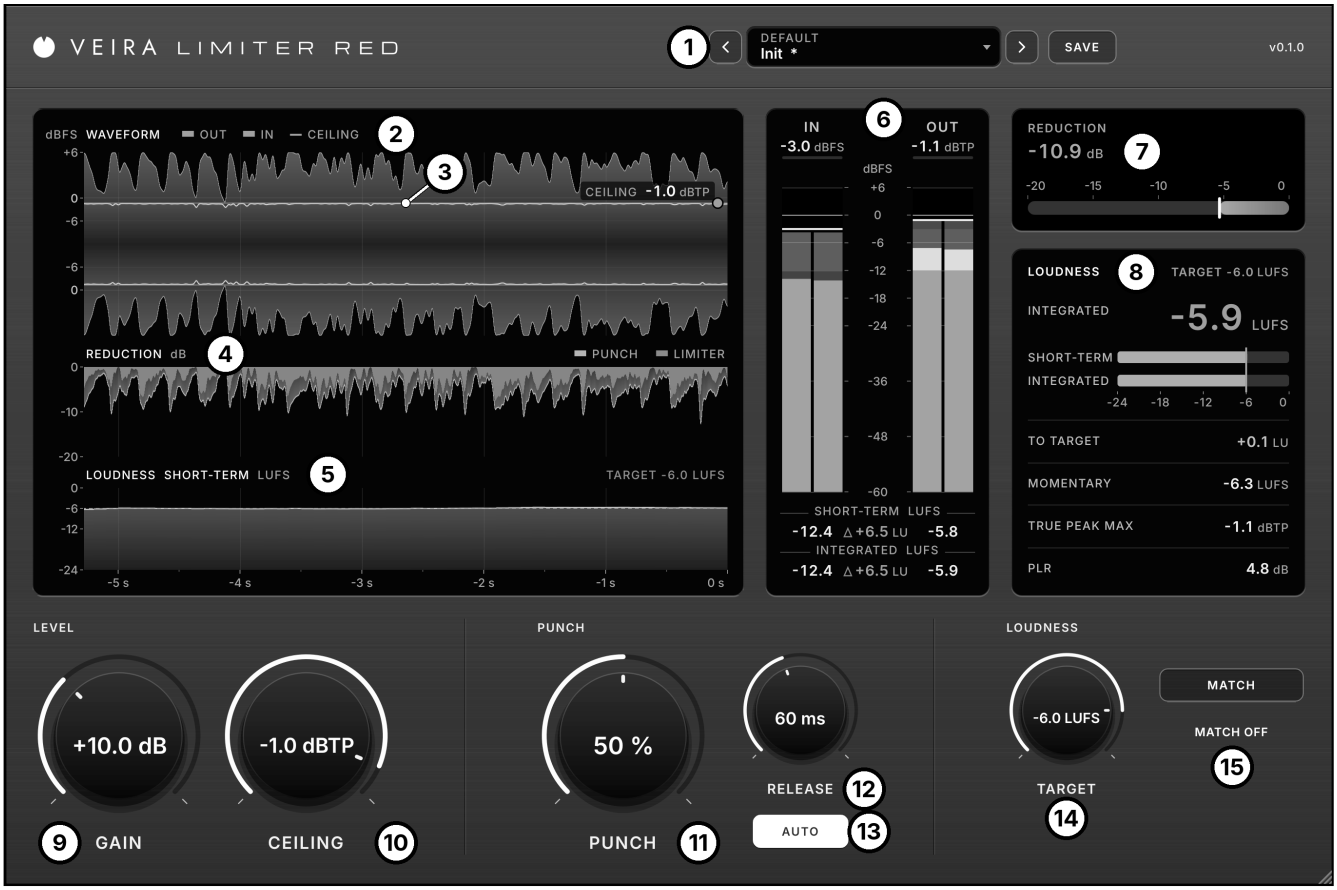


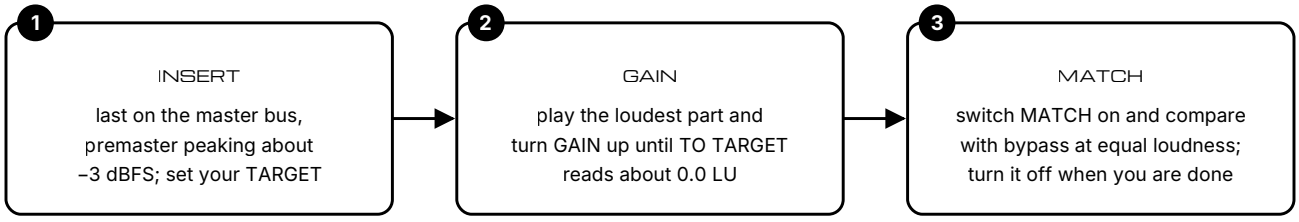
FIGURE 3 VEIRA Limiter Red, the lacquered-red unit, with +10 dB of GAIN and PUNCH at 50 % on a dense premaster: the output (red, in front) sits under the −1.0 dBTP ceiling, the input (grey, behind) shows the hits that were clipped and limited, and the LOUDNESS panel reads −5.9 LUFS integrated against 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 clippers 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 clipper and the limiter.

	Part	What it does
10	CEILING	The highest the output may go, in true peak.
11	PUNCH	How much of the peak control the punch clipper does.
12	RELEASE	How quickly the limiter lets go.
13	AUTO	A transient-preserving release that adapts to the music.
14	TARGET	The loudness you are aiming for. It changes nothing in the sound.
15	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, PUNCH and LOUDNESS: how loud, how the hits are handled, 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 Punch 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, PUNCH 50 % 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:

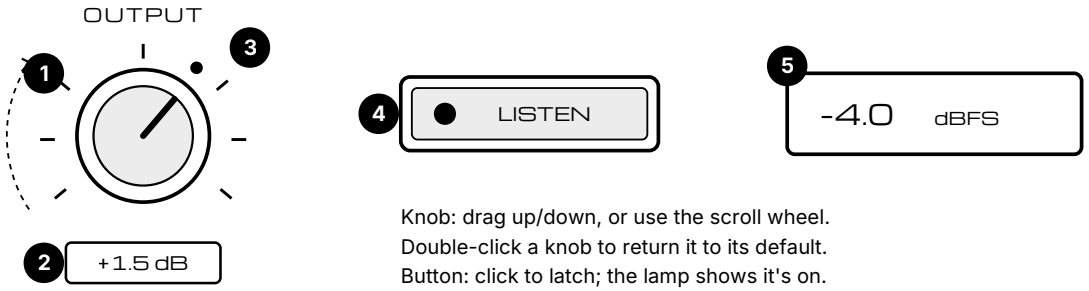


FIGURE 5 The parts you'll find on every VEIRA panel (the labels are examples).

- 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 Red'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 cream on the paint around each one (in print, the light 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 and MATCH fill with cream when they are on, with dark red lettering (in print, a light button with dark lettering); when they are off they are shallow wells in the paint with cream lettering. Click again to switch either off.
- **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:** Red is painted a deep lacquered red, with cream 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 Red

- **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 Red 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 Red*. 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.

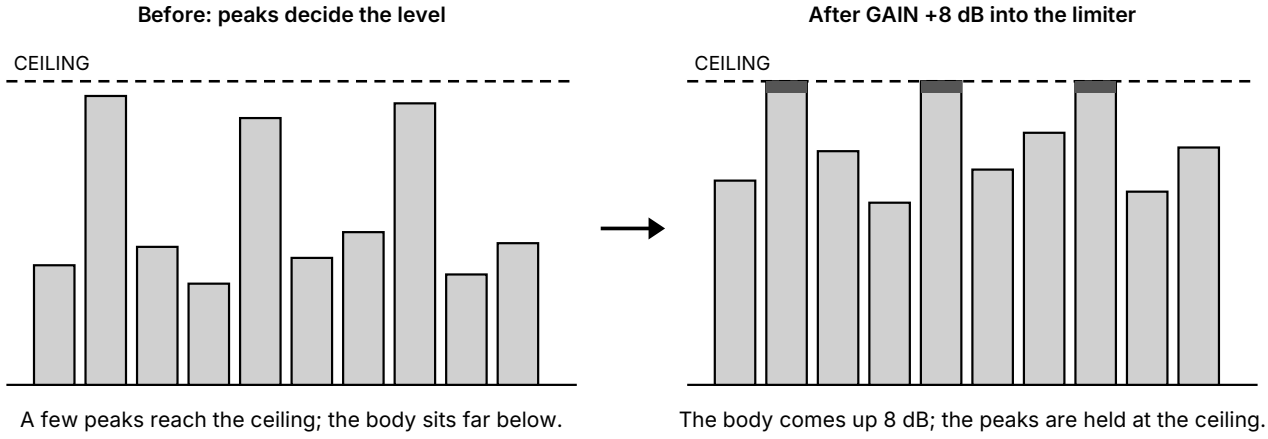


FIGURE 6 A limiter lets you raise the whole song while the peaks stay at the ceiling. The dark caps mark the peaks that were held down.

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.

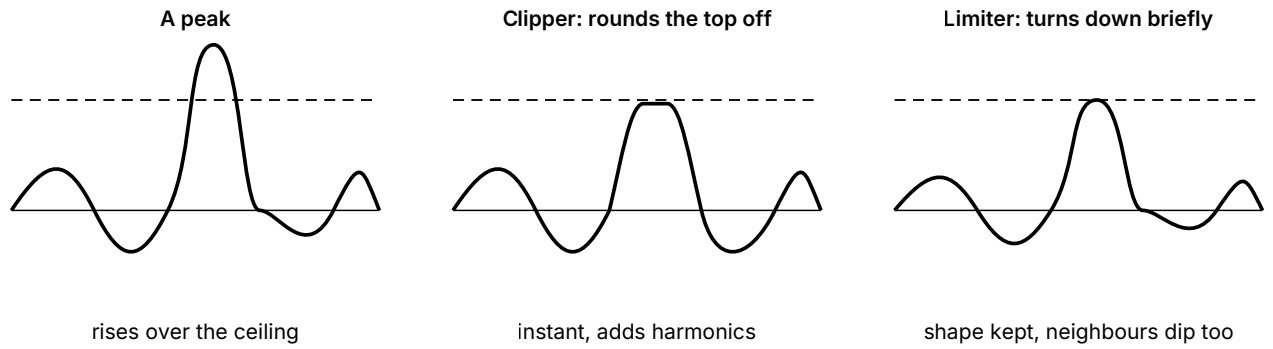


FIGURE 7 The same peak handled two ways. The dashed line is the ceiling. The clipper flattens only the top; the limiter turns the whole moment down, so the notes either side of the peak get a little quieter too.

Every loud master mixes the two in some way, and **that mix is what sets the four VEIRA colour limiters apart**. VEIRA Limiter Red puts a **punch clipper** first: it rounds off the first milliseconds of each drum hit, the part that jumps out of the music, so the limiter behind it doesn't have to turn the whole mix down on every kick and snare. PUNCH sets how the work is shared. 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 Red reports to your DAW so everything stays in time.

What happens inside VEIRA Limiter Red

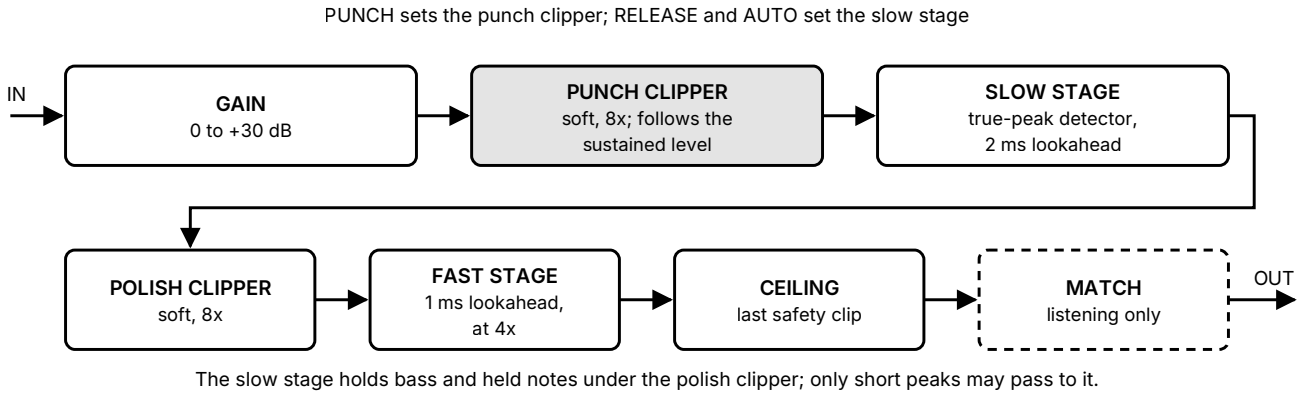


FIGURE 8 Signal flow. GAIN drives the music into the punch clipper, which rounds the tips of the hits that jump out of the music. Behind it, the engine of VEIRA Limiter White: a slow stage that looks ahead for every peak (between the samples too), a polish clipper for what is left of short peaks, and a fast stage that takes the rest to the ceiling. MATCH only turns down what you hear while playing.

- **The punch clipper** is soft (a 2 dB knee) and runs at eight times the sample rate, so its harmonics don't fold back; its filters also band-limit the music, so the detectors behind it measure exactly what is played. Its threshold follows the music's **sustained level**: the average over about 30 ms, taken through a 30 ms minimum, so a hit's own energy doesn't lift it. See PUNCH in *Controls*.
- **The slow stage** reads the true peak, looks 2 ms ahead, holds each reduction for 12 ms (so bass can't ripple the gain) and recovers with RELEASE and AUTO. It holds the **low band** (under 200 Hz) under

the polish clipper's knee, so a bass wave is never clipped, and lets sustained levels over the ceiling only as far as the material is noise-like.

- **The polish clipper** (eight times oversampled) takes what is left of short peaks; **the fast stage** (1 ms of lookahead, a 25 ms release, its gain applied at four times the sample rate) takes the rest to the ceiling, aiming 0.08 dB under it.
- **Latency.** 448 samples at 48 kHz (9.3 ms), always the same and reported to your DAW. The host's bypass is delayed by the same amount.

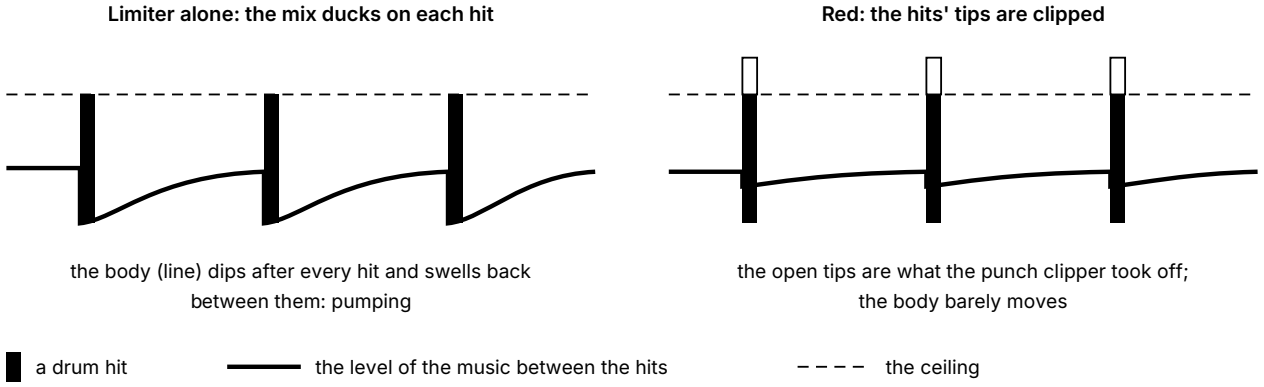


FIGURE 9 Why Red keeps the groove. Left: a limiter alone turns everything down on each hit, so the music between the hits dips and swells. Right: with PUNCH, the first milliseconds of each hit are clipped instead, and the limiter behind has little left to do.

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 Red'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.

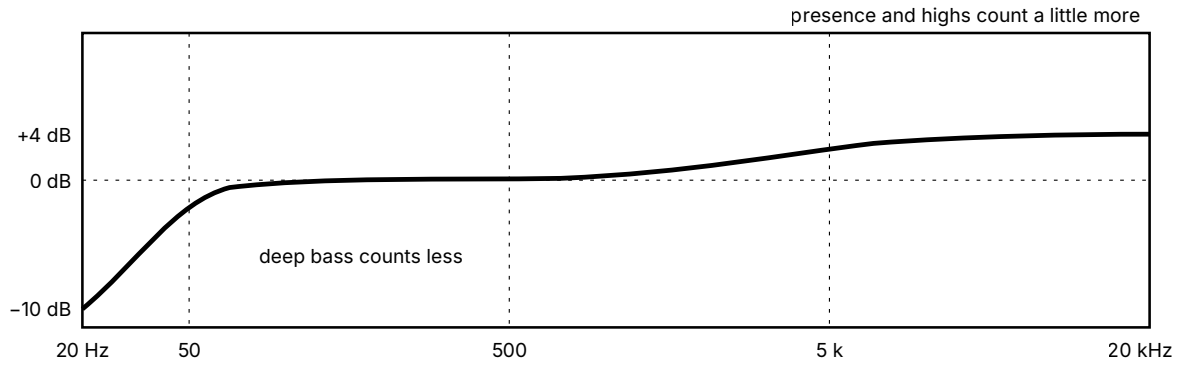


FIGURE 10 K-weighting, roughly. Before loudness is averaged, very low frequencies are turned down and the highs are lifted about 4 dB, so the number follows what ears hear.

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.

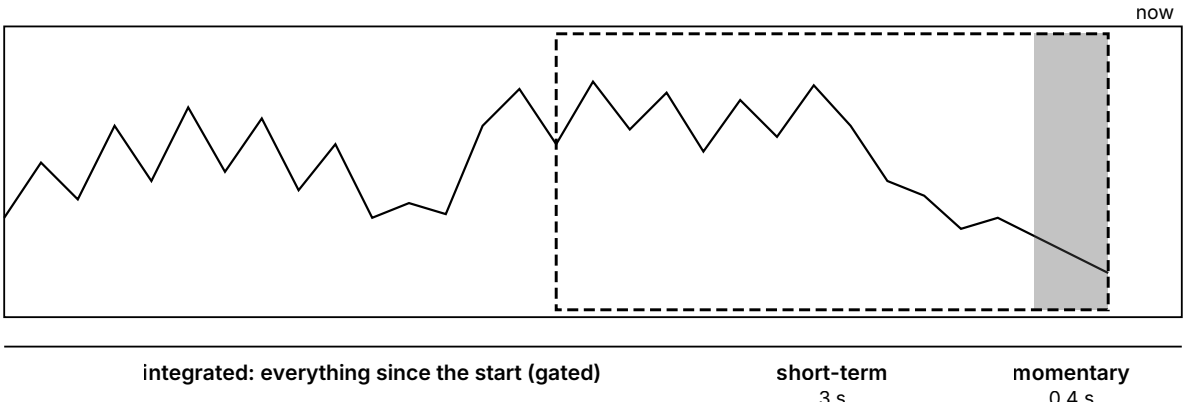


FIGURE 11 The three windows, ending at the present moment (right). The momentary reading is the shaded strip, short-term the dashed box, and integrated the whole span.

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 Red's** CEILING **is always a true-peak ceiling**: there is no sample-peak mode to forget to switch.

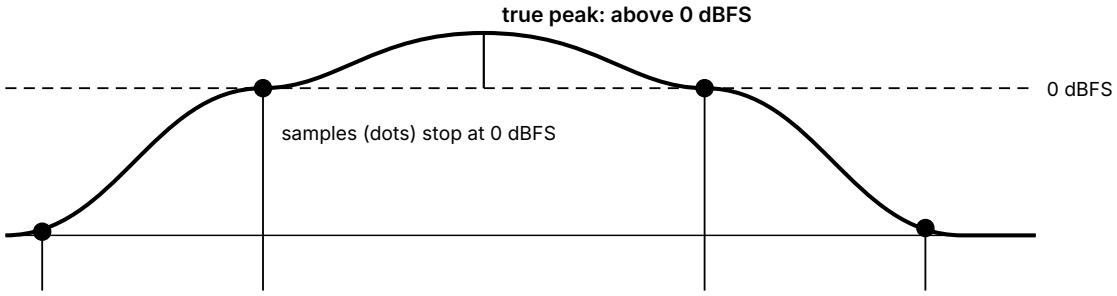


FIGURE 12 An inter-sample peak. The dots are the samples a file stores; the line is the wave a converter or a codec rebuilds from them.

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.

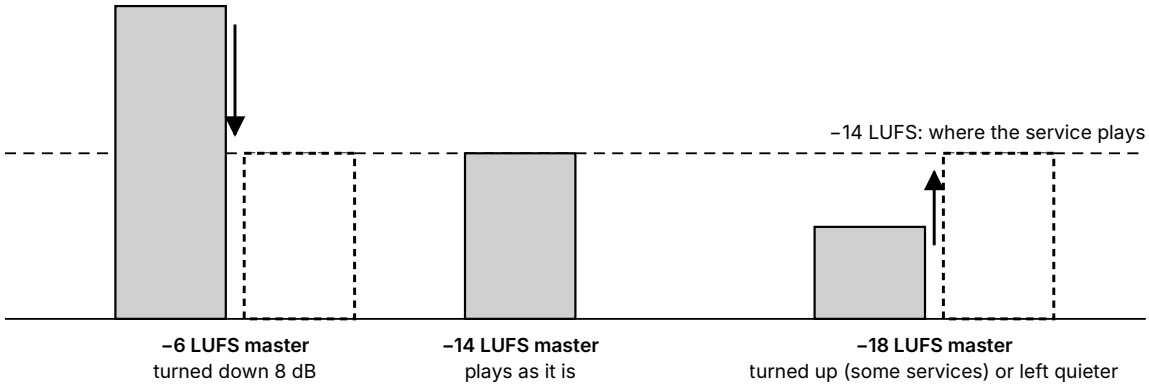


FIGURE 13 Normalisation. Grey is the master as delivered, dashed is how it plays. All three end up at the same loudness; the loud one has only lost its dynamics.

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 Red 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.

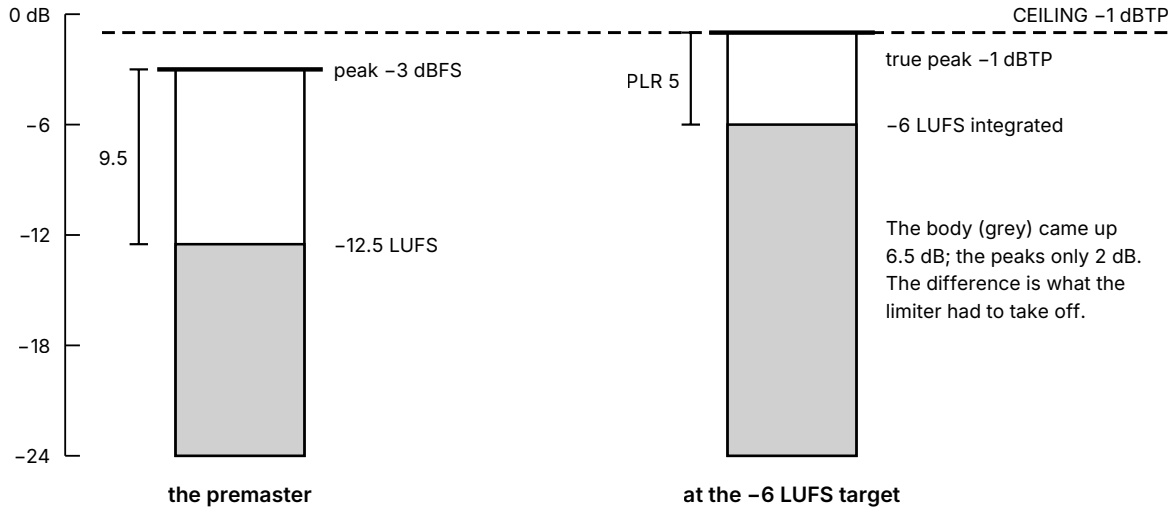


FIGURE 14 A dense premaster (left) peaking at −3 dBFS reads about −12.5 LUFS: a PLR of 9.5 dB. At −6 LUFS with a −1 dBTP ceiling (right) the PLR can be at most 5 dB. The body has to come up 6.5 dB while the peaks may rise only 2.

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 Red 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, PUNCH 50 %	**Dense full mix, PUNCH 100 %**	**Sub-heavy "elements" mix**
Loudness reached	−6.00 LUFS at GAIN +9.1 dB	−6.00 LUFS at GAIN +8.0 dB	−6.5 LUFS at GAIN +30 dB
True peak (BS.1770 / 16x)	−1.07 / −1.04 dBTP	−1.07 / −1.04 dBTP	−1.06 / −1.04 dBTP
Overs above the ceiling	0	0	0
Limiter's swing per beat (pumping)	4.5 dB	2.6 dB	5.4 dB
Bass sines 30–100 Hz, THD	0.000 %	0.008 % at 30 Hz, 0.000 % above	
Intermodulation (SMPTE, 60 Hz + 7 kHz)	0.0079 %	1.4 %	

Where Red stops short. The "elements" mix is kick, bass, synth pads and bright hats: nearly all sub-bass. Red never clips a held bass note, so on material like that it stops at about −6.5 LUFS, even at full GAIN. Very sub-heavy mixes can stop just short of −6 LUFS in Red; Gold's tape and tube warmth goes further on the same mix. And at PUNCH 100 % the punch clipper may shave a bright sound riding on a big bass peak (the 1.4 % intermodulation above): at −6 LUFS that is the trade for the least pumping. The default 50 % measures as clean as White.

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 clipper and 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 it is clipped or limited instead. There is no automatic loudness: set GAIN by ear and by the LOUDNESS panel. On a dense premaster (about −12.5 LUFS at −3 dBFS peak), about +9 dB reaches −6 LUFS: less than a plain limiter needs, because the punch clipper takes the hits' tips without turning the rest down. Watch the REDUCTION meter as a guide: a few dB is transparent; 8–10 dB is a loud, dense master.

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 going to low-bitrate formats. You can also set the ceiling on the waveform: **drag the ceiling line**, or **double-click it** to return to −1.0 dBTP.

PUNCH: PUNCH, RELEASE and AUTO

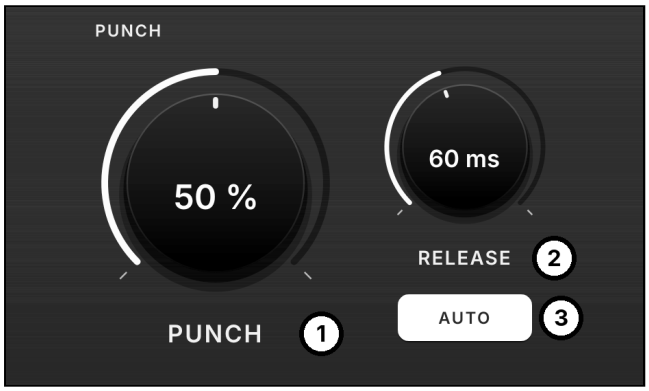


FIGURE 16 The PUNCH group: 1 PUNCH, 2 RELEASE and 3 AUTO.

Control	Range	Default	What it does
PUNCH	0 to 100 %	50 %	How much of the peak control the punch clipper does. 0 % takes it out.
RELEASE	1 to 1000 ms	60 ms	The time for the limiter to recover 90 % of a reduction.
AUTO	on / off	on	A transient-preserving release: fast after each hit, slow on sustained reduction.

PUNCH

PUNCH moves the work between the punch clipper and the limiter behind it. At **0 %** the clipper is out and Red is all limiter. Turning it up lowers the clipper's threshold towards the ceiling, so it rounds more of each hit and the limiter ducks less.

The threshold is the **higher** of two levels, so it never comes down onto the music itself:

- **The ceiling plus 6 × (1 − PUNCH)² dB.** At 50 % that is 1.5 dB over the ceiling; at 100 %, the ceiling itself.
- **The music's sustained level plus 5.5 + 5 × (1 − PUNCH) dB.** A tone's peaks sit about 3 dB over its average and a held vowel's 4–6 dB, so they always stay under it. A dense mix's drum transients sit 8–12 dB over it, and those are clipped.

PUNCH	Over the ceiling	Over the sustained level	What you get
0 %	out	out	All limiter: Red behaves like White.
25 %	3.4 dB	9.3 dB	Only the biggest hits are clipped.
50 % (default)	1.5 dB	8.0 dB	The kick and snare tips are clipped; the limiter does the rest.
75 %	0.4 dB	6.8 dB	Most of each hit's tip is clipped: snappier, louder.
100 %	at the ceiling	5.5 dB	The most punch and the least pumping.

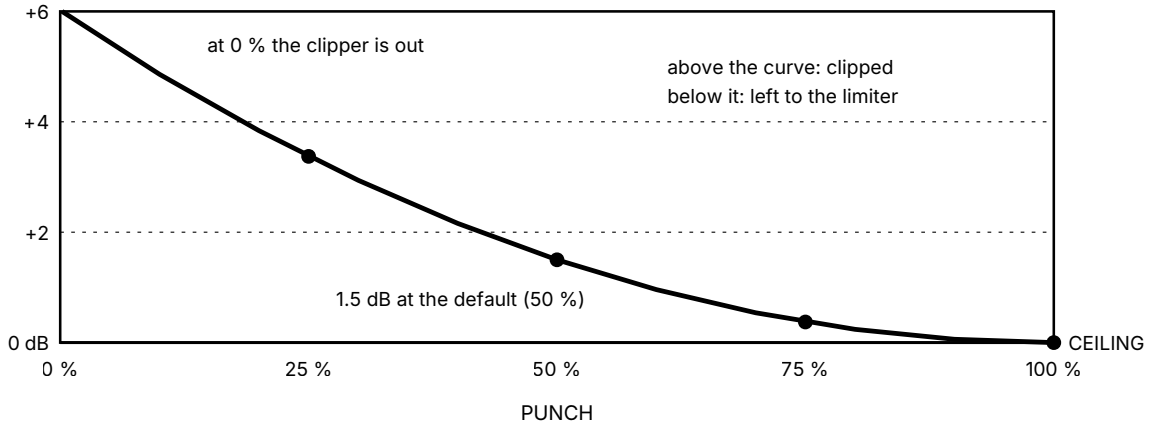


FIGURE 17 How far over the ceiling the punch clipper starts, as [PUNCH] turns up (on a dense mix, where this is the higher of the two levels). Hit tips that rise above the curve are clipped; everything under it is left to the limiter.

How it sounds. Clipping a hit's first milliseconds is the loudest way to stop it, because it never turns the music around it down. On drum-led music it adds level and keeps the groove steady with little audible change, until it doesn't: too much [PUNCH] can make a snare crackle or sound torn, or make bright hats fizz. Turn [PUNCH] up for snap and drive, down if the hits start to crackle. On the [REDUCTION] lane the clippers' share is drawn in orange and the limiter's in red, so you can see the balance.

RELEASE and AUTO

[RELEASE] is how quickly the limiter recovers after a peak: the time to recover 90 % of a reduction. Red's default, 60 ms, is shorter than White's, so the body comes back between hits. The slow stage's 12 ms hold means a bass note can never ripple the gain, however short the release.

With **AUTO** on (the default), the release is transient-preserving: after each hit the limiter recovers in a quarter of [RELEASE], while a slow stage settles on the sustained reduction and lets it go in three times [RELEASE]. The body between hits comes back quickly and the groove never pumps. Turn [AUTO] off for a single, fixed release, or for a deliberate pump.

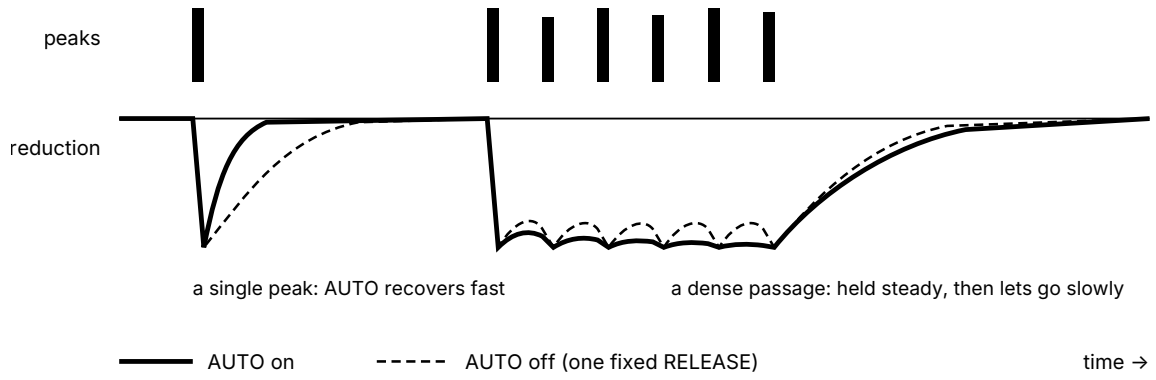


FIGURE 18 Gain reduction over time (down = more reduction). With [AUTO] off the gain swings up and down between closely spaced hits; with it on, each hit recovers quickly and a run of hits is held steadily.

LOUDNESS: TARGET and MATCH

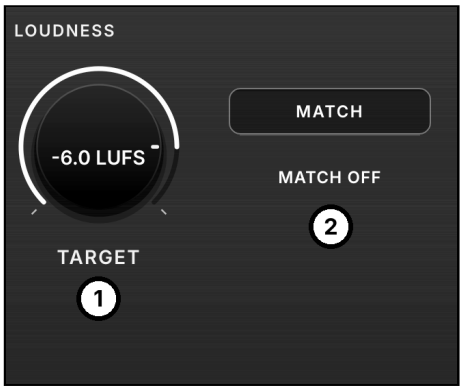


FIGURE 19 The LOUDNESS group: 1 TARGET and 2 MATCH with its readout (MATCH OFF).

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.
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, then turn GAIN up until TO TARGET reads 0.0.

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 Red 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 and the punch clipper 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.

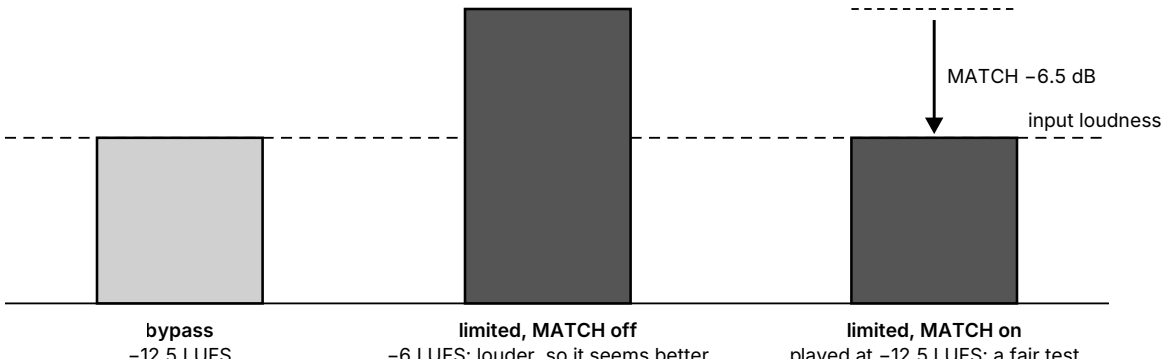


FIGURE 20 What MATCH does. Without it the limited master plays 6.5 dB louder than the bypassed premaster and wins every comparison. With it on, both play at the input's loudness, and only the change in sound is left to judge.

- 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

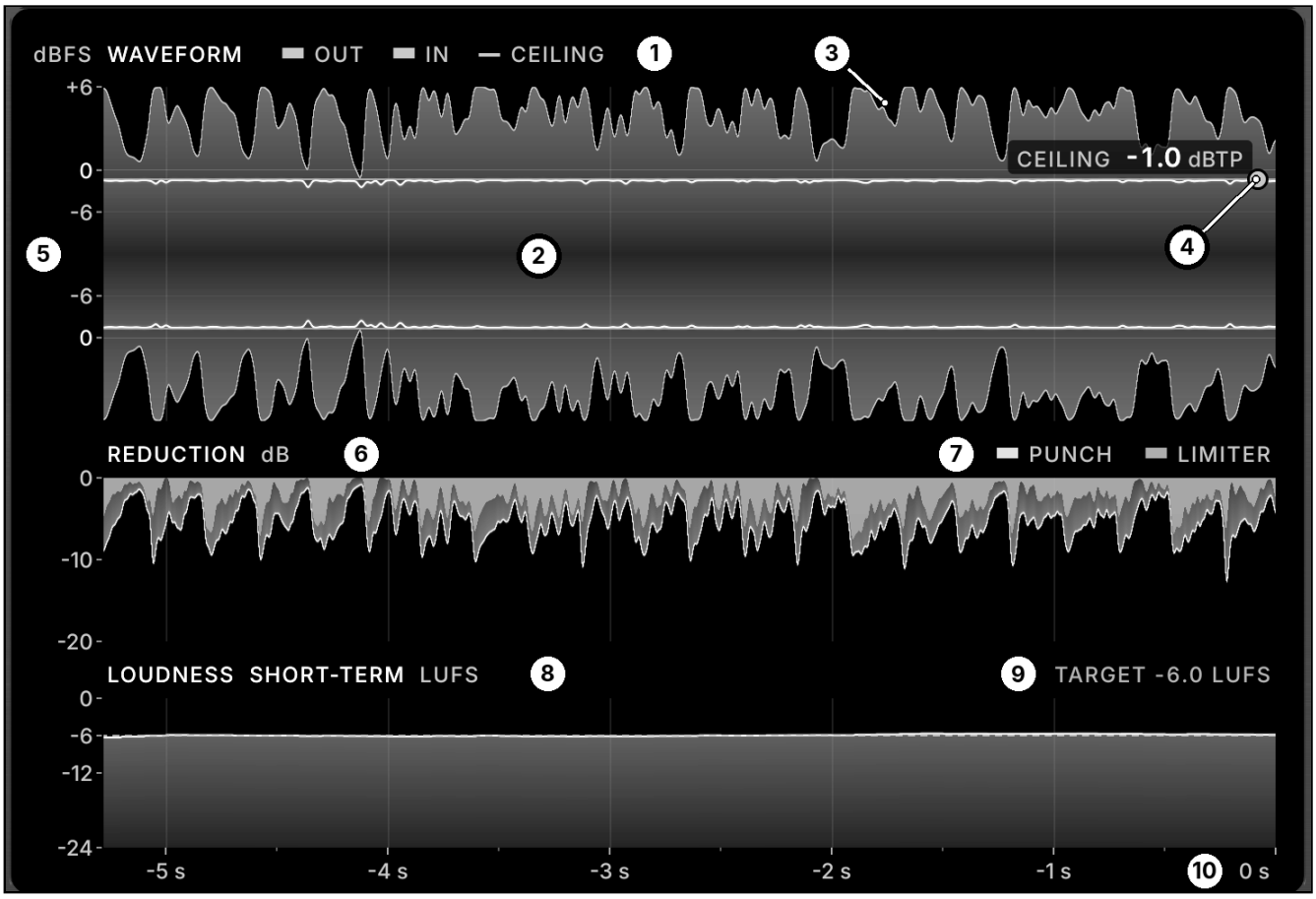


FIGURE 21 1 Legend, 2 output, 3 input, taken off, 4 ceiling line and grip, 5 level scale, 6 REDUCTION lane, 7 punch and limiter key, 8 LOUDNESS lane, 9 the TARGET line and its label, 10 time scale.

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 red, 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 Red took off. On a drum-led mix you see it as a row of spikes: the hits' tips. In print the output is the band in the middle and the input the paler spikes beyond it.

- 5 The scale is **linear**, with 6 dB of room above full scale: 0 dBFS sits at half height and the edges are +6.
- 4 The **ceiling** is the line on both sides of the centre, labelled with its value (CEILING -1.0 dBTP). **Drag** the line (or its round grip) to set CEILING; **double-click** it to return to −1.0 dBTP.

6 **REDUCTION** shows how much Red took off over time, from [0] at the top down to [-20] dB. **7** The two kinds are stacked: the clippers ([PUNCH], orange) and the limiter ([LIMITER], red) under it. In print both hang from the top line, the clippers' share the lighter one. With [PUNCH] up you see deep, narrow orange spikes on the hits and a shallow, steady red band: the groove isn't ducking.

8 **LOUDNESS** ([SHORT-TERM], [LUFS]) draws the output's short-term loudness (3 s), on a scale from [0] to [-24] LUFS. **9** The dashed line is your [TARGET], labelled at the right.

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

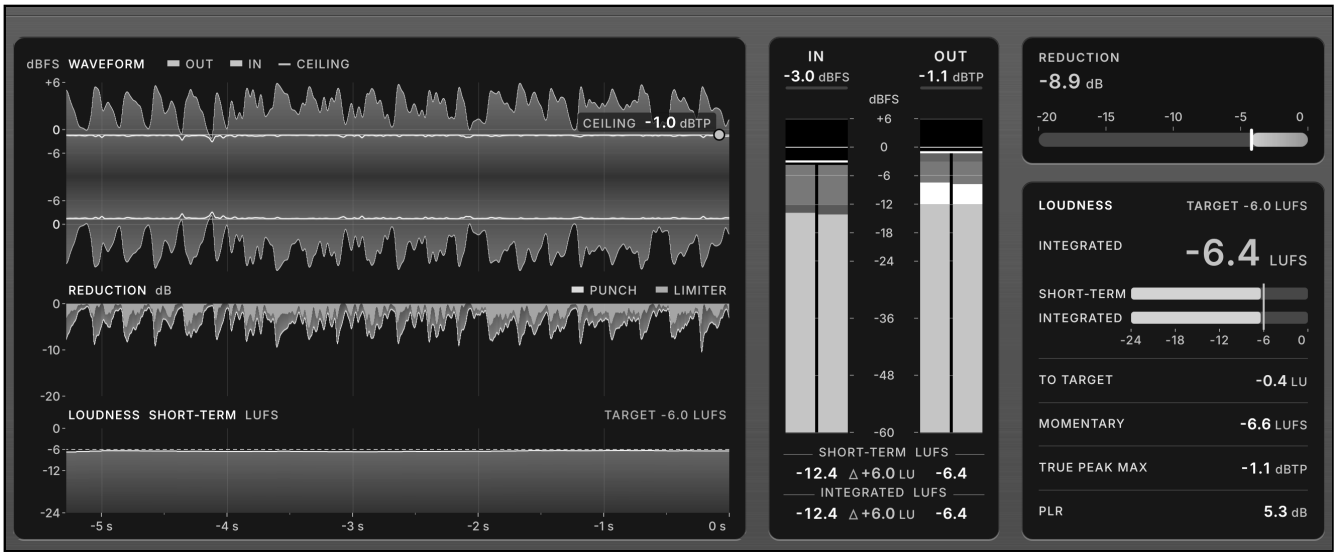


FIGURE 22 [PUNCH] at 0 % with +9 dB of [GAIN]: integrated loudness reads −6.4 LUFS and the [REDUCTION] lane is mostly the limiter. (The thin orange band is the polish clipper, which works at any [PUNCH].)

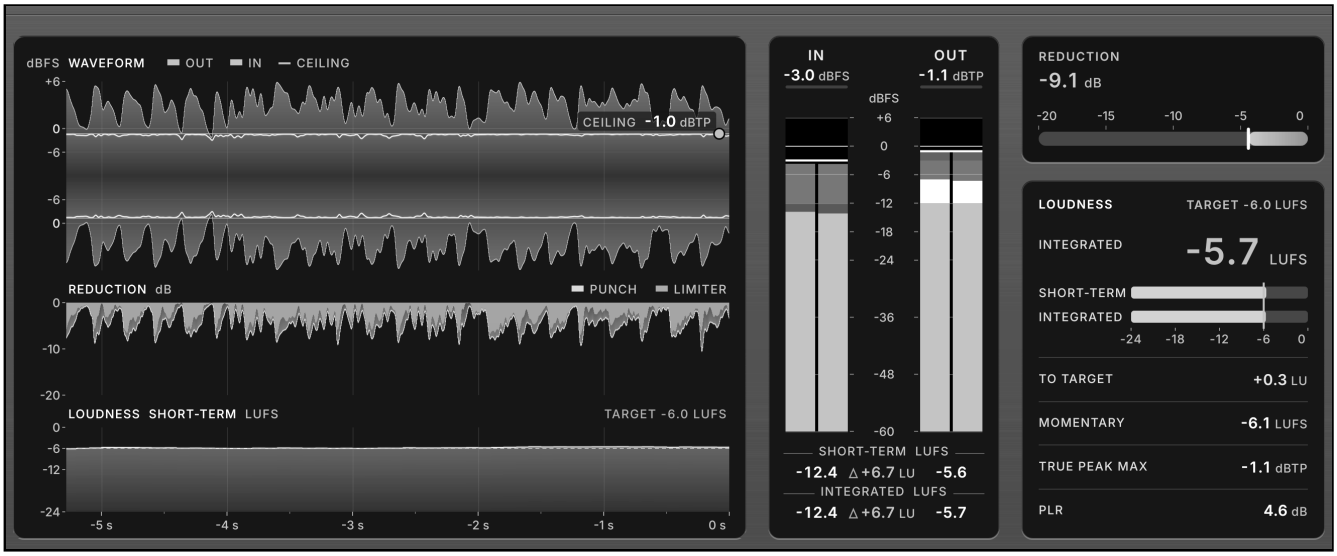


FIGURE 23 [PUNCH] at 100 % with the same +9 dB: the hits are clipped (deeper orange), the limiter's red band is thinner, and integrated loudness reads −5.7 LUFS, 0.7 LU louder for the same [GAIN], with [TRUE PEAK MAX] still at −1.1 dBTP.

REDUCTION meter and LOUDNESS panel

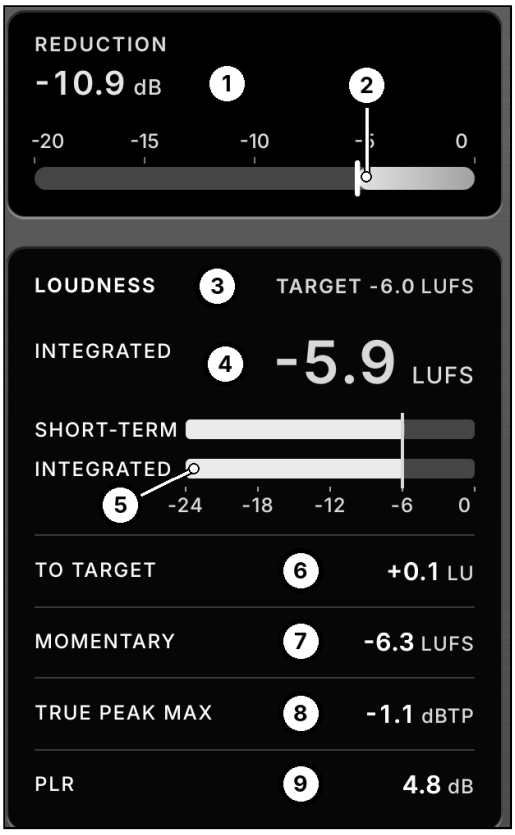


FIGURE 24 The REDUCTION meter: 1 its reading and 2 the bar under its scale; the LOUDNESS panel: 3 the TARGET, 4 INTEGRATED loudness, 5 the SHORT-TERM and INTEGRATED bars against the target line, 6 TO TARGET, 7 MOMENTARY, 8 TRUE PEAK MAX and 9 PLR.

1 **REDUCTION meter.** The total reduction now, clippers 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 Red is working on average. The number shows the deepest reduction of the last quarter-second.

The **LOUDNESS panel** measures the output, after everything Red 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; this also restarts the integrated loudness on the meter bridge and clears TRUE PEAK MAX.

Meter bridge (IN | OUT)

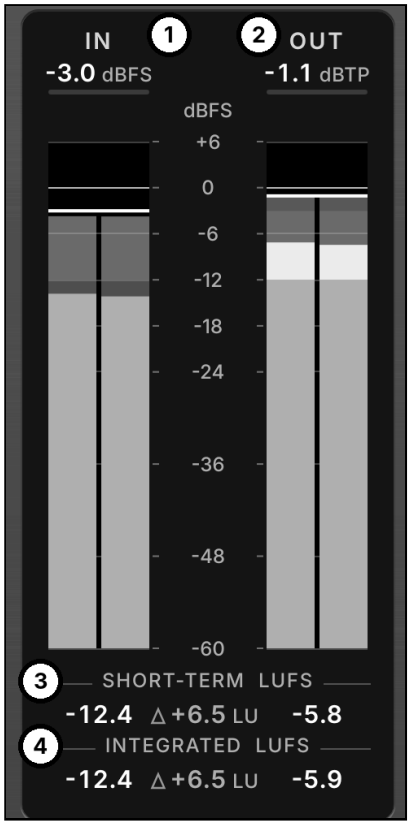


FIGURE 25 The meter bridge: 1 input and 2 output (the output in dBTP), 3 short-term and 4 integrated loudness, with the OUT − IN difference between them.

VEIRA Limiter Red 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 Red 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 Red 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.

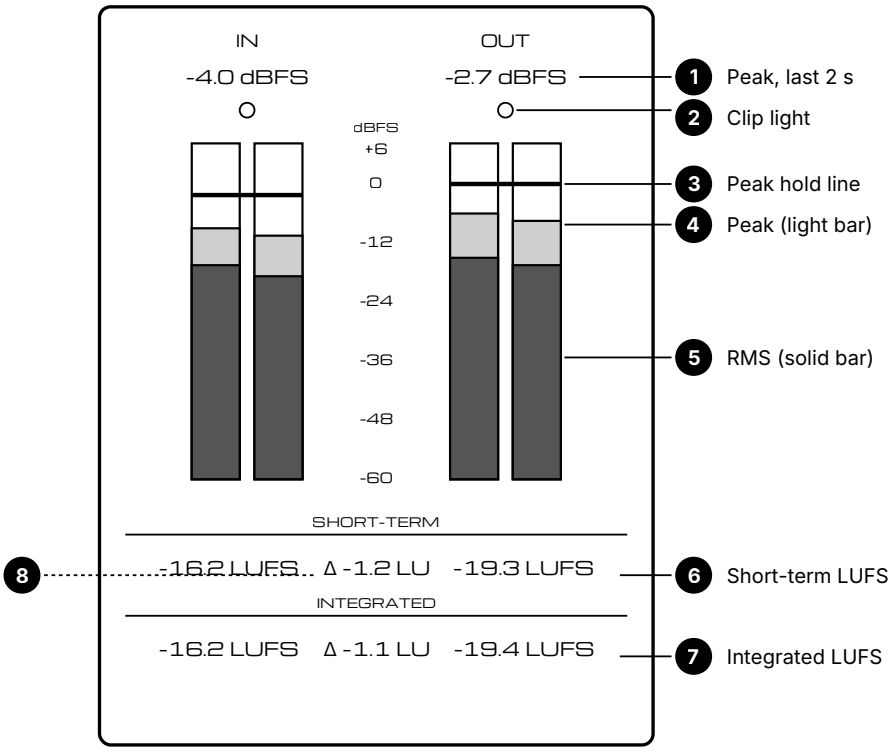


FIGURE 26 The meter bridge, left and right channel bars for input and output, with loudness below.

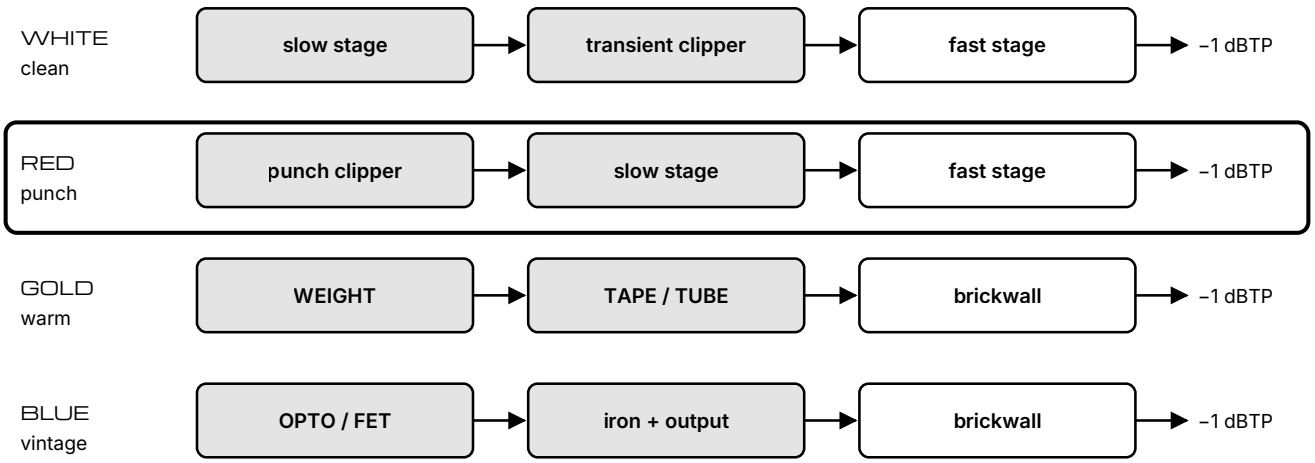
- 1 **Peak readout:** the highest sample peak of the last two seconds, in dBFS. It turns to a warning above 0 dBFS.
- 2 **Clip light:** lights on any sample at or over full scale. It stays lit until you click the meter.
- 3 **Hold line:** marks the recent peak on the bar.
- 4 **Peak bar** (the lighter 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.
- 8 **Δ (delta):** OUT minus IN, in LU. It tells you how much louder (+) or quieter (−) VEIRA Limiter Red 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 Red 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 27 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.

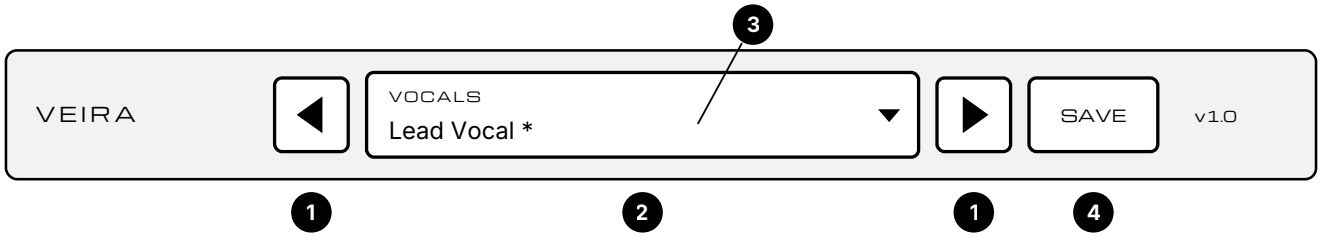
Red is the punchy one. Reach for it when the drums carry the song and you want them to keep hitting at loudness. If held bass and chords are the point and the drums are soft, White is cleaner; if the master sounds hard rather than thin, try Gold.

Presets

VEIRA Limiter Red comes with **41 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 28 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 Red 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 Red/<Folder>/
Windows	%APPDATA%\VEIRA\VEIRA Limiter Red\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	Punchy Master, Gentle Punch, Maximum Punch, Smooth Loud, Dynamic Drums, Snappy Transients
Streaming	Streaming -14, Apple Music -16, Lossy Safe -2 dBTP, Club Ready -7
Pop	Pop Punch, Pop Ballad, Modern Pop Loud, Dance Pop
EDM	Festival Kick, House Groove, Techno Pressure, Drum And Bass Snap, Dubstep Weight
Hip-Hop	Boom Bap Knock, Trap 808 Punch, Lo-Fi Thump, Modern Rap Loud
Rock	Rock Punch, Metal Drive, Indie Live Feel, Punk Smash
Acoustic	Folk Snap, Jazz Kit Guard, Singer Songwriter, Percussive Guitar
Mix Bus	Bus Peak Catch, Mix Bus Punch, Rough Mix Loud, Headroom Keeper
Stems	Drum Stem Punch, Snare Stem Crack, Bass Stem Even, 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 with the drums in front

1. Put Red last on your master bus. Load **Mastering ▸ Maximum Punch** (GAIN +9.6 dB, PUNCH 80 %, RELEASE 50 ms, 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.
4. Switch MATCH on and compare with bypass. If the snare crackles, lower PUNCH 10 % at a time; if the mix pumps on the kick, raise it.
5. Turn MATCH off. TRUE PEAK MAX reads about −1.1 dBTP.

Find your PUNCH

1. Load **Default ▸ Init** and set GAIN for your TARGET at PUNCH 50 %.
2. Play a dense chorus. Turn PUNCH to 0 %, then to 100 %, and watch the REDUCTION lane: the red band (the limiter ducking) shrinks as the orange spikes (the clipped tips) grow.
3. Settle where the groove stops ducking and the hits still sound clean. Then trim GAIN: higher PUNCH reaches the same loudness with a little less.

A club or festival master

1. Load **EDM ▸ Festival Kick** (PUNCH 80 %, −6 LUFS) or **Streaming ▸ Club Ready -7**.
2. Set GAIN by TO TARGET. Bass is never clipped by the limiter, so a long sub stays clean while the kick cracks.

A master for streaming at −14 LUFS

1. Load **Streaming ▸ Streaming -14** (PUNCH 40 %, TARGET −14.0 LUFS).
2. Play the whole song and set GAIN until TO TARGET reads 0.0. The drums keep their attack: at this loudness the limiter barely works.

Louder drum stems that keep their attack

1. On a drum stem, load **Stems ▸ Drum Stem Punch** (PUNCH 80 %) or **Snare Stem Crack** (90 %).
2. Raise GAIN until the REDUCTION meter shows 4–6 dB on the hits. Lower PUNCH if the snare starts to sound torn.

Pumping as an effect

1. Load **Default ▸ Init**, set PUNCH to 0 % and turn AUTO off.

2. Set [RELEASE] to 150–300 ms and raise [GAIN]: the mix ducks on each kick and swells back in time with the beat.

Specifications

Type	True-peak mastering limiter with a punch clipper in front
Channels	Mono and stereo
Latency	448 samples at 48 kHz (9.3 ms; 436 at 44.1 kHz, 592 at 96 kHz), constant, reported to the host; the DAW's bypass is delayed by the same amount
Ceiling accuracy	A −1.0 dBTP ceiling reads −1.07 dBTP on a BS.1770 meter (−1.04 on a 16x reconstruction); no overs
Punch clipper	Soft (2 dB knee), 8x oversampled; its threshold follows the music's sustained level, so held notes stay under it
Limiter	2 ms lookahead slow stage, 8x polish clipper, 1 ms fast stage at 4x; never clips the low band (under 200 Hz)
Measured at −6 LUFS (dense mix, PUNCH 50 %)	Bass sines 30–100 Hz: 0.000 % THD; SMPTE intermodulation 0.0079 %
GAIN	0 to +30 dB (default +0.0 dB)
CEILING	−12 to 0 dBTP (default −1.0 dBTP)
PUNCH	0 to 100 % (default 50 %)
RELEASE	1 to 1000 ms (default 60 ms)
AUTO	On / off (default on)
TARGET	−16 to −4 LUFS in steps of 0.5 (default −6.0 LUFS); changes nothing in the sound
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	41 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 VIrd

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 Red 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 Red is changing the level: another plugin, the master fader, a pan law, or a dither or format conversion in the bounce. Put Red last and leave the master fader at 0 dB. On its own, Red aims a hair under the ceiling (0.08 dB under it), so a −1.0 dBTP ceiling reads about −1.07 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. Red'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 Red will of course differ.

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

Everything sounds flat or distorted. Too much reduction or too much PUNCH for this music. If the hits crackle or the hats fizz, lower PUNCH; if the mix pumps on every beat, raise it or turn AUTO on. Then lower GAIN until the REDUCTION meter stays under about 8 dB and compare with MATCH.

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 Red add latency? Yes: 448 samples at 48 kHz (9.3 ms; 436 at 44.1 kHz, 592 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 Red · User Manual · Version 0.1.0

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

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